



**ETIOLOGY AND CONSEQUENCES OF INJURIES
AMONG CHILDREN IN FARM HOUSEHOLDS:
A REGIONAL RURAL INJURY STUDY - 1999**

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**TECHNICAL REPORT
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LIST OF ABBREVIATIONS

CI	Confidence Interval
NASS	National Agricultural Statistics Service
NIOSH	National Institute for Occupational Safety and Health
OR	Odds Ratio
OSHA	Occupational Safety and Health Administration
RR	Rate Ratio
USDA	United States Department of Agriculture

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ABSTRACT

Importance

Agriculture has consistently been identified as one of the most hazardous occupations in the United States, with rates of morbidity and mortality more than twice those for all occupations. Currently, no systems exist that can provide accurate data on the incidence of, and risk factors for, agricultural injury. To date, the majority of studies concerning agricultural injury have used case-series or hospital and emergency department data rather than population-based data. Although case series data are important for descriptive purposes and identifying problem areas, such cases account for only a small proportion of the injury problem in agriculture. The need for injury data systems and the use of epidemiologic data as the basis for developing appropriate injury intervention strategies have been reported as essential to the ultimate control of this major public health problem.

Objectives

The objectives for this study were to: 1) identify risk factors for farming/ranching operation-related injuries to persons 20 years of age, using a case-control study design; 2) determine the incidence, types, sources, severity, and social and economic consequences of injuries by using an injury data collection system that can serve as a basis for surveillance; and 3) modify the RRIS-I/pilot study rural population injury surveillance data collection system instruments for the current effort, thus, enabling its transportability to other geographic locations nationwide. The relevant research design and specially designed data collection instruments enabled accomplishment of these objectives.

Methods

The study involved a cohort of farming/ranching operation households in Minnesota, Wisconsin, North Dakota, South Dakota, and Nebraska. Data were collected for the two six-month periods of 1999 to identify all injury events and relevant demographics for all household members; data pertinent to numerous exposures of interest were collected for children and youth, <20 years of age, through the application of a simultaneous nested case-control study.

A random sample of 3,200 operations was selected for each state (total n=16,000), from the United States Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) Master List Frame. Introductory letters were sent to each operation; subsequent screening telephone interviews were administered, using a computer assisted telephone interview (CATI). Eligibility involved: being actively engaged in farming/ranching as of January 1, 1999; having sales of agricultural goods \geq \$1,000 in the past year and/or land registered in the Conservation Reserve Program [CRP]); and having a household associated with the operation that included at least one child <20 years of age, as of January 1, 1999. Each eligible household, that agreed to participate, subsequently received packets containing detailed information and specially designed cards to assist them in the two subsequent full data-collection interviews.

Any injurious event, that met one or more of the following criteria, was included: *restricted normal activities for at least four hours; resulted in loss of consciousness, loss of awareness, or amnesia for any length of time; or, required professional health care.* Agricultural-related injuries were those that resulted from any activity related to an agricultural operation, or occurred as a result of bystanding in relevant areas. To determine the total injury burden on the agricultural population, data on injury events related to agricultural operation activity and all other activities, were collected.

For the case-control study, cases were those who incurred an agricultural-related injury associated with their operation; up to six controls, per case, were sampled from the population at

risk. Interviews enabled data collection on exposures of interest during the months prior to the injury events for cases, or during the months randomly selected for controls, based on an injury incidence algorithm. Validation, relevant to selection bias and information bias, was incorporated.

Personal risk and injury event rates were adjusted for within-household correlation using generalized estimating equations (GEEs), excluding levels for missing values and non-response. Potential selection bias was controlled by inversely weighting observed responses with probabilities of non-response, estimated as a function of characteristics available from the NASS database. To account for unknown eligibility among non-respondents, probability of eligibility was estimated from these same characteristics and also used to weight responses. Analyses of the case-control study included both univariate and multivariate; based on the causal model and relevant directed acyclic graphs, variables were selected to enter in the multivariate model analyses. Logistic regression was used to investigate the relation between specific exposures of interest and the occurrence of agricultural-related injuries.

Results

A total of 16,538 persons were followed through the study period; 51% were <20 years of age. A total of 2,586 total injury events were reported for the study population; 1,198 (46.9%) occurred on one's own agricultural operation; 68 (2.7%) on someone else's operation; and 1,291 (50.5%) were related to activities other than agriculture. Respective rates for these classifications were 74.6, 4.3, and 81.4 injury events per 1,000 persons. The overall annualized rate of injury was only 1.2 times greater for those 20+, compared with <20 years of age (176.0; 145.9). Based on multivariate analyses, the odds of sustaining an injury increased as the number of hours worked per week on one's own operation increased.

The primary sources of injuries, associated with farming/ranching for those <20 years, were animals (41%) and falls (31%); for those 20+ years, they were also important sources, as were machinery (19%) and tractors (13%). Consequences of the agricultural-related injury events, for those <20 and 20+ years, respectively, included: treatment by a health care professional (79%; 82%); restricted activity for ≥ 4 hours (77%; 71%); and hospitalization (4%; 5%). Restriction from regular activities for ≥ 7 days was reported for 29% of each age group. Of further interest is the impact of injuries, both agricultural-related and those associated with other activities, upon the farming operation; 17% and 14%, respectively, of those <20 and 20+ years of age, identified ≥ 7 days of lost agricultural work time, while for non-agricultural-related injuries, this accounted for 17% of each age group.

Based on multivariate analyses of case-control data, involving those <20 years of age, increased risks were identified for operating or riding in a motor vehicle and riding on or operating a tractor; increased risks for operating either large or small equipment were suggestive. For animal exposures, increased risks were identified for working with horses, sheep, and beef cattle; exposures to swine and dairy cattle were also suggestive of risk.

Conclusions

This effort has enabled identification of the incidence and consequences of agricultural injuries, in concert with the burden of all injuries, on the agricultural operation for all persons, and the risk factors for agricultural-related injuries among persons less than 20 years of age. Most importantly, the latter data serve as a basis for development of prevention and control strategies essential for the reduction of morbidity and mortality from injuries incurred by children as a result of agricultural operation activities.

SIGNIFICANT FINDINGS

Specific Aim I: To identify risk factors for farming and ranching operation-related injuries to persons less than or equal to 19 years of age, including; a) The relation between environmental exposures and injuries, and b) The relation between personal characteristics and injuries.

A total of 203 cases (199 youths/191 households) and 755 controls (735 youths/724 households), less than 20 years of age, participated in the case-control study.

By type of enterprise, requiring the most time, cases were more frequently associated with dairy cattle operations while controls were more frequently associated with field forage or specialty crop operations. By gender, cases compared with controls were more likely to be male than female and between the ages of 10 and 14; controls were more likely to be less than five or between the ages of five and nine years. A much greater proportion of cases than controls reported having incurred a prior injury. No major differences were noted for state of residence, acres in active production, annual income level, insurance status, or race.

In terms of active exposures, cases more frequently reported working or doing chores associated with their operation for 10 or more hours per week, while a greater proportion of controls reported working less than 10 hours per week; although no differences were evident for working on someone else's operation, controls were more likely to work more than 40 hours per week in a non-agricultural setting. Cases compared with controls, more frequently reported working with dairy cattle, beef cattle, swine/pigs, horses, and sheep or with any other types of animals. "Bystanding" activity in areas where animals were kept, either sometimes or frequently, was also more frequent for cases than controls.

Cases, compared with controls, identified greater proportions that operated motor vehicles (Car, Van, SUV, Pickup, or Other Truck), rode as passengers in motor vehicles, or operated or rode on motorcycles, all-terrain vehicles (ATVs), or snowmobiles. "Bystanding" activity or playing in the driveway was also greater for cases.

Much greater proportions of cases than controls reported operating any kind of tractor (> 20 HP, 20 HP or less, or skid-steer); 29% and 26% of cases and controls, respectively, identified operation of a tractor before age 10. Similarly, they also identified greater proportions that rode on any type of tractor as well as a greater proportion that rode on tractors prior to age 10.

Cases, compared with controls, identified much greater proportions that operated large equipment, including planting equipment, augers/elevators, feed grinders/mixers, or any type of wagons. Differences were not evident for operating harvesting equipment, irrigation equipment, fertilizers applicators, or other external or self-powered equipment. "Bystanding" activity in areas where large machinery was in use or stored was reported by greater proportions of cases than controls. Questions pertinent to operation of hand grinders, powered shop tools, chain saws, garden tillers, or hand tools also elicited positive responses from greater proportions of cases than controls. "Bystanding" activity in the farm or ranch shop was also identified more frequently for cases.

Multivariate analyses, based on the methods identified elsewhere, addressed various exposures of interest, including those pertinent to machinery/equipment and animal exposures. Increased risks were identified for operating or riding in a motor vehicle and riding on or operating a tractor, while increased risks for operating either large or small equipment were

suggestive. For animal exposures, increased risks were identified for working with horses, sheep, and beef cattle; exposures to swine and dairy cattle were also suggestive of risk.

Specific Aim II: To determine the incidence, types, sources, severity, and social and economic consequences of injuries.

Among the total 16,000 farms/ranches sampled, 8,288 (51.8%) were identified as not eligible; overall, there was a known refusal rate of 24% of the original sample. A total of 4,402 (27.5%) of the farms/ranches was found to be eligible; of these 3,765 (85.5%) participated in the full study.

From the 3,765 farm/ranch households, a total of 16,538 persons were included and followed through the study period. More than half (n=8,488; 51.3%) of the participants were less than 20 years of age. Males accounted for a slightly higher proportion (51.6%) of participants than females (48.4%).

A total of 2,586 total injury events were reported for the study population for the 1999 data collection period. Of these, 1,198 (46.9%) occurred on one's own agricultural operation, 68 (2.7%) occurred on someone else's operation, and 1,291 (50.5%) were related to activities other than agriculture. The annualized overall injury rate for the agricultural population was 160.7 injury events per 1,000 persons, 1.8 times higher for males (207.9) than females (110.4). For those events specific to agriculture, that occurred on the participants' operations, the rate was 74.6 injury events per 1,000 persons, more than three times greater for males (110.9) than females (36.4); in contrast, for events that occurred on someone else's operation, the rate was 4.3 per 1,000 persons, 3.5 times greater for males (6.6) than females (1.9). The rate for injuries related to activities other than agriculture was 81.4 per 1,000 persons per year; by gender, the discrepancy was not as pronounced (males and females, 90.0 and 72.2 per 1,000 persons, respectively).

The overall annualized rate of injury was only 1.2 times greater for participants who were 20+, compared with those <20 years of age (176.0 and 145.9 injury events per 1,000 persons, respectively). This was mirrored by the rates of agricultural-related injury; specifically, the rate of injury related to one's own operation was more than four times greater for those 20+ years of age (123.2 and 28.3 injury events per 1,000 persons per year, respectively). This trend was reversed, however, for non-agricultural related injuries; children and youth, <20 year of age, incurred nearly two-and-one-half times more injuries than adults (114.2 versus 47.1 events per 1,000 person per year). Among those <20 years of age, the rates of both agricultural and non-agricultural injury were higher among males than females.

Rates of agricultural-related injury appeared to be directly associated with the number of hours worked on their own farming or ranching operation per week. The overall annualized rates of injury increased from 80.9 events per 1,000 persons, for those who worked zero hours, to 312.0 events for those who reported working more than 80 hours per week. For injury events related to one's own agricultural operation, there was an increase in injury rates with each increase in 20 hour increment in farming/ranching hours worked per week on their own operation. For zero, 1-20, 21-40, 41-60, 61-80, and 80+, there were respective increased rates per 1,000 persons (6.0, 36.7, 91.3, 175.8, 223.2, and 282.9). Through multivariate analyses, it was found that participants who worked zero, one to 20, 21 to 40, 41 to 60, or 61 to 80 hours per week, compared with those who reported a weekly average of more than 80 hours on their own operation, were at a decreased risk of injury (OR = 0.1, 0.3, 0.5, 0.7, and 0.8, respectively). The odds of sustaining an injury, when controlling for age, gender, educational status, marital status,

and prior injury status, increased as the number of hours worked per week on one's own operation increased.

Rates of farming/ranching-related injury events were also calculated, based on the number of hours worked per year on the participants' own operations. For the entire population, there were 7.2 injury events per 100,000 hours exposed to work. The rate of injury for all persons, aged 20+ years, was similar to the rate for all persons <20 years (7.2 versus 7.3 injury events per 100,000 hours, respectively). Overall, females were associated with a higher rate of injury than males (7.6 and 7.1 events per 100,000 hours); the rate of injury for females compared with males, <20 years of age, was nearly 30 percent greater while the rates for females and males, 20+ years of age, were similar. By five and ten year age groups, rates of injury, based on hours worked, decreased as age in years increased from 0-4, to 5-9, 10-14, and 15-19 (49.5 to 12.3, 8.7, and 4.6 injury events per 100,000 hours worked, respectively).

While it has been common to present rates, based on hours worked, there are caveats pertinent to their interpretation. For many youths (those <20 years of age, as of January 1, 1999) who resided in participating households, no hours of farm work were reported. Yet, some injuries incurred by these youths were attributed to the household farming/ranching operation; these are identified as "bystander injuries" and are classified as "own-farm-related" in this report. However, when combined with those who engage in farm work, the apparent incidence per farm work hours can be misleading, because direct, own-farm/ranch work does not constitute all of their exposure time. For the simple ratio of events over total hours, the numerator includes cases that occur during exposures unaccounted for in the denominator, thus, resulting in an upward bias in the rate estimator. An alternative approach involved using the work hours data to characterize entire households in terms of hazards presented to those who are not directly engaged in farm work. This approach regards the household as a type of manufacturing plant, with risk of injury as a function of the total number of plant work hours. Using this approach, there is a detectable pattern of increasing injury counts with increasing household hours. This pattern is more clearly exhibited when the crude rate of injury is presented for each quintile of the household hour distribution.

The primary sources/vehicles of injuries, associated with farming/ranching activity among the younger age groups (< 20 years), were animals (41%) and falls related to various surfaces (31%); physical objects (18%) and large machinery/equipment (14%) were also important. While animals and falls were less frequent sources (32% and 23%, respectively), among the older age groups (20+ years), they were also important sources, as were machinery (19%) and tractors (13%). For injuries associated with all other non-agricultural activities, sports/recreation (71%) and falls related to various surfaces (39%), were the primary sources of injury among the younger age groups. Falls (28%) and work other than farm work (28%) were the primary sources of injury among the older age groups.

For farming/ranching-related injury events, it was evident that working with animals was primarily associated with the events for both the younger and older age groups (31% and 28%, respectively). In addition, construction or repair (16%) and lifting/hitching/adjusting, etc. (17%) were frequent activities. Non-agricultural-related injury events incurred among the younger age groups (<20 years), primarily involved activities associated with ball games, (42%) other sports and recreation (15%), and bystander/playing/horseplay (15%). In contrast, the older age groups (20+ years) were more likely to incur events associated with general activities (27%).

Consequences of the agricultural-related injury events, for those <20 and 20+ years, respectively, included: treatment by a health care professional (79%; 82%); restricted activity for

four hours or more (77%; 71%); hospitalization (4%; 5%); and loss of consciousness and/or loss of awareness (8%; 5%). Restriction from regular activities for seven days or more was reported for 29% of each age group. For the non-agricultural-related injuries, increased proportions were treated by a health care professional (93%; 91%); respectively, 77% and 79% were restricted from regular activity for at least four hours, 5% and 6% were hospitalized, and 12% and 5% experienced loss of consciousness and/or loss of awareness. Restriction from regular activities for seven days or more was reported for 39% and 42% for those <20 and 20+ years.

Of further interest is the impact of injuries, both agricultural-related and those associated with other activities, upon the farming operation. For agricultural-related injuries, 17% and 14%, respectively, of those <20 and 20+ years of age, identified seven days or more of lost agricultural work time, while for non-agricultural-related injuries, this accounted for 17% of each age group.

Persistent problems associated with these injuries, were reported at the time of the interview. Respectively, for agricultural and non-agricultural-related injuries, those <20 years of age identified 8% and 11% associated with persistent problems while those 20+ years of age identified 23% and 29%. These problems included various residual symptoms (e.g., pain, restricted movement) and permanent consequences.

Specific Aim III: To modify the RRIS-I/pilot study rural population injury surveillance data collection system instruments for the current effort, enabling their transportability to other geographic locations nationwide.

Major revisions were made to the instruments because: the RRIS-I study (Gerberich et al., 1993) included all age groups while the current effort focused, primarily, on children; the RRIS-I study involved cross-sectional data, collected through a baseline survey, to identify the magnitude of the problem and *potential* risk factors while the current effort involved data collection to ascertain injury consequences as well as etiology through the application of case-control and case-crossover studies. This involved extensive modification and further development of questions to identify exposures accurately for periods prior to the injury events for the cases and relevant periods identified for controls. It also involved specific programming to enable selection of controls, simultaneously, during the interview process. Additional questions, pertinent to developmental and perceptual issues, were also developed for inclusion.

The final instruments were developed to enable their transportability to other geographic areas. While questions, pertinent to geographic-specific agricultural operations, may need to be added, the majority of questions pertinent to injury incidence and consequences, as well as the agricultural-related exposures, are appropriate to any location.

USEFULNESS OF FINDINGS

This study is the first such comprehensive effort to identify not only the magnitude and consequences of the agricultural injury problem in a large regional population but, also, to identify risk factors for farming/ranching-related injuries among children less than 20 years of age. In addition, all injuries including both farming/ranching-related injuries and those incurred as a consequence of all other types of activities, were included to address the total injury burden upon the agricultural community and its impact upon the operations. This was accomplished through a highly rigorous scientific approach that included numerous efforts to minimize potential biases. Sophisticated analytical techniques were applied to optimize the risk estimates. As a result, the findings from this effort provide an important contribution to the knowledge of the enormity of the problem and, particularly, identification of specific risk factors that serve as a basis for the development of appropriate prevention and control efforts. In addition, results of this effort provide unique opportunities for further in-depth investigation of key risk factors and the most appropriate methods for controlling these factors.

SCIENTIFIC REPORT

BACKGROUND

Agriculture has consistently been identified as one of the most hazardous occupations in the United States. The hazards associated with agricultural operations affect a broad segment of the rural population; this includes not only the typical working age groups but, also, children and the elderly. Although agriculture has been shown to be associated with high rates of morbidity and mortality, no system currently exists to provide accurate data on the incidence and consequences of the problem. Furthermore, there is a lack of analytical studies identifying risk factors for injury. This deficiency in knowledge about the magnitude of the problem and risk factors for injury has been a barrier to progress in agricultural injury prevention (Elkington, 1990; Layde, 1990; Gerberich et al., 1991; 1995; 2001). To date, the vast majority of studies regarding agricultural injury have used case-series or hospital and emergency department data versus population-based data. Although case series data are important for descriptive purposes and identifying potential problem areas, such cases account for only a small proportion of the significant injury problem in agriculture (Gerberich et al., 1991; 1992; 1993; 1996; 2001; Cameron and Bishop, 1992; Brison and Pickett, 1992; CDC, 1998). The need for injury data systems and the use of epidemiologic data as the basis for developing appropriate injury intervention strategies have been reported as essential to the ultimate control of this major public health problem (Committee on Trauma Research et al., 1985).

The high morbidity and mortality rates associated with agriculture consistently rank it as one of the most dangerous occupations. Agriculture differs from most occupations in that the home and work environments are intertwined. This situation exposes normally unexposed populations, most notably children, to hazards.

Few laws and regulations exist to promote the health and safety of both adult and child agricultural workers, particularly those exposed on small family farms and ranches that constitute the overwhelming proportion of all agricultural settings. For example, agriculture has many special exemptions under the Fair Labor Standards Act (FLSA) and few OSHA (Occupational Safety and Health Administration) standards exist for agriculture (Wilk, 1993). Moreover, only 4% of farms fall under the realm of OSHA regulations because the vast majority have less than 11 workers (Waller, 1992). Thus, occupational practices forbidden in most workplaces are commonplace on the farm or ranch. This is reflected from a study of North Carolina teen agricultural workers, aged 14 to 17 years, in which it was reported that the teens had been exposed to some of the most dangerous hazards on the farm; namely, tractors, heavy machinery, large animals, pesticides, power tools, and weapons (Schulman et al., 1997).

Prevalence and Incidence Rates of Agricultural Injury

Fatality rates for agriculture have ranked it as one of the most dangerous occupations for many years. Based on National Safety Council (2001) data for 2000, agriculture accounted for a rate of 22.5 deaths per 100,000 workers, a rate nearly 6 times greater than for all occupations. High fatality rates are reported in other industrialized countries as well: In Canada, the overall age-standardized fatality rate for work-related farm injuries, between 1991 and 1995, was estimated to be 11.6 deaths per 100,000 farm workers (Pickett et al., 1999). In Australia, the 1982-1984 fatality rate was estimated to be 19.4 deaths per 100,000 workers (Erlich et al., 1993).

Morbidity rates for agriculture are more difficult to obtain due to the lack of population-based data for nonfatal events. However, existing data infer a nonfatal injury problem among

farm residents (Aherin and Riessenberg, 1978; Gerberich et al., 1990; 1991; 1993; 1996; 1998; Gunderson et al., 1989; 1990; Lee et al., 1996; Rivara, 1997; Stallones, 1989; 1990; Stueland et al., 1991; Welsch et al., 1989). In 2000, an estimated 130,000 disabling injuries occurred in agricultural work; this accounted for a rate of 3,846 injuries per 100,000 workers, a rate 1.3 times greater than that for all occupations combined (NSC, 2001). However, it should be noted that, given the discrepancies among the various data systems (Pollack et al., 1987) and the reporting limitations for agriculture, these estimates would appear to be extremely conservative.

Much like those for adults, incidence rates and relative risks describing both fatal and nonfatal agricultural injury among children are largely unavailable in the literature as a result of the vast inconsistencies among injury definitions, the denominators used, and the age ranges used to define children. In addition, the majority of the literature reflects case-series data; few population-based studies have been reported.

Although the data are scarce, the literature regarding agricultural injury among children indicates a significant problem. The 1990-1993 fatality rate for injuries sustained to children 19 years of age or younger on a farm was estimated to be 8 deaths per 100,000 child farm residents (Rivara, 1997). Another study estimated the fatal farm-related injury rates for children aged 0-9 years to be 2.4 deaths per 100,000 children (Salmi et al., 1989). Across the studies, children generally had a lower rate of overall farm injury than adults when "persons at risk" was used as a denominator (Gerberich et al., 1993; 2001; Nordstrom et al., 1995; Pratt et al., 1992). However, when rates were calculated per number of hours worked, children had an injury rate much higher than, or similar to, adults (Gerberich et al., 1993; Pratt et al., 1992; Rasmussen et al., 2000).

In the RRIS-I, the nonfatal agricultural-related injury rate among children aged 0-19, sustaining one or more injuries, was 1,683 per 100,000 children; the rate based on injury events was 1,751 per 100,000 (Gerberich et al., 2001). These findings are similar to those reported in other studies: 1,717 nonfatal, emergency department-treated injuries per 100,000 child farm residents ages 0-19 in 1993 (Rivara, 1997); 1,827 nonfatal agricultural injuries among children less than 18 years of age per 100,000 farm residents in 1990-1992 (Stueland et al., 1996); and an average of 1,600 injury events, requiring medical treatment, per 100,000 children years among Ontario farm children, aged 0-18 years, between the years of 1965 and 1991 (Bancej et al., 2000).

Gender-Related Rates

Across studies, males reportedly experienced a greater proportion of fatal and non-fatal injuries than females (Cogbill et al., 1991; Gerberich et al., 1993, 2001; Pickett et al., 1999; Pratt et al., 1992; Stallones, 1990; Stueland et al., 1991). However, considering that the majority of studies have been based on case-series, rather than population-based data, rates according to gender are often limited.

From reports of prior studies, males of all ages reportedly sustained many more fatal and nonfatal farm injuries than females (Cogbill et al., 1991; Pickett et al., 1999; Stueland et al., 1991; Pratt et al., 1992; Stallones, 1990). In the RRIS-I, the rate of nonfatal agricultural operation-related injury per 100,000 people was 3.5 times greater in males than females (Gerberich et al., 1993). However, the gender difference in nonfatal injuries largely appears to result from differences in the amounts of exposure; when the agricultural injury rates were calculated by hours worked, males and females were found to have equivalent rates of farm injury (5/100,000 hours worked) (Gerberich et al., 1993). The RRIS-I also found that males and females had similar rates of farm-related injury events per 100,000 hours in the middle to late adulthood age groups (30-39, 40-49, 50-59, 60-69) (Gerberich et al., 1993). However, in the

youngest and oldest age groups, gender differences were identified, based on hours worked. For example, in the 70+ age group, the rate of agricultural-related injury events per 100,000 hours worked was five times greater for males than for females, and males sustained a higher injury rate per hours worked in the younger age groups (5-9, 10-14, 15-19, and 20-24) (Gerberich et al., 1993). In contrast, based on agricultural-related injury events, per 100,000 hours worked, the rate of injury for the 25-29 year age groups was higher among females than among males (Gerberich et al., 1993).

For agricultural-related fatalities, the gender discrepancy is even greater. For instance, Myers and Hard (1995) reported that males accounted for 98.5% of the agricultural production and service related fatalities in the National Traumatic Occupation Fatalities (NTOF) database in 1980-1989. These statistics include only persons 16 years of age and older; however, the gender difference in agricultural fatality rates for children is also extreme. For instance, males aged 19 years and under had a fatality rate 2.4 times higher than females of the same age, and this gender difference increased with age (Rivara, 1997). However, it should also be noted that these childhood agricultural fatality rates were based on death certificate data that designated "farm" as the location of the injury occurrence, whether, or not, the injury was agricultural-operation related.

These differences in rates of injury, by gender, may be partially due to differences in agricultural exposures. For instance, a study of North Carolina teen agricultural workers found that males and females were significantly different in terms of exposures in 13 of the 19 different agricultural tasks analyzed (Schulman et al., 1997).

Age-Related Factors

In the RRIS-I, adults generally had higher rates of injury events per 1,000 persons than children (Gerberich et al., 1993). For instance, males aged 30-39 years old had the highest rate of agricultural-operation related injury across genders and age groups (158.5 injury events per 1,000 persons) (Gerberich et al., 1993). The highest rate of agricultural-operation related injury for females was in the 25-29 year age group (53.7 injury events per 1,000 persons) (Gerberich et al., 1993). Other studies have also found increased rates or numbers of injuries for adults and the elderly (Cogbill et al., 1991; Nordstrom et al., 1995; Pickett et al., 1999; Pratt et al., 1992). Myers and Hard, utilizing the NTOF database of persons 16 years of age and older (1995), found that adults, especially those older than 65, in the agricultural production and service sector had the highest fatality rates of all sectors.

In contrast to rates calculated per 1,000 persons, the RRIS-I data elucidated a different picture when determining rates according to number of hours worked. In this case, children appeared to experience much higher injury rates per 100,000 hours worked than adults (Gerberich et al., 1993). For example, males in the 5-9, 10-14, and 15-19 year age groups sustained the highest rates of injury events per 100,000 hours worked than all other age and gender groups (Gerberich et al., 1993). Moreover, females in the 5-9 and 10-14 year old age groups had the third and second highest rate of injury per 100,000 hours worked (Gerberich et al., 1993). Rasmussen et al. (2000) also found that, when rates were calculated according to hours worked, there was a higher injury rates among children than adults.

Race-Related Rates

Race is rarely mentioned in the agricultural injury literature. However, one study compared the history of nonfatal agricultural injury among white agricultural owner/operators and black agricultural owner/operators and workers in Alabama and Mississippi (Lyman et al., 1999). Due to insufficient numbers in this population, the injury experience of white agricultural

workers could not be examined adequately. In general, it was reported that white owner/operators sustained more injuries over their lifetime than black owner/operators and workers. In addition, injuries of lesser severity, and not requiring medical attention, were less often reported by black workers than by white or black owner/operators. From another study, it was reported that blacks had a higher fatality rate than whites in the agricultural production and services sector (Myers and Hard, 1995); however, these data, from the National Traumatic Occupational Fatality database, were limited to persons 16 years of age and older.

Types of Injuries and Anatomical Locations Affected

The multitude of tasks and variances in agricultural operations, and relevant hazards, can result in a wide array of affected anatomical locations and types of injuries. In the RRIS-I (Gerberich et al., 1993), the top five sites for agricultural-related injury, across all age groups, were: back (16%), fingers (11%), arm (10%), eye (7%), and hand (7%). Furthermore, the major types of agricultural injuries for all age groups were: sprains and strains (28%), contusions (17%), lacerations (15%), fractures (12%), and punctures (5%). For children aged 19 years and under in the RRIS-I, the major body sites affected by agricultural-related injury were legs/knees/ankles (29%), hands/fingers (23%), and face/eyes/dental (16%), and the main kinds of agricultural-related injuries were contusions (22%), lacerations (21%), and fractures (20%).

From a study of worker's compensation claims in Washington State, it was reported that the major types of agricultural-related injuries were sprains and strains (33%), followed by lacerations (19%), contusions (14%), abrasions (9%), fractures (6%), and multiple injuries (6%) (Demers and Rosenstock, 1991). Findings from another study of children who presented to the emergency department for agricultural-related injuries indicated that the body parts injured differed according to age (Stueland et al., 1991). In that study, head and neck injuries accounted for more than half of the injuries among children under six, but only 21% of the injuries among children aged 6-18 years. Compared with children under six, those 6-18 years old were much more likely to sustain upper or lower extremity injuries. It should be noted that these findings reflected case-based data, involving different injury inclusions, in contrast to the data presented above for the RRIS-I population-based study. Studies based on hospital data can vary to an even greater degree (Pickett et al., 2001; Stueland et al., 1996).

Reports from studies of fatal agricultural injury, although usually sufficient for describing the fatal injury mechanism, are often limited in data on the types of injury or anatomical regions. However, from a Wisconsin study of emergency department surveillance data, it was reported that, among the 16 reported agricultural-related fatalities, the major diagnoses involved were: severe craniocerebral trauma (n=5); pulmonary embolus (n=3); cerebrovascular accident (n=2); multiple organ failure (n=2); acute myocardial infarction (n=1); profound hypothermia (n=1); thoracic aortic disruption (n=1); and exsanguination from multiple sources (n=1) (Cogbill et al., 1991). From a national ascertainment of fatal injuries among children 19 years of age and under, using multiple data sources, the anatomical locations most commonly affected were head (40%), brain (24%), and trunk (26%) (Rivara, 1997).

Sources/Vehicles of Agricultural Injury

Animals have frequently been reported as a major source of nonfatal agricultural injury (Boyle, et al., 1996, Cogbill et al., 1985; 1991; Gerberich et al., 1993; Nordstrom et al., 1995; Rasmussen et al., 2000; Stueland et al., 1991). However, the degree to which animals act as the single largest source of injury differs by gender; women tend to sustain a higher proportion of animal-related injuries while men tend to sustain a higher proportion of injuries caused by machines. For instance, in the RRIS-I, the major sources of injury among males were animals

(25%), followed by agricultural machinery (23%), tractors (10%), and small power equipment (7%). For females, the most common source of injury was overwhelmingly animals (49%), followed by falls/surfaces (10%), agricultural machinery (6%), tractors (5%), and small power equipment (1%). Similar results were reported in other literature (Pickett et al., 2001; Stueland et al., 1991).

Among children aged 19 years and under, the major sources of nonfatal injury, identified in the RRIS-I (Gerberich et al., 2001), were animals (40%), motor vehicles, such as trucks and all-terrain vehicles (14%), and non-tractor agricultural machinery (12%). Similar results were found in other studies where animals, motor vehicles, and agricultural machinery were the major sources of child agricultural-related injury (Cogbill et al., 1985; Stueland et al., 1991).

Injury sources/vehicles often differ according to age and gender in children. Stueland et al. (1991) reported that children, less than six years of age, sustained a higher proportion of fall-related agricultural injuries than older children; falls accounted for nearly half of the injuries to children under six and 15% of the injuries to those 6-18 years of age. Bancej and Arbuckle (2000) reported from a study in Ontario, Canada that the youngest children had more toxic substance injuries than school-aged children while school-aged children sustained more animal-related injuries than younger children. The major injury sources were also shown to differ for children, aged 6-18 years, based on gender; animals were the most common injury source among females aged 6-18 years, and tractors, implements, structures, and tools were the most common injury source among males aged 6-18 years (Stueland et al., 1991).

Unlike nonfatal injuries for which animals are the primary source/vehicle of injury, the data indicate that tractor and machinery-related sources have been the primary sources/vehicles of fatal agricultural injury (Myers and Hard, 1995; Pickett, 1999; Rivara, 1997). From a 1991-1995 study of agricultural fatalities in Canada, it was reported that tractors and agricultural machinery were associated with 48% and 24%, respectively, of agricultural-related deaths; the most frequent mechanisms of injury were rollovers and runovers (Pickett et al., 1999). Salmi et al. (1989), reported that, from 1979-1985, machinery-related sources were the major vehicles of fatal agricultural-related injury among children, aged nine years and under, in Illinois and Wisconsin. From 1991-1993, the five most frequent sources of fatal agricultural injury to children aged 19 years and under in the United States were: tractors and machinery (34%); drowning (24%); firearms (15%); falls (5%); and suffocation (2%) (Rivara, 1997). However, it should be noted that these national child fatality statistics included all fatal injuries that occurred within the confines of an agricultural operation, regardless of whether the activity at the time of injury was related to the operation.

Temporal Trends

Month/ Season

Based on data from the RRIS-I (Gerberich et al., 1993), April, May, and June were the months associated with the greatest proportion of agricultural injuries across all age groups, with the highest percentage of injuries occurring in May; the second greatest proportions occurred in August and October. Other studies have reported similar findings where the spring and/or summer months corresponded to the greatest proportion of injuries (Pickett et al., 1999, Pratt et al., 1992; Stueland et al., 1991). Summer and fall have also been cited as the seasons associated with the greatest number of agricultural injuries (Pratt et al., 1992; Rasmussen, 2000).

In terms of childhood agricultural injury, the greatest proportion of agricultural-related injuries occurred during the summer months (Bancej and Arbuckle, 2000; Cogbill, 1985; Salmi et al., 1989; Stueland, 1991). This may be due to children having greater exposures to

agricultural hazards during the summer months when they are not attending school and agricultural activity is increased.

Day of Week

Small variations in the proportions of injuries by day of the week were identified in the RRIS-I (Gerberich et al., 1993); Friday and Saturday accounted for slightly more agricultural-related injuries while Sunday had the least. While many of the respondents in this study could not remember the day of the week their injury occurred, it was clear that most of the injury events occurred on a weekday. Other studies have found little difference between days of the week in terms of agricultural-related injuries seen in a health care facility or reported (Lyman et al., 1999; Pratt et al., 1992), although one study found an increase in the number of agricultural related-injuries experienced by women on weekends (Stueland et al., 1991). No data were available concerning childhood agricultural injury and the day of the week on which the injury occurred.

Time of Day

From the RRIS-I (Gerberich et al., 1993), it was reported that that the greatest proportion of agricultural-related injuries, among all ages, occurred during the late morning (10:00-11:59 a.m.) and in the late afternoon (2:00-5:59 p.m.). Pratt et al. (1992) reported that two-thirds of the injuries incurred by workers on dairy operations occurred during the afternoon. Data concerning childhood agricultural injury and the time of day the injury occurred were not available.

Consequences and Costs

Literature specifically pertaining to the costs and long-term effects of agricultural injury is scarce. Moreover, few studies have reported on the economic ramifications and long-term effects of the injuries. However, analysis from one study specifically addressed the impact of agricultural injury on agricultural operators, owners, and workers based in Alabama and Mississippi; it was found that the majority of injuries were classified as minor or moderate in severity and the majority of injuries required medical attention (McGwin et al., 2000). Furthermore, nearly all of the subjects experienced acute residual effects, including pain upon movement; 53% reported persistent pain related to their injury. Non-medical costs, including lost work time were also examined; 62% reported that they had to take time off from work (McGwin et al., 2000). However, it should be noted that agricultural operation owners and operators were sampled from a sampling frame provided by the Alabama and Mississippi agricultural statistics service, while the agricultural workers were not sampled; they were recruited in a variety of ways.

Evidence of the consequences of agricultural-related injuries has also been identified in other literature. From the RRIS-I (Gerberich et al., 1993), it was found that 81% of the injury events required some type of health care; 6% required hospitalization. Pratt et al. (1992), reported similar results from a population-based study of dairy farmers and workers where 70% who incurred agricultural-related injuries required medical care.

Measuring the amount of restricted activity, lost work-time, and residual effects provides further insight into the consequences of these injuries. Results of the RRIS-I (Gerberich et al., 1993) indicated that 83% of agricultural injury events resulted in some level of restriction of normal activity. Of these, nearly 37% reported restricted activity for 7 days or more, and 19% were restricted for one month or more. Furthermore, 25% of all agricultural injury events resulted in persistent problems, including pain (50%), numbness (13%), decreased range of motion (5%), and permanent disability (0.5%). Pratt et al. (1992) reported that 31% of such injuries resulted in lost work-time.

For children less than 20 years of age, who were included in the RRIS-I (Gerberich et al., 2001), it was found that 58% of injury events resulted in restricted activity for less than one week, 17% were restricted from one week to less than one month, and 17% were restricted from one month to less than three months. Injuries that resulted in more than one month of restricted activity were primarily associated with animals (54%) and machinery (23%).

Long-term disability was described in a study of hospitalized agricultural injury patients; 20% of the patients that experienced serious impairment reported corn-pickers (58%) and power take-offs (21%) as sources of injury (Cogbill et al., 1985). From another study of 739 trauma center patients, permanent disability was documented as resulting from injuries associated with cornpickers (62%), power take-offs (45%), tractors (20%), and animals (7%) (Cogbill et al., 1991).

Potential Risk Factors for Injury

Given a deficiency in analytical studies, to this time, only limited data are available pertinent to potential risk factors for agricultural-related injury. Among the population-based studies identified, several could be classified as case-control studies. Some of the risk factors identified by these studies are highlighted below:

Gender

From the RRIS - I study of injuries, incurred by children less than 20 years of age (Gerberich et al., 2001), a multivariate analysis identified the male gender as being associated with increased risk even after adjusting for hours worked; males had an injury rate 1.6 times higher than females. This result was similar to that identified from an agricultural injury study of children, aged zero to 19, living in Ontario, Canada (Bancej and Arbuckle, 2000); it was found that males, compared with females, had an increased risk of injury for all age groups analyzed. In the RRIS - I, separate multivariate analyses of machinery-related injury (Gerberich et al., 1998) and tractor-related injury (Lee et al., 1996) both indicated increased risks of injury for males, compared with females.

Age

An analysis of age groups ranging from zero to 19 years of age, in the RRIS - I, found that age was not an important factor for injury, when controlled for other factors using multivariate regression analyses (Gerberich et al., 2001). This finding is in contrast to findings from a study of Danish farmers where children, aged zero to 15 years, sustained a higher rate of injury than adults (Rasmussen et al., 2000). It is important to note, however, that the RRIS-I analysis controlled for number of hours worked, while the latter study did not.

Hours Worked

A multivariate analysis of hours worked, among children aged zero to 19 years involved in the RRIS - I, found that the number of hours worked was not a significant factor for an increased risk of injury (Gerberich et al., 2001). However, in an analysis specific to machinery-related injury, and involving persons of all ages, the RRIS - I data indicated that an increased number of hours worked was associated with an increased rate of injury, even after controlling for other factors (Gerberich et al., 1998). Similarly, an analysis of tractor-related injuries from the RRIS - I (Lee et al., 1996) found that an increase in number of hours worked was related to an increased relative risk for tractor-related injury among all ages.

Several other studies have also indicated that an increase in hours worked is associated with an increased rate of injury (Boyle, 1995; Boyle et al., 1997; Elkington, 1990; Stueland et al., 1996; Stueland et al., 1997). A study involving 80 cases of agricultural-related injury, and 234 controls, from Olmsted County, Minnesota (Elkington, 1990) found a positive association

between agricultural-related injury and the number of hours worked on the farm per week, controlling for gender. A case-control study of agricultural injury among children, less than 18 years of age, in Wisconsin (Stueland et al., 1996), found that the risk of injury increased by nearly 5% for every hour worked. Another case-control analysis involved agricultural injuries incurred by women in Wisconsin (Stueland et al., 1997); for every additional hour of farm work per week, the odds of sustaining an agricultural injury increased by 3%.

Owner/Operator Status

Results from a study of agricultural injuries among children aged zero to 18 years in Ontario, Canada, indicated that having both parents as agricultural owner-operators, compared with having no parents or only one parent as owner-operators, may be a risk factor for agricultural injury (Bancej and Arbuckle, 2000). Similarly, Schulman et al. (1997) found that teenage children, between the ages of 14 and 17 years, had a significantly higher rate of agricultural injury if they worked on a farm their parents owned or operated.

Farm owner-operator status appears to be important among adults as well. A population-based study of 600 dairy workers in New York reported that, after adjusting for age and exposure, owner-operators were found to have sustained a higher rate of injury than relatives or hired agricultural workers (Pratt et al., 1992). Rasmussen et al. (2000) also found the rate of injury among Danish agricultural owner/operators to be two times higher than the rate for agricultural laborers, after adjusting for age and operation type and size.

Agricultural Operation Size

The population-based cohort study of 600 dairy workers, by Pratt et al. (1992), found that those who worked on farms with more acres under tillage were significantly more likely to sustain an injury. Although other studies have indicated similar findings (Elkington, 1990; Lyman et al., 1999), the size of the agricultural operation is often irrelevant after controlling for other factors.

Animal-Related Activities

The presence of beef cattle and bulls and the tasks of moving animals and veterinary procedures have also been associated with an increased injury risk. From the population-based study of Ontario children (Bancej and Arbuckle, 2000), it was found that the presence of beef cattle, compared with no beef cattle, was associated with an increased risk of injury among children aged 0-4 years. Additionally, this study found that having 60 or more dairy cattle, compared with zero or less than 60, increased the risk of injury among children ages zero to four years, and five to nine years. Furthermore, a multivariate analysis of a case-control study of agricultural women in Wisconsin found that the presence of bulls on the agricultural operation was associated with a risk of injury nearly three times greater than those with zero bulls (Stueland et al., 1997). Rasmussen et al. (2000) also demonstrated that Danish farmers involved with moving animals and veterinary procedures, compared with other agricultural tasks, were found to be at an increased risk of injury.

As has been indicated, agricultural activities on dairy operations have particularly been implicated as increasing one's risk of injury (Bancej and Arbuckle, 2000; Gerberich et al., 1991; Gerberich et al., 2001; Nordstrom et al., 1995; Pratt et al., 1992; Stueland et al., 1996). For example, among children aged zero to 19 years, identified in the RRIS - I (Gerberich et al., 2001), it was found that working with dairy cattle was associated with a 60% increased risk of injury. A case-control study by Boyle et al. (1997), addressed injuries resulting from dairy cattle activities in the RRIS - I; increased rates of injury were identified for: milking more than 20 hours a week, compared with milking zero, one to ten, or 11 to 20 hours per week; and performing an hour or

more of hoof treatment or trimming per week, compared with no work with hooves. It was also reported by Stueland et al. (1996) that feeding dairy cows by grazing, compared with other types of feeding methods, reduced the risk of injury.

Machinery-related Activities

Exposures to various types of machinery have been associated with increased rates of agricultural injury. Analyses of the RRIS - I injury data involving children, ages zero to 19 years, found that those who operated a tractor, compared with those who did not, had a 40% higher rate of injury. From a study of Danish agricultural workers (Rasmussen et al., 2000), it was reported that repair and maintenance-work involving machinery were the most hazardous tasks, relative to the number of task-specific work hours.

A case-control study of agricultural injury among children, less than 18 years of age in Wisconsin, identified risk factors for injuries for which medical or chiropractic care were sought (Stueland et al., 1996). Results indicated that, among children residing on an operation that had agricultural machinery, a disabled safety device, compared with an intact safety device, increased the odds of sustaining an injury by 2.64.

From the results of a RRIS - I analysis of tractor-related injuries (Lee et al., 1996), it was found that the majority (42%) of injuries occurred when the injury victim was mounting or dismounting the tractor. In another RRIS - I substudy of machinery-related injuries (Gerberich et al, 1998), it was reported that the majority of injuries occurred while lifting/pulling/pushing (21%), adjusting a machine (20%), or repairing the machinery (17%).

Work Away From the Agricultural Operation

A population-based study of 4,916 farm children, aged zero to 18 years residing in Ontario, Canada (Bancej and Arbuckle, 2000), found that, even after controlling for other factors, off-site employment of the mother was a protective factor for preschool-aged children (0-4 year olds), but was a risk factor for school-aged children (5-9 year olds). It was hypothesized that these findings may be due to supervision issues, whereby preschool-aged children were likely to be in daycare while school-aged children are less supervised on the agricultural operation during the time their mother is at work.

Educational Status

Bancej and Arbuckle (2000) also reported from a multivariate analysis of injuries, among children in Ontario, Canada, that the educational status of the mother was a risk factor for injury for children aged zero to four years and 10 to 15 years; children of mothers with some postsecondary education, compared with less than high school, high school completion, or postsecondary completion, were at the highest risk of injury. Moreover, this study also found that the father's educational status was a risk factor for injury among children aged five to nine years; again, these children were at a higher risk of injury if their father had some post-secondary education, compared with less than high school, high school completion, or postsecondary completion. Although difficult to interpret, it is postulated that mothers with some postsecondary education may be more likely to recall or report injuries. However, elevated risk of tractor-related injuries among adults with greater than a high school education was also presented by Lee et al. (1996), using data from the RRIS - I. Overall, education may be a proxy for farm environment risk factors that are shared between children and adults.

Prior Injury and Pre-existing Medical Conditions

Elkington's case-control study, derived from the Olmsted Agricultural Trauma Study (1990), analyzed prior injury, as well as pre-existing medical conditions, as potential risk factors for agricultural injury. This study identified past injuries, both for which health care was sought

and those, which resulted in restricted activity, as risk factors for injury during a one-year surveillance time period. Additionally, the association between pre-existing medical conditions and the risk of injury was also assessed; of several medical conditions analyzed, only a pre-existing arthritis condition was shown to be associated with the risk of injury. This association was maintained even after controlling for number of hours worked as well as psychosocial factors.

SPECIFIC AIMS

The primary aims of this effort were to:

1. **Identify risk factors for farming and ranching operation-related injuries to persons less than or equal to 19 years of age, including:**

- a. **The relation between environmental exposures and injuries during designated time periods.** This included: acres in active production; types of active agricultural operations; numbers and various types of animals present; numbers and various types of equipment in use; specific direct exposures including riding on or operating a tractor, working with or operating a forage harvester, baler, or auger, handling/mixing chemicals, or working with dairy or beef cattle, or swine; time engaged in these activities and hours worked per week in the agricultural operation activities and in other jobs; education/training in specific activities and/or use of equipment; hours spent in school; parental perception of risk; safety awareness; prior injury experience and adult supervision activities; and socioeconomic status of the household.
- b. **The relation between personal characteristics and injuries during the designated time periods** including: age; gender; race; body mass index; health/injury history; medication use; physical fitness; hours of sleep; physical awareness; and desire to demonstrate compliance versus independence.

2. **Determine the incidence, types, sources, severity, and social and economic consequences of injuries, using an injury data collection system that can serve as a basis for surveillance.**

Data collected pertinent to the injury occurrence included specific characteristics of the event, e.g., source/vehicle, activity and location involved; and the date of the event. Data relevant to the injury consequences included anatomical location, injury type/diagnosis, severity measures including required medical care (e.g., hospitalization, emergency department care, other), duration and degree of restriction from regular activities, persistent problems/symptoms/permanent impairments, psychosocial costs to individuals/family, and financial costs.

3. **To modify the RRIS-I/pilot study rural population injury surveillance data collection system instruments, for the current effort, enabling its transportability to other geographic locations, nationwide.**

To accomplish this, the data collection instruments from the RRIS-I and from the RRIS II pilot study for both outcomes and etiology were modified and programmed into the CATI system to reflect the specific objectives identified. This study utilized the population of farming and ranching operations recorded in the United States Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) Master List Frame. This database was utilized because of the potential for consistency across states in the United States, by virtue of the eligibility criteria employed; thus, transportability of such an effort to other geographic areas, in the future, would be more efficacious.

METHODS

Overview

This study builds on a strong record of similar research by the current investigators. It was designed to serve as a model in the United States for conducting etiological and outcomes research and provide a basis for monitoring changes in injury incidence and consequences of agricultural injury and effects of intervention efforts. The current effort was designed particularly to determine critical risk factors for injuries to children in the farming/ranching environment by incorporating a research design within a baseline data collection endeavor to provide data on the incidence, types, sources, and consequences of agricultural injuries in the five state regional area of Minnesota (MN), Wisconsin (WI), North Dakota (ND), South Dakota (SD), and Nebraska (NE). Data were collected on independent samples of farm operations from these five states, using a specially designed computer assisted telephone interview (CATI) system instrument for data collection.

Study Population

This study utilized the population of farming and ranching operations recorded in the United States Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) Master List Frame. This database was utilized because of the potential for consistency in states across the United States, by virtue of the eligibility criteria employed and regular maintenance; thus, transportability of such an effort to other geographic areas, in the future, would be more possible. Eligibility criteria included: an operation must have generated and/or sold at least \$1,000 worth of agricultural products in the previous year; and was actively involved in farming or ranching, or involved in a Conservation Reserve Program (CRP). The Master List Frame is updated and maintained on a regular basis by individual state Agricultural Statistics Service offices through cross-checks with lists maintained by state pollution control agencies, county agricultural stabilization and conservation service offices, through routine interview contacts conducted by the Agricultural Statistics Service, and through random interviews conducted annually to further ensure accuracy of the listings.

Study Sample

From the NASS Master List Frame, a random sample of 3,200 farming and/or ranching operations was generated for each state included in the study (MN, WI, ND, SD, and NE). This accounted for a total of 16,000 households selected for study from this population.

Definitions

Household members were defined as anyone who was a part of the household for any period of time during the study period, including students away at college, children who resided in multiple households, and those who moved out of the household or died. The definition for injury, used in numerous previous research and data collection efforts, was: any injurious event that met one or more of the following criteria: *restricted normal activities for at least four hours; resulted in loss of consciousness, loss of awareness, or amnesia for any length of time; required professional health care, including that administered by a doctor, nurse, dentist, chiropractor, or other health care professional.* In this study, agricultural-related injuries were defined as those having resulted from any source/vehicle or activity related to an agricultural operation, including such things as transportation on roadways or raising animals for recreational or home use, as well as any injury that took place as a result of standing or playing in areas where farming or ranching activities were taking place.

Data Collection

Contact Procedures

Initial contact with the farm households selected for the study was made after the first of January 1999. This consisted of an introductory mailing (**Appendix A**), followed by a brief screening/participation interview (**Appendix B**), attempted for the 16,000 households, to determine eligibility and request participation in the study. The mailing included a letter of introduction from the respective USDA NASS offices as well as a letter from the study investigators explaining the project in more detail. Subsequent to the mailing, telephone calls to administer the screening/participation interviews, were attempted to the selected households by USDA NASS interviewers who were specially trained and supervised by research team members; telephone interviews were facilitated from two major NASS interviewing facilities in North and South Dakota because of the large numbers and expertise of these interviewers.

If the agricultural operation had an associated household that included at least one child 19 years of age or younger as of January 1, 1999, was actively farming or ranching or had land in the Conservation Reserve Program (CRP), as of January 1, 1999, and produced or had annual sales of agricultural goods of at least \$1,000 in the previous year, the household was asked to participate in the study. Operations that did not meet these eligibility criteria were excluded from the study. Details of the subsequent telephone interviews that would be involved as a participant, as well as rights regarding participation and informed consent, based on federal guidelines for protecting human subjects in research, were addressed in the initial mailing as well as during the screening/participation interview.

Households that met eligibility criteria and agreed to participate were then mailed a comprehensive packet of information regarding the study and the subsequent interviews to be conducted. As shown in **Appendix C**, this packet contained: 1) cover letters from the study investigators and the respective state NASS offices; 2) a log to maintain ongoing information pertinent to injury occurrences (according to the injury definition) between January 01 and June 30, 1999; and 3) telephone interview information for facilitating the interviews; comparable mailings were implemented for the second six-months of data collection (July 1, 1999-December 31, 1999). Interviews with the eligible and participating agricultural households began in July of 1999 and January of 2000 to collect data for the respective prior six-month periods (**Appendix D**). If it was not possible to conduct the interview at the time of first contact, an appointment was made to conduct the interview at a later time.

Households that refused to participate in the full interviews were asked to complete an abbreviated interview (**Appendix D**). This interview was intended to provide basic information on the members of the household, the size and nature of the farming operation, and on the occurrence of injuries during the identified study period.

Data Collection Instruments

Data collection instruments were specially designed for administration, using a Computer Assisted Telephone Interview (CATI) through the application of Blaise software. Study investigators facilitated design of the instrument by modifying the original RRIS-I instruments (Gerberich et al., 1993) and the RRIS-II instruments developed for the pilot study. In addition, the incorporation of a nested case-control design entailed extensive design and modification from the pilot study. The Research Team of study investigators worked directly with the relevant USDA CATI programmers to complete and test all data collection instrument components:

Interview Components

1) Screening/Participation Interview (Appendix B):

As identified above, the first component consisted of a screening/participation interview that facilitated determination of eligibility, provided information pertinent to provision of informed consent, and solicited participation (Appendix B). Eligible farm households that met the criteria and agreed to participate were then followed up through the subsequent interviews

2) Full Interviews: Data Collection (Appendix D)

a) Household Log:

Data, collected on all members of the households to enable accurate identification of injury incidence in the region, included: birthdate; gender; education; race; hours worked per week in farming; size of active farming operation; primary operation; and whether, or not they incurred an injury during the study period.

b) Injury Log:

For any injury event identified, data were collected on the nature of the injury, the source/vehicle of injury and relevant circumstances at the time of the event, and subsequent consequences. Extensive branching enabled comprehensive interviews pertinent to a variety of sources/vehicles of injury.

c) Exposure Log:

Data Collection for Case-Control and Case-Crossover Studies

Cases were questioned about their exposures prior to the injury incidents, while controls were questioned about their exposures during the randomly selected time period to provide the person-time exposure information. Comparable data, collected for both cases and controls <20 years of age, included *personal information*: demographics; numbers of hours worked per day/week/month; illness/injury history; medication use; physical fitness (frequency/intensity per week); average hours of sleep; use of relevant personal protective equipment; perception of risk; desire to demonstrate compliance, independence; and safety awareness. Data pertinent to *environmental exposures*, included: acres in active production; types of farming operations; numbers of various types of animals present on the farm; numbers of various types of equipment in use; types of specific direct exposures (e.g., riding on/operating a tractor; working with a forage harvester, baler, or auger; working with beef cattle or dairy cattle, etc.); education/training in specific activities and/or use of equipment; hours worked on the farm and in other jobs; hours spent in school; parent/guardian injury experience and perception of risk, safety awareness, and level of supervision; and socioeconomic status of the household. These data enabled analyses of exposures of interest in order to identify specific risk factors for the farming-operation related events.

The case-crossover design is related to the case-control approach and, again, involved sampling discrete intervals of person-time from a hypothetical pool of person-time at risk. The distinguishing feature of this design is self-matching; that is, case and control information are obtained from the same subjects. When a case (injury) occurs, the investigator evaluates exposure to potential risk factors during the relevant person-time preceding the onset of the acute event (the hazard period). Information is also obtained about exposure for another/other time period(s) for that same individual. Each person forms his or her own stratum within which there can be no confounding by factors that remain relatively constant over time.

Theoretical Foundations of Data Collection and Analyses

An overall *conceptual* model for the occurrence of agricultural injuries among children,

based on previous knowledge and specific hypotheses, is presented in **Figure 1**. A causal model, developed from the conceptual model that is specific to animal-related injuries, is identified in **Figure 2**. From the causal model, relevant directed acyclic graphs (**Figure 3**) were developed for pertinent exposures of interest to enable appropriate selection of confounders for the specific outcome of animal-related injuries (Greenland et al., 1999).

These models are based on the epidemiological model of human damage involving the dynamic interactions that may occur among a host (individual), agent(s) and vehicles (or vectors) within the total environment: the host is the person injured; the agents of injury are the various forms of energy, including mechanical energy which accounts for the majority of physical injury events (Gibson, 1961); and the vehicle (e.g., tractor, animal, machinery) refers to any element in the environment that conveys the agents, resulting in an injury event and various consequences (Haddon et al., 1964; Robertson, 1984). (Refer to specific hypotheses, below.)

The conceptual model is based on previous published information, deduction from this information, and previous knowledge of injury mechanisms. Because there is limited information on risk factors associated with injury occurrence among children in farm households, data from other studies were used as a basis for hypotheses in some instances. References providing the background information, for these hypotheses, are cited respectively.

The conceptual and causal models served as guides for data collection, analyses and interpretation. In particular, they enabled determination of which questions to include in the data collection instruments to ensure that adequate information was collected on both potential risk factors and potential confounders without including extraneous questions. With regard to analysis, the hypothesized risk factors are grouped under the separate headings of host/individual characteristics, and environmental factors.

In the following, more specific information is presented on the comprehensive conceptual model identified in **Figure 1**. Specific hypotheses, with the respective references, follow this presentation.

Household socioeconomic status and education are known to be highly correlated. Acquisition of training is believed to be positively correlated with overall education endeavors. In concert with high levels of education and socioeconomic status, parents' perceptions of risk/safety awareness and concomitant supervision of children, especially younger children, are hypothesized to be high. *Past* injury experiences are believed to further influence these perceptions and supervision behaviors, i.e., the greater the injury experience, the greater the awareness and likelihood of supervision behaviors -- and, thus, the lower the risk of injury to the child. However, no injury experience among parents during the last 6 months is believed to be a protective factor.

Inherent characteristics of the child, including age, may place him/her at greater or lesser risk of injury, depending upon the developmental age and behavioral characteristics of the child and the respective environmental factors to which he/she is exposed. Age is associated with perception of risk/invulnerability, safety awareness, and desire to demonstrate compliance versus independence. Individual idiosyncrasies and the influence of the parents' and other household members also contribute to the risks or protective factors pertinent to injury outcome.

Various factors including a history of diagnosed significant chronic disease or injury, low level of physical fitness, regular use of certain medications (e.g., pain medications), few hours of sleep per night, more than 20 hours of work on the farm per week, and less than 20 hours per week in school may place the child at greater risk for injury. In particular, these factors can contribute to physiological as well as psychological stress; reaction time may be compromised,

placing the individual at greater risk for injury. Similarly, these factors may contribute to a reduced overall tolerance and greater resulting consequences from an injury. Relative physical size/body mass index is positively related to injury and injury consequences among children, primarily due to increased exposures with increasing age/body mass. This physical-size factor, together with gender and race may also provide differing opportunities/circumstances for education/specific training in certain activities/use of equipment/use of personal protective equipment and/or opportunities for specific direct exposures such as riding on or operating a tractor.

Overall, perceptual-motor and cognitive skills vary dramatically across the age groups as well as among individuals and potentially increase the risk for injury, depending upon the factors to which they are exposed. For example, manipulation of a tractor requires certain purely motor capacities, including strength and ability to initiate various levers/work controls, etc. Perception of distance, size, and velocity, as well as the ability to perceive the relevant aspects of a situation, vary greatly with age -- with general increases in abilities with increasing age; a similar trend has been observed for response time. Research efforts, demonstrating a correlation between children's level of causal reasoning and the ability to understand concepts of safety and injury prevention, also, follow a comparable trend.

Environmental exposures, including acres in active production, types of farming operations, types of animals, and the equipment in use, are general exposures by virtue of living on a farm. In addition numerous specific direct exposures contribute to the potential for injury.

This model (**Figure 1**) reflects factors hypothesized to result in injury occurrence. However, in the case of reaction time or tolerance (which cannot be measured readily), for example -- the next level of variables serve as proxy data.

Specific hypotheses, pertinent to the risk of farming-operation related injuries among children include the following (*With the exception of age, gender, and race -- factors that are inherently controlled for in the case-crossover study, these factors are relevant to both case-control and case-crossover studies.*):

Host/Individual Characteristics:

Individuals who have the following characteristics, compared with those who do not, will have an increased risk for farming operation-related injuries:

- Individuals 15-19 (versus less than 15) years of age (Gerberich et al., 2001)
- Males (versus females) (Gerberich et al., 1993; 1997; 2001)
- White (versus non-white) race (Gerberich et al., 1991; 1993)
- Body mass index above the normal range (versus normal or below), (Gerberich et al., 1983; 1987) according to age and gender
- History (versus no history) of major diagnosed health conditions (Elkington, 1990; Boyle, 1995; Boyle et al., 1997)
- History (versus no history) of prior farming operation-related injuries (Elkington, 1990; Boyle, 1995; Boyle et al., 1997)
- History (versus no history) of non-farming related injuries in the last six months (Boyle, 1995; Boyle et al., 1997)
- Low level of physical fitness, based on frequency/intensity of physical activity/week (versus minimum level or above) (Shephard, 1985; Knapik et al., 1993; Purcell et al., 1994; Jones et al., 1994) (There is evidence, however, of potential increased injury with high levels of physical activity.)
- Less than average of 6 hours of sleep per night (versus 6 or more) (Elkington, 1990; Boyle,

1995)

- No or limited use (versus regular use) of relevant personal protective equipment
- Low (versus high) perception of risk (Pick, 1987) (e.g., associated with use of specific farming equipment)
- Low (versus high) compliance with (e.g., use of safety devices on equipment); other relevant research includes: Piaget, 1930; Pick et al., 1972; Salvatore, 1974; DaSilva, 1983; Lee et al., 1984; Ruffer, 1984; 1985; Ruffer et al., 1985

•**Environmental Characteristics:**

Individuals who are exposed to an environment involving the following characteristics, compared with those who are not, will have an increased risk for farming operation-related injuries:

- Less than 300 (versus 300 or more) acres in active production
- Enterprise requiring most time is dairy cattle (versus e.g., field crops) (Gerberich et al., 1993; 2001; Lee et al., 1996)
- Farming operation with greater than, versus less than or equal to, (e.g., 200 beef cattle)
- Farming operation with more than, versus less than or equal to, (e.g., 5 tractors > 20 horsepower in use) (Lee et al., 1996)
- Direct exposure (versus no exposure) to various types of equipment (e.g., ride on/operate a tractor; work with/operate a forage harvester, baler, auger, etc.) (Gerberich et al., 2001)
- No (versus some) training in specific farming-related activities and/or use of equipment
- Average hours worked in farming operation = 20 or more (versus less than 20) hours per week (Elkington, 1990; Boyle, 1995; Boyle et al., 1997; Lee et al., 1996; Gerberich et al., 2001)
- Average hours worked in non-farming job = less than 20 (versus 20 or more) hours per week (Elkington, 1990; Boyle, 1995; Lee et al., 1996; Gerberich et al., 2001)
- Average hours spent in school = less than 20 (versus 20 or more) hours per week
- Parents'/guardians' perception of risk is low (versus high) relevant to (e.g., children riding "side-saddle" on a tractor) (Rossin et al., 1991; Marsh et al., 1995)
- Parents/guardians have a history (versus no history) of prior farming and non-farming operation-related injuries (e.g., during last 6 months) (Elkington, 1990; Boyle, 1995)
- Parents/guardians report a low level (versus high level) of supervision of children in the vicinity of active farming operations (e.g., harvesting; feeding animals, etc.)
- Socioeconomic status of household less than, versus greater than or equal to, (e.g., \$25,000/year) (Elkington, 1990)

Comprehensive data collection, specific to the injury events experienced by the cases included questions that focused on the details of the injury events and were tailored to specific types of injury events through branching sections. For example, there are customized sections for motor vehicle, machinery, tractor, animal, chemical, and other injuries. As shown in the conceptual model, data pertinent to the consequences of injuries were collected to provide a complete picture of the magnitude of the problem.

Copies of the interview instruments and relevant materials, that were adapted from RRIS-I and the pilot study for RRIS-II, are located in **Appendices A-H**. Following final testing in the pilot study, with identification of pertinent modifications, these instruments were used to ensure data collection according to the conceptual and causal models and the respective hypotheses. Extensive development of new questions was completed to address the host/individual and environmental exposures of interest. In concert with this development, specific questions were incorporated pertinent to: perception of risk; desire to demonstrate compliance versus

independence; and safety awareness with regard to developmental stages as well as parental perception of risk, safety awareness and need for supervision, etc. Dr. Masten, who is an international expert in the area of child development ensured development of questions that would elicit information appropriate to the age range of children included in this effort. While some of the existing validated instruments may be appropriate to adolescents, it was essential to incorporate questions that would result in useful data for all ages to ensure inclusion of the pertinent exposures across the age range. Dr. Mittleman was also involved with the team to facilitate development of the questions, pertinent to the case-crossover study, according to the identified conceptual model and hypotheses. The entire set of interview instruments was pre-tested on a sample of farms through a pilot study.

Key Respondents

The female head of household was the preferred key informant for the collection of sociodemographic information on the members of the household as well as the identification of any injury events incurred by persons associated with the farming operations and respective households (Gerberich et al., 1991; 1993). (Proxy respondent data on childhood injury have been reported as both reliable and valid (Macarthur et al., 1997) and have been used in previous studies by the investigators (Gerberich et al., 1991; 1993; 2001; Boyle, 1995) Permission to interview persons 12 to ≤ 18 years of age was obtained from the parent at the time of the interview, as appropriate. The male head of household was the preferred key informant for information on the characteristics of the farm and the general farming operation exposures (e.g., acres in operation, primary enterprise, direct exposures to animals and machinery, etc.) that was essential to the case-control and case-crossover studies.

Data Management

A project management information system, comparable to that used in the OATS (Gerberich et al., 1991) and RRIS-I (Gerberich et al, 1993) studies, was developed to monitor the status and progress toward the completion of the interviews and to ensure data integrity. The detailed protocol/manual of operations, developed for RRIS-I, was modified as necessary for use during the data collection phase of the project. The manual served both as a reference manual and a training guide for all data collection procedures and project policies as well as a source for understanding respondents' answers (**Appendix H**).

Interviewer Training and Quality Control

The USDA NASS interviewers, are particularly experienced in conducting telephone surveys that focus on agricultural topics. They are familiar with agricultural terminology and are experienced in interviewing farmers/ranchers and relevant household members. The interviewer training manual, developed for RRIS-I, was revised during the pilot study for use in this project (**Appendix I**). The manual was used as the basis for interviewer training as well as serving as a reference for interviewers. Based on training procedures used in the RRIS-I, special interviewer training programs were conducted by project staff that focused on the nature and purpose of the project, the overall project protocol, and on the specific use of the interviewing tool. There was a particular emphasis on the process to obtain accurate information. Interviewer training included classroom instruction, demonstration of the CATI system and specially developed instruments, and practice interviews using pre-established scripts; these scripts were designed to ensure that all aspects and possible branches of the instruments were recognized by and familiar to the interviewers. In addition to the rigorous training, the interviewing process was monitored by USDA NASS supervisory staff, in concert with the project director and the investigators.

Data Processing

The majority of coding and data entry was incorporated into the interview process as part of the CATI instrument. This system also enabled immediate identification of inappropriate or out-of-range responses so that clarifications could be made during the course of the interviews.

Variables related to the nature of the injury and the characteristics of the injury event, including source and mechanism, were recorded in a narrative fashion and coded later, using the International Classification of Diseases–Ninth Revision, External Cause codes. A set of supplemental E-codes, developed for use in the RRIS-I was also utilized (Carr et al., 1992). These codes provided additional specificity in coding agricultural injuries. Due to the inability to obtain detailed information on the nature of the injury from the respondents, the ICD-Ninth Revision diagnostic codes could not be used. However, a simplified coding structure that was used in the RRIS-I (Gerberich et al., 1993) was used to code the physical description of the injury. This coding structure included both the body part and the type of the injury (**Appendix E**).

Project management information for items such as the disposition and status of interviews was provided by the data management capabilities of the CATI system. Data files generated by the CATI system were transferred to the University of Minnesota research team for data processing and analyses. Project staff was responsible for ongoing management of the data files and for developing comprehensive computer programs for conducting analyses of the respective project components.

Data Analyses

Outcomes Research

Analyses began with basic descriptive statistics on the sample and the consequences of reported events, and crude estimates of event rates. These analyses addressed occurrences of 1) farming/ranching-related injuries on their own operation, or on 2) another operation, and 3) injuries related to all other types of activities. Rates according to injured persons per 1,000 persons at risk and injury events per 1,000 persons at risk were generated. Annualized injury event rates, adjusting for months absent from the farm, were also calculated. Rates were adjusted for within-household correlation using generalized estimating equations (GEEs, Liang and Zeger, 1986), excluding levels for missing values and non-response. Confidence intervals for injury rate estimates were computed, using SAS proc *genmod*.

Relevant to specific injury occurrences and consequences information, the following variables were examined: types of injuries (diagnoses); anatomical parts injured; associated activities; locations; temporal information; severity of injuries (hospitalization, health care provided, duration of normal activity restriction, lost time from farm work, lost time from other work activities, persistent problems, current restriction and degree of restriction, perception of severity); and health care insurance (percentage of the injury costs covered by insurance).

Etiology Research - Case-Control Study

The ultimate goal of the data analysis was to estimate the impact of certain exposures of interest on agricultural operation-related injuries, controlling for potentially important confounding factors. Factors of primary interest included direct exposures, e.g., riding on/operating a tractor, working with/operating a forage harvester, baler, or auger, or working with beef or dairy cattle or swine. The other factors, identified in **Figures 1-3**, were also of interest.

For the multivariate modeling, a confounder-selection strategy using causal diagrams, was employed as suggested by the work of Greenland, Pearl, and Robins (1999) and Maldonado and Greenland (2002) and as illustrated by Hernan et al., (2002). These causal diagrams were generated from the complex causal model. Examples of the causal model and relevant directed acyclic graph, for animal-related injuries are provided in **Figures 2 and 3**, respectively. For each exposure of interest, the causal model was used to identify potential confounders to enter into the analyses. Logistic regression was used to investigate the relationship between exposures of interest and the occurrence of agricultural-related injury. This is a powerful, flexible, and standard method for estimating effects from case-control data (Breslow and Day, 1980; Greenland, 1987). It was used to model the probability of an injury event (I) as a logistic function of risk factors (x) and a vector of confounding factors (z)

$$P(I|x,z) = \frac{\exp(\alpha + \beta x + \gamma z)}{1 + \exp(\alpha + \beta x + \gamma z)}$$

where a, b, and g were model coefficients to be estimated from the data. The odds ratio for the effect, for example, of a dichotomous variable x (coded 1= yes, 0 = no) was equal to exp(b).

Etiology Research - Case-Crossover Study

Analysis of the case-crossover study data contrasts exposure in the "hazard period" just prior to the injury event with exposures during comparable time periods preceding this period (the "control periods"). This approach to the case-crossover design is analogous to a one-to-one matched (pair-matched) case-control study when a single control period is sampled for each case. When exposure data are available for two or more discrete control periods the approach is analogous to a matched case-control study with several controls per case. In either of the above situations, the analysis of the case-crossover data involves using standard methods for matched binary outcome data such as conditional logistic regression (Breslow and Day, 1980). This analytic approach to self-matched data is a new application of standard matched-data analysis techniques (Maclure, 1991; Rothman, 1986; Wacholder et al., 1991; Mittleman et al., 1993). In these analyses, instead of case and control subjects, the contrast is between sets of hazard and control intervals contributed by the same subject (Mittleman, et al., 1995). Another conceptualization of the case-crossover design contrasts exposure in the hazard period preceding the injury, with its expected exposure during this time interval. In this instance, sometimes called the "usual frequency approach" the design is in many ways analogous to a retrospective follow-up study (Mittleman et al., 1995). The expected exposure value is obtained by asking about the usual frequency of exposure during a finite time period preceding the injury. Using these data, the subject's person-time of exposure can be estimated, and estimators of the hazard ratio associated with this exposure can be estimated using methods for sparse follow-up data (Robins et al., 1986; Maclure, 1991; Mittleman et al., 1995).

Bias Evaluation

Information Bias

An important consideration in any epidemiologic study is the assessment of measurement error. Measurement error is thought by methodologists to be one of the most serious threats to the validity of epidemiologic study results because it can result in a large amount of bias (Maldonado, 1993; Greenland, 1993; Copeland et al., 1977; Dosemeci et al., 1990; Gilbert, 1991; Flegal et al., 1991; Wacholder et al., 1991). It is anticipated that there is a potential for measurement error in the reporting of both injury events and risk factors for these events; this potential problem was addressed in several ways. First, we aggressively minimized errors in reporting injury and relevant exposures. Second we conducted a validation substudy with the

intent of estimating the degree of measurement error due to self-reporting of physical injury consequences as described below. Finally, we are including sensitivity analyses to assess the likely magnitude of bias due to self-reporting of exposures. While it is not technically possible to fully "correct" risk estimates for bias due to measurement error (Greenland and Kleinbaum, 1983), sensitivity analyses are being incorporated. The sensitivity analyses serve as a "correction" for measurement error in the sense that upper and lower bounds for risk estimates, under different plausible scenarios for measurement error, were obtained.

Validation procedures were conducted for self-reported injury occurrences using health care records (**Appendix G**). The medical validation of reported injuries is important to evaluate the error in injury self-reporting, so that the extent of bias due to this error can be assessed. Although there was no comprehensive database with medical care records available for the total population, unlike that used in the Olmsted Agriculture Trauma Study (Gerberich et al., 1991), the following modification was employed to assess both sensitivity and specificity: 412 participants were included -- 206 injured participants (cases) and 206 non-injured participants (controls). Letters explaining the study and the subject's right to refuse participation were mailed to each participant's address; a consent form that enabled release of the injury information to the study staff and a stamped, pre-addressed return envelope were enclosed. The medical persons/sources to be identified were: physicians, dentists, chiropractors, clinics, hospitals, and emergency departments, as appropriate. Upon receipt of a signed consent form, each medical care person/source was sent a letter along with a copy of the consent form, and a one-page questionnaire asking about any health care contacts by the person for injuries during a specified period. Analyses of these data potentially allowed for a range of estimates to be calculated, based on possible errors in self-reporting of injuries. A similar procedure has been used successfully in other studies conducted by one of the investigators (Gerberich et al., 1983; Gerberich et al., 1987).

Self-reporting of exposures may introduce bias in the form of recall of events. By including the time period of one month as one of the exposure periods, it is anticipated that this bias was minimized. In the analyses, the methods described above to "correct" for errors in self-reporting of injuries, will also be employed for exposures of interest.

Selection Bias

The efficiency of the case-control design results from studying only a sample of the cohort at risk (Greenland, 1994). With the increased efficiency, however, comes the potential for bias due to the way in which subjects are sampled into the study (i.e., selection bias). Selection bias can occur if: 1) the cases in the study are a biased sample of the cases in the study population during the study period; or 2) the controls in the study are a biased sample of the non-cases in the study population during the study period. Since biased samples of cases and controls can occur for many different reasons, case-control studies should routinely evaluate the potential impact of selection bias on effect estimates.

Potential selection bias was controlled by inversely weighting observed responses with probabilities on non-response (Horvitz and Thompson, 1952), estimated as a function of characteristics available from the NASS Master List Frame; these characteristics were: state in which the operation was located; type of operation; and operation revenue, by quintile. To account for unknown eligibility among non-respondents, probability of eligibility was estimated from these same characteristics (Mongin, 2001).

Eligible agricultural households that refused to participate in the full interview or who were not successfully contacted after an exhaustive contact protocol was completed, were mailed a

brief survey, a cover letter, and a postage-paid return envelope in order to obtain basic, important information. This abbreviated survey requested information on the size of the household, size and nature of the agricultural operation, and the occurrence of injuries during the study period – data that could also be employed to further assess selection bias.

RESULTS

COMPREHENSIVE HOUSEHOLD STUDY

Response Rates

Among the total 16,000 farms/ranches sampled, 8,288 (51.8%) were identified as not eligible, based on the study participation screening criteria (**Table 1**). Overall, there was a known refusal rate of 24% of the original sample. A total of 4,402 (27.5%) of the farms/ranches was found to be eligible; of these 3,765 (85.5%) participated in the full study.

Study Population

From the 3,765 farm/ranch households, a total of 16,538 persons were included and followed through the study period. More than half (n=8,488; 51.3%) of the participants were less than 20 years of age. The highest proportions of participants were between the ages of 35 and 44 (22.5%), 15 and 19 (17.0%), and 10 and 14 (16.0%), while the smallest proportions were between the ages of 20 and 24 (3.3%), 55 and 64 (2.1%), and those 65 years or older (0.5%). Males accounted for a slightly higher proportion (51.6%) of participants than females (48.4%).

The majority (98.8%) of the participants identified themselves as Caucasian. The population was distributed through the five-state region of Minnesota (19.2%), Nebraska (20.4%), North Dakota (21.2%), South Dakota (21.3%), and Wisconsin (17.9%). Most (46.7%) reported working between one and twenty hours per week on their agricultural operation, while 16.7% reported working zero hours, and 13.8% between 20 and 40 hours. Many participants (n=3,217; 19.5%) reported working more than 40 hours per week on their own operation.

Of the participants 20 years of age, and older (n=8,037), 40.1% had graduated from high school or obtained a graduate education degree (GED), 36.0% had completed some post-high school education (including technical school or some college), and 20.6% were college graduates or had engaged in post-graduate studies; only 3.3% were not high school graduates. Of those over the age of 16 years (n=10,212), 71.0% were married, while 27.1% had never been married, 1.4% were separated or divorced, and 0.4% were widowed.

Personal Injury Rates

A total of 2,586 total injury events were reported for the study population for the 1999 data collection period. Of these, 1,198 (46.9%) occurred on one's own agricultural operation, 68 (2.7%) occurred on someone else's operation, and 1,291 (50.5%) were related to activities other than agriculture.

Rates of injury are presented in **Table 2**. The annualized overall injury rate for the agricultural population was 160.7 injury events per 1,000 persons, 1.8 times higher for males (207.9) than females (110.4). The annualized injury rate, specific to agricultural-related injuries that occurred on the participants' operations, was 74.6 injury events per 1,000 persons, more than three times greater for males (110.9) than females (36.4). For events that occurred on someone else's operation, the rate was 4.3 per 1,000 persons, 3.5 times greater for males (6.6) than females (1.9). The rate for injuries related to activities other than agriculture was 81.4 per 1,000 persons per year; the discrepancy between genders was not as pronounced (males and females, 90.0 and 72.2 per 1,000 persons, respectively).

By state, South Dakota was associated with the highest rate of overall injury events (180.7 events per 1,000 persons per year), while Minnesota had the lowest rate (137.2). This trend was similar for agricultural-specific injury events occurring on one's own operation; the annualized rate of injury events in South Dakota was 1.7 times greater than the rate in Minnesota. The rate of non-agricultural-related injury, however, was lowest in Wisconsin (69.5 injury events per 1,000 persons per year) and highest in Nebraska (89.7).

The overall annualized rate of injury was only 1.2 greater for participants who were twenty years of age or older compared with those zero to 19 years of age (176.0 and 145.9 injury events per 1,000 persons, respectively). This was mirrored by the rates of agricultural-related injury. Specifically, the rate of injury related to one's own operation was more than four times greater for adults than for children (123.2 and 28.3 injury events per 1,000 persons per year, respectively). This trend was reversed, however, for non-agricultural related injuries. Children between the ages of zero and 19 years incurred nearly two-and-one-half times more injuries not related to agriculture than adults (114.2 versus 47.1 events per 1,000 person per year). Among the children, rates of both agricultural and non-agricultural injury were higher among males than among females. This trend was also seen with the agricultural injury rates among adults. However, females, compared with males aged 20 years or older, had a higher rate of non-agricultural related injuries. Regarding age categories, it is noteworthy that adults aged 55 to 64 years, and 65 years or older, had the highest rate of agricultural injury related to their own operation (157.3 and 150.0 injury events per 1,000 persons per year).

As noted previously, there were few participants that identified a race other than Caucasian; those who did experienced lower rates of overall injury (106.8 events per 1,000 persons per year) compared with Caucasians (160.9 events per 1,000 persons per year). Across all injury categories, including injuries related to one's own agricultural operation, injuries not related to an agricultural operation, and all injuries combined, non-Caucasians identified rates of injury 0.7 times the rate for Caucasians.

By educational status, participants who had completed high school, or an equivalent degree, were associated with the highest rate of overall injury for the study population (169.9 events per 1,000 persons per year). College graduates indicated the lowest rate of overall injury (145.9 events per 1,000 persons per year). For agricultural-specific injury events related to one's own operation, persons with less than a completed high school education had the lowest rate of injury, compared with high school graduates (98.9 versus 140.3 injury events per 1,000 persons per year). On the contrary, agricultural-specific injury events that occurred on someone else's operation were more common among those with less than a high school education (12.1 events per 1,000 persons per year), compared with high school graduates (6.4), those with a technical school education or some college (4.2), and college graduates (5.8). Rates of non-agricultural-related injury were similar regardless of educational status.

Differences in rates of injury, according to marital status, were also identified. Participants who were separated or divorced had higher rates, overall (215.3 events per 1,000 persons per year), than those who were widowed (186.5), married or living as married (180.5), or were never married (161.9). This was identified, as well, for agricultural-related injuries that occurred on one's own operation. Those who were separated or divorced had an injury rate 1.4 times greater than those who were married or living as married, and over five times greater than those who had never been married. For non-agricultural related injuries, however, those who were never married demonstrated the highest rate (119.4 events per 1,000 persons), more than 3.5 times greater than that for separated or divorced participants (31.6).

Rates of agricultural-related injury appeared to be directly associated with the number of hours worked on their own farming or ranching operation per week. The overall annualized rates of injury increased from 80.9 events per 1,000 persons, for those who worked zero hours, to 312.0 events for those who reported working more than 80 hours per week. For injury events related to one's own agricultural operation, there was an increase in injury rates with each increase in 20 hour increment in farming/ranching hours worked per week on their own operation. For zero, 1-20, 21-40, 41-60, 61-80, and 80+, there were respective increased rates per 1,000 persons (6.0, 36.7, 91.3, 175.8, 223.2, and 282.9). Participants who worked between 41 and 60 hours per week on their own operation had the highest rate of injury on someone else's operation (9.8 events per 1,000 persons per year). For non-agricultural-related injuries, there was an inverse association between number of hours worked, other than zero, and the number of injury events. For those who worked 1-20, 21-40, 41-60, 61-80, and 80+ hours per week on their own operation, the rates of non-agricultural-related injury decreased from 101.3, to 89.0, 46.2, 29.0, and 21.8 events per 1,000 persons per year, respectively.

Injury Rates Per Hours Worked

Rates of farming/ranching-related injury events, based on number of hours worked per year on the participants' own operations, are presented in **Table 3**. For the entire population, there were 7.2 injury events per 100,000 hours exposed to work. The rate was higher in South Dakota (8.7 per 100,000 hours) than in North Dakota (7.4), Nebraska (7.2), Wisconsin (6.7), and Minnesota (5.9).

The rate of injury for all persons, aged 20+ years, was similar to the rate for all persons aged 19 years or younger (7.2 versus 7.3 injury events per 100,000 hours, respectively). Overall, females were associated with a higher rate of injury than males (7.6 compared to 7.1 events per 100,000 hours), when based on hours worked on their operation. The rate of injury for females aged 19 years and younger was nearly 30 percent greater than the rate for males of the same age while the rate for females aged 20+ years was similar to those indicated for males aged 20+ years.

By five and ten year age groups, rates of injury, based on hours worked, decreased as age in years increased from 0-4, to 5-9, 10-14, and 15-19 (49.5 to 12.3, 8.7, and 4.6 injury events per 100,000 hours worked, respectively). The highest rate, within an age category greater than 20 years, was identified for persons aged 65+ (9.21 events per 100,000 hours). The lowest rate was found among persons aged 20 to 24 years (5.7 events per 100,000 hours). By five and ten year age groups for each gender, this trend was similar for males and females aged 19 years and younger; the rate of injury decreased as the age category increased. A similar trend was seen among males in age categories of 20 years and greater, where those aged 65, and greater, were associated with the highest rate while those 20-24 years were identified with the lowest rate. However, among female age categories, those 35-44 years were associated with the highest rate of injury based on exposure time (8.0 per 100,000 hours worked) while those aged 65 years and greater were identified with the lowest rate (4.5 per 100,000 hours worked).

Unlike personal injury rates, rates of injury based on number of hours worked did not appear to differ by reported race. For those who identified a race other than Caucasian, versus Caucasian, the respective rates were 7.3 and 7.2 per 100,000 hours worked. By educational status, persons with less than a completed high school education were associated with the lowest rate of injury (5.0 events per 100,000 hours worked) compared with completion of high school (7.0), technical school or some college education (7.5), and college (7.8). Persons who had never been married were associated with the lowest rate of injury (5.4 events per 100,000 hours

worked), compared with those who were married or cohabitating (7.2), and separated or divorced (8.8); those widowed had a rate of injury nearly 3.2 times greater (17.0 events per 100,000 hours) than those who were never married.

Rates of injury, based on number of hours worked per year, were similar for persons who worked 21-40, 41-60, 61-80, or 80+ hours per week on their own operation (6.6, 6.9, 6.2, and 6.1 injury events per 100,000 hours worked, respectively). Persons who worked between one and 20 hours per week had a rate 1.5 times greater (10.4 events per 100,000 hours) than those who worked 21-40 hours. For participants who reported working zero hours per week, the rate of injury, based on exposure time, was greatly increased; this effect is seemingly due to injuries that occurred while the participant was a bystander of agricultural activity. While it has been common to present rates, based on hours worked, a caveat, pertinent to interpretation of these hourly rates, is elaborated upon in the following section.

Total Household Hours of Farm Work as a Measure of Exposure

For many youths (those under age 20, as of January 1, 1999) who resided in participating households, no hours of farm work were reported. Yet, some injuries incurred by these youths were attributed to the household farming/ranching operation; these are identified as "bystander injuries" and are classified as "own-farm-related" in this report. However, when combined with those who engage in farm work, the apparent incidence per farm work hours can be misleading, because direct, own-farm/ranch work does not constitute all of their exposure time. For the simple ratio of events over total hours, the numerator includes cases that occur during exposures unaccounted for in the denominator, thus, resulting in an upward bias in the rate estimator.

Histograms of own-farm-work hour groups by five-year age group for the youths are shown in **Figure 4, H1**. The hours were reported as individual totals for 1999, and are shown in the cube-root scale to better illustrate the salient features of each distribution, with the left-most bar comprising zero-hour totals only. The concentration of such cases is pronounced in all four-age categories. Vertical lines mark the quintiles of the hour distribution. Each own farm/ranch-related injury -- including multiple injuries incurred by the same subject -- is represented by a small star positioned in the hour group for that subject. Bystander injuries can be identified in the zero-hour group, especially in the younger age categories. There may be other bystander injuries in non-zero-hour groups as well; however, this determination cannot always be made directly from specific interview responses. An effort is under way to look at all available interview information, including comments, and assign each own farm/ranch-related injury into one of three classes:

- 1) Clear evidence of occurring while engaged in own farm/ranch work/chores.
- 2) Clear evidence of not occurring while engaged in own farm/ranch-work.
- 3) Insufficient information to assign to 1) or 2).

The third class cannot be eliminated; however, it will define the boundary conditions of sensitivity analyses to be applied to selected estimates. While this process will yield less biased estimates of own-farm-work injury per own farm/ranch-work hours, the problem of describing the experience of the younger age groups in terms of hourly rates remains.

For these younger age groups, the work hours data may be used to characterize entire households in terms of hazards presented to those who are not directly engaged in farm work. This approach regards the household as a type of manufacturing plant, with risk of injury as a function of the total number of plant work hours. **Figure 4, H2** presents histograms of total household own farm/ranch-work hours associated with the younger age groups, with quintiles located by vertical lines. As in **Figure 4, H1**, each own farm/ranch-related injury is marked by a

star. There is a detectable pattern of increasing injury counts with increasing household hours. This pattern is more clearly exhibited in **Figure 4, H3**, where the crude rate of injury is presented for each quintile of the household hour distribution, with 95% confidence intervals. This type of analysis is being developed further for subsequent publication.

Multivariate Analyses

Several variables, pertinent only to agricultural-related injuries occurring on one's own operation, were analyzed using multivariate modeling, as described in the Methods section. Results of the analyses involving indicators of personal risk are presented in **Table 4**, while results based on number of hours worked on their own operation are displayed in **Table 5**.

Based on the results of the analyses for personal risk (**Table 4**), increased risks were associated with the state of residence, gender, age group, educational status, marital status, and number of hours worked/did chores on one's own agricultural operation per week. Race was not associated with the risk of injury.

When compared with Minnesota, and controlled for age, gender, educational status, marital status, and prior injury status, participants residing in Nebraska, North Dakota, South Dakota, and Wisconsin had increased odds of incurring an agricultural-related injury during the study period (1.4, 1.5, 1.6, and 1.5, respectively). Controlling for age, males compared with females had more than three times the risk of injury. Using five and ten-year age groups, and controlling for gender, participants between the ages of zero to four, five to nine, ten to 14, 15 to 19, 20 to 24, and 45 to 54 had a decreased risk of injury (OR = 0.1, 0.2, 0.3, 0.2, 0.3, and 0.8, respectively) when compared with persons aged 35 to 44 years. Controlling for age, gender, state, marital status, and prior injury status, participants who were high school graduates, or equivalency, or had completed technical school or some college, compared with college graduates, or those who had completed post-graduate education, were 20% more likely to incur an injury (OR = 1.2, each). Compared with participants who were married or living as married, and controlling for age, gender, educational status, state of residence, and prior injury status, those who were never married were half as likely to be injured on their own operation (OR = 0.5). Finally, compared with those who reported a weekly average of more than 80 hours of work on their own agricultural operation per week, participants who worked zero, one to 20, 21 to 40, 41 to 60, or 61 to 80 hours per week were at a decreased risk of injury (OR = 0.1, 0.3, 0.5, 0.7, and 0.8, respectively); the odds of sustaining an injury, when controlling for age, gender, educational status, marital status, and prior injury status, increased as the number of hours worked per week on one's own operation increased.

In **Table 5**, multivariate analyses are presented for risk of agricultural-related injury based on 100,000 hours worked on one's own operation. Confounders were controlled for the respective exposures of interest, as identified above. Increased risk of injury was associated with state of residence, age group, educational status, marital status, and the weekly average of hours worked/did chores on one's own agricultural operation. Again, race did not appear to be associated with the risk of injury. However, unlike the multivariate analysis for personal risk ratios, gender also did not appear to be important.

Compared with Minnesota, residents of the states of North Dakota and South Dakota were at increased risk of incurring an injury (RR = 1.3 and 1.4, respectively). Compared with participants aged 35 to 44 years, children between the ages of zero and four, and five and nine, were 6.4 and 1.6 times more likely, respectively, to incur an injury. On the contrary, participants between the ages of 15 and 19, and 45 and 54, were less likely to be injured (RR = 0.7 and 0.8, respectively). Compared with college graduates, or those who had completed a post-graduate

education, participants with less than a high school education were at a decreased risk of injury (RR = 0.6). Similarly, participants who were never married were half as likely to be injured as those who were married (RR = 0.5). Again, the weekly average of hours worked on one's own agricultural operation was associated with risk; however, based on hours of exposure, participants who reported working one to 20 hours, or 21 to 40 hours per week, were at an increased risk of injury (RR = 2.8 and 1.5, respectively), compared with those who worked more than 80 hours per week. The risk for participants who reported zero work hours per week was increased as well; however, this inflation was partly due to injuries incurred by children who reported no hours of work but were injured as they stood or played in agricultural work areas.

Characteristics and Consequences of Injury Events

Sources/Vehicles of Injury Events

As shown in **Figure 5**, animals (41%) and falls related to various surfaces (31%), were primary sources of injuries associated with farming/ranching activity among the younger age groups (< 20 years); physical objects (18%) and large machinery/equipment (14%) were also important. While animals and falls were less frequent (32% and 23%, respectively), among the older age groups (20+ years), they were also important sources, as were machinery (19%) and tractor (13%).

For injuries associated with all other non-agricultural activities (**Figure 6**), sports/recreation (71%) and falls related to various surfaces (39%), were the primary sources of injury among the younger age groups. Falls (28%) and work other than farm work (28%) were the primary sources of injury among the older age groups.

Activities Associated With Injury Events

For farming/ranching-related injury events (**Figure 7**), it is evident that working with animals was primarily associated with the events for both the younger and older age groups (31% and 28%, respectively). In addition, construction or repair (16%) and lifting/hitching/adjusting, etc. (17%) were frequent activities.

Non-agricultural-related injury events incurred among the younger age groups (<20 years), primarily involved activities associated with ball games, (42%) other sports and recreation (15%), and bystanding/playing/horseplay (15%). In contrast, the older age groups (20+ years) were more likely to incur events associated with general activities (27%) (**Figure 8**).

Month/Season Associated With Injury Events

For those <20 years of age, the greatest frequencies of agricultural-related events were identified in the months of May, June, and July (18%, 20%, and 14%); by season, Spring (30%) and Summer (43%) -- months involving reduced school activities -- were associated with the highest frequencies. For those 20+ years of age, Spring (30%), early Summer (28%), as well as Autumn (25%), were associated with the greatest frequencies, likely reflecting the respective activities of planting and harvesting (**Figure 9**).

For non-agricultural-related events (**Figure 10**), there were not great variations, by individual months, for each of the age groups. However, by season, it was evident that Summer (26%) and Autumn (32%) were the most frequent among those <20 years of age and that Summer (30%) was the most frequent for those 20+ years of age.

Anatomical Locations of Injuries

As shown in **Figure 11**, there are some apparent differences between the two major age groups (<20 and 20+) with regard to body parts injured. For agricultural-related events, hand, fingers, and thumbs (23%) were most frequently affected among those <20 years of age, while

for those 20+ years of age, these body parts (19%) as well as the spine and back (31%) were primarily involved.

Non-agricultural-related events (**Figure 12**) primarily involved the upper (28%) and lower (38%) extremities among those <20 years of age. For those 20+ years of the, the spine and back (29%) were, again, identified most frequently.

Types of Injuries/Diagnoses

In **Figure 13**, it is shown that lacerations/punctures/abrasions (35%) and contusions/crushing/mangling (28%) were reported most frequently among those <20 years of age for agricultural-related events. Sprains/strains (19%), lacerations/punctures/abrasions (24%) were reported most frequently among those 20+ years of age.

For non-agricultural-related events (**Figure 14**), sprains/strains (34%) and fractures/dislocations (28%) were the most frequent reported diagnoses for those < 20 years of age. These were also the most commonly reported for those 20+ years of age (41% and 25%, respectively).

Consequences/Severity of Injury Events

In this study, several measures of severity were incorporated. These included: hospitalization; health care provision; length of restricted activity; loss of farm work time; and the persistence of problems as a result of the injuries.

In **Figure 15**, it is shown that, for agricultural-related injury events, for those <20 and 20+ years, respectively, the following consequences, based on the injury definition criteria, were identified: required treatment by a health care professional (79%; 82%); experienced restricted activity for four hours or more (77%; 71%); required hospitalization (4%; 5%); and experienced loss of consciousness and/or loss of awareness (8%; 5%). Restriction from regular activities for seven days or more was reported for 29% of each of the age groups.

For the non-agricultural-related injuries (**Figure 16**), increased proportions were treated by a health care professional (93%; 91%); respectively, 77% and 79% were restricted from regular activity for at least four hours, 5% and 6% were hospitalized, and 12% and 5% experienced loss of consciousness and/or loss of awareness. Restriction from regular activities for seven days or more was reported for 39% of those <20 years of age and 42% of those 20 years and older.

Location of Health Care Received

Among those injury cases requiring health care, locations where health care was received are identified in **Figures 17 and 18**. For agricultural-related events (**Figure 17**), similar percentages for both major age groups (<20 years and 20+ years) were identified for care in a doctor's office (34%; 30%; however, those 20+ years of age were more frequently treated in a chiropractor's office (26% versus 8%) while those <20 years of age were more frequently treated in a hospital emergency department (29% versus 18%). There was no difference with regard to those who had no treatment required but who met the injury definition criteria by virtue of experiencing at least four hours of restricted activity or who experienced a loss of consciousness or awareness.

As shown in **Figure 18**, a similar picture is noted for injuries not related to agricultural activities, whereby the most frequent locations of health care for those <20 and 20+ years of age were in a doctor's office (40%; 32%), a hospital emergency department (32%; 24%), or chiropractor's office (6%; 25%). The proportions requiring no care for these types of injuries were much less (6%; 8%).

Length of Restriction From Regular Activities

The length of restriction from regular activities as a consequence of agricultural-related injuries (**Figures 19**) is identified for those <20 and 20+ years of age. Among these cases, 79% and 73%, respectively, had four or more hours of restricted activity; 29% of each group experienced seven or more days of restricted activity.

In **Figure 20**, it is shown that, for non-agricultural-related injuries, among those <20 and 20+ years of age, respectively, 77% and 81% experienced four or more hours of restricted activity. Restriction for seven or more days was experienced by 39% and 32%, respectively.

Duration of Loss of Agricultural Work Time

Of further interest is the impact of injuries, both agricultural-related and those associated with other activities, upon the farming operation. For agricultural-related injuries, 17% and 14%, respectively, of those <20 and 20+ years of age, identified seven days or more of lost agricultural work time (**Figure 21**), while for non-agricultural-related injuries, this accounted for 17% of each age group (**Figure 22**).

Persistent Problems

At the time of the interviews, those who incurred either agricultural-related injuries or those associated with all other activities, were asked if there were persistent problems associated with these injuries. Respectively, for each of these classifications of injuries, those <20 years of age identified 8% and 11% associated with persistent problems while those 20+ years of age identified 23% and 29%. These included various residual symptoms (e.g., pain, restricted movement) and permanent consequences.

CASE-CONTROL STUDY

Characteristics/Exposures

A total of 203 cases (199 youths/191 households) and 755 controls (735 youths/724 households), less than 20 years of age, participated in the case-control study. Characteristics of these participants are identified in **Table 6**.

No differences were evident by state. By type of enterprise, requiring the most time, cases were more frequently associated with dairy cattle operations while controls were more frequently associated with field forage or specialty crop operations. By gender, cases compared with controls were more likely to be male than female and between the ages of 10 and 14; controls were more likely to be less than five or between the ages of five and nine years. By grade in school, cases had a slightly higher proportion associated with sixth through eighth grade and a much higher proportion in the missing/unknown/refused category, while controls had higher proportions in the other grade levels identified. A much greater proportion of cases than controls reported having incurred a prior injury. No major differences were noted for race, acres in active production, annual income level, or insurance status; of note is that 93-95% reported having insurance coverage for the entire period.

In terms of active exposures, Cases more frequently reported working or doing chores associated with their operation for 10 or more hours per week, while a greater proportion of controls reported working less than 10 hours per week; although no differences were evident for working on someone else's operation, controls were more likely to work more than 40 hours per week in a non-agricultural setting. Cases compared with controls, more frequently reported working with dairy cattle, beef cattle, swine/pigs, horses, and sheep or with any other types of

animals. "Bystanding" activity in areas where animals were kept, either sometimes or frequently, was also more frequent for cases than controls.

Cases, compared with controls, identified greater proportions that operated motor vehicles (Car, Van, SUV, Pickup, or Other Truck), rode as passengers in motor vehicles, or operated or rode on motorcycles, all-terrain vehicles (ATVs), or snowmobiles. "Bystanding" activity or playing in the driveway was also greater for cases.

Much greater proportions of cases than controls reported operating any kind of tractor (> 20 HP, 20 HP or less, or skid-steer). Similarly, they also identified greater proportions that rode on any type of tractor as well as a greater proportion that rode on tractors prior to age 10. According to the first age of operation of any type of tractor, cases reported greater proportions for ages between 10 and 14 years. Of note, is that 29% and 26% of cases and controls, respectively, identified operation of a tractor before age 10. In concert with this, a much greater proportion of cases than controls also reported having completed vocational agricultural or 4-H training pertinent to working with the tractor.

Relevant to exposures to large equipment, cases compared with control identified much greater proportions that operated planting equipment, augers/elevators, feed grinders/mixers, or worked with any type of wagons. Differences were not evident for operating harvesting equipment, irrigation equipment, fertilizers applicators, or other external or self-powered equipment. "Bystanding" activity in areas where large machinery was in use or stored was reported by greater proportions of cases than controls.

Questions pertinent to operation of hand grinders, powered shop tools, chain saws, garden tillers, or hand tools also elicited positive responses from greater proportions of cases than controls. "Bystanding" activity in the farm or ranch shop was also identified more frequently for cases.

Numerous other exposures were also examined; these included working inside a storage structure (e.g., grain bin, manure pit), handling or applying any type of agricultural chemicals, working in or near a body of water, working on ladders or scaffolding, and performing other general agricultural activities. For each of these, greater proportions of cases than controls responded positively. "Bystanding" activity of standing around or playing in fields or barnyards was also reported for a greater proportion of cases; however, no differences were observed for bystander activity of standing around or playing near bodies of water.

Of further interest was the number of hours spent in agricultural safety and/or injury prevention training. A greater proportion of cases than controls reported having completed such training.

Multivariate Analyses

Among the exposures of interest, those pertinent to machinery/equipment and animal exposures were addressed according to procedures identified in the methods section. As identified in **Table 7**, increased risks were identified for operating or riding in a motor vehicle and riding on or operating a tractor. Increased risks for operating either large or small equipment were suggestive. In **Table 8**, animal-related exposures were also examined. In particular, increased risks were identified for working with horses, sheep, and beef cattle. Exposures to swine and dairy cattle were also suggestive of risk.

Validation Substudy

For the validation study, 412 participants were included -- 206 injured participants (cases) and 206 non-injured participants (controls). Letters explaining the study and the subject's right to refuse participation were mailed to each participant's address. In order to optimize

participation, two mailings were initiated. A consent form, as well as a copy of the letter and form that would be mailed to the health care providers upon consent, were included with each mailing.

The first mailing resulted in response from 21 (5.1%) of the participants, providing permission to access health care records specific to injury events that may have occurred between July 1998 and June 2000. Of these, 14 responses corresponded to cases while seven corresponded to controls. There were eight refusals and eight self-reports of "no injury" returned by other participants.

The second mailing resulted in 14 additional responses, that provided consent for access to respective health care records; an additional five participants refused participation, while an additional eight self-reported "no injury." The cumulative response, providing consent for access to health care records, received from both mailings, was 8.5%. The cumulative evident refusal rate was 3.4%.

Among the 35 responses, providing consent for access to health care records, names and contact information for 44 health care providers were included. Letters explaining the study and providing a copy of the participant's signed consent document were included with each provider mailing. Of these, 41 (93.2%) have returned the form provided, indicating whether or not an injury occurred during the specified time period.

Data from this substudy may be used to help identify the effect of false negatives and false positives on the estimates of the incidence of agricultural-related injuries. Copies of the letters and forms used for contacting participants and obtaining information from health care providers may be found in **Appendix G**.

CASE-CROSSOVER STUDY

For the RRIS-II, a case-crossover analysis was proposed for the 203 exposure-injury pairs (representing 199 individuals) available in the case-control study of household members less than 20 years of age. Interview data gathered on a single exposure-injury pair included farm work activities at the time of the index injury, and hours spent during the calendar month, preceding that of the injury, on various farm work activities. The aim of a case-crossover analysis in this case is to compare the distribution of activities proximal to injuries with the distribution of work activities during the preceding month. For a case-crossover design, the outcome of interest—farm/ranch-work injury, in this case—must have the potential to have occurred during any of the exposures under consideration. For example, we assumed that injuries from animals did not occur while operating a tractor. Therefore, to consider whether exposure to operating a tractor posed a greater hazard, than not doing so, exposure-injury pairs involving injuries from animals were necessarily excluded. In this setting, injuries were specified to an extent that certain exposures could be ruled out as causal candidates. A health outcome such as a myocardial infarction (MI) does not have this feature; an MI could occur in anyone at anytime. However, the injury outcomes in the RRIS-II are defined—partially, at least—by the proximal exposure itself.

For the RRIS-II data, exclusions of this kind leave few combinations of work activities and injury types that qualify for a meaningful case-crossover analysis. These restrictions, in turn, lead to few exposure-injury pairs available for the analysis. One domain of activities, which does qualify, is dairy work and animal-related injuries. Data are available on whether the index

injury was associated with an animal during dairy work, and the sub-type of dairy work involved. There were three sub-types available: cleaning, feeding, and milking. These data were matched with data from the preceding month on hours spent on each of these sub-types of dairy work. The goal was to determine which of these sub-types of activity is more hazardous.

Selection from the original, 203 exposure-injury pairs, by these criteria, yields only five pairs available for a case-crossover analysis; some relevant statistics are shown in the table below.

i	e.i	u.i	e.hrs	u.hrs	hrs	e.prop	u.prop
1	1	0	16	16	32	0.500	0.500
2	1	0	56	36	92	0.609	0.391
3	0	1	0	12	12	0	1
4	0	1	56	44	100	0.560	0.440
5	1	0	60	8	68	0.882	0.118

Case-Crossover Statistics for the Dairy / Milking Sub-Type

In this table, **i** is a row identifier, **e.i** denotes the indicator of exposure to milking activity proximal to the injury, and **u.i** is its compliment (unexposed). If **u.i** = 1, the proximal activity was cleaning or feeding. This includes the possibility that the proximal activities were reported as *both* cleaning and feeding. From the previous month, the hours spent milking (exposed), and those spent cleaning or feeding (unexposed) are indicated under **e.hrs** and **u.hrs**, respectively. Their sum appears under **hrs**. Finally, the proportions of hours exposed to milking and unexposed are given by **e.prop** and **u.prop**, respectively.

By Maclure (1991), the rate ratio estimator (**RR**) associated with milking, is obtained as follows. Let **a** denote the inner product of column **e.i** and column **u.prop** (that is, take the row-by-row products of elements from these two columns, and add them). Then, define **b** as the inner product of column **u.i** and column **e.prop**; thus, **RR** = **a** / **b**. For the exposure of interest as milking (vs. cleaning or feeding), the rate ratio estimate is then **RR_m** = 1.8. For this endpoint, and the case with **i** = 3, the value of 0 for **e.hrs** eliminates any contribution to the rate ratio estimate. Similarly, the rate ratio for cleaning (vs. milking or feeding) is **RR_c** = 0, and for feeding (vs. cleaning or milking), **RR_f** = 0.9.

The small numbers available for analysis limit their usefulness for inferential purposes. However, the example for the milking sub-type illustrates the mechanics of **RR**. In addition to the indicator of proximal exposure, the proportions of prior-month exposure time alone are sufficient to determine the value of **RR**. Conditional on these time proportions, **RR** is not affected by total hours of each exposure, which can produce unanticipated results. For example, in the **table above**, consider all rows except **i** = 3, since that exposure-injury pair does not contribute to **RR_m**. The three cases, in which milking was associated with the injury (**i** = 1, 2, 5), correspond to a total of 16 + 56 + 60 = 132 hours. Regarding their previous month's exposure as representative of the month in which injury occurred, a simple expression for the hourly rate of injury associated with milking is 3/132. For the single case where cleaning or feeding was associated with the injury (**i** = 4), 44 hours were spent in either of these tasks, yielding an hourly rate of injury associated with cleaning or feeding as 1/44. It happens that these two rates are identical—suggesting that on an hourly basis, neither exposure is more hazardous than the other. Despite this, **RR_m** = 1.8. The inherent capacity of **RR** to stratify on all static characteristics of

each subject may be advantageous in certain settings; however, in this application the inclusion of each subject's total hours with these characteristics may be over-stratification.

DISCUSSION

Potential Limitations

Within any research effort, there is always a potential for bias. In this study, every effort was made to minimize such bias; these efforts are identified below and are further elaborated upon in the methods section.

Potential for: Strategies Used to Control:

- **Recall bias** -6-month recall period for injury events
 -1-month/other recall period for exposures
 -Validation substudy
- **Response bias** Adjustment: within-household correlation (Liang and Zeger, 1986);
 nonresponse (Mongin, 2001; Horvitz and Thompson, 1952)
- **Misclassification** Rigorous development and testing of data collection instruments; rigorous
 training of interviewers; validation and reliability substudies; sensitivity
 analyses (Rothman and Greenland, 1999)
- **Confounding** Use of: Conceptual Model; prior study information (RRIS-I; pilot study);
 Directed Acyclic Graphs to select confounders (Greenland et al., 1990);
 application of sensitivity analyses

For the initial portion of the study, involving all ages, subjects were asked to recall specific injury events during two six-month periods. Recall bias is inherent in any study that utilizes interviews to obtain retrospective exposure and/or outcome information. By inaccurately recalling this information, subjects may be misclassified on outcome (type of injury) and/or exposure status. The chance for this bias was decreased in the RRIS-II research effort by utilizing two six-month recall periods, rather than a 12-month period. This approach was based on the OATS validation data, which suggested using two six-month reporting periods and designating the female head of household as the preferred respondent for the injury and demographic information in order to enhance quality of reporting (Gerberich et al., 1991; 2001). In addition, a study that assessed a three-year recall of self-reported injury found that self-reporting is adequate to enumerate injuries occurring in a six-month period (Braun et al., 1994).

For the case-control study, it was possible that cases provided better exposure information (differential recall), because they had an event to which exposures could be related; this may have varied with controls, who were asked to recall exposures during a particular month, without having a specific reference event. While exposure self-reporting may introduce bias in the form of recall of events, it was anticipated that this bias was minimized by limiting the time period to one month; this approach was also utilized in the study by Lee et al., 1999, among others.

Selection bias due to non-response is also a potential concern. Thus, the types of injuries and exposures experienced by those who did not participate in the study are unknown. However, potential selection bias was controlled by inversely weighting observed responses with probabilities on non-response (Horvitz and Thompson, 1952), estimated as a function of characteristics available from the NASS Master List Frame. To account for unknown eligibility among non-respondents, probability of eligibility was estimated from these same characteristics (Mongin, 2001).

Another limitation is the potential for misclassification. To minimize this possibility, rigorous development and testing of data collection instruments and pertinent training of interviewers was implemented; validation and sensitivity analyses (Rothman and Greenland, 1999) were also incorporated. Despite a low response rate for the validation study, sensitivity analyses will enable determination of the potential range of effects for key exposures of interest. A low response was not unexpected; the recent heightened sensitivity of the public, pertinent to health care record access, likely contributed to the low response, particularly because they were requested to identify provider names for a specific period of time. Future strategies need to be tested to optimize such validation efforts, with attention to the issues identified, as procedures similar to those incorporated in this study have been successful in prior studies of other populations. (Gerberich et al., 1983; 1987)

With regard to the potential for confounding, this was limited by application of the conceptual and causal models that were based on prior studies (RRIS-I; pilot study), conducted by the investigators. The use of Directed Acyclic Graphs to select confounders (Greenland et al., 1990) would be expected to further minimize this bias. Sensitivity analyses enable further assessment of the quality of the analyses.

Discussion of Key Findings

Based on results of this study, it appears that injuries are a major burden to the agricultural population, accounting for overall annualized rates of 176.0 and 145.9 per 1,000 persons per year, respectively, for those 20+ and <20 years of age. In particular, the population rate for injury events associated with one's own agricultural operation was 74.6 while for those associated someone else's operation, and those related to activities other than agriculture, the rates were 4.3, and 81.4. This pattern is similar to that identified in the RRIS-I (Gerberich et al., 1993) and OATS (Gerberich et al., 1991), among others.

Consideration of the denominator applied in the calculation of rates is very important. While rates appear much greater in males than females and those 20+ years versus < 20 of age, when 1,000 persons is used, this effect is diminished with the application of 100,000 hours worked in the denominator; the effect is even more striking and, in fact, reverses when age groups <20 years are considered. This effect has also been shown in previous studies (Gerberich et al., 1991; 1993). As noted, there is a caveat because of the potential discrepancy with regard to those who may be included in the numerator and denominator, respectively. Application of rates per total household work hours on their agricultural operation has been presented as a potential alternative approach to diminish this potential bias.

Similar to previous population-based studies, animals and falls were important sources of the agricultural-related injuries for both major age groups, along with machinery and tractors. In particular, animals have been cited as a primary source of injuries (Boyle, et al., 1996, Cogbill et al., 1985; 1991; Gerberich et al., 1991; 1993; Nordstrom et al., 1995; Rasmussen et al., 2000; Stueland et al., 1991).

In this study, it was found that for those <20 and 20+ years of age, respectively, only 4% and 5% of the agricultural-injury cases and 5% and 6% of those associated with other activities were hospitalized. Yet, for those <20 and 20+ years of age, respectively, 79% and 82% required professional health care for the agricultural-related injuries, while 93% and 91% required care for non-agricultural-related injuries. These findings, comparable to those identified, both in the OATS (Gerberich et al., 1991) and RRIS-I (Gerberich et al., 1993) studies, and by Brison et al., 1991; 1992), have implications not only for the severity involved but, also, for using hospital-

based surveillance systems exclusively. Only a small proportion of significant injuries can be detected through such systems.

The fact that restriction from regular activities for ≥ 7 days was reported for 29% of each age group is particularly important in this population. Of further interest is the impact of injuries, both agricultural-related and those associated with other activities, upon the farming operation; 17% and 14%, respectively, of those <20 and $20+$ years of age, identified ≥ 7 days of lost agricultural work time, while for non-agricultural-related injuries, this accounted for 17% of each age group. This provides further evidence of the importance of considering the total burden of injury on this population.

Overall, there were many similarities between those <20 and $20+$ years, pertinent to injury experience and consequences; there were also some differences, some of which were greater for those <20 years of age. Of primary concern is that the younger population, that has been largely ignored as part of the agricultural environment, is recognized as integral and in need of attention comparable to that provided to the older population.

Moreover, as identified in the case-control study, focused on those <20 years of age, it was found that cases, and controls to a lesser degree, experienced numerous hazardous exposures. Based on multivariate analyses of case-control data, involving those <20 years of age, increased risks were identified for operating or riding in a motor vehicle and riding on or operating a tractor; increased risks for operating either large or small equipment were suggestive. For animal exposures, increased risks were identified for working with horses, sheep, and beef cattle; exposures to swine and dairy cattle were also suggestive of risk.

The age-appropriateness of the tasks and equipment to which the children and youth are exposed (Swanson et al., 1997; NCCAIP, 1996) appears integral to this problem. Child Labor Laws in the United States prohibit extremely hazardous jobs, for example, the operation of a tractor with greater than 20 horsepower. However, a major exception to this legislation is provided for children and youth who work on their family's farms.

CONCLUSIONS

This represents one of the first comprehensive efforts, conducted within a large regional population, to enable unique application of methods and technology. Utilization of a specially designed computer assisted telephone interview (CATI) instrument facilitated identification of the magnitude and consequences of agricultural injuries, in concert all types of injuries among household members, to establish the overall burden on the agricultural operation. Of further importance, was the identification of specific risk factors for agricultural-related injuries among children and youth, <20 years of age, through the incorporation of a concurrent case-control study that can serve as the basis for development of relevant prevention and control efforts. This effort also serves as the basis for a surveillance effort that was implemented in 2001.

PUBLICATIONS AND PRESENTATIONS

Oral Presentations:

Gerberich, SG, Church, TR, Renier, CM, Gibson, RW, French, LR, Masten, AS, Mongin, SJ, Ferguson, K, Alexander, B, Ryan, A, Zhang, X, Unique Occupational Injury Surveillance: Regional Rural Injury Study – II, Congress of Environmental and Occupational Epidemiology, Barcelona, Spain, September 2002.

Gerberich, SG, Gibson, RW, Renier, C, French, LR, Masten, A, Church, TR, Luan, X, Jensen, K, Shutske, J, Carr, WP, Etiology Of Agricultural-Related Injuries Among Children: Regional Rural Injury Study - II, 6th World Conference on Injury Prevention and Control, Montreal, Canada, May 2002.

Gerberich, S.G., Gibson, R.W., Renier, C.M., French, L.R., Masten, A.S., Church, T.R., Luan, X., Jensen, K.E., Shutske, J.M., and Carr, W.P: Risk Factors for Agricultural Injuries Among Children: Regional Rural Injury Study – II. 2001 Congress of Epidemiology, Toronto, Canada, June 2001.

Gerberich, S.G., *Invited Presentation:* 2001 Summit on Childhood Agricultural Injury Prevention, Brooklyn Park, Minnesota, April 30-May 1, 2001.

Gerberich, S.G., *Invited Presentation:* Regional Rural Injury Study – II, University of California-Davis/Sacramento, May 2001. [Unable to present due to family death]

Gerberich, S.G., Gibson, R.W., French, L.R., Masten, A., Renier, C., Church, T.R., Luan, X., Shutske, J., Carr, W.P., Peterson, J., Howse, G., Etiology and Consequences of Injuries among Children in Farm Households: Regional Rural Injury Study-II, NIOSH NOIRS meeting, Pittsburgh, October 2000.

Gerberich, S.G., Gibson, R.W., French, L.R., Church, T.R., Masten, A., Renier, C.M., Etiology and Consequences of Injuries among Children in Farm Households: A Regional Rural Injury Study, Agricultural Health and Safety in a New Century, Cooperstown, New York, April 2000.

Gerberich, S.G., *Invited Presentation:* Epidemiology of Intentional and Unintentional Injuries: Examples of Population-Based Studies, Medical University of Gdansk, Gdansk, Poland, September 1999.

Gerberich, S.G., *Invited Presentation:* Epidemiology of Injuries Among Children in a Five State Study of Farm Households, Department of Epidemiology and Public Health, University of Newcastle, Newcastle-upon-Tyne, Great Britain, September 1999.

Publications:

Hard, D., Meyer, J., and Gerberich, S.G., Traumatic Injuries in Agriculture, Journal of Agricultural Safety and Health, 81(1): 51-65, 2001. [Includes information on study]

• Anticipated Peer-Reviewed Scientific Publications – In Final Preparation:

Gerberich, S.G., Gibson, R.W., Renier, C.M., French, L.R., Masten, A.S., Mongin, S., Ryan, A., Zhang, X., Church, T.R., Risk Factors for Agricultural Injuries among Children: Regional Rural Injury Study-II.

Jensen, K., Gerberich, S.G., Alexander, B., Renier, C.M., Mongin, S., Ryan, A., Zhang, X., Gibson, R.W., French, L.R., Masten, A.S., Injuries Among Farm Household Members in a Five-State Region: Regional Rural Injury Study –II.

Hagen, E., Gerberich, S.G., Alexander, B., Ryan, A., Renier, C.M., et al. Fall-Related Injuries Among Farm Household Members in a Five-State Region: Regional Rural Injury Study –II.

Ferguson, K., Gerberich, S.G., Alexander, B., Ryan, A., et al. Tractor-Related Injuries: Regional Rural Injury Study-II.

Larson-Bright, M., Gerberich, S.G., Alexander, B., Church, T.R., Ryan, A., Mongin, S., et al. Regional Rural Injury Study-II: Validation of Injury Reporting.

Larson-Bright, M., Gerberich, S.G., Alexander, B., Church, T.R., Ryan, A., Mongin, S., et al. Regional Rural Injury Study-II: Evaluation of NAGCAT Guidelines

• Published Abstracts:

Gerberich, Susan G., Church, Timothy R., Renier, Colleen M., Gibson, Robert W., French, L. Ronald, Masten, Anne S., Mongin, Stephen J., Ferguson, Kathleen, Alexander, Bruce, Ryan, Andrew D., Zhang, Xueying), “Unique Occupational Injury Surveillance: Regional Rural Injury Study – II,” La Medicina del Lavoro 93(5):464-465, 2002.

Gerberich, Susan G.; Gibson, Robert W.; Renier, Colleen M.; French, L. Ronald; Masten, Anne S.; Church, Timothy R.; Luan, Xueying; Jensen, Kristen E.; Shutske, John M.; Carr, W. Peter, Risk Factors for Agricultural Injuries among Children: Regional Rural Injury Study-II, American Journal of Epidemiology, May 2001.

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TABLES

TABLE 1
ETIOLOGY OF AGRICULTURAL-RELATED INJURIES AMONG CHILDREN:
Regional Rural Injury Study - II, 1999
RESPONSE



	<u>NUMBER</u>	<u>%</u>
RANDOM SAMPLE OF FARM OPERATIONS	16,000	100
REFUSED/UNKNOWN		
ELIGIBILITY		
KNOWN - NOT ELIGIBLE	3,282	20.5*
OTHER	8,288	51.8
OTHER	28	0.2
<hr/>		
<u>KNOWN ELIGIBLE FARM OPERATIONS (27.5%)</u>	4,402	100
PARTICIPATED	3,765	85.5
REFUSED	618	14.0*
OTHER	19	0.4

* overall known refusals = 24% of total sample

TABLE 2
REGIONAL RURAL INJURY STUDY - II
PERSON AND EVENT INJURY RATES' PER 1,000 PERSONS/YEAR AMONG FARM/RANCH HOUSEHOLD MEMBERS

CHARACTERISTICS AND EXPOSURES	Number exposed*	AGRICULTURAL-RELATED - OWN OPERATION		AGRICULTURAL-RELATED - OTHER OPERATION		NON AGRICULTURAL-RELATED		TOTAL	
		Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}
		Rate	(95% C.I.)	Rate	(95% C.I.)	Rate	(95% C.I.)	Rate	(95% C.I.)
Total population	16,189	63.8 (59.9, 67.9)	74.6 (69.7, 79.9)	4.2 (3.3, 5.4)	4.3 (3.4, 5.6)	73.8 (69.5, 78.4)	81.4 (76.3, 86.9)	136.9 (131.2, 142.9)	160.7 (153.1, 168.6)
State of residence									
Minnesota	3124	46.2 (39.0, 54.8)	53.3 (44.4, 63.9)	3.9 (2.3, 6.8)	3.9 (2.3, 6.8)	74.1 (63.4, 86.5)	79.6 (66.9, 94.8)	122.6 (109.4, 137.2)	137.2 (120.7, 156.0)
Nebraska	3338	65.5 (57.3, 74.7)	74.1 (64.3, 85.3)	4.9 (3.0, 8.2)	5.2 (3.1, 8.7)	81.1 (71.7, 91.5)	89.7 (78.7, 102.2)	146.0 (134.0, 158.9)	169.1 (153.8, 186.0)
North Dakota	3386	65.9 (57.5, 75.3)	76.7 (66.2, 89.0)	4.2 (2.5, 7.0)	4.5 (2.6, 7.7)	72.4 (63.4, 82.5)	81.1 (70.6, 93.2)	136.8 (124.5, 150.0)	162.3 (146.1, 180.3)
South Dakota	3486	73.6 (64.9, 83.3)	90.3 (78.5, 103.8)	5.4 (3.3, 8.9)	5.4 (3.3, 8.9)	76.5 (67.8, 86.2)	84.4 (74.3, 95.9)	148.2 (135.8, 161.5)	180.7 (163.4, 199.8)
Wisconsin	2855	66.8 (57.6, 77.4)	78.1 (66.3, 92.0)	2.3 (1.0, 5.2)	2.3 (1.0, 5.1)	62.7 (54.1, 72.7)	69.5 (59.1, 81.8)	127.8 (115.1, 141.7)	150.2 (133.2, 169.5)
Males (total)	8369	93.0 (86.8, 99.6)	110.9 (102.7, 119.7)	6.4 (4.9, 8.4)	6.6 (5.0, 8.8)	79.8 (73.9, 86.2)	90.0 (83.0, 97.7)	172.2 (163.9, 180.9)	207.9 (196.6, 219.9)
Ages 0-19	4330	34.6 (29.0, 41.1)	36.8 (30.5, 44.5)	3.6 (2.1, 5.9)	3.6 (2.1, 5.9)	119.1 (109.3, 129.6)	136.6 (124.9, 149.5)	151.7 (140.8, 163.3)	177.3 (163.4, 192.4)
Ages 20+	4034	154.6 (143.7, 166.2)	188.9 (174.0, 205.1)	9.4 (6.8, 13.1)	9.9 (7.1, 13.8)	38.3 (32.6, 44.9)	41.1 (34.8, 48.6)	193.9 (181.8, 206.5)	239.8 (223.1, 257.9)
Females (total)	7820	33.0 (29.1, 37.4)	36.4 (31.9, 41.6)	1.9 (1.2, 3.2)	1.9 (1.1, 3.2)	67.5 (61.7, 73.8)	72.2 (65.4, 79.7)	99.4 (92.5, 106.9)	110.4 (101.9, 119.5)
Ages 0-19	3983	18.3 (14.4, 23.3)	19.2 (15.0, 24.5)	2.5 (1.4, 4.7)	2.5 (1.4, 4.7)	83.8 (75.2, 93.3)	90.0 (80.2, 101.0)	103.2 (93.6, 113.6)	111.9 (100.9, 124.0)

CHARACTERISTICS AND EXPOSURES	AGRICULTURAL-RELATED - OWN OPERATION (95% C.I.)			AGRICULTURAL-RELATED - OTHER OPERATION (95% C.I.)			NON AGRICULTURAL-RELATED (95% C.I.)			TOTAL (95% C.I.)		
	Number exposed*	Rate		Injured persons per 1,000 persons	Rate		Injured persons per 1,000 persons	Rate		Injured persons per 1,000 persons	Rate	
		Injured persons per 1,000 persons	Events per 1,000 persons ^{††}		Injured persons per 1,000 persons	Events per 1,000 persons ^{††}		Injured persons per 1,000 persons	Events per 1,000 persons ^{††}		Injured persons per 1,000 persons	Events per 1,000 persons ^{††}
Ages 20+	3833	48.3 (41.9, 55.7)	54.4 (46.7, 63.2)	1.3 (0.5, 3.1)	1.3 (0.5, 3.1)	50.2 (43.5, 58.0)	53.4 (45.7, 62.5)	95.6 (86.5, 105.7)	109.0 (97.6, 121.7)			
Age groups (years)												
0-19	8313	26.7 (23.1, 30.8)	28.3 (24.3, 32.9)	3.1 (2.0, 4.7)	3.1 (2.0, 4.6)	102.1 (95.4, 109.3)	114.2 (106.2, 122.8)	128.4 (120.8, 136.3)	145.9 (136.7, 155.7)			
20+	7867	102.7 (96.0, 109.8)	123.2 (114.4, 132.8)	5.4 (4.0, 7.4)	5.7 (4.1, 7.8)	44.1 (39.6, 49.2)	47.1 (42.0, 52.9)	145.9 (137.8, 154.4)	176.0 (165.1, 187.7)			
0-4	1092	12.2 (7.1, 20.9)	12.1 (7.0, 20.8)	0.9 (0.1, 6.5)	0.9 (0.1, 6.5)	67.4 (53.6, 84.5)	70.5 (55.9, 88.8)	77.9 (63.2, 95.8)	82.8 (66.5, 103.3)			
5-9	1892	19.5 (13.7, 27.8)	19.4 (13.6, 27.6)	2.1 (0.8, 5.6)	2.1 (0.8, 5.6)	65.5 (54.6, 78.5)	68.4 (56.8, 82.4)	85.1 (72.6, 99.6)	89.8 (76.3, 105.7)			
10-14	2583	37.7 (30.7, 46.3)	41.4 (33.2, 51.7)	0.8 (0.2, 3.1)	0.8 (0.2, 3.1)	118.7 (105.7, 133.0)	133.2 (117.6, 150.9)	152.1 (137.8, 167.6)	176.0 (157.9, 196.3)			
15-19	2746	27.3 (21.7, 34.3)	28.9 (22.8, 36.5)	6.6 (4.1, 10.4)	6.6 (4.1, 10.4)	125.7 (113.3, 139.2)	145.6 (130.5, 162.3)	156.0 (142.5, 170.7)	182.0 (165.3, 200.4)			
20-24	543	35.3 (22.8, 54.4)	39.0 (25.0, 60.8)	11.1 (5.0, 24.4)	11.7 (5.3, 26.1)	48.4 (33.1, 70.2)	52.9 (36.0, 77.7)	90.8 (69.2, 118.3)	103.7 (78.7, 136.7)			
25-34	1041	96.2 (79.4, 116.2)	110.9 (90.8, 135.5)	6.7 (3.2, 14.0)	7.6 (3.8, 15.3)	44.6 (33.2, 59.6)	46.0 (34.0, 62.2)	141.2 (120.7, 164.6)	164.3 (138.9, 194.4)			
35-44	3644	110.9 (101.0, 121.6)	136.0 (122.5, 150.9)	5.5 (3.6, 8.5)	5.7 (3.7, 8.8)	50.5 (43.5, 58.7)	53.8 (46.0, 62.9)	159.4 (147.4, 172.1)	195.3 (179.0, 213.1)			
45-54	2222	101.2 (89.2, 114.6)	120.7 (104.7, 139.0)	4.1 (2.1, 7.8)	4.0 (2.1, 7.7)	34.7 (27.5, 43.7)	38.2 (29.3, 49.8)	135.9 (122.1, 151.1)	163.5 (144.2, 185.4)			
55-64	345	147.0 (110.1, 193.7)	157.3 (118.2, 209.2)	0.0 (0.0, 1.0)	0.0 (0.0, ∞)	33.3 (18.3, 59.8)	35.3 (19.1, 65.4)	172.1 (132.0, 221.4)	193.5 (148.5, 252.0)			
65+	72	111.0 (57.5, 203.8)	150.0 (75.8, 297.0)	0.0 (0.0, 1.0)	0.0 (0.0, ∞)	24.3 (6.3, 89.2)	22.8 (5.7, 90.8)	122.6 (66.6, 215.0)	171.4 (87.9, 334.2)			

Table 2 - 2

CHARACTERISTICS AND EXPOSURES	AGRICULTURAL-RELATED - OWN OPERATION (95% C.I.)			AGRICULTURAL-RELATED - OTHER OPERATION (95% C.I.)			NON AGRICULTURAL-RELATED (95% C.I.)			TOTAL (95% C.I.)		
	Number exposed*	Rate		Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}
		Injured persons per 1,000 persons	Rate									
0-4 males	569	13.6 (6.7, 27.7)	1.8 (0.1, 7.5) †††	1.8 (0.2, 12.4) ††††	74.7 (55.4, 100.0)	77.8 (57.7, 104.9)	77.9 (63.2, 95.8)	77.8 (57.7, 104.9)	77.8 (57.7, 104.9)	77.9 (63.2, 95.8)	92.1 (69.3, 122.5)	
5-9 males	948	28.2 (18.6, 42.5)	1.1 (0.1, 7.5) †††	1.1 (0.1, 7.5) ††††	66.9 (52.1, 85.4)	70.6 (54.8, 91.1)	85.1 (72.6, 99.6)	70.6 (54.8, 91.1)	70.6 (54.8, 91.1)	85.1 (72.6, 99.6)	99.3 (79.9, 123.5)	
10-14 males	1365	46.1 (35.9, 59.0)	0.7 (0.1, 5.2) †††	0.7 (0.1, 5.2) ††††	134.4 (116.5, 154.5)	152.7 (131.2, 177.7)	152.1 (137.8, 167.6)	152.7 (131.2, 177.7)	152.7 (131.2, 177.7)	152.1 (137.8, 167.6)	206.1 (180.2, 235.8)	
15-19 males	1448	36.4 (27.7, 47.8)	8.3 (4.7, 14.6) †††	8.4 (4.7, 14.7) ††††	156.4 (138.0, 176.7)	188.4 (165.0, 215.1)	156.0 (142.5, 170.7)	188.4 (165.0, 215.1)	188.4 (165.0, 215.1)	156.0 (142.5, 170.7)	236.6 (210.7, 265.8)	
20-24 males	300	53.3 (33.4, 84.0)	20.1 (9.0, 43.9) †††	20.8 (9.3, 46.3) ††††	56.7 (35.8, 88.5)	62.0 (38.9, 98.6)	90.8 (69.2, 118.3)	62.0 (38.9, 98.6)	62.0 (38.9, 98.6)	90.8 (69.2, 118.3)	143.2 (104.9, 195.6)	
25-34 males	412	179.1 (144.5, 219.8)	14.6 (6.6, 32.1) †††	16.9 (8.1, 35.6) ††††	34.8 (20.0, 59.8)	38.9 (21.6, 70.0)	141.2 (120.7, 164.6)	38.9 (21.6, 70.0)	38.9 (21.6, 70.0)	141.2 (120.7, 164.6)	265.4 (215.2, 327.3)	
35-44 males	1755	169.7 (153.0, 187.9)	9.7 (6.1, 15.6) †††	10.2 (6.4, 16.2) ††††	45.2 (36.1, 56.4)	48.0 (37.9, 60.9)	159.4 (147.4, 172.1)	48.0 (37.9, 60.9)	48.0 (37.9, 60.9)	159.4 (147.4, 172.1)	272.4 (245.4, 302.4)	
45-54 males	1287	143.1 (125.1, 163.3)	6.2 (3.1, 12.4) †††	6.1 (3.1, 12.3) ††††	28.9 (20.9, 39.9)	31.9 (22.7, 44.9)	135.9 (122.1, 151.1)	31.9 (22.7, 44.9)	31.9 (22.7, 44.9)	135.9 (122.1, 151.1)	210.6 (183.8, 241.3)	
55-64 males	237	181.7 (134.6, 240.7)	0 (0.0, 1.0) †††	0 (0.0, ∞) ††††	24.9 (11.2, 54.3)	24.0 (10.6, 54.2)	172.1 (132.0, 221.4)	24.0 (10.6, 54.2)	24.0 (10.6, 54.2)	172.1 (132.0, 221.4)	219.7 (167.4, 288.2)	
65+ males	43	163.1 (77.8, 310.4)	0 (0.0, 1.0) †††	0 (0.0, ∞) ††††	23.5 (3.8, 133.6)	22.1 (3.3, 146.9)	122.6 (66.6, 215.0)	22.1 (3.3, 146.9)	22.1 (3.3, 146.9)	122.6 (66.6, 215.0)	258.2 (121.8, 547.3)	
0-4 female	523	11.2 (5.1, 24.6)	0 (0.0, 1.0) †††	0 (0.0, ∞) ††††	59.6 (41.6, 84.7)	62.6 (43.6, 89.8)	69.7 (50.3, 96.0)	62.6 (43.6, 89.8)	62.6 (43.6, 89.8)	69.7 (50.3, 96.0)	73.9 (52.7, 103.5)	
5-9 female	944	10.9 (5.8, 20.5)	3.2 (1.0, 9.8) †††	3.2 (1.0, 9.8) ††††	64.2 (49.6, 82.6)	66.2 (51.1, 85.8)	77.1 (61.0, 97.0)	66.2 (51.1, 85.8)	66.2 (51.1, 85.8)	77.1 (61.0, 97.0)	80.2 (63.4, 101.5)	
10-14 female	1218	28.4 (19.8, 40.6)	0.8 (0.1, 5.8) †††	0.8 (0.1, 5.8) ††††	101.2 (84.0, 121.4)	111.4 (90.7, 137.0)	128.0 (108.7, 150.3)	111.4 (90.7, 137.0)	111.4 (90.7, 137.0)	128.0 (108.7, 150.3)	142.1 (118.9, 169.9)	
15-19 female	1298	17.3 (11.5, 25.8)	4.6 (2.1, 10.3) †††	4.6 (2.1, 10.3) ††††	91.4 (76.6, 108.8)	98.1 (81.9, 117.5)	112.2 (95.8, 131.1)	98.1 (81.9, 117.5)	98.1 (81.9, 117.5)	112.2 (95.8, 131.1)	121.9 (103.6, 143.3)	

Table 2 - 3

CHARACTERISTICS AND EXPOSURES	AGRICULTURAL-RELATED - OWN OPERATION (95% C.I.)		AGRICULTURAL-RELATED - OTHER OPERATION (95% C.I.)		NON AGRICULTURAL-RELATED (95% C.I.)		TOTAL (95% C.I.)	
	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}	Injured persons per 1,000 persons	Events per 1,000 persons ^{††}
	Number exposed*							
20-24 female	243	14.0 (4.3, 44.6)	0 (0.0, 1.0) †††	0.0 (0.0, ∞) ††††	38.5 (19.6, 74.3)	41.4 (20.9, 81.8)	51.9 (28.8, 91.7)	55.4 (30.5, 100.7)
25-34 female	629	42.9 (29.6, 61.9)	1.6 (0.2, 11.2) †††	1.6 (0.2, 11.2) ††††	50.9 (35.4, 72.7)	50.6 (35.3, 72.5)	141.2 (120.7, 164.6)	99.2 (75.9, 129.5)
35-44 female	1889	56.6 (47.1, 68.0)	1.6 (0.5, 4.9) †††	1.6 (0.5, 4.9) ††††	55.5 (45.8, 67.1)	59.2 (48.5, 72.2)	159.4 (147.4, 172.1)	124.1 (108.0, 142.5)
45-54 female	935	42.7 (31.3, 58.1)	1.1 (0.2, 7.6) †††	1.1 (0.1, 7.5) ††††	42.7 (30.6, 59.2)	46.7 (31.3, 69.7)	135.9 (122.1, 151.1)	97.6 (74.1, 128.7)
55-64 female	108	63.9 (31.1, 126.9)	0 (0.0, 1.0) †††	0 (0.0, ∞) ††††	52.8 (24.3, 111.3)	62.1 (27.6, 139.8)	172.1 (132.0, 221.4)	128.1 (74.4, 221.6)
65+ female	29	28.8 (3.9, 182.3)	0 (0.0, 1.0) †††	0 (0.0, ∞) ††††	25.4 (2.7, 917.9)	23.9 (2.6, 219.2)	122.6 (66.6, 215.0)	49.0 (10.3, 233.5)
Race								
Caucasian	16013	63.7 (59.8, 67.9)	4.2 (3.3, 5.3) †††	4.3 (3.4, 5.4) ††††	73.8 (69.5, 78.4)	81.5 (76.3, 86.9)	137.1 (131.4, 143.1)	160.8 (153.2, 168.8)
Non-Caucasian	160	52.8 (27.1, 100.4)	0 (0.0, 1.0) †††	0 (0.0, ∞) ††††	56.7 (27.2, 114.4)	55.7 (27.3, 113.9)	96.3 (54.5, 164.4)	106.8 (61.3, 186.2)
Educational status								
Incomplete (age < 20)	8313	26.7 (23.2, 30.8)	3.1 (2.0, 4.7)	3.1 (2.0, 4.6)	102.1 (95.4, 109.3)	114.2 (106.2, 122.8)	128.4 (120.8, 136.3)	145.9 (136.7, 155.7)
Less than high school graduate	253	85.3 (55.4, 129.2)	12.4 (4.0, 37.5)	12.1 (3.9, 37.2)	39.2 (21.0, 72.1)	44.3 (22.4, 87.9)	128.2 (90.9, 177.6)	154.0 (106.2, 223.4)
High school graduate or equivalency	3157	116.0 (105.2, 127.9)	6.2 (4.0, 9.6)	6.4 (4.1, 10.1)	41.7 (35.0, 49.5)	44.3 (37.0, 53.0)	156.0 (143.4, 169.5)	169.9 (153.2, 188.4)
Technical school or some college	2845	98.4 (87.8, 110.2)	3.8 (2.1, 6.9)	4.2 (2.2, 7.7)	45.9 (38.6, 54.5)	48.6 (40.7, 58.1)	142.4 (129.7, 156.1)	160.3 (139.1, 184.7)
College graduate/post graduate		87.2	5.9	5.8	46.7	50.6	135.5	145.9

Table 2 - 4

CHARACTERISTICS AND EXPOSURES	AGRICULTURAL-RELATED - OWN OPERATION (95% C.I.)		AGRICULTURAL-RELATED - OTHER OPERATION (95% C.I.)		NON AGRICULTURAL-RELATED (95% C.I.)		TOTAL (95% C.I.)		
	Injured persons per 1,000 persons	Events per 1,000 persons	Injured persons per 1,000 persons	Events per 1,000 persons	Injured persons per 1,000 persons	Events per 1,000 persons	Injured persons per 1,000 persons	Events per 1,000 persons	
	Number exposed*								
	1608	(74.3, 102.0)	(88.0, 124.5)	(2.8, 12.3)	(2.8, 12.2)	(36.5, 59.4)	(38.4, 66.8)	(119.3, 153.7)	(136.7, 155.7)
Marital status									
Pre-marital age (age<16)	6184	26.0 (21.9, 30.8)	27.3 (22.8, 32.8)	1.6 (0.9, 3.0) †††	1.6 (0.9, 3.0) †††	96.8 (89.2, 105.1)	106.2 (97.3, 115.9)	121.0 (112.5, 130.1)	135.3 (125.0, 146.4)
Married/living as married	2709	107.1 (100.0, 114.7)	127.3 (118.0, 137.4)	5.4 (3.9, 7.4) †††	5.6 (4.1, 7.6) ††††	44.3 (39.6, 49.7)	47.4 (42.0, 53.6)	150.3 (141.7, 159.3)	180.5 (168.9, 192.8)
Never married	2709	31.4 (25.3, 38.9)	34.6 (27.7, 43.2)	7.0 (4.5, 11.0) †††	7.1 (4.6, 11.2) ††††	102.1 (91.0, 114.4)	119.4 (105.7, 134.9)	137.0 (124.4, 150.8)	161.9 (145.9, 179.6)
Separated/divorced	141	116.4 (73.0, 181.9)	183.0 (99.8, 335.7)	0.0 (0.0, 1.0) †††	0.0 (0.0, ∞) ††††	31.7 (11.9, 82.2)	31.6 (11.9, 84.1)	142.1 (93.2, 210.9)	215.3 (120.8, 383.8)
Widowed	37	126.6 (51.3, 279.8)	166.3 (58.8, 470.0)	0.0 (0.0, 1.0) †††	0.0 (0.0, ∞) ††††	20.8 (2.5, 154.1)	18.7 (2.1, 169.9)	129.1 (53.3, 280.4)	186.5 (68.4, 508.3)
Hours worked on own farming/ranching operation (weekly average)									
0	2764	5.9 (3.7, 9.4)	6.0 (3.8, 9.6)	1.0 (0.3, 3.1)	1.0 (0.3, 3.2)	67.7 (58.7, 77.9)	73.3 (63.3, 84.9)	74.2 (64.9, 84.7)	80.9 (70.5, 92.9)
1-20	7715	33.3 (29.2, 38.0)	36.7 (31.9, 42.2)	3.4 (2.3, 5.0)	3.5 (2.3, 5.1)	89.8 (83.3, 96.8)	101.3 (93.4, 109.9)	121.6 (114.1, 129.6)	141.1 (131.5, 151.4)
21-40	2285	80.8 (70.2, 92.9)	91.3 (78.6, 106.0)	6.3 (3.5, 11.2)	6.3 (3.6, 11.2)	79.8 (68.9, 92.3)	89.0 (76.0, 104.2)	159.6 (144.3, 176.1)	186.8 (167.6, 208.2)
41-60	1446	143.7 (126.3, 163.2)	175.8 (152.6, 202.5)	9.0 (5.2, 15.5)	9.8 (5.6, 17.1)	42.9 (33.7, 54.4)	46.2 (36.0, 59.4)	188.9 (169.2, 210.3)	231.3 (205.2, 260.7)
61-80	1289	179.1 (159.0, 201.1)	223.2 (195.3, 255.1)	6.7 (3.5, 12.8)	6.7 (3.5, 12.8)	25.2 (17.8, 35.3)	29.0 (19.7, 42.6)	205.2 (183.9, 228.3)	259.3 (228.5, 294.2)
>80	481	222.9 (187.0, 263.4)	282.9 (230.9, 346.6)	4.4 (1.1, 17.4)	6.7 (1.6, 28.5)	21.8 (11.1, 42.1)	21.8 (11.2, 42.4)	236.1 (199.5, 277.2)	312.0 (257.0, 378.8)

Table 2 - 5

* Number responded for total injuries

† Adjusted for within-household correlation using GEEs (Liang & Zeger, 1986), excluding level for missing values, and weighted for non-response (Horvitz & Thompson, 1952)

†† Sum of all injury counts based on person-time in half-years; Annualized rate adjusted for within-household correlation using GEEs (Liang and Zeger, 1986), and weighted for non-response (Horvitz & Thompson, 1952)

††† Crude rates, excluding item non-response as separate category

†††† Annualized rate, unadjusted

TABLE 3
FARMING/RANCHING-RELATED INJURY RATES †
(EVENTS PER 100,000 HOURS WORKED ON THEIR OWN OPERATION)

CHARACTERISTICS AND EXPOSURES	NUMBER EXPOSED*	RATE (95% C.I.)
Total population	16527	7.21 (6.74, 7.72)
State of residence		
Minnesota	3176	5.85 (4.89, 7.01)
Nebraska	3380	7.18 (6.24, 8.27)
North Dakota	3493	7.36 (6.34, 8.54)
South Dakota	3528	8.68 (7.56, 9.96)
Wisconsin	2950	6.73 (5.72, 7.91)
Males		
Total	8533	7.10 (6.58, 7.66)
Ages 0-19	4408	6.80 (5.60, 8.26)
Ages 20+	4120	7.17 (6.60, 7.78)
Females		
Total	7994	7.60 (6.68, 8.65)
Ages 0-19	4077	8.54 (6.70, 10.88)
Ages 20+	3913	7.31 (6.29, 8.50)
Age groups (years)		
0-19	8485	7.29 (6.25, 8.51)
20+	8033	7.20 (6.68, 7.75)
0-4	1108	49.49 (28.29, 86.58)
5-9	1917	12.33 (8.67, 17.55)
10-14	2644	8.69 (6.93, 10.89)
15-19	2816	4.60 (3.61, 5.86)
20-24	553	5.69 (3.71, 8.69)
25-34	1059	7.38 (6.08, 8.95)
35-44	3717	7.69 (6.93, 8.53)
45-54	2274	6.41 (5.57, 7.39)
55-64	353	7.57 (5.62, 10.20)
65+	77	9.21 (4.18, 20.33)
0-4 males	574	41.57 (19.95, 86.59)
5-9 males	960	14.78 (9.73, 22.45)
10-14 males	1396	8.17 (6.13, 10.89)
15-19 males	1478	4.14 (3.08, 5.56)
20-24 males	307	5.70 (3.63, 8.95)
25-34 males	418	7.67 (6.18, 9.53)
35-44 males	1788	7.59 (6.74, 8.55)
45-54 males	1317	6.38 (5.48, 7.44)
55-64 males	244	7.54 (5.54, 10.28)
65+ males	46	10.09 (4.40, 23.17)
0-4 female	534	66.40 (28.67, 153.78)
5-9 female	957	8.63 (4.64, 16.05)

CHARACTERISTICS AND EXPOSURES	NUMBER EXPOSED*	RATE (95% C.I.)
10-14 female	1248	9.84 (6.85, 14.14)
15-19 female	1338	6.02 (3.94, 9.20)
20-24 female	246	5.61 (1.74, 18.02)
25-34 female	641	6.63 (4.53, 9.70)
35-44 female	1929	8.00 (6.58, 9.73)
45-54 female	957	6.54 (4.70, 9.09)
55-64 female	109	7.71 (3.57, 16.68)
65+ female	31	4.51 (0.62, 32.96)
Race		
Caucasian	16337	7.19 (6.72, 7.70)
Non-Caucasian	171	7.34 (3.73, 14.44)
Educational status		
Incomplete (Age < 20)	8485	7.29 (6.25, 8.51)
Less than high school graduate	266	4.97 (3.21, 7.69)
High school graduate or equivalency	3218	7.00 (6.27, 7.80)
Technical school or some college	2896	7.45 (6.58, 8.43)
College graduate/post graduate	1649	7.79 (6.57, 9.24)
Marital status		
Incomplete (age < 16)	6309	8.66 (7.19, 10.43)
Married/living as married	7248	7.16 (6.63, 7.72)
Never married	2767	5.37 (4.28, 6.72)
Separated/divorced	144	8.83 (4.91, 15.90)
Widowed	42	16.96 (6.53, 44.09)
Hours worked on own farming/ranching operation (weekly average)		
0	2765	574.44 (355.18, 929.03)
1-20	7715	10.44 (9.09, 12.00)
21-40	2287	6.61 (5.69, 7.69)
41-60	1446	6.89 (5.98, 7.93)
61-80	1290	6.20 (5.43, 7.09)
>80	481	6.08 (4.97, 7.45)

* Number responded

† Adjusted for within-household correlation using GEEs (Liang & Zeger, 1986), and weighted for non-response (Horvitz & Thompson, 1952)

TABLE 4
MULTIVARIATE ANALYSES: PERSONAL RISK OF AGRICULTURAL-RELATED
INJURIES INCURRED ON THEIR AGRICULTURAL OPERATION
Regional Rural Injury Study – II, 1999

Exposure of Interest	n Responded	n Events	Personal Risk Odds Ratio[†]	95% Confidence Interval
State of Residence <i>(adjusted for age, gender, educational status, marital status, and prior injury status)</i>				
Minnesota	3113	149	1 (referent)	--
Nebraska	3331	220	1.35	1.07, 1.72*
North Dakota	3376	221	1.52	1.19, 1.92*
South Dakota	3481	252	1.60	1.27, 2.02*
Wisconsin	2844	189	1.51	1.18, 1.93*
Gender <i>(adjusted for age)</i>				
Female	7807	258	1 (referent)	--
Male	8356	775	3.05	2.63, 3.53*
Age Groups (years) <i>(adjusted for gender)</i>				
0 - 4	1092	14	0.09	0.05, 0.16*
5 - 9	1891	36	0.15	0.10, 0.22*
10 - 14	2577	94	0.29	0.23, 0.37*
15 - 19	2739	71	0.21	0.16, 0.27*
20 - 24	543	19	0.27	0.17, 0.43*
25 - 34	1040	103	0.94	0.74, 1.20
35 - 44	3642	410	1 (referent)	--
45 - 54	2222	229	0.81	0.68, 0.97*
55 - 64	345	49	1.11	0.78, 1.58
65+	72	8	0.87	0.41, 1.84
Race				
Caucasian	15997	1021	1.22	0.61, 2.45
Non-Caucasian	159	9	1 (referent)	--
Educational status <i>(adjusted for age, gender, state, marital status, prior injury status)</i>				
Incomplete (Age < 20)	8295	215	1.04	0.63, 1.73
< High School Graduate	253	22	0.85	0.51, 1.42
High School Graduate or Equivalency	3153	370	1.21	0.98, 1.50[*]
Technical School or Some College	2838	279	1.19	0.95, 1.49[*]

College Graduate/Post Graduate	1606	145	1 (referent)	--
Marital status <i>(adjusted for age, gender, educational status, state of residence, and prior injury status)</i>				
Incomplete (Age < 16)	6175	155	0.62	0.31, 1.26
Married/Living as Married	7092	770	1 (referent)	--
Never Married	2700	84	0.48	0.29, 0.81*
Separated/Divorced	141	17	0.81	0.47, 1.37
Widowed	37	5	2.06	0.73, 5.82
Hours worked/Week on Their Own Farming/Ranching Operation <i>(adjusted for age, gender, educational status, marital status, and prior injury status)</i>				
0	2759	16	0.05	0.03, 0.10*
1-20	7699	255	0.27	0.19, 0.38*
21-40	2285	186	0.49	0.37, 0.66*
41-60	1444	208	0.66	0.50, 0.87*
61-80	1288	233	0.76	0.58, 0.99*
>80	478	103	1 (referent)	--

* 95% Confidence Intervals exclude 1 [with exceptions]

† Adjusted for within-household correlation using GEEs (Liang & Zeger, 1986), excluding level for missing values, and weighted for non-response (Horvitz & Thompson, 1952)

TABLE 5
MULTIVARIATE ANALYSES: RISK OF AGRICULTURAL-RELATED INJURIES
INCURRED PER 100,000 HOURS WORKED ON THEIR AGRICULTURAL
OPERATION

Regional Rural Injury Study – II, 1999

Exposure of Interest	n Responded	n Events	Events/# Hours Worked Rate Ratio[†]	95% Confidence Interval
State of Residence <i>(adjusted for age, gender, educational status, marital status, and prior injury status)</i>				
Minnesota	3169	171	1 (referent)	--
Nebraska	3374	250	1.15	0.92, 1.44
North Dakota	3490	257	1.30	1.03, 1.64*
South Dakota	3526	307	1.41	1.13, 1.77*
Wisconsin	2941	221	1.15	0.90, 1.46
Gender <i>(adjusted for age)</i>				
Female	7990	286	1 (referent)	--
Male	8528	922	0.94	0.81, 1.09
Age Groups (years) <i>(adjusted for gender)</i>				
0 - 4	1108	14	6.42	3.64, 11.30*
5 - 9	1917	36	1.60	1.10, 2.31*
10 - 14	2644	102	1.13	0.88, 1.45
15 - 19	2816	73	0.60	0.46, 0.77*
20 - 24	553	20	0.74	0.48, 1.15
25 - 34	1059	120	0.96	0.77, 1.19
35 - 44	3717	504	1 (referent)	--
45 - 54	2274	276	0.84	0.70, 1.00[*]
55 - 64	353	52	0.99	0.72, 1.36
65+	77	11	1.20	0.54, 2.67
Race				
Caucasian	16337	1195	0.98	0.50, 1.93
Non-Caucasian	171	9	1 (referent)	--
Educational status <i>(adjusted for age, gender, state of residence, marital status, prior injury status)</i>				
Incomplete (Age < 20)	8481	225	0.54	0.33, 0.89*
< High school graduate	266	26	0.58	0.35, 0.95*
High School Graduate or Equivalency	3215	450	0.92	0.75, 1.13
Technical School or Some	2891	329	0.96	0.78, 1.19

College				
College Graduate/Post Graduate	1647	176	1 (referent)	--
Marital Status <i>(adjusted for age, gender, educational status, state of residence, and prior injury status)</i>				
Incomplete (Age < 16)	6308	163	0.56	0.29, 1.09
Married/Living as Married	7242	921	1 (referent)	--
Never Married	2764	89	0.53	0.32, 0.87*
Separated/Divorced	144	26	1.26	0.71, 2.21
Widowed	42	7	1.74	0.59, 5.14
Hours Worked/Week on Their Own Farming/Ranching Operation <i>(adjusted for age, gender, educational status, marital status, and prior injury status)</i>				
0	2760	16	140.55	75.25, 262.53*
1-20	7702	279	2.76	2.05, 3.71*
21-40	2287	210	1.47	1.13, 1.93*
41-60	1444	253	1.21	0.94, 1.54
61-80	1289	289	1.01	0.79, 1.28
>80	478	131	1 (referent)	--

*95% Confidence Intervals exclude 1 [with exceptions]

† Adjusted for within-household correlation using GEEs (Liang & Zeger, 1986), excluding level for missing values, and weighted for non-response (Horvitz & Thompson, 1952)

TABLE 6
CHARACTERISTICS OF CASES AND CONTROLS
REGIONAL RURAL INJURY STUDY - II, 1999

CHARACTERISTICS	CASES		CONTROLS	
	(n = 203)	%	(n = 755)	%
State				
Minnesota	25	12.3	133	17.6
Nebraska	51	25.1	159	21.1
North Dakota	43	21.2	156	20.7
South Dakota	45	22.2	187	24.8
Wisconsin	39	19.2	120	15.9
Type of Enterprise Requiring Most Work Time				
Beef Cattle	56	27.6	178	23.6
Dairy Cattle	47	23.2	97	12.9
Other Animals	25	12.3	67	8.9
Field Forage, or Specialty Crops	70	34.5	373	49.4
Conservation Reserve Program	1	0.5	11	1.5
Nothing During Month of Inquiry	0	0.0	2	0.3
Missing/Unknown/Refused	4	2.0	27	3.6
Acres Available for Production				
All land in Conservation Reserve Program	0	0	10	1.3
1 - 99	18	8.9	76	10.1
100 - 499	63	31.0	213	28.2
500 - 999	34	16.8	129	17.1
1000 - 1999	30	14.8	131	17.4
2000 +	39	19.2	100	13.2
Missing/Unknown/Refused	19	9.4	96	12.7
Annual Income Level				
< \$15,000	31	15.3	93	12.3
\$15,000 - \$29,999	67	33.0	234	31.0
\$30,000 - \$49,999	57	28.1	223	29.5
\$50,000 - \$99,999	30	14.8	99	13.1
\$100,000 - \$174,999	3	1.5	10	1.3
> \$175,000	0	0.0	3	0.4
Missing/Unknown/Refused	15	7.4	93	12.3
Gender				
Male	136	67.0	429	56.8
Female	67	33.0	326	43.2
Age				
< 5	13	6.4	95	12.6
5- 9	33	16.3	160	21.2
10 - 14	88	43.4	222	29.4

15 - 19	69	34.0	276	36.6
Missing/Unknown/Refused	0	0.0	2	0.3
Grade				
Kindergarten - 2 nd Grade	13	6.5	102	13.5
3 rd - 5 th Grade	20	9.9	119	15.7
6 th - 8 th Grade	40	19.7	125	16.6
9 th - 12 th Grade	46	22.7	229	30.3
1 st - 3 rd Year Higher Education	8	4.0	68	9.0
NA - 5 years old	12	5.9	95	12.6
Missing/Unknown/Refused	64	31.5	17	2.3
Race				
Caucasian	199	98.0	744	98.5
Other	2	1.0	10	1.3
Missing	2	1.0	1	0.1
Prior Injury				
Yes	43	21.2	64	8.5
No	160	78.8	691	91.5
Insurance Status				
Yes, entire time	188	92.6	717	95.0
Yes, part time	3	1.5	9	1.2
No, none of time	11	5.4	27	3.6
Missing/Unknown/Refused	1	0.5	2	0.3
# Hours Worked/Did Chores on Their Operation/Week, During Month Prior to Injury Event				
0	21	10.3	270	35.8
1 - < 10	19	9.4	95	12.6
10 - 19	28	13.8	74	9.8
20 - 29	15	7.4	46	6.1
30 - 39	28	13.8	52	6.9
40 - 49	3	1.5	14	1.9
50 - 59	18	8.9	41	5.4
60 - 69	0	0.0	2	0.3
70 - 80	26	12.8	31	4.1
> 80	37	18.2	98	13.0
Missing/Unknown/Refused	8	3.9	32	4.2
# Hours Worked/Did Chores on Someone Else's Operation, During Month Prior to Injury Event				
0	175	86.2	666	88.2
1 - < 10	8	3.9	22	2.9
10 - 19	2	1.0	14	1.9
20 - 29	2	1.0	4	0.5
30 - 39	2	1.0	6	0.8
> 40	7	3.5	14	1.9

Table 6 - 2

Missing/Unknown/Refused	7	3.5	29	3.8
# Hours Worked/Did Chores Not Related to Agriculture, During Month Prior to Injury Event				
0	179	88.2	592	78.4
1 – < 10	1	0.5	14	1.9
10 – 19	2	1.0	14	2.3
20 – 29	0	0.0	7	0.9
30 – 39	6	3.0	13	1.7
> 40	13	6.4	105	13.9
Missing/Unknown/Refused	2	1.0	7	0.9
Worked/Did Chores With Any Type of Dairy Cattle				
Yes	44	21.7	100	13.3
No	152	74.9	625	82.8
Missing/Unknown/Refused	7	3.5	30	4.0
Worked/Did Chores With Any Type of Beef Cattle				
Yes	95	46.8	207	27.4
No	101	49.8	518	68.6
Missing/Unknown/Refused	7	3.5	30	4.0
Worked/Did Chores With Any Type of Swine or Pigs				
Yes	27	13.3	56	7.4
No	169	83.3	669	88.6
Missing/Unknown/Refused	7	3.5	30	4.0
Worked/Did Chores With Any Type of Horses				
Yes	55	27.1	95	12.6
No	141	69.5	630	83.4
Missing/Unknown/Refused	7	3.5	30	4.0
Worked/Did Chores With Any Type of Sheep				
Yes	18	8.9	32	4.2
No	178	87.7	693	91.8
Missing/Unknown/Refused	7	3.5	30	4.0
Worked/Did Chores With Any Type of Poultry				
Yes	17	8.4	46	6.1
No	179	88.2	679	89.9
Missing/Unknown/Refused	7	3.5	30	4.0
Worked/Did Chores With Any Type of Other Animals				
Yes	81	39.9	136	18.0
No	115	56.7	589	78.0

Table 6 - 3

Missing/Unknown/Refused	7	3.5	30	4.0
Stood Around or Played in Areas Where Animals are Kept				
Never	56	27.6	298	39.5
Sometimes	100	49.3	319	42.3
Frequently	40	19.7	109	14.4
Missing/Unknown/Refused	7	3.5	29	3.8
Operated a Car, Van, SUV, Pickup, or Other Truck				
Yes	102	50.3	250	33.1
No	93	45.8	476	63.1
Missing/Unknown/Refused	8	3.9	29	3.8
Rode as a Passenger in a Motor Vehicle				
Yes	155	76.4	413	54.7
No	41	20.2	312	41.3
Missing/Unknown/Refused	7	3.5	30	4.0
Operated or Rode on a Motorcycle, ATV, or Snowmobile				
Yes	91	44.8	198	26.2
No	105	51.7	527	69.8
Missing/Unknown/Refused	7	3.5	30	4.0
Stood Around or Played in Driveway				
Never	68	33.5	304	40.3
Sometimes	93	45.8	328	43.4
Frequently	35	17.2	95	12.6
Missing/Unknown/Refused	7	3.5	28	3.7
Operated Tractors > 20 Horse-Power (HP)				
Yes	80	39.4	187	24.8
No	115	56.7	539	71.4
Missing/Unknown/Refused	8	3.9	29	3.8
Operated Tractors with 20 HP or less, Excluding Skid Steers				
Yes	42	20.7	110	14.6
No	152	74.9	616	81.6
Missing/Unknown/Refused	9	4.4	29	3.8
Operated any Skid Steer Tractors				
Yes	39	19.2	73	9.7
No	156	76.9	653	86.5
Missing/Unknown/Refused	8	3.9	29	3.8
Age First Operated Tractors (years)				
0 - 5	1	0.5	6	0.8
6 - 10	58	28.6	188	24.9
11 - 15	50	24.6	131	17.4

Table 6 - 4

16 - 20	3	1.5	8	1.1
Didn't Operate a Tractor	83	40.9	395	52.3
Missing/Unknown/Refused	8	3.9	27	3.6
Rode on Tractors > 20 HP				
Yes	96	47.3	213	28.2
No	99	48.8	508	67.3
Missing/Unknown/Refused	8	3.9	34	4.5
Rode on Tractors with 20 HP or less				
Yes	34	16.8	74	9.8
No	160	78.8	647	85.7
Missing/Unknown/Refused	9	4.4	34	4.5
Rode on any Skid Steer Tractors				
Yes	8	3.9	14	1.9
No	187	92.1	711	94.2
Missing/Unknown/Refused	8	3.9	30	4.0
Age First Rode Tractors on Operation (years)				
0 - 5	55	27.1	137	18.2
6 - 10	29	14.3	75	9.9
11 - 15	9	4.4	15	2.0
16 - 20	1	0.5	0	0.0
Missing/Unknown/Refused	109	53.7	528	69.9
Had Vo-Ag or 4-H Training Relevant to Tractor				
Yes	48	23.7	89	11.8
No	147	72.4	635	84.1
Missing/Unknown/Refused	8	3.9	31	4.1
Operated Large Machinery				
Yes	63	31.0	139	18.4
No	131	64.5	587	77.8
Missing/Unknown/Refused	9	4.4	29	3.8
Operated Planting Equipment				
Yes	20	9.9	36	4.8
No	174	85.7	690	91.4
Missing/Unknown/Refused	9	4.4	29	3.8
Operated Harvesting Equipment				
Yes	11	5.4	39	5.2
No	183	90.2	687	91.0
Missing/Unknown/Refused	9	4.4	29	3.8
Operated Harvesting Equipment Connected to a Tractor				
Yes	3	1.5	29	3.8
No	191	94.1	697	92.3
Missing/Unknown/Refused	9	4.4	29	3.8
Operated Augers or Elevators				

Table 6 - 5

Yes	36	17.7	87	11.5
No	158	77.8	639	84.6
Missing/Unknown/Refused	9	4.4	29	3.8
Operated Feed Grinders or Mixers				
Yes	24	11.8	52	6.9
No	170	83.7	674	89.3
Missing/Unknown/Refused	9	4.4	29	3.8
Worked on or with any Type of Wagons				
Yes	35	17.2	85	11.3
No	158	77.8	641	84.9
Missing/Unknown/Refused	10	4.9	29	3.8
Operated Any Equipment for Irrigation, Chemical Fertilizer Application, Manure Application, or Other External or Self-Powered Agricultural Equipment				
Yes	26	12.8	61	8.1
No	169	83.3	665	88.1
Missing/Unknown/Refused	8	3.9	29	3.8
Stood Around or Played in Areas Where Large Machinery Was in Use				
Never	87	42.9	395	52.3
Sometimes	94	46.3	272	36.0
Frequently	15	7.4	60	8.0
Missing/Unknown/Refused	7	3.5	28	3.7
Stood Around or Played in Areas Where Large machinery Was Stored				
Never	87	42.9	395	52.3
Sometimes	91	44.8	272	36.0
Frequently	18	8.9	60	8.0
Missing/Unknown/Refused	7	3.5	28	3.7
Operated or Handled Grinders, Powered Shop Tools, Chain Saws, Garden Tillers, or Hand Tools				
Yes	84	41.4	204	27.0
No	111	54.7	522	69.1
Missing/Unknown/Refused	8	3.9	29	3.8
Stood Around or Played in Farm or Ranch Shop				
Never	56	27.6	265	35.1
Sometimes	115	56.7	373	49.4
Frequently	25	12.3	89	11.8
Missing/Unknown/Refused	7	3.5	28	3.7
Worked Inside Storage Structure,				

Table 6 - 6

Such as Grain Bin or Manure Pit				
Yes	40	19.7	96	12.7
No	155	76.4	631	83.6
Missing/Unknown/Refused	8	3.9	28	3.7
Handled or Applied Any Type of Agricultural Chemicals				
Yes	43	21.2	88	11.7
No	152	74.9	640	84.8
Missing/Unknown/Refused	8	3.9	27	3.6
Worked in or Near a Body of Water				
Yes	54	26.6	116	15.4
No	141	69.5	612	81.1
Missing/Unknown/Refused	8	3.9	27	3.6
Stood Around or Played Near Bodies of Water				
Never	136	67.0	517	68.5
Sometimes	47	23.2	164	21.7
Frequently	12	5.9	46	6.1
Missing/Unknown/Refused	8	3.9	28	3.7
Worked on Ladders or Scaffolding				
Yes	32	15.8	80	10.6
No	163	80.3	647	85.7
Missing/Unknown/Refused	8	3.9	28	3.7
Performed General Agricultural Activities Otherwise Not Discussed				
Yes	71	35.0	137	18.2
No	124	61.1	591	78.3
Missing/Unknown/Refused	8	3.9	27	3.6
Stood Around or Played in Fields or Barnyards				
Never	54	26.6	279	37.0
Sometimes	115	56.7	372	49.3
Frequently	26	12.8	76	10.1
Missing/Unknown/Refused	8	3.9	28	3.7
Hours Spent in Agricultural Safety and/or Injury Prevention Training				
0	131	64.5	543	71.9
1 - 9	40	19.7	124	16.4
10 - 29	9	4.4	32	4.2
30 - 49	5	2.5	4	0.5
50 - 100	2	1.0	3	0.4
Missing/Unknown/Refused	16	7.9	49	6.5

Table 6 - 7

TABLE 8
INJURY EVENTS RELATED TO THEIR FARMING OPERATION
CASE-CONTROL MULTIVARIATE ANALYSES†
Regional Rural Injury Study-II, 1999

<u>Animal Exposures</u>	<u>O.R. (95% C.I.)</u>
Horses	2.3 (1.5, 3.4)*
Sheep	2.3 (1.2, 4.3)*
Beef Cattle	2.0 (1.4, 2.9)*
Swine	1.6 (0.98, 2.7)[*]
Dairy Cattle	1.4 (0.9, 2.2)[*]
Poultry	1.2 (0.6, 2.4)

* Confidence interval excludes 1 with exceptions []

† Adjusted for: 5 year age group, gender, farm total hours in previous month; within-household correlation using GEEs (Liang and Zeger, 1986); and nonresponse (Mongin, 2001; Horvitz and Thompson, 1952)

FIGURES

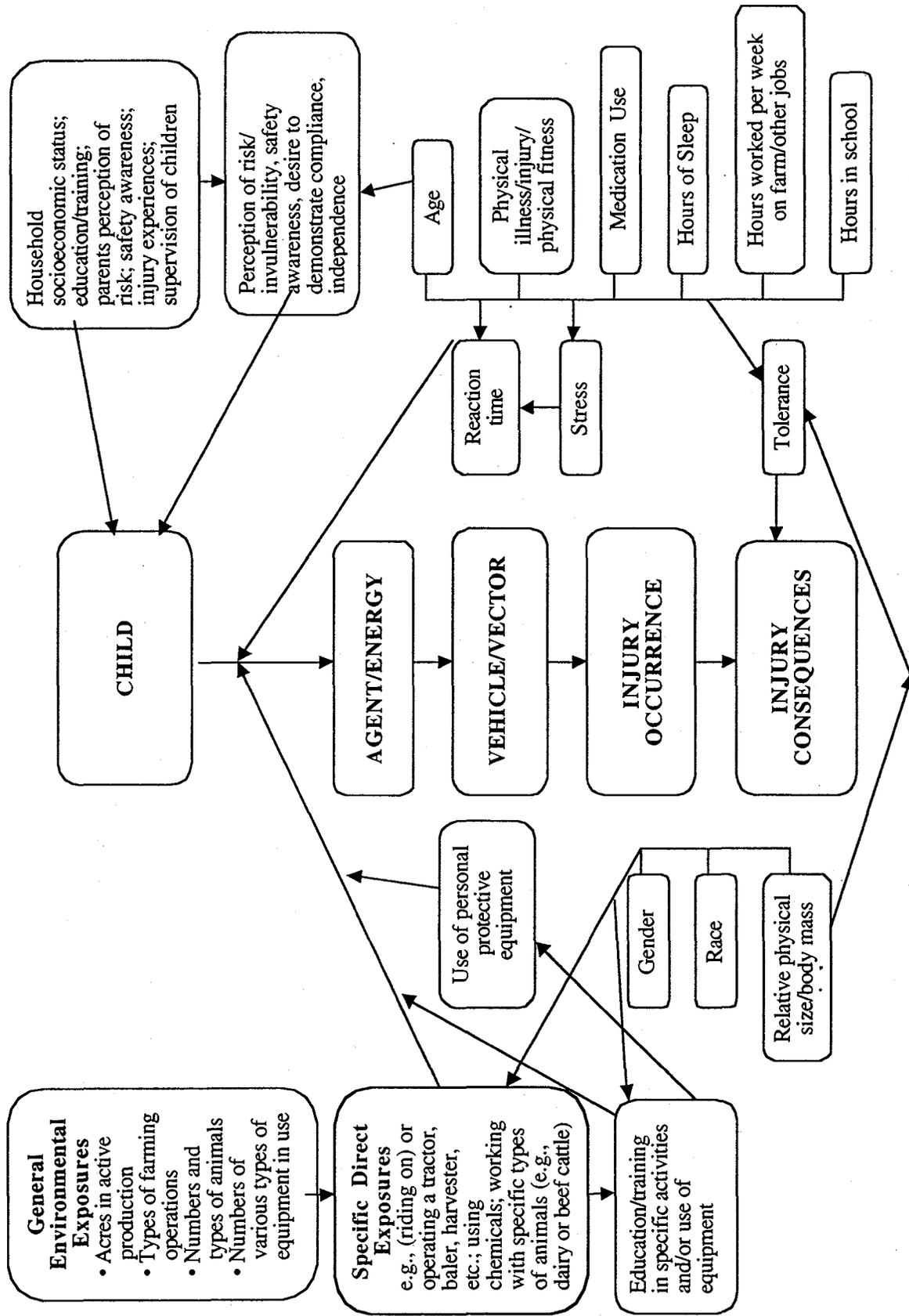


FIGURE 1 - CONCEPTUAL MODEL: ETIOLOGY AND CONSEQUENCES OF INJURIES AMONG CHILDREN IN FARM HOUSEHOLDS

FIGURE 2
CAUSAL MODEL: ANIMAL-RELATED INJURY, REGIONAL RURAL INJURY STUDY-II, 1999

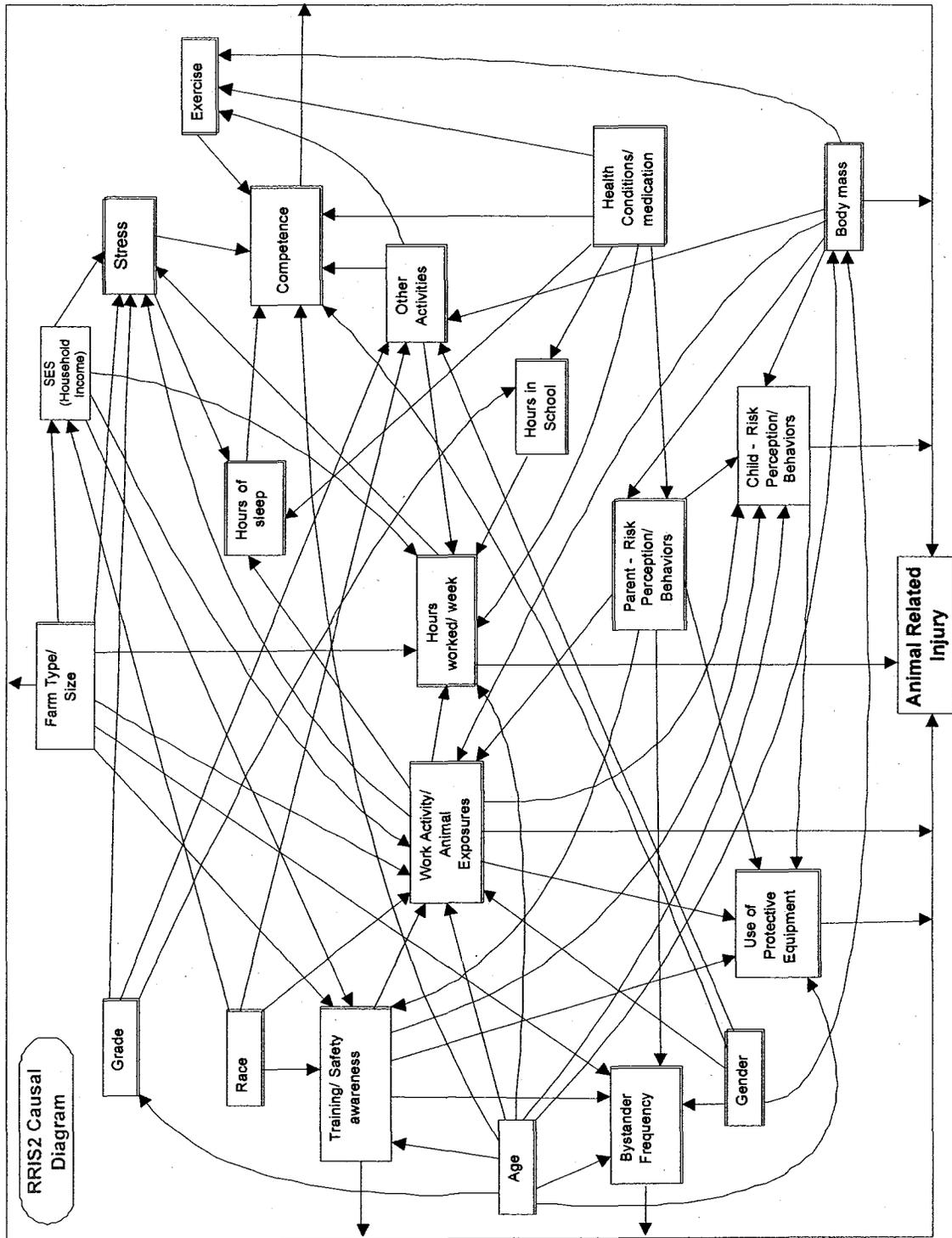


FIGURE 3
DIRECTED ACYCLIC GRAPH: ANIMAL EXPOSURES
Regional Rural Injury Study-II, 1999

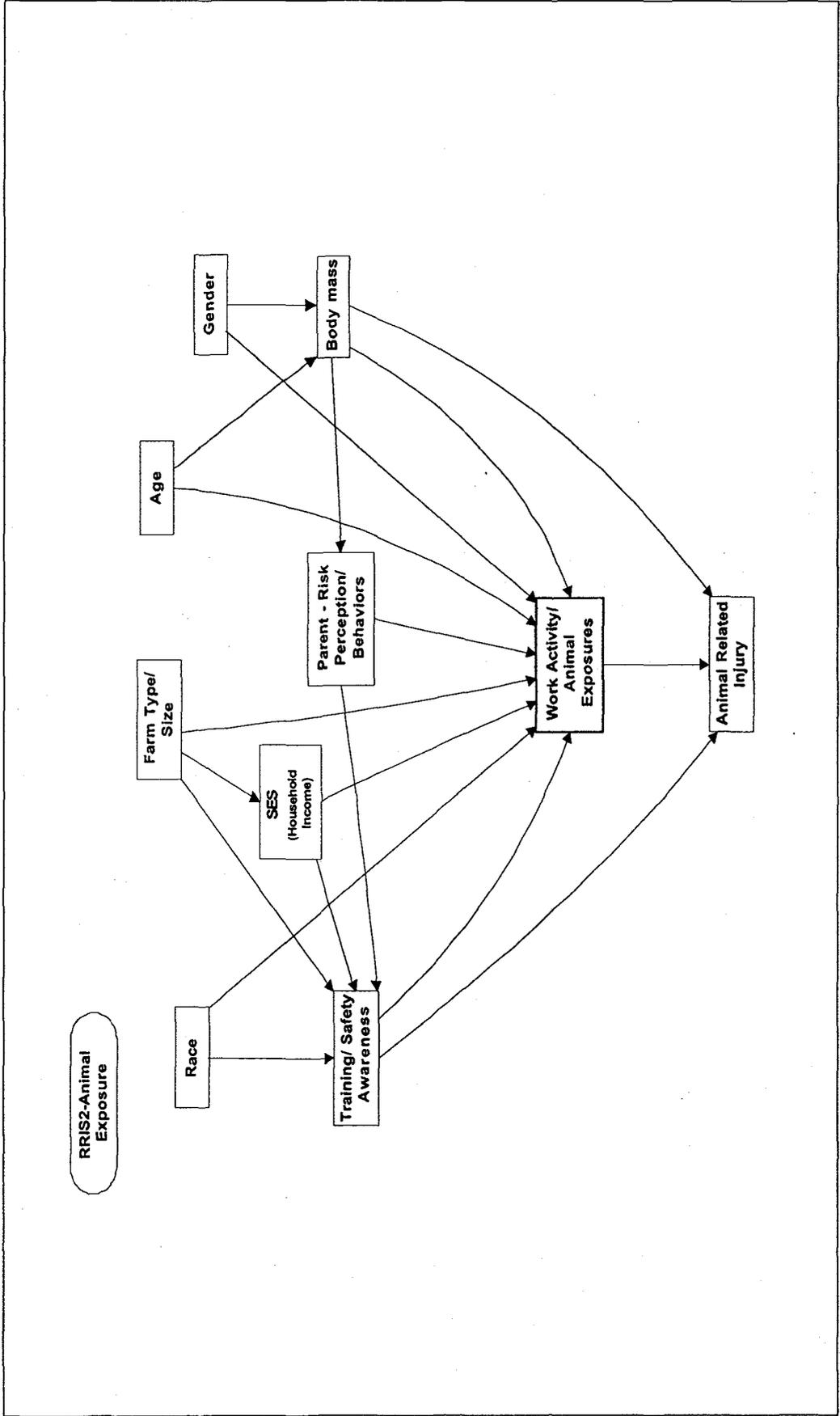


FIGURE 4
 HOUSEHOLD FARMWORK HOURS WITH INJURY EVENTS OVERLAID, BY AGE GROUP
 Regional Rural Injury Study-II, 1999

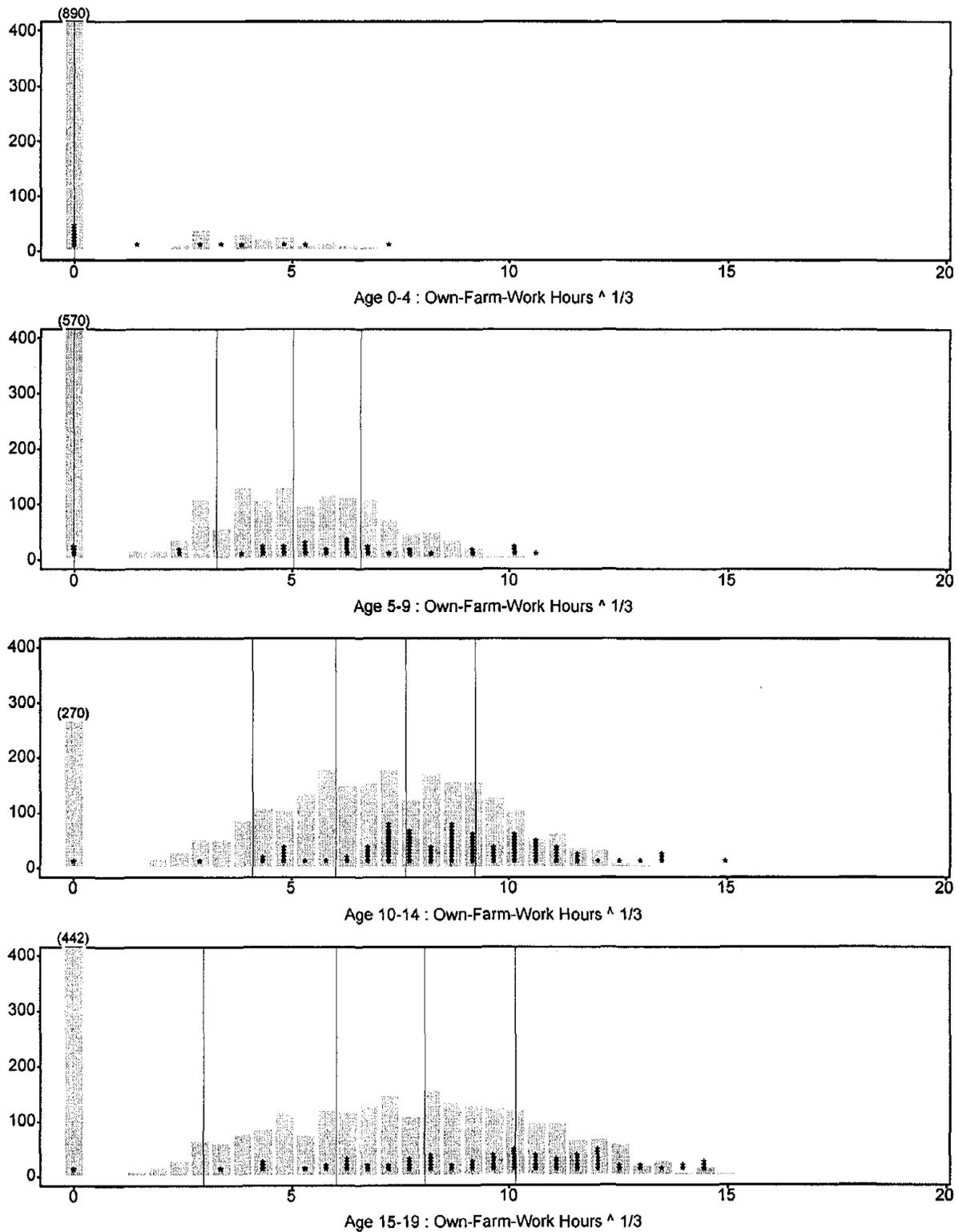
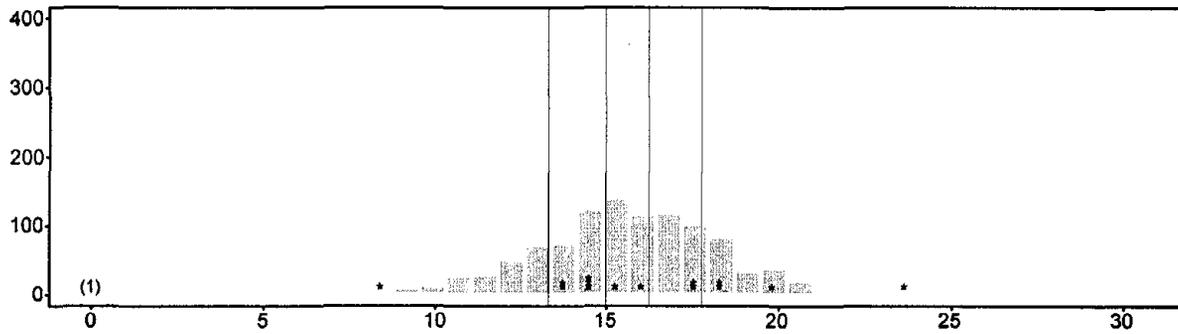
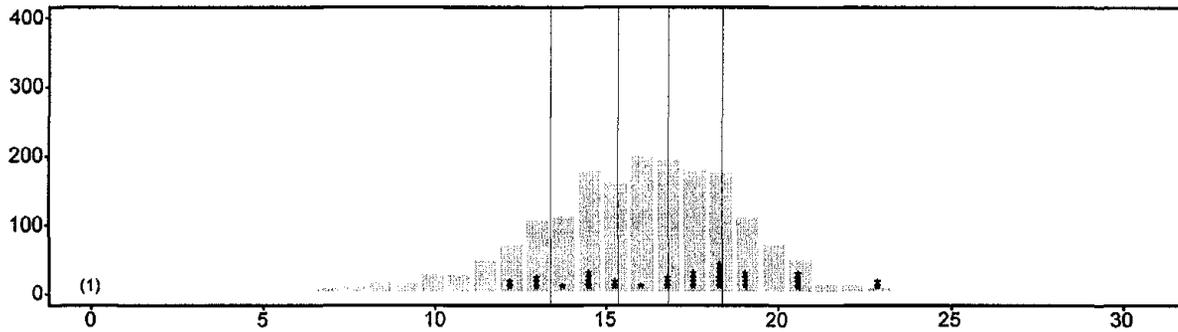


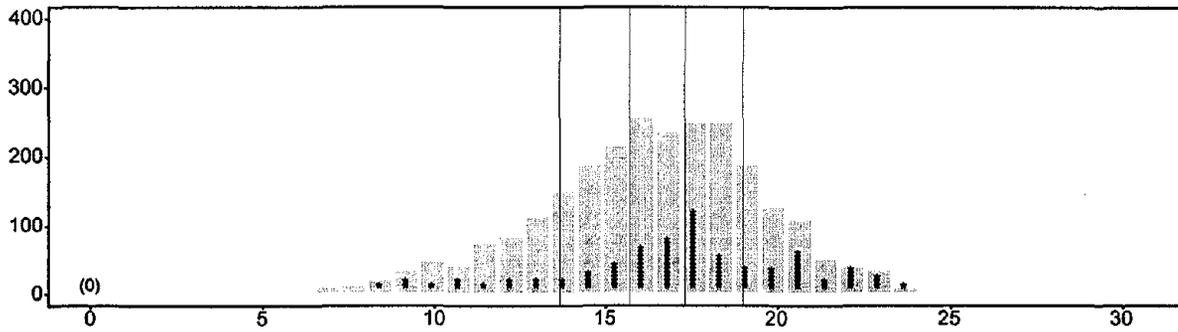
Figure H1. Histograms of Own-Farm-Work Hours With Injury Events Overlaid, by Age Group.



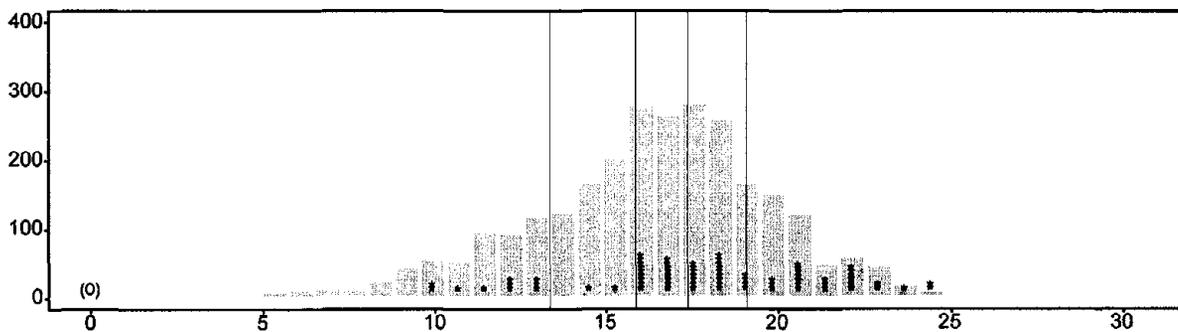
Age 0-4 : Total Household Own-Farm-Work Hours ^ 1/3



Age 5-9 : Total Household Own-Farm-Work Hours ^ 1/3



Age 10-14 : Total Household Own-Farm-Work Hours ^ 1/3



Age 15-19 : Total Household Own-Farm-Work Hours ^ 1/3

Figure H2. Histograms of Total Household Own-Farm-Work Hours With Injury Events Overlaid, by Age Group.

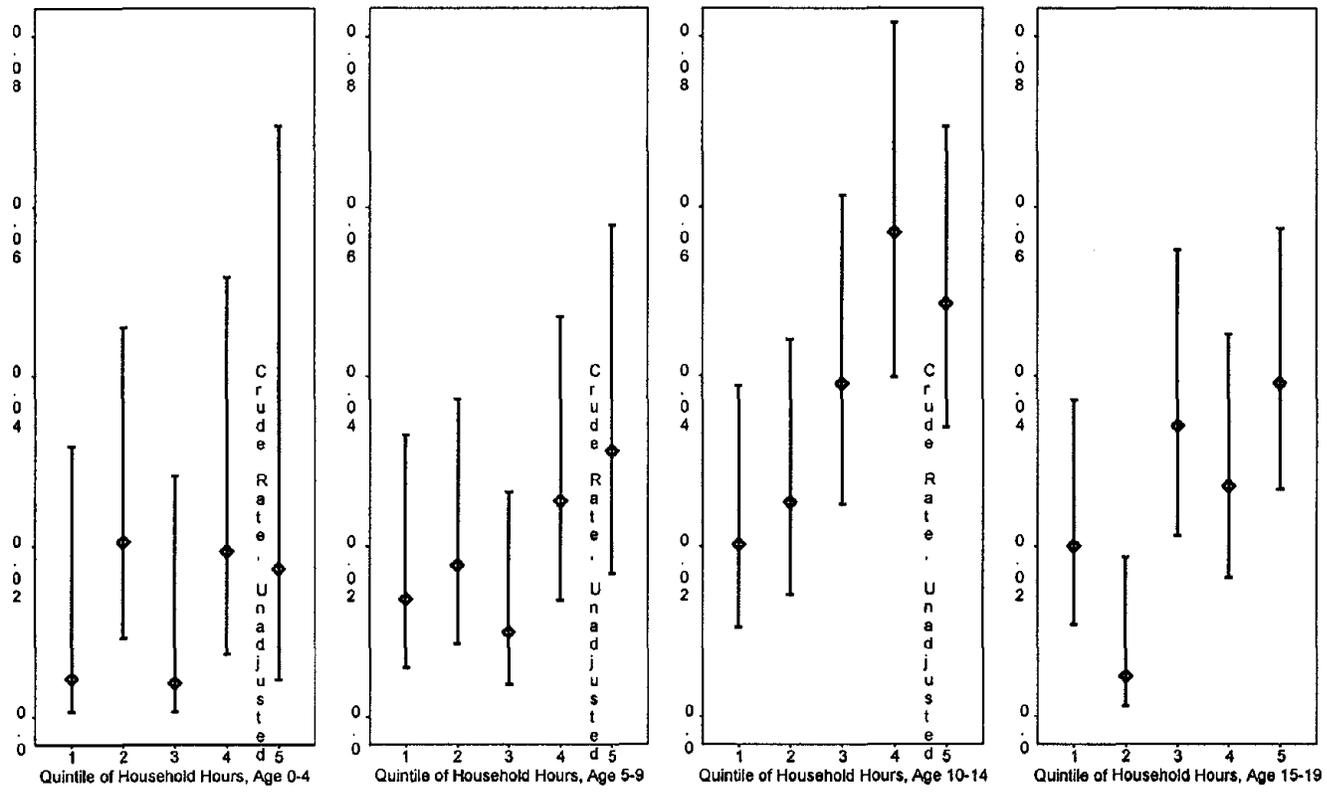


Figure H3. Crude Injury Rate by Quintile of Household Hours, by Age Group.

FIGURE 5
FARMING/RANCHING-RELATED INJURY EVENTS INCURRED
ON THEIR OPERATION BY SOURCE/VEHICLE AND AGE
Regional Rural Injury Study-II, 1999

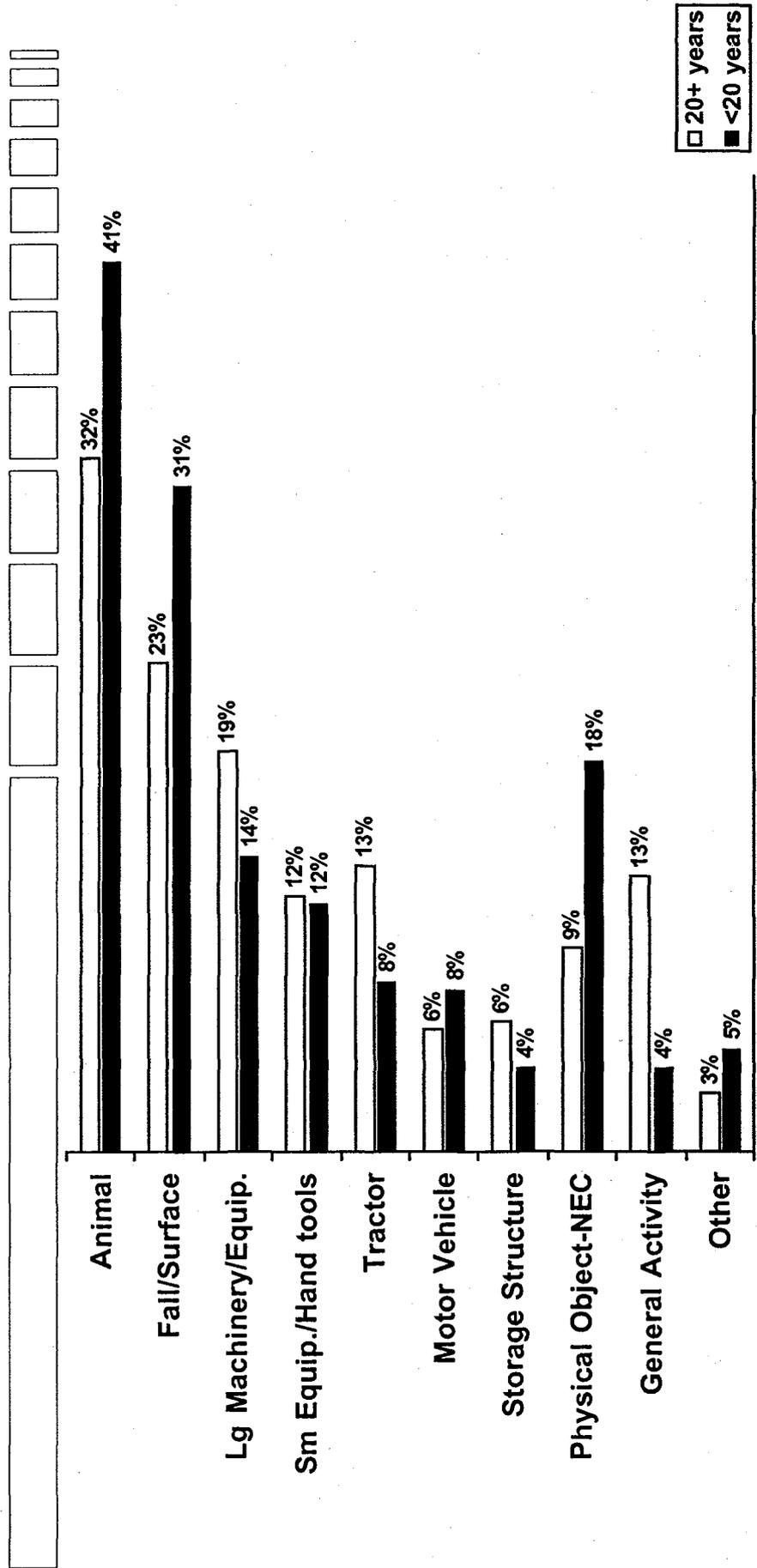


FIGURE 6
INJURY EVENTS NOT RELATED TO FARMING/RANCHING
BY SOURCE/VEHICLE AND AGE
Regional Rural Injury Study-II, 1999

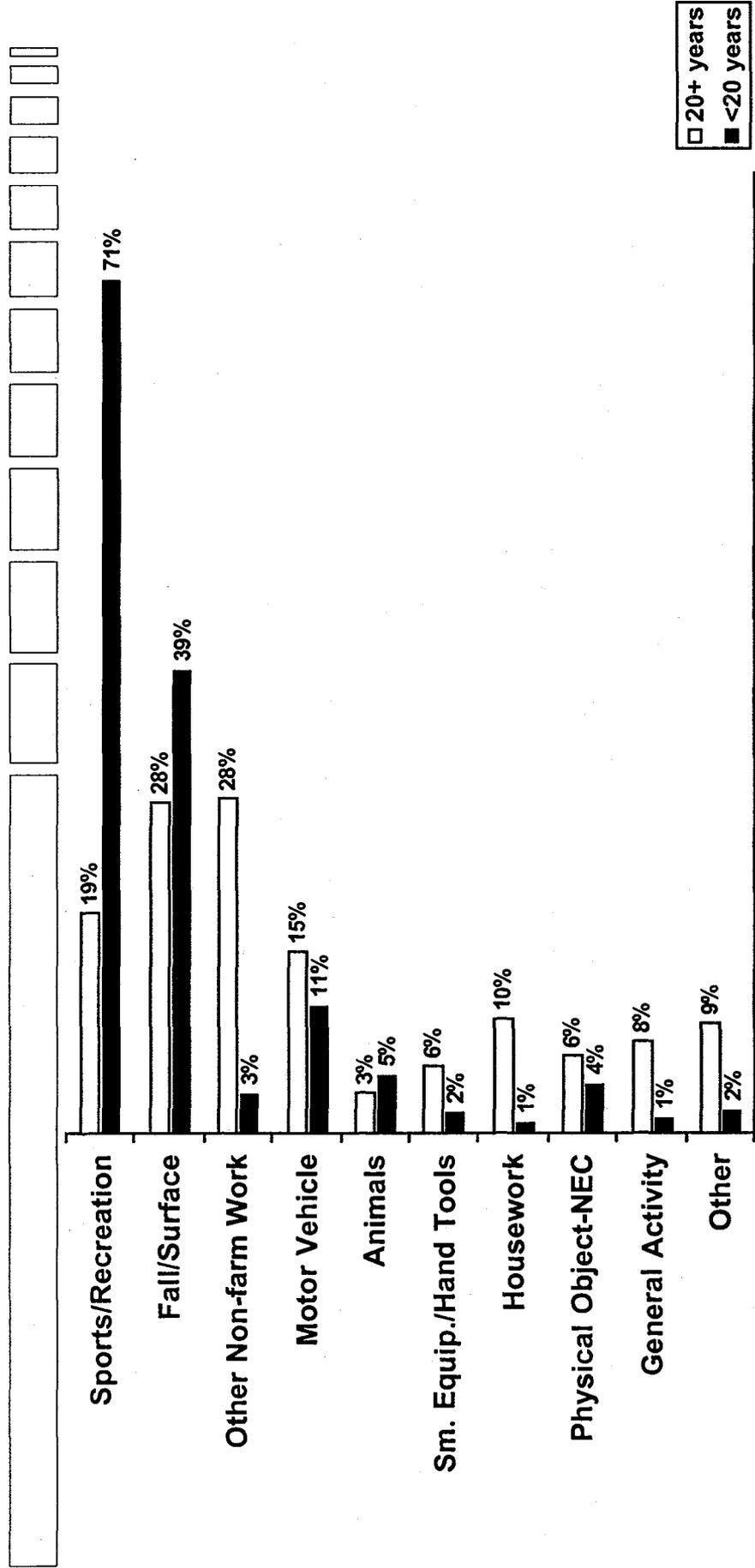


FIGURE 7
FARMING/RANCHING-RELATED INJURY EVENTS INCURRED
ON THEIR OPERATION BY ACTIVITY AT TIME OF INJURY AND AGE
Regional Rural Injury Study-II, 1999

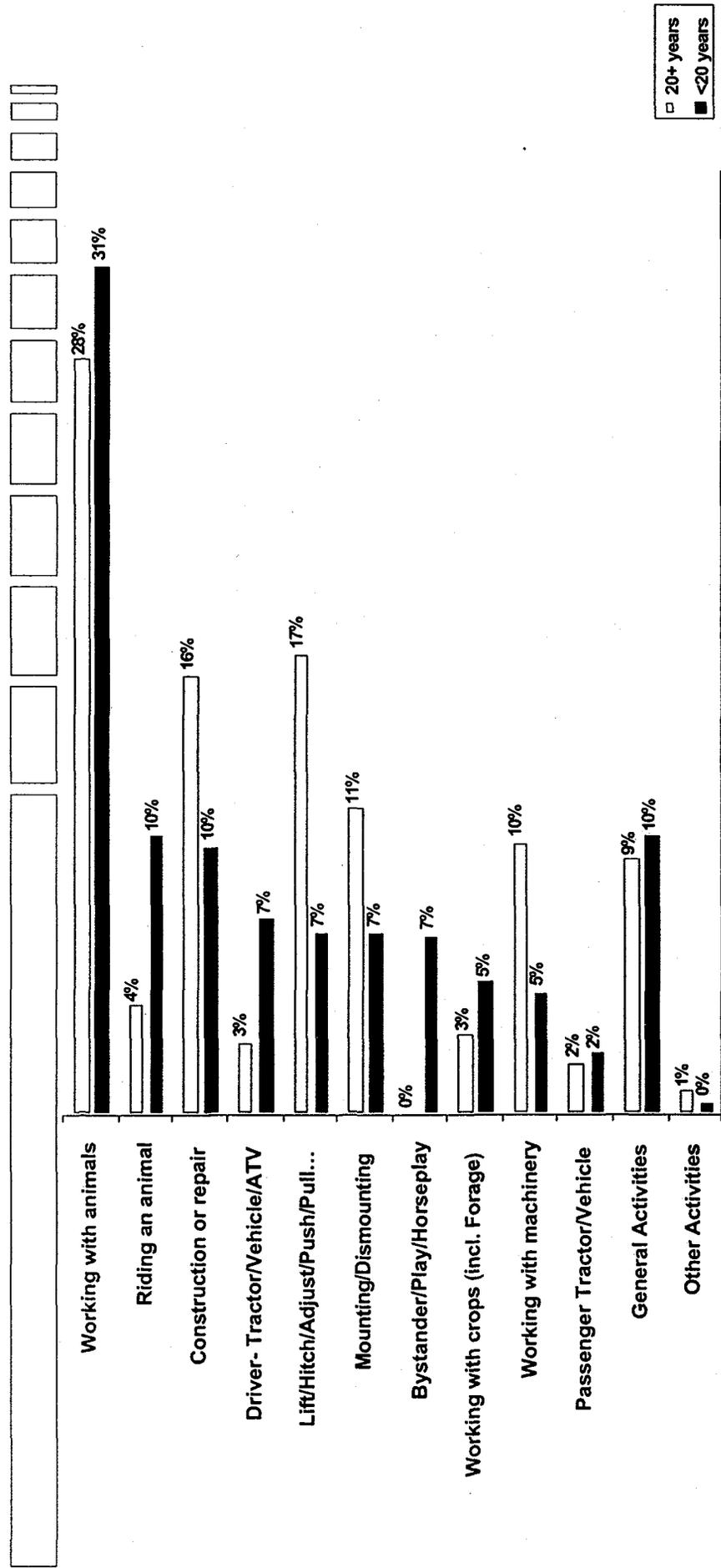


FIGURE 8
INJURY EVENTS NOT RELATED TO FARMING/RANCHING
BY ACTIVITY AT TIME OF INJURY AND AGE
 Regional Rural Injury Study-II, 1999

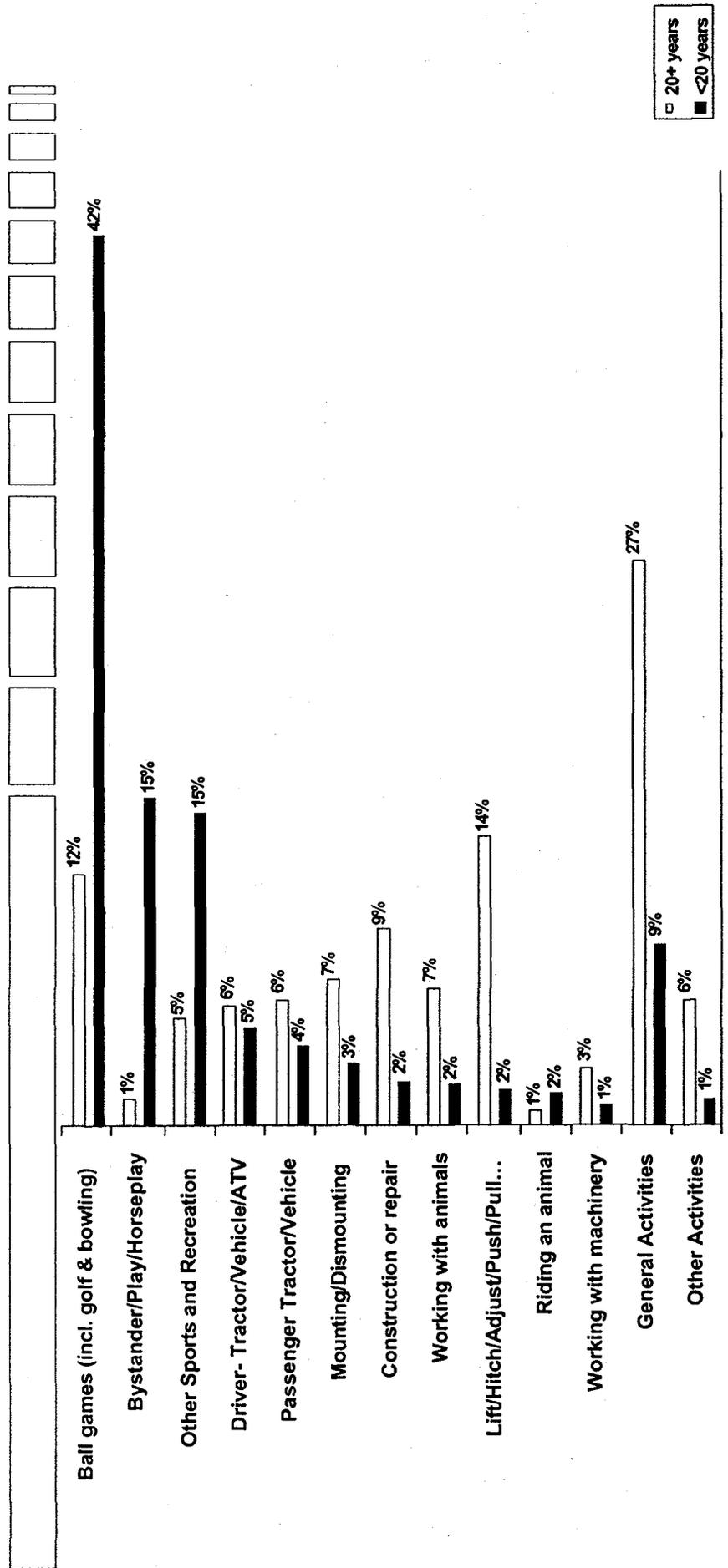


FIGURE 9
FARMING/RANCHING-RELATED INJURY EVENTS INCURRED ON THEIR
OPERATION BY MONTH/SEASON AND AGE
Regional Rural Injury Study - II, 1999

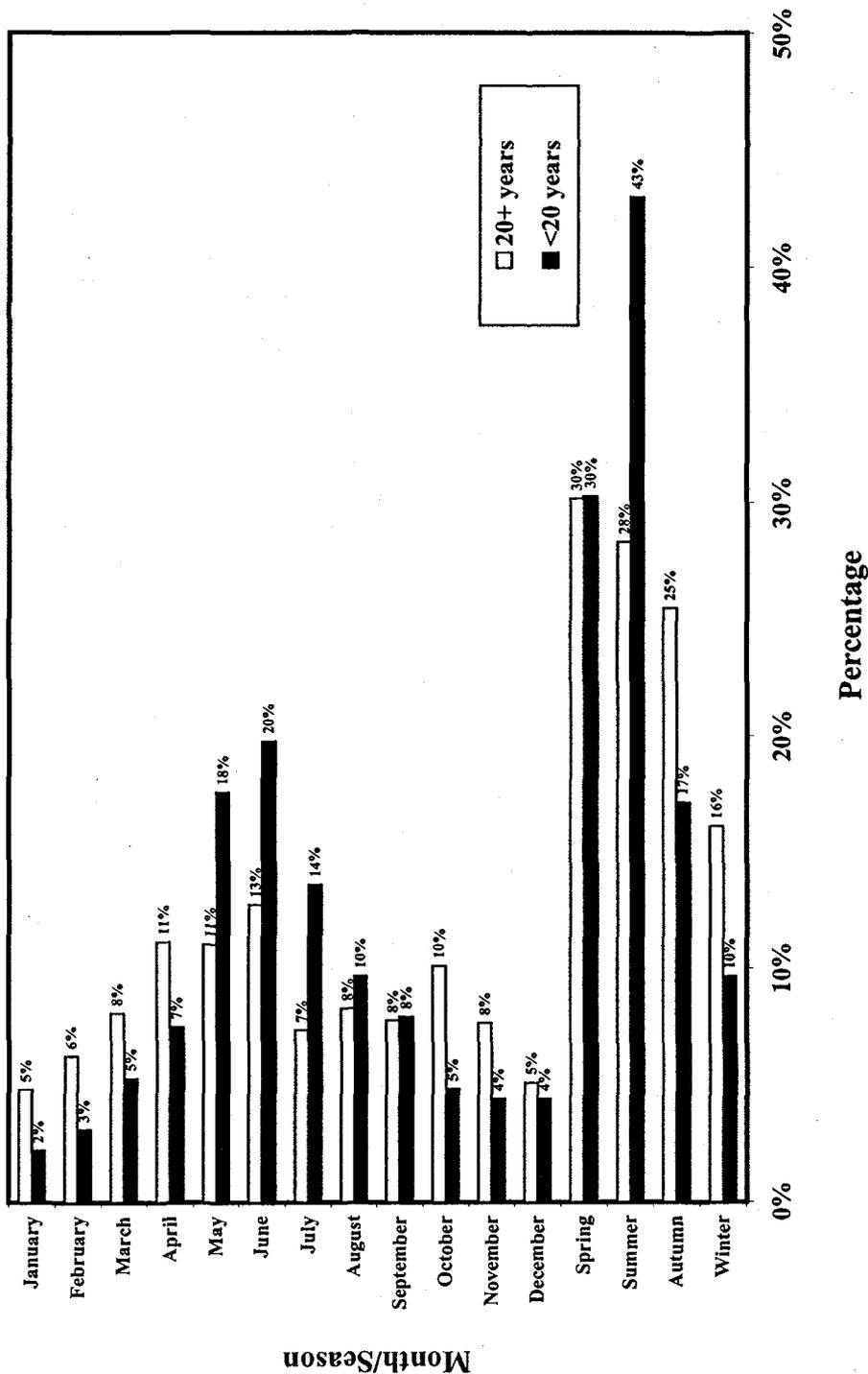


FIGURE 10
INJURY EVENTS NOT RELATED TO FARMING/RANCHING
BY MONTH/SEASON AND AGE
 Regional Rural Injury Study - II, 1999

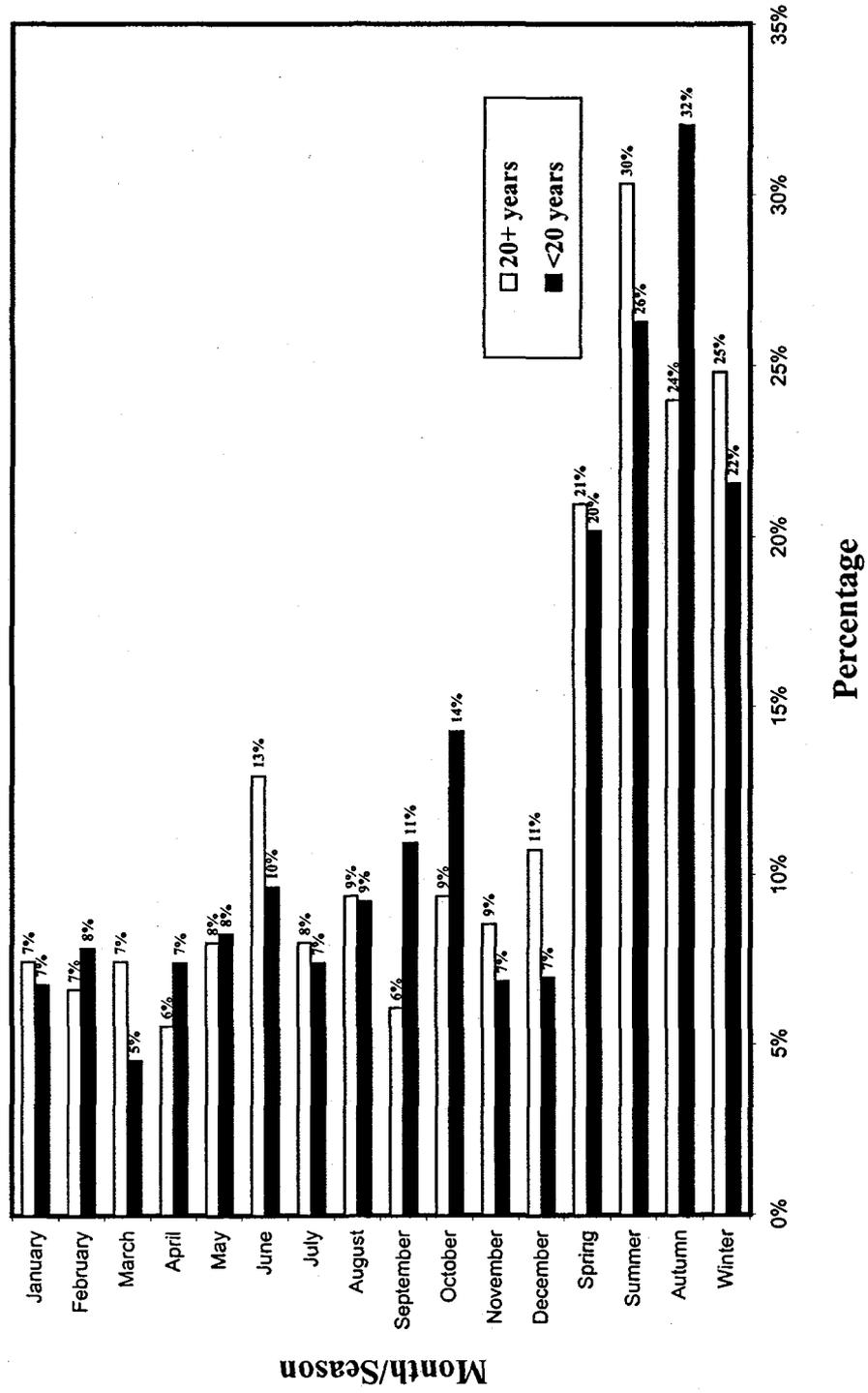
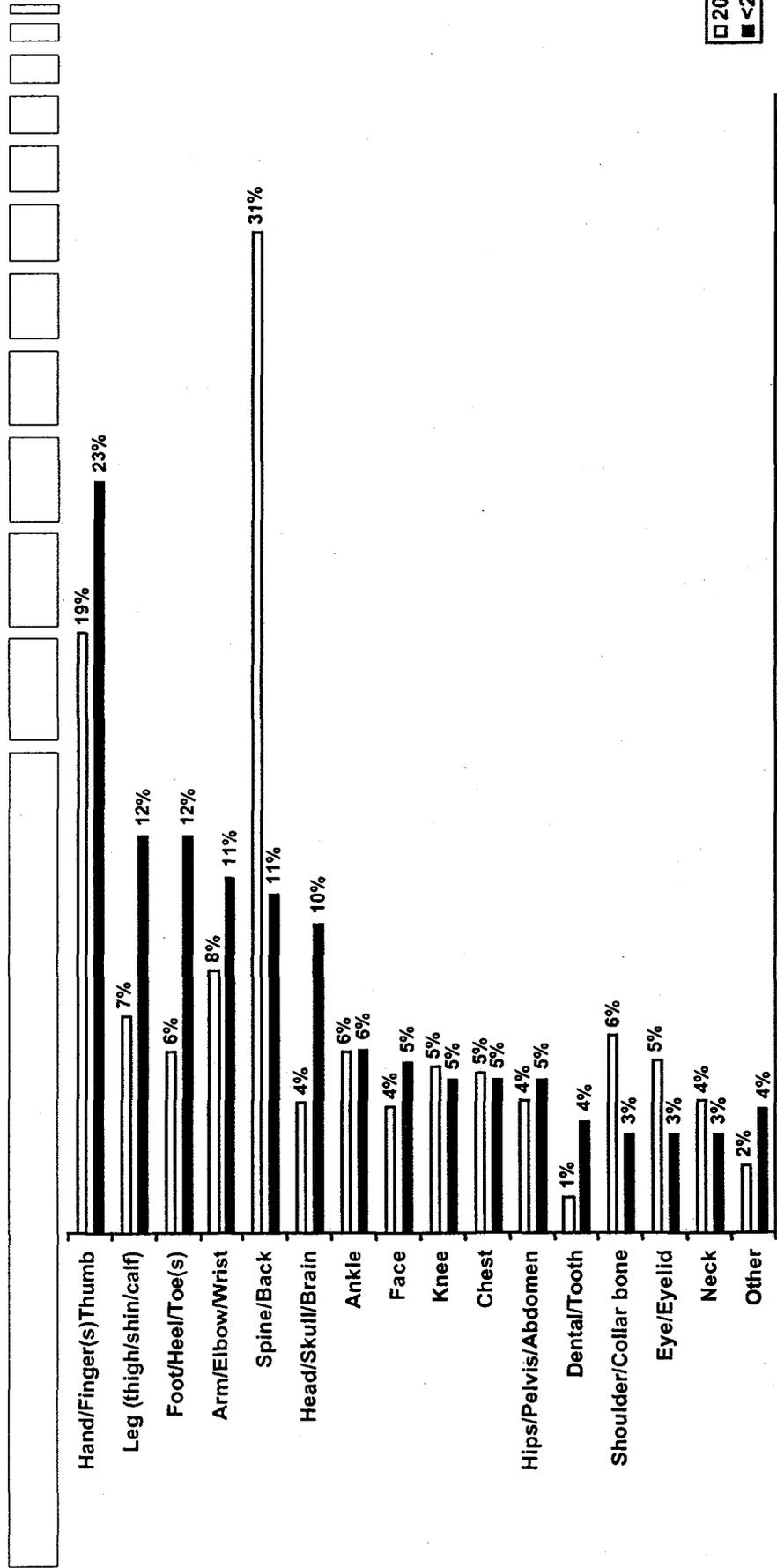


FIGURE 11
FARMING/RANCHING-RELATED INJURY EVENTS INCURRED
ON THEIR OPERATION BY BODY PARTS INJURED AND AGE
 Regional Rural Injury Study-II, 1999



□ 20+ years
 ■ <20 years

FIGURE 12
INJURY EVENTS NOT RELATED TO FARMING/RANCHING
BY BODY PARTS INJURED AND AGE
 Regional Rural Injury Study-II, 1999

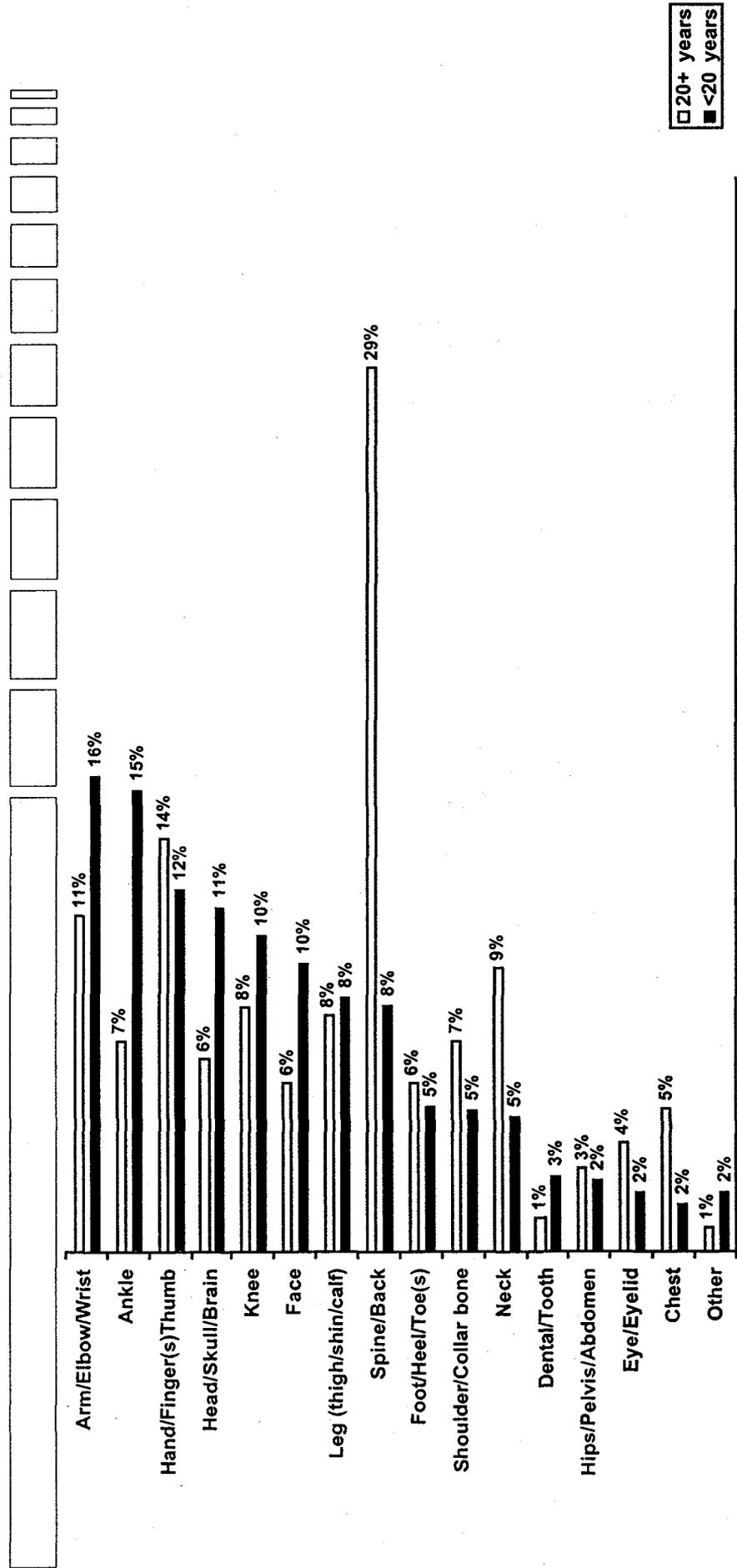


FIGURE 13
FARMING/RANCHING-RELATED INJURY EVENTS INCURRED
ON THEIR OPERATION BY TYPES OF INJURIES AND AGE
Regional Rural Injury Study-II, 1999

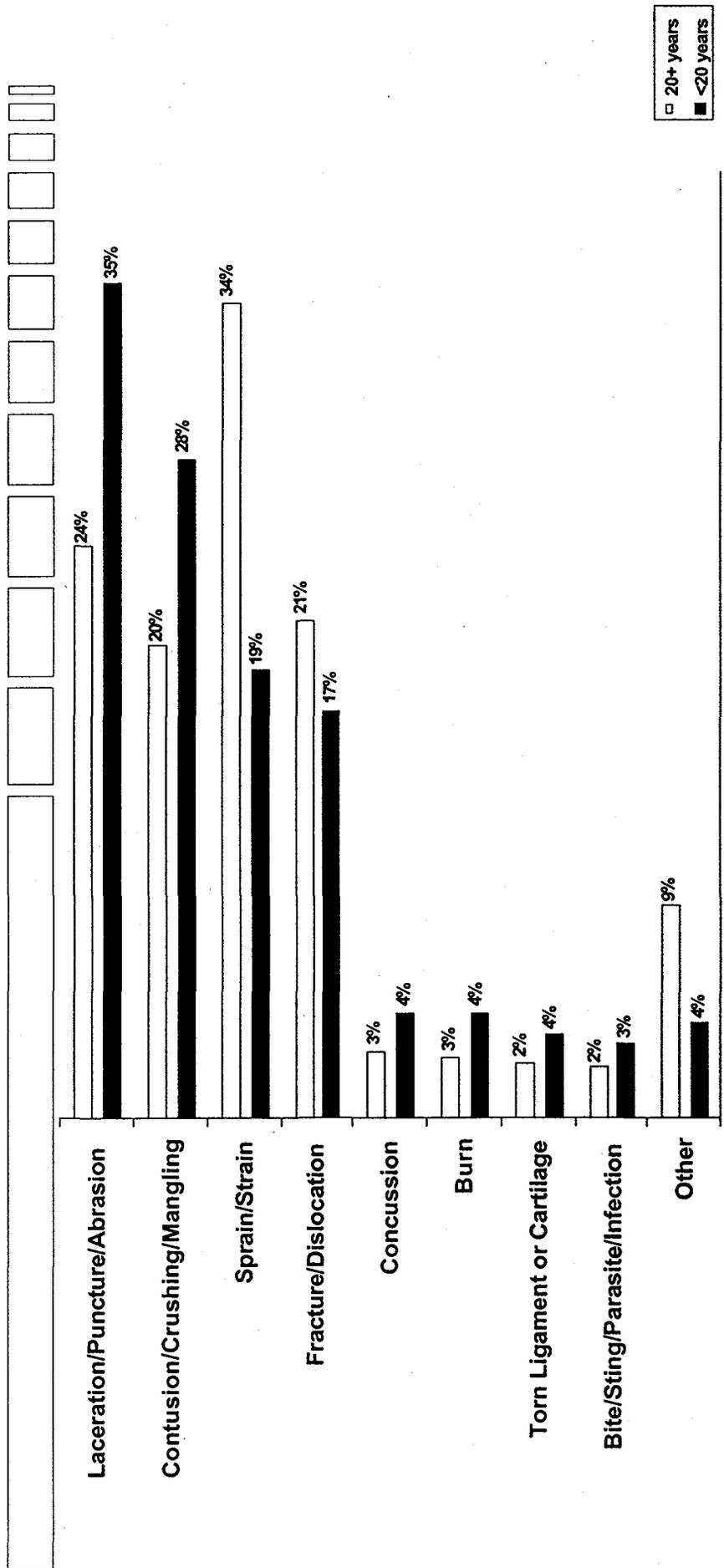


FIGURE 14
INJURY EVENTS NOT RELATED TO FARMING/RANCHING
BY TYPES OF INJURIES AND AGE
 Regional Rural Injury Study-II, 1999

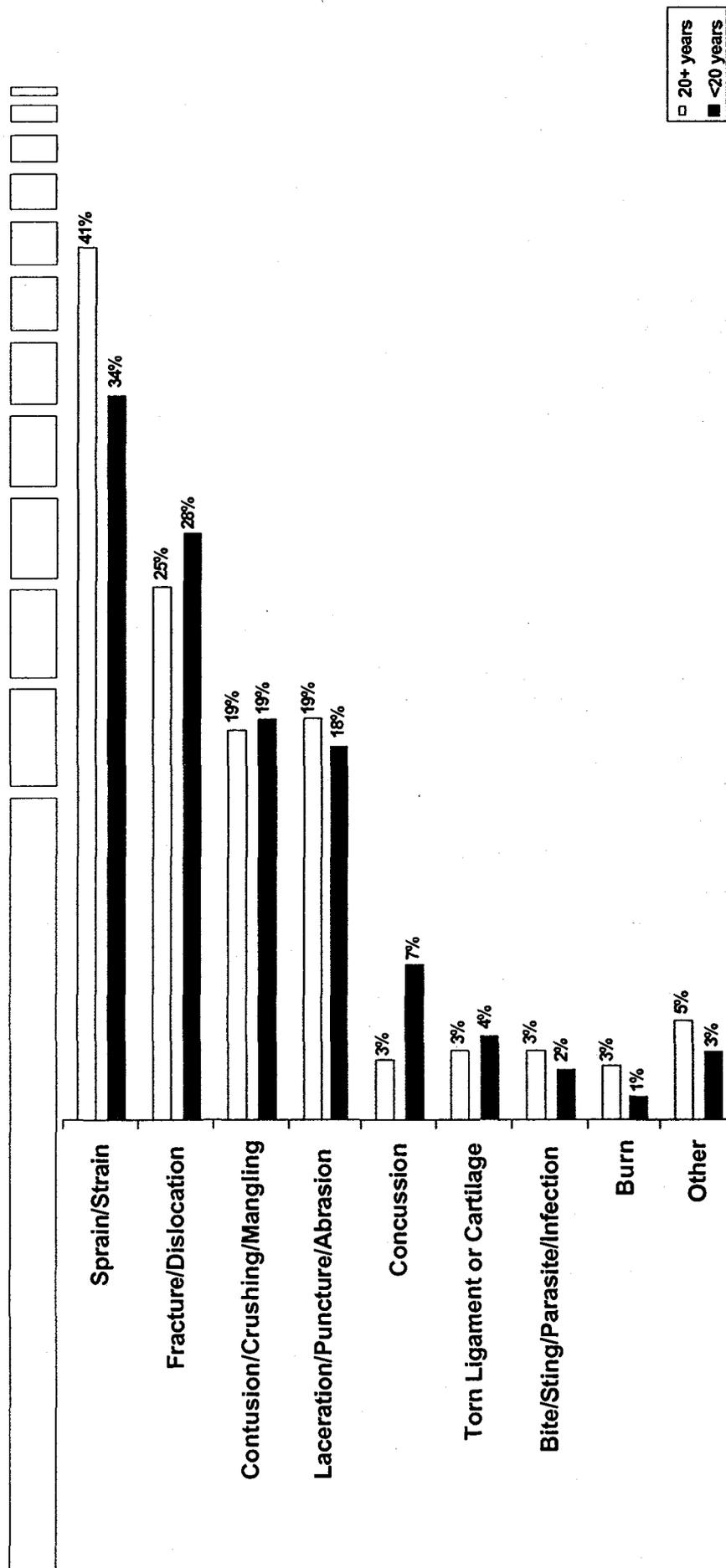


FIGURE 15
CONSEQUENCES OF FARMING/RANCHING-RELATED INJURY EVENTS
INCURRED ON THEIR OPERATION BY AGE
 Regional Rural Injury Study-II, 1999

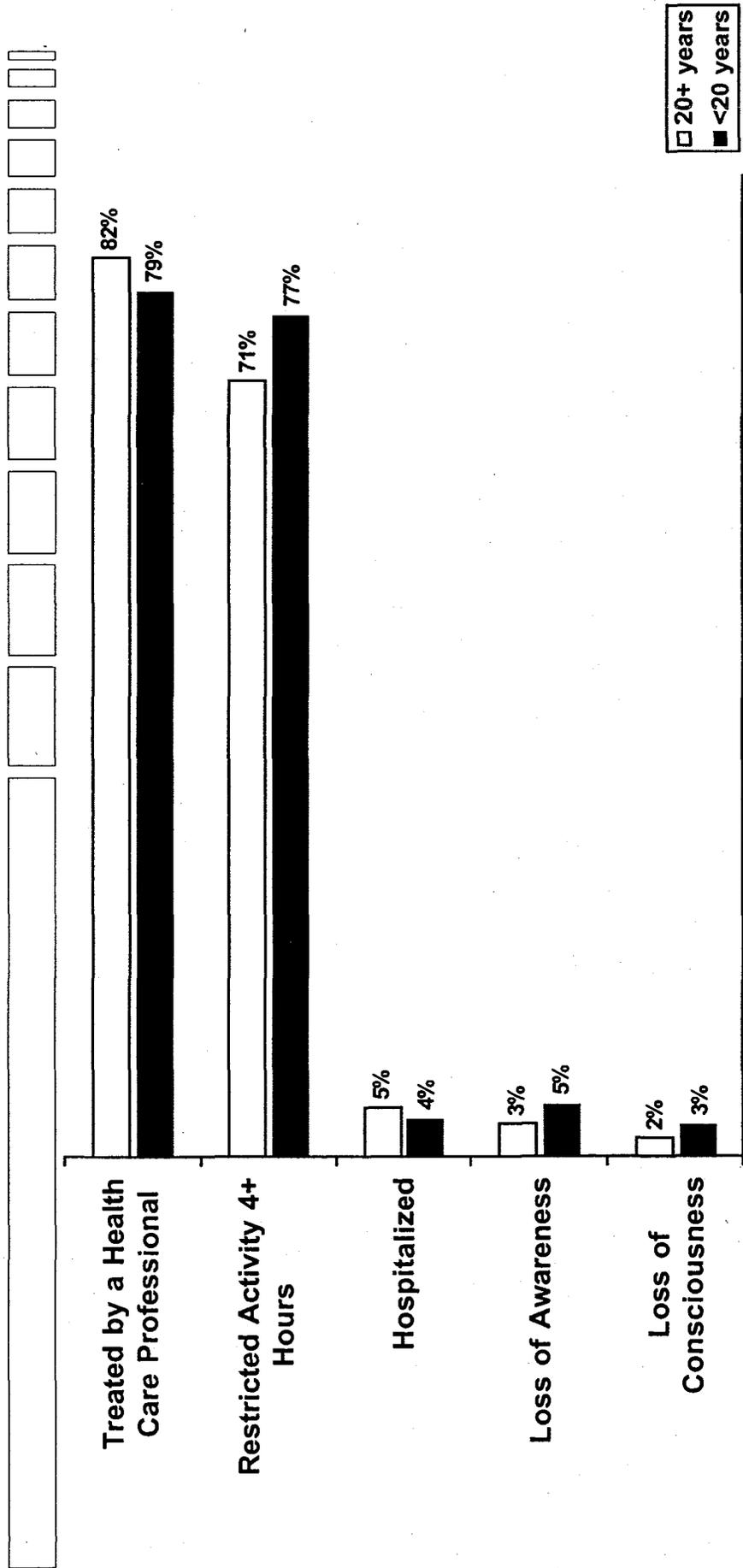


FIGURE 16
CONSEQUENCES OF INJURY EVENTS NOT RELATED TO
FARMING/RANCHING ACTIVITIES BY AGE
Regional Rural Injury Study-II, 1999

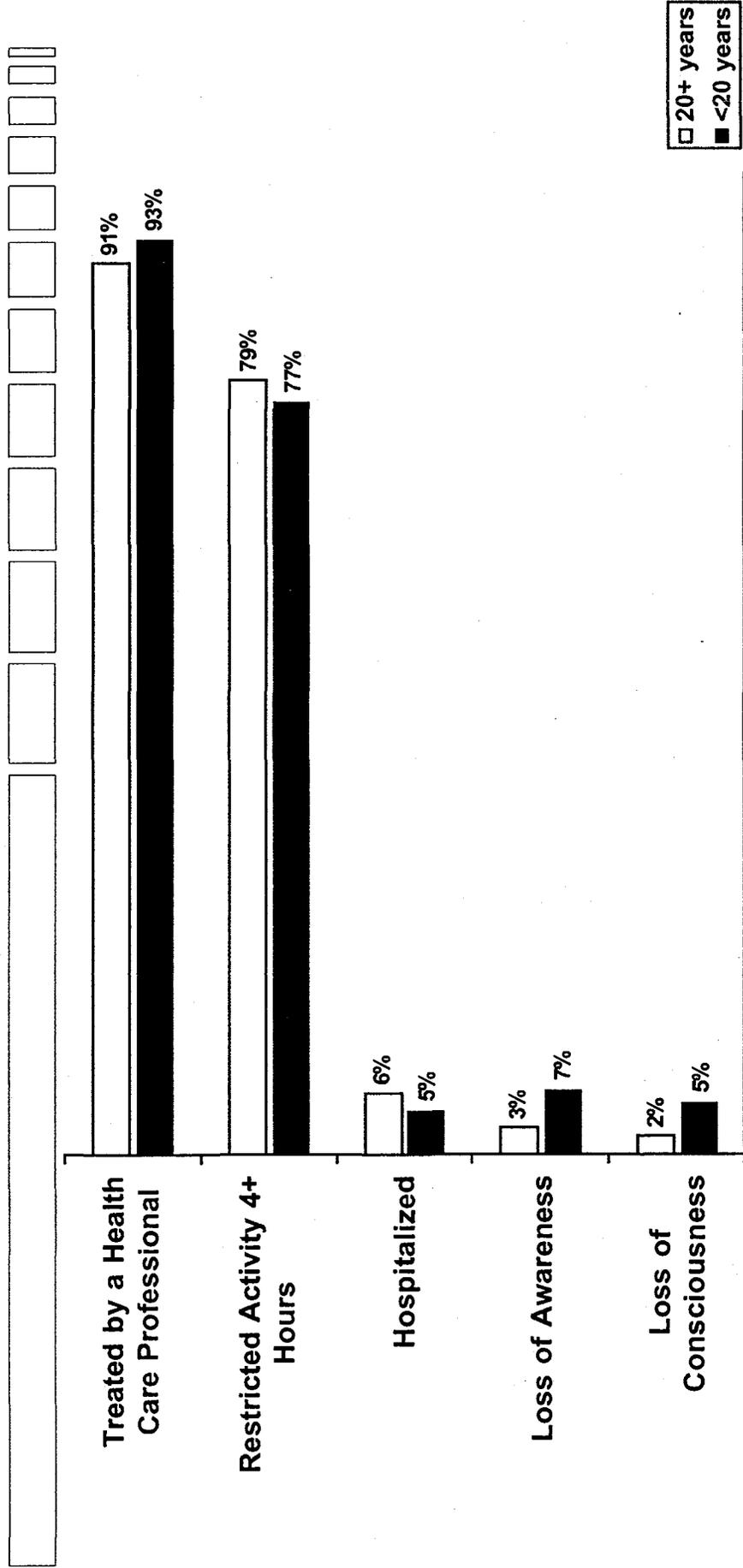


FIGURE 17
FARMING/RANCHING-RELATED INJURY EVENTS INCURRED ON THEIR
OPERATION BY LOCATIONS OF HEALTH CARE AND AGE
 Regional Rural Injury Study - II, 1999

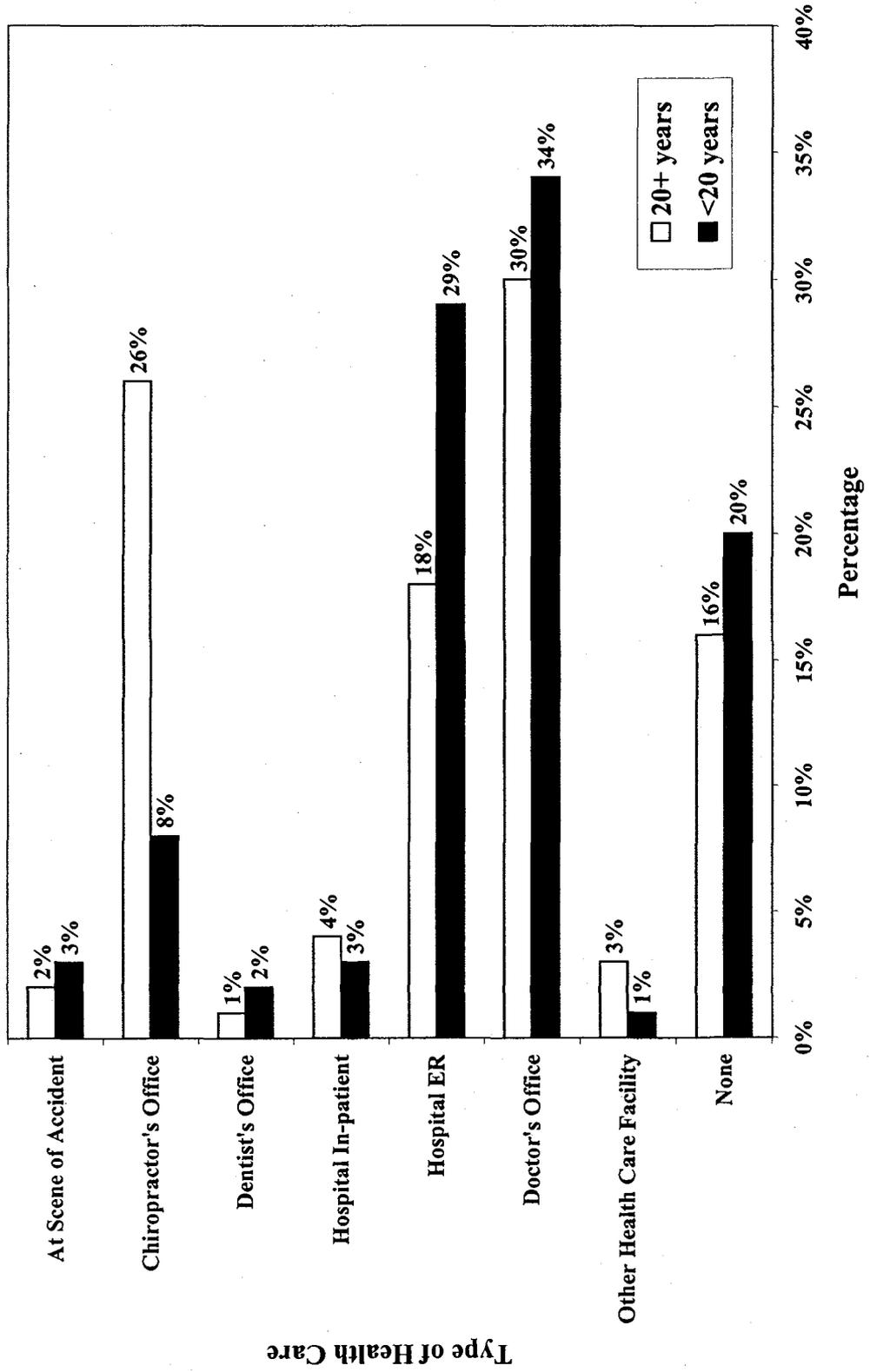


FIGURE 18
INJURY EVENTS NOT RELATED TO FARMING/RANCHING ACTIVITIES BY
LOCATIONS OF HEALTH CARE AND AGE
Regional Rural Injury Study - II, 1999

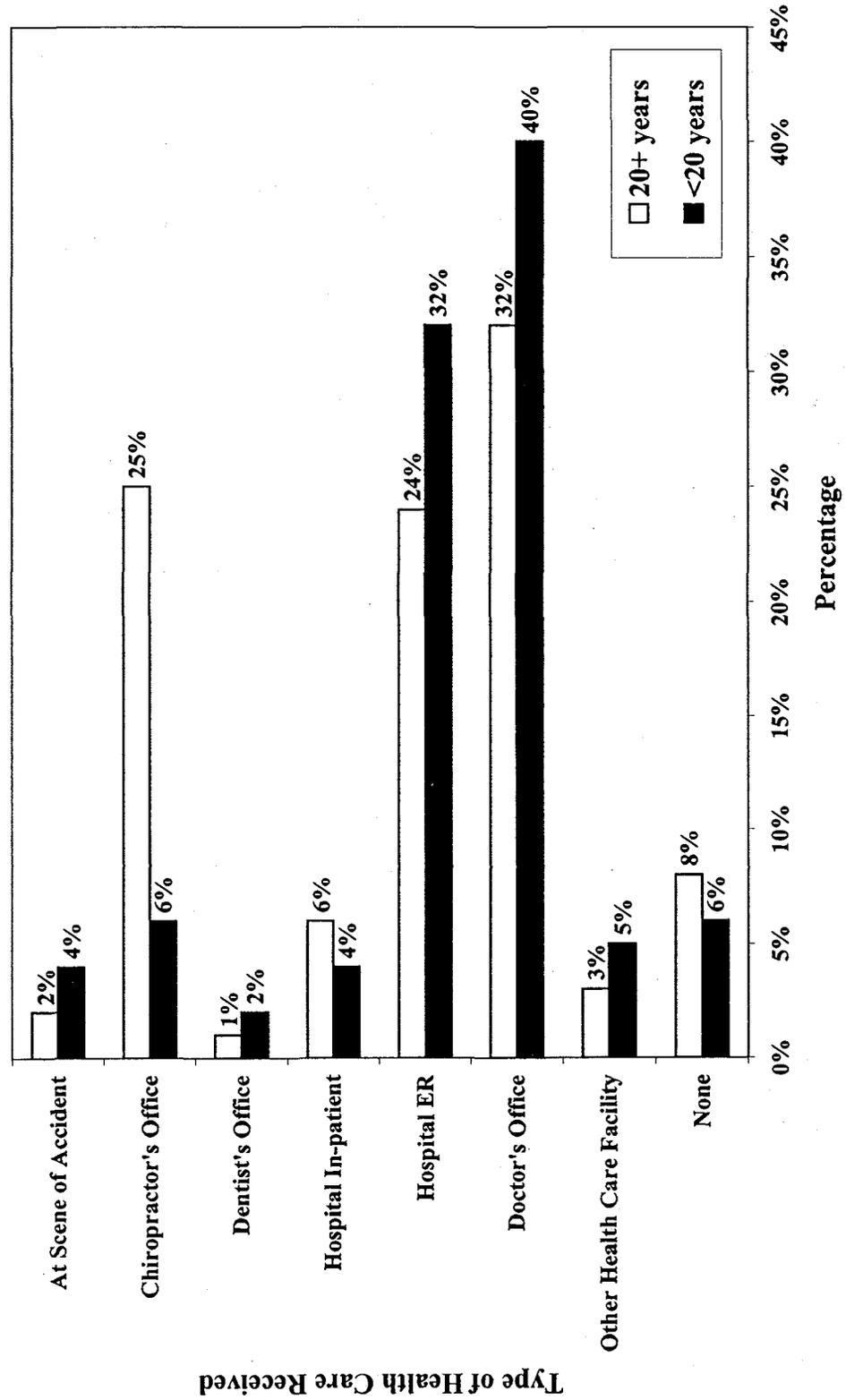


FIGURE 19
FARMING/RANCHING-RELATED INJURY EVENTS INCURRED ON THEIR
OPERATION BY LENGTH OF RESTRICTED ACTIVITY AND AGE
 Regional Rural Injury Study-II, 1999

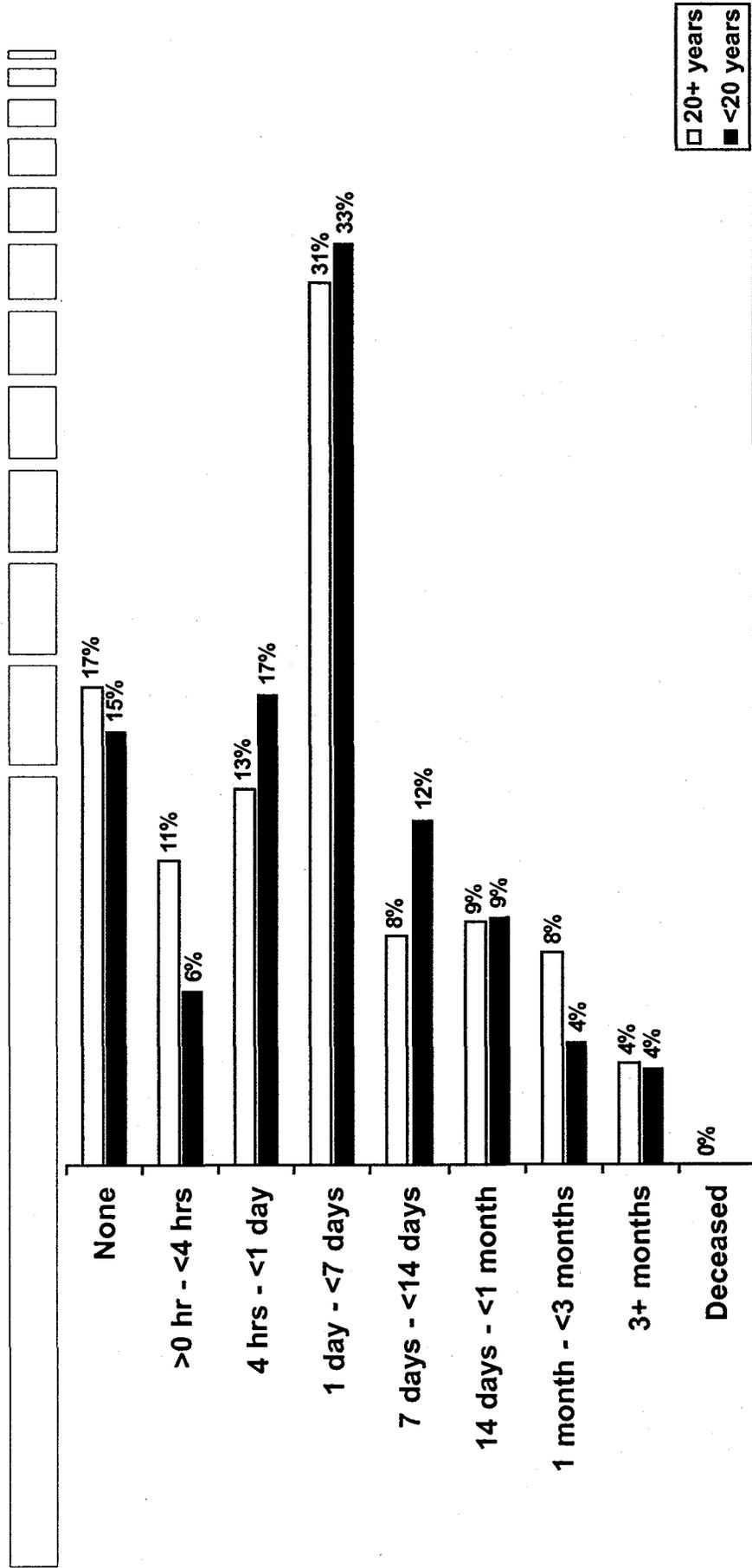


FIGURE 20
INJURY EVENTS NOT RELATED TO FARMING/RANCHING ACTIVITIES BY
LENGTH OF RESTRICTED ACTIVITY AND AGE
Regional Rural Injury Study-II, 1999

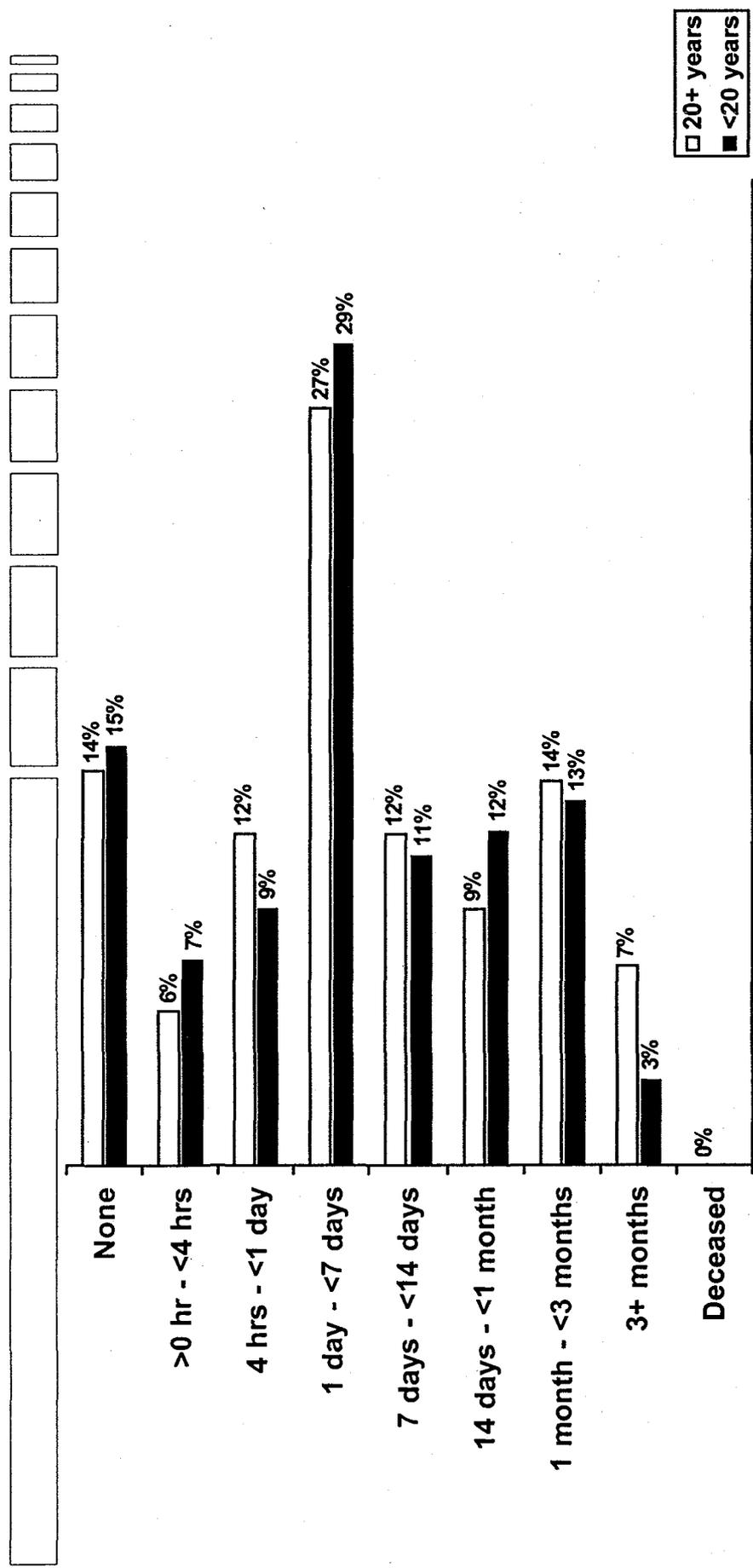


FIGURE 21
FARMING/RANCHING INJURY EVENTS INCURRED ON THEIR OPERATION
BY DURATION OF LOST AGRICULTURAL WORK TIME
 Regional Rural Injury Study - II, 1999

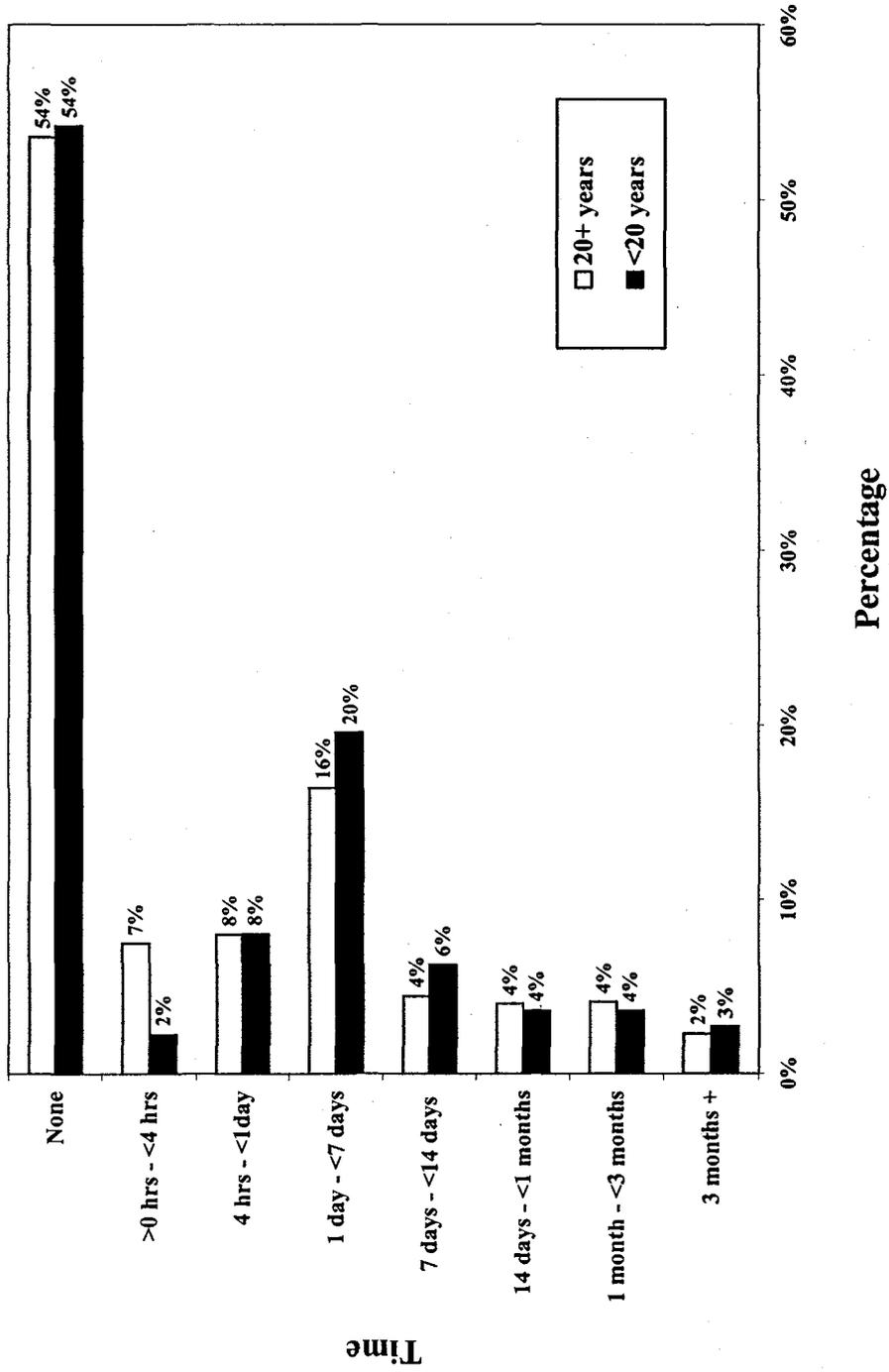


FIGURE 22
INJURY EVENTS NOT RELATED TO FARMING/RANCHING ACTIVITIES
BY DURATION OF LOST AGRICULTURAL WORK TIME
 Regional Rural Injury Study - II, 1999

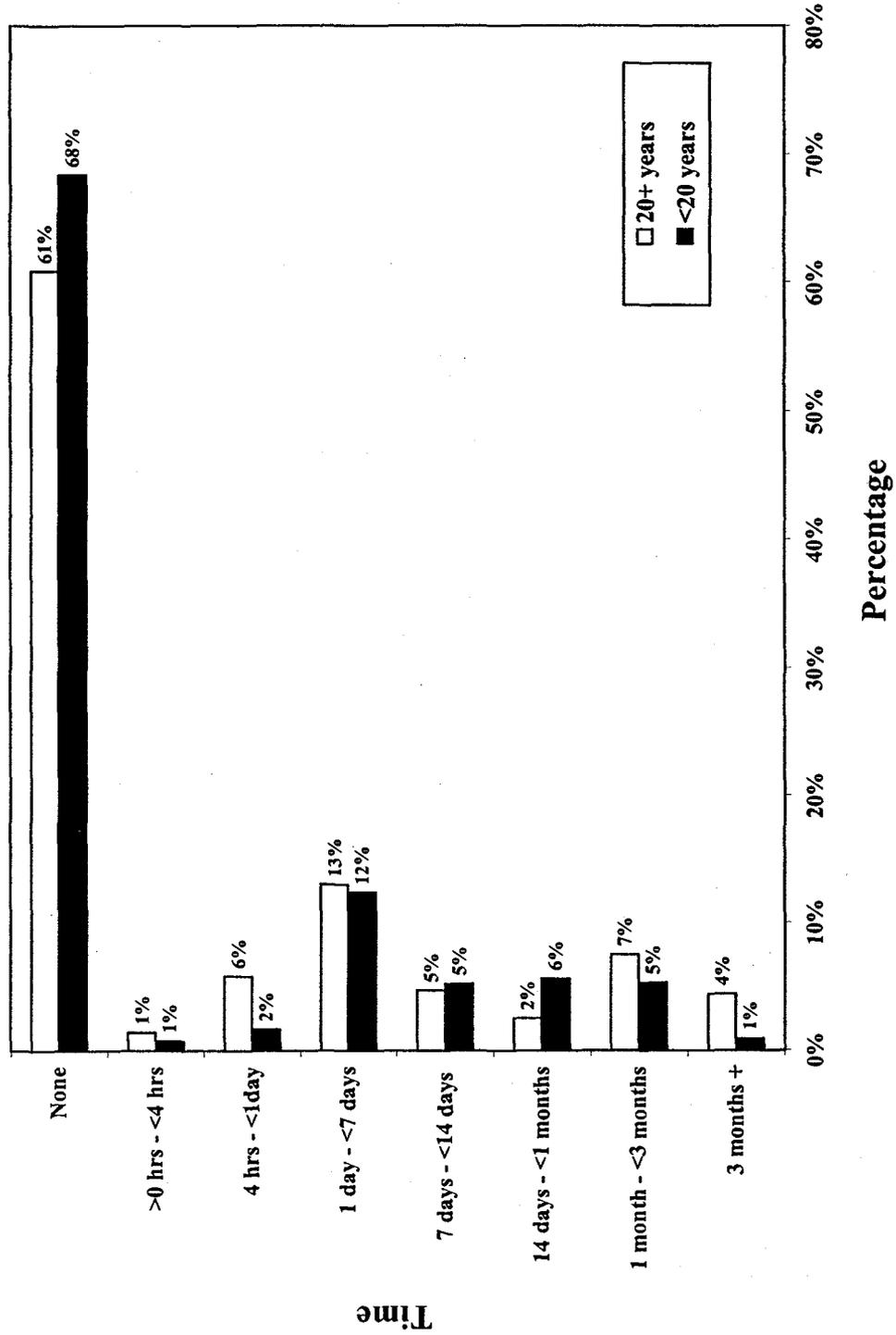
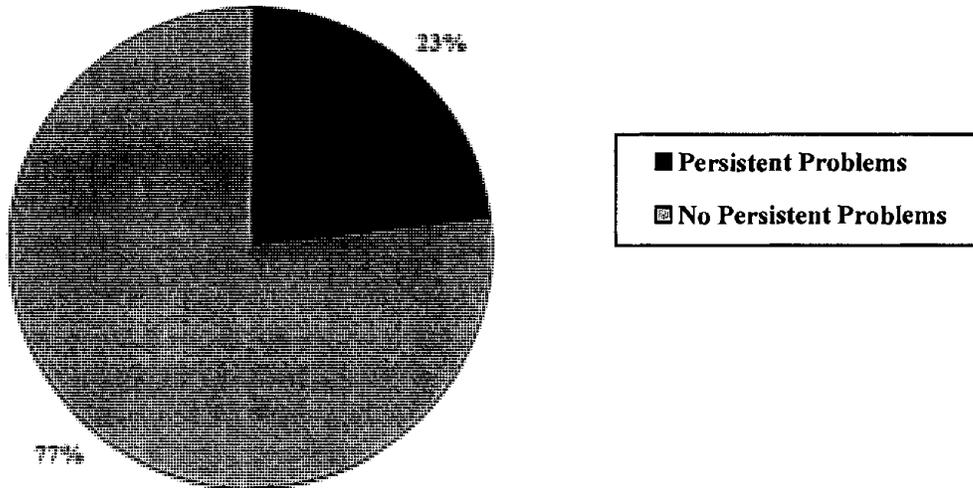


FIGURE 23
FARMING/RANCHING INJURY EVENTS INCURRED ON THEIR
OPERATION: PERSISTENT PROBLEMS
Regional Rural Injury Study-II, 1999

20+ years



<20 years

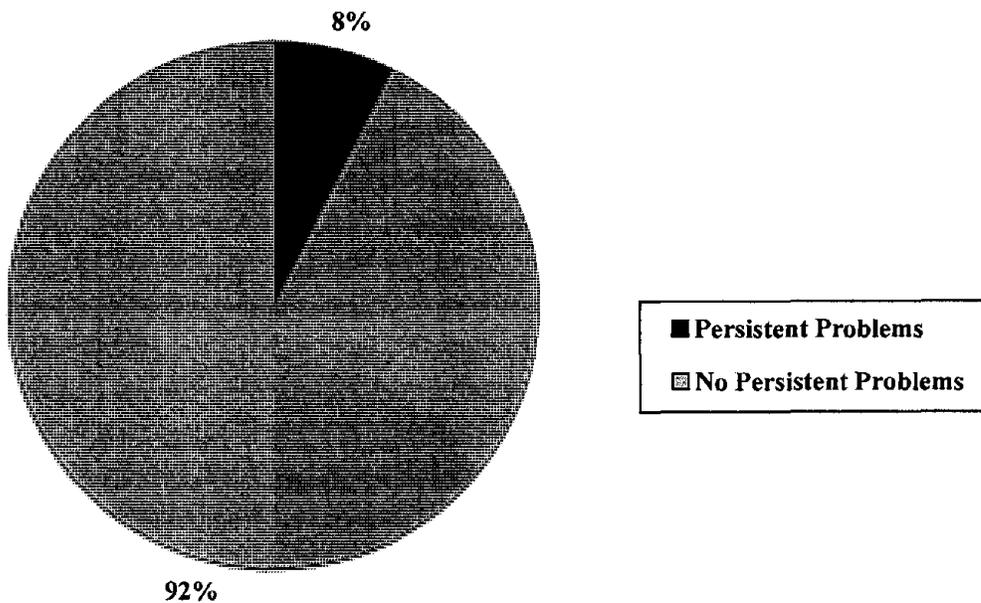
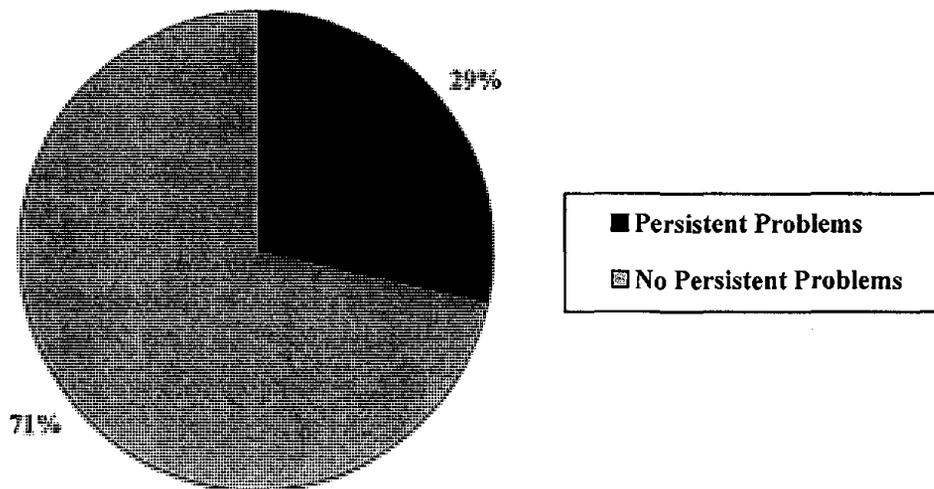
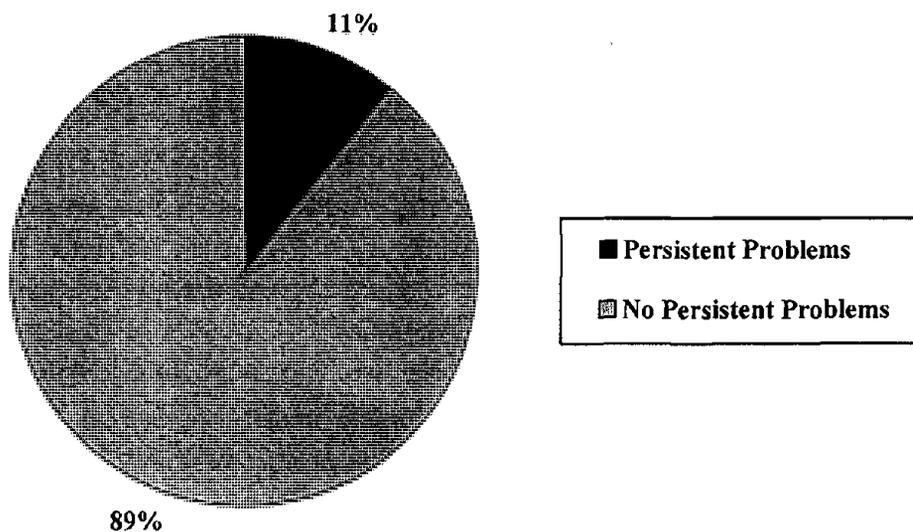


FIGURE 24
INJURY EVENTS NOT RELATED TO FARMING/RANCHING
ACTIVITIES: PERSISTENT PROBLEMS
Regional Rural Injury Study-II, 1999

20+ years



<20 years



APPENDICES

APPENDIX A

INTRODUCTORY LETTERS

UNIVERSITY OF MINNESOTA

Twin Cities Campus

*Environmental and Occupational Health
School of Public Health*

*Box 807 Mayo
420 Delaware Street S.E.
Minneapolis, MN 55455
612-626-0900
Fax: 612-626-0650*

REGIONAL RURAL INJURY STUDY - II

MINNESOTA

- Susan G. Gerberich, Ph.D.,
Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- Robert W. Gibson, Ph.D.
Co-Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- L. Ronald French, Ph.D.
Co-Principal Investigator
Minnesota Department of Health
- John Shutske, Ph.D.
Co-Investigator and Agricultural
Engineer
Agricultural Extension Service
University of Minnesota
- Michael Hunst
State Statistician
USDA National Agricultural
Statistics Service

NEBRASKA

- David Morgan
Agricultural Engineer
Biological Systems Engineering
Department
University of Nebraska
- David G. Loos
State Statistician
USDA National Agricultural
Statistics Service

NORTH DAKOTA

- George G. Maher
Agricultural Safety Specialist
Extension Service
North Dakota State University
- Larry W. Beard
State Statistician
USDA National Agricultural
Statistics Service

SOUTH DAKOTA

- Larry Tidemann
Coordinator
Cooperative Extension Service
South Dakota State University
- William G. Hamlin
State Statistician
USDA National Agricultural
Statistics Service

WISCONSIN

- Mark A. Purschwitz, Ph.D.
Extension Agricultural Safety
and Health Specialist
Cooperative Extension Service
University of Wisconsin
- Robert J. Battaglia
State Statistician
USDA National Agricultural
Statistics Service

Within the next month, you will be receiving a call inviting you to participate in a project concerned with farming operation activities and injuries in farm household members. This project, the Regional Rural Injury Study - II, is being conducted by the University of Minnesota and the USDA Agricultural Statistics Services, in cooperation with other agencies in your state as part of a five-state effort involving Minnesota, Wisconsin, North Dakota, South Dakota, and Nebraska. Your farm was randomly selected from all of the farms in these states. It is hoped that the information we collect from this project will help both in understanding the nature of injuries experienced in the agricultural community and in developing injury prevention programs.

Participation in this project will involve answering questions in three telephone interviews about your household members, your farm operation and about farming and non-farming-related injuries that have occurred to members of the household. In some households, children who have been injured as well as a random sample of those who have not been injured, will be asked questions about their activities for a particular period of time. The first interview will take approximately five minutes to complete and will take place in January, 1999. The second and third interviews, which can take between 10 minutes and an hour to complete, will be conducted in July, 1999 and January, 2000.

All of the information collected for this project will remain completely confidential. No information on individuals or individual farms will ever be released. Participation in this project is voluntary. However, to ensure that the information we collect is most helpful, it is very important for all eligible farms to participate, whether or not any injuries have occurred. Your relations with any of the agencies or institutions associated with this project and/or those identified on the letterhead will not be affected if you decide not to participate.

Each farm selected for this study will also be invited to participate in a drawing for a \$100 Treasury Bond. Your farm household will have approximately a 1 in 100 chance to receive a bond. Though we would greatly appreciate your help, you are not required to participate in the study to be included in the drawing.

If you have any questions about the project, please contact our Project Director, or me, at (612) 626-4801 or (800) 944-0430 (toll free). We hope you will consider participating in this important effort. We look forward to talking with you!

Sincerely,

Susan Goodwin Gerberich, Ph.D.
Professor and Director
Regional Injury Prevention Research Center



MINNESOTA AGRICULTURAL STATISTICS SERVICE

*U.S. Department of Agriculture in cooperation with
the Minnesota Department of Agriculture*



FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

The [state] Agricultural Statistics Service is collaborating with the University of Minnesota on a project that will provide information for development of prevention efforts to reduce injuries among farm/ranch household members. Your farm/ranch operation has been chosen at random from all [state] farms and ranches to participate in this project.

Within the next several weeks, a representative of our agency will call to ask for cooperation in this endeavor. *This first telephone call will take approximately five minutes.* Eligible farm/ranch households that agree to participate in the project will then be contacted after the first of July, this year, and after the first of January, next year, to complete telephone interviews. These interviews will include questions about the farming/ranching operation, persons who live on the farm/ranch, and about injuries that have occurred during the previous six-month periods; both farming/ranching and non-farming/non-ranching-related injuries are included.

To ensure complete information, it is important for all selected farms/ranches to participate whether, or not, any injuries have occurred. The enclosed letter further explains the project.

Thank you, in advance, for your participation in this important project.

Sincerely,

Michael Hunst
State Agricultural Statistician



North Dakota
**Agricultural
Statistics Service**

U.S. Department of Agriculture - National Agricultural Statistics Service

P.O. Box 3166, Fargo, ND 58108-3166
Telephone: 701-239-5306 FAX: 701-239-5613
E-mail: nass-nd@nass.usda.gov

FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

The [state] Agricultural Statistics Service is collaborating with the University of Minnesota on a project that will provide information for development of prevention efforts to reduce injuries among farm/ranch household members. Your farm/ranch operation has been chosen at random from all [state] farms and ranches to participate in this project.

Within the next several weeks, a representative of our agency will call to ask for cooperation in this endeavor. *This first telephone call will take approximately five minutes.* Eligible farm/ranch households that agree to participate in the project will then be contacted after the first of July, this year, and after the first of January, next year, to complete telephone interviews. These interviews will include questions about the farming/ranching operation, persons who live on the farm/ranch, and about injuries that have occurred during the previous six-month periods; both farming/ranching and non-farming/non-ranching-related injuries are included.

To ensure complete information, it is important for all selected farms/ranches to participate whether, or not, any injuries have occurred. The enclosed letter further explains the project.

Thank you, in advance, for your participation in this important project.

Sincerely,

A handwritten signature in cursive script that reads "Larry Beard".

Larry Beard
State Agricultural Statistician

NASS **NEBRASKA**
Agricultural Statistics Service

P.O. BOX 81069, 273 FEDERAL BUILDING
LINCOLN, NEBRASKA 68501
PHONE: (402) 437-5541

FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

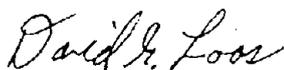
The [state] Agricultural Statistics Service is collaborating with the University of Minnesota on a project that will provide information for development of prevention efforts to reduce injuries among farm/ranch household members. Your farm/ranch operation has been chosen at random from all [state] farms and ranches to participate in this project.

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To ensure complete information, it is important for all selected farms/ranches to participate whether, or not, any injuries have occurred. The enclosed letter further explains the project.

Thank you, in advance, for your participation in this important project.

Sincerely,



David G. Loos
State Agricultural Statistician



FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME) FIELD(STATEALPHA), FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

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To ensure complete information, it is important for all selected farms/ranches to participate whether, or not, any injuries have occurred. The enclosed letter further explains the project.

Thank you, in advance, for your participation in this important project.

Sincerely,

Bill Hamlin

Bill Hamlin
State Agricultural Statistician

Wisconsin Agricultural Statistics Service

P.O. Box 8934
Madison, WI 53708-8934
(608) 224-4848

National Agricultural Statistics Service, USDA
WI Department of Agriculture, Trade & Consumer Protection

FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

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To ensure complete information, it is important for all selected farms/ranches to participate whether, or not, any injuries have occurred. The enclosed letter further explains the project.

Thank you, in advance, for your participation in this important project.

Sincerely,



Robert J. Battaglia
State Statistician

APPENDIX B

PARTICIPATION INTERVIEW DATA COLLECTION INSTRUMENT PROGRAMMED INTO CATI SYSTEM

**ETIOLOGY AND CONSEQUENCES OF INJURIES
AMONG CHILDREN IN FARM HOUSEHOLDS:
A REGIONAL RURAL INJURY STUDY - 1999**

*CHILDHOOD AGRICULTURAL SAFETY AND HEALTH RESEARCH
PROGRAM ANNOUNCEMENT: 817*

RO1/CCR514375

DATA COLLECTION INSTRUMENTS

**PARTICIPATION INTERVIEW
(March/April 1999)**

**Regional Injury Prevention Research Center
Division of Environmental and Occupational Health
School of Public Health
University of Minnesota
Minneapolis, Minnesota
612-625-5934**

-- Script Before Entering CATI Program --

Dial number from call sheet prepared by the USDA National Agricultural Statistics Service (NASS).

When someone answers the phone --

Ask:

"Hello, is this the >Operator__Last_Name< residence?"

If it is not the residence you are calling, follow standard NASS procedures verifying number, etc

If it's the correct household:

Ask: **"May I please speak with the female head of household?"**

Female head of household comes to the phone (*continue interview*)

Female head of household is unavailable (*go to >callback<*)

There is no female head of household -

Ask: **"Then, may I please speak to the male head of household?"**

Male head of household comes to the phone (*continue interview*)

Male head of household is unavailable (*go to >callback<*)

Please enter a comment that there is no female head of household, so the enumerator who places the next call will know to ask for the male head of household.

-- When an appropriate respondent (female or male head of household) has come to the phone begin the CATI interview -

>intro< "Hello, this is >EnumName< calling for the >StateName< agricultural statistics service. I am calling to follow-up on the letters sent to you by the USDA (StateName) Agricultural Statistics Service regarding a project on farm and ranch households we are conducting with the University of Minnesota. Did you receive the letters?"

- 1 Yes (go to >few_questions<)
- 3 No
- 9 Refusal (go to >reconsider6<)

>newsletter< "Since you did not receive the letters, would you like us to send you new copies?"

- 1 Yes
- 3 No
- 9 Refusal (go to >reconsider6<)

>few_questions< "We'd like to ask you a few questions to see if you qualify for the project? This should only take 5 minutes. May we continue?"

- 1 Yes
- 3 No (go to >reconsider6<)

>Monitoring< "For quality control purposes, my supervisor may monitor this call."

- 1 Continue

>Obtain_Name< "With whom am I Speaking?" *[Enumerator: Who is the current respondent? Enter name.]*

>Who_Resp< *[Enumerator: Who is the respondent? ... Enter code.]*

- 1 Female head of household
- 3 Male head of household

>farm_qualify1< "Is this >Operator_Name<'s household? (Residence including farm families or people who live in the household.)"

- 1 Yes (go to >verify_address<)
- 3 No

>screen_4< "Does >Operator_Name< have a household associated with this operation? (Residence including farm families or people who live in the household.)"

- 1 Yes
- 3 No (go to >not_qual<)

>verify_address< "Let me verify the name and address that I have for your household.

- YID/KeyID
- Operation
- Address
- Phone

Is this information correct?"

- 1 Yes (go to >speak2<)
- 3 No

>EnumInst< [Enumerator: If Operator_name is correct, correct household address, then return through >verify_address< to >spea2<. If Operator_name is incorrect (not current), exit and return callsheet to supervisor.]

>spea2< "Your farm or ranch was randomly selected as a potential participant in a project about farming and ranching activities and injuries that MAY occur during 1999. The results from the project will be used to develop injury prevention programs that will benefit all agricultural households. You are also eligible for a drawing for a \$100 treasury bond. You are not required to participate in the project to be included in the drawing."

1 Continue

>spea2b< "In this short interview, we only want to ask a few questions about your operation and the ages of the people in your household, so that we can tell if you are eligible to be in the project. May we continue?"

1 Yes

3 No (go to >responses1<)

>farm_qualify2< "As of January 1st, 1999, were you actively farming or ranching or did you have land in a Conservation Reserve Program (CRP)?"

1 Yes

3 No (go to >not_qual<)

>active_farm1< "During the past year, did you produce or have annual sales of agricultural goods of \$1,000 or more or were you involved in a Conservation Reserve Program (CRP)?"

1 Yes

3 No (go to >not_qual<)

>farm_qualify3< "We need to obtain brief information on the members of your household as of JANUARY 1st, 1999. How many household members were there, including those who moved or passed away after January 1, 1999? This includes students away at college or children who reside in multiple households, including yours, etc." [Enumerator: If respondent is uncertain, prompt them for their best estimate.]

1 - 20

98 Unknown (go to >callback<)

99 Refusal (go to >reconsider5<)

>females20< "How many females in your household were 20 years of age or OLDER as of January 1, 1999?" [Enumerator: If the respondent is uncertain, prompt them for their best estimate.]

0 None

1 - 12

98 Unknown (go to >callback<)

99 Refusal

>females19< "How many were 19 years of age or YOUNGER?"

0 None

1 - 12

98 Unknown (go to >callback<)

99 Refusal

>males20< "How many persons in your household were 20 years of age or OLDER as of January 1, 1999? Remember, if someone is 20 today but their birthday was between January 1st and today, they were 19 on January 1st."

[If respondent is uncertain, prompt them for their best estimate.]

- 0 None
- 1 - 12
- 98 Unknown (go to >callback<)
- 99 Refusal

>males20< "How many males in your household were 20 years of age or OLDER as of January 1, 1999?" [Enumerator: If the respondent is uncertain, prompt them for their best estimate.]

- 0 None
- 1 - 12
- 98 Unknown (go to >callback<)
- 99 Refusal

>males19< "How many were 19 years of age or YOUNGER?"

- 0 None
- 1 - 12
- 98 Unknown (go to >callback<)
- 99 Refusal

>HH_total< "Let me verify the number of household members. I have recorded a total number of >females20< females 20 years of age and over, >females19< females 19 and under, >males20< males 20 years of age and over, and >males19< males 19 and under living in this household as of January 1, 1999. Is this correct?"

- 1 Yes
- 3 No (go to >females20<)

>AnyKids< [Programming Note: >kids< = >females19< + >males19<; If (>kids< = 0) go to >not_qual2<]

>inf_consent1< "Your farm or ranch household is eligible for our project. We would appreciate your help with this project. Participation in the project WILL involve answering questions about your farm or ranch operation and about any accidents or injuries that may occur either on or off the operation through the end of December 1999."

"If you agree to take part in the project, we will be calling you back sometime after July 1st, this year, and after January 1st, of next year, to get information about your farming or ranching activities and any injuries that may have occurred during EACH six month period of 1999. Only group information, not individual information, will ever be used in any report on this project. Participation is voluntary but your cooperation would be very helpful. Whether or not you choose to participate in the project, you may enroll in the random drawing, with at least a 1 in 32 chance of receiving a \$100 treasury bond. Would you be willing to help us?"

- 1 Yes
- 3 No (go to >reconsider2<)

>drawing1< "You are eligible for the drawing for a \$100 treasury bond. We will notify the households that are awarded the bonds at the completion of the project. [Sometime in 2000.] Would you like to be included in the drawing?"

- 1 Yes
- 3 No

>final_sign_off < "Those are all the questions I have for you today. Thank you very much for agreeing to participate in this important project. In a few weeks you will receive a packet of

information about the project in the mail. This will include a form on which to record any injuries that may occur during the few months before we call you again."

"On behalf of all those involved in this project, I thank you for your time and participation. We look forward to talking with you sometime after July 1st."

*[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting
(1) COMPLETED INTERVIEW.]*

>reconsider2< "Your participation will be very important in efforts to reduce farm and ranch accidents and injuries for ALL agricultural families. It is important to include ALL types of agricultural operations, whether or not there were accidents or injuries. This will help in better understanding both farming or ranching activities and injuries in your region. Would you reconsider participating?"

- 1 Yes (go to **>drawing1<**)
- 3 No (go to **>drawing2<**)

>reconsider4< "Your farm or ranch may qualify for the project. May we ask a few more questions?"

- 1 Yes (go to **>active_farm1<**)
- 3 No (go to **>drawing3<**)

>reconsider5< "This information is important to determine whether your household qualifies for the project. There are only a few more questions. May we continue?"

- 1 Yes (go to **>farm_qualify3<**)
- 3 No (go to **>drawing2<**)

>reconsider6< "Your participation in this project would make a valuable contribution. Every household we call is eligible to be included in a drawing for a \$100 treasury bond. We would appreciate your help. It will only take 5 minutes. May we continue?"

- 1 Yes (go to **>monitoring<**)
- 3 No (go to **>sign_off3<**)

>responses1< *[Enumerator: If respondent hasn't already volunteered a reason for their refusal, ask: "Could you tell me the reason that you prefer not to participate in this interview?", then enter the appropriate response.]*

- 1 We didn't (don't have) any injuries (go to **>resp11<**)
- 2 Operation too small (go to **>resp12<**)
- 3 Haven't been farming long enough (go to **>resp13<**)
- 4 Don't like surveys or Just don't want to do it (go to **>resp14<**)
- 5 I'm (we're) too busy or Don't have time (go to **>resp15<**)
- 6 (Personal Crisis) (go to **>resp16<**)

>resp11< "We're including ALL types of farming and ranching operations, whether or not there were accidents or injuries. May we continue?"

- 1 Yes (go to **>farm_qualify2<**)
- 3 No (go to **>drawing3<**)

>resp12< "We're including all sizes of farms and ranches. May we continue?"

- 1 Yes (go to **>farm_qualify2<**)
- 3 No (go to **>drawing3<**)

>resp13< "We're including all operations that were actively farming or ranching as of January 1st, 1999, or had land in a Conservation Reserve Program (CRP). Is this true for your operation?"

- 1 Yes (go to >reconsider4<)
- 3 No (go to >not_qual<)

>resp14< "This project is very important for the entire agricultural community. Your participation could really make a difference. There are only a few more questions. May we continue?"

- 1 Yes (go to >farm_qualify2<)
- 3 No (go to >drawing3<)

>resp15< "We understand that you are very busy. However, these questions will only take 5 minutes and your input would make a valuable contribution. May we continue?"

- 1 Yes (go to >farm_qualify2<)
- 3 No (go to >call_you<)

>call_you< "May we call you back at another time that is more convenient for you."

- 1 Yes (go to >callback<)
- 3 No (go to >drawing3<)

>resp16< "May we call you back at another time that is more convenient for you."

- 1 Yes (go to >callback<)
- 3 No (go to >drawing3<)

>not_qual< Based on the answers you have given, your farm or ranch is not eligible for our project. However, you are still eligible for the drawing for a \$100 treasury bond. We will notify the households that are awarded the bonds at the completion of the project. [Sometime in 2000.] Would you like to be included in the drawing? [Farms/ranches eligible for the project are operations that: had annual sales of agricultural goods of \$1,000 or more or were involved in a CRP during the past year; and were actively farming/ranching as of January 1st of this year or had land in CRP; and had a farm/ranch household.]

- 1 Yes
- 3 No

[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (3) DID NOT QUALIFY.]

>not_qual2< Based on the answers you have given, your farm or ranch household is not eligible for our project. However, you are still eligible for the drawing for a \$100 treasury bond. We will notify the households that are awarded the bonds at the completion of the project. [Sometime in 2000.] Would you like to be included in the drawing? [Farms/ranches eligible for the project are operations that: had annual sales of agricultural goods of \$1,000 or more or were involved in a CRP during the past year; were actively farming/ranching as of January 1st of this year or had land in CRP; and had a farm/ranch household that included children].

- 1 Yes
- 3 No

[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (3) DID NOT QUALIFY.]

>drawing2< You are eligible for the drawing for a \$100 treasury bond. We will notify the households that are awarded the bonds at the completion of the project. [*Sometime in 2000.*] Would you like to be included in the drawing?

- 1 Yes (*go to >sign_off3<*)
- 3 No (*go to >sign_off3<*)

>drawing3< You are eligible for the drawing for a \$100 treasury bond. We will notify the households that are awarded the bonds at the completion of the project. [*Sometime in 2000.*] Would you like to be included in the drawing?

- 1 Yes (*go to >sign_off2<*)
- 3 No (*go to >sign_off2<*)

>sign_off2< Thank you for your time today. Good bye. [Programming Note: If >phone< is not blank, Call new telephone number/Restart interview.]

[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (2) REFUSED.]

>sign_off3< *[Enumerator: If the respondent has already identified why he/she does not want to participate, just identify one or more of the following responses:]*

"Could you tell me the reason that you prefer not to participate in this interview?"

- 1 Does not want to cooperate; does not like surveys (*go to >sign_rest<*)
- 2 Too busy; refused to schedule a call-back (*go to >sign_rest<*)
- 3 Personal crisis; refused to schedule a call-back (*go to >sign_rest<*)
- 4 Other

>reason_specify< "Specify reason:" _____

>sign_rest< "Thank you for your time today. Good bye."

[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (2) REFUSED.]

>callback< [Enumerator: Setup callback to a knowledgeable individual. Press CONTROL-ENTER to go to the appointment block. Remember to record the appointment on the call sheet.]

APPENDIX C
INFORMATION PACKET

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Environmental and Occupational Health
School of Public Health

Box 807 Mayo
420 Delaware Street S.E.
Minneapolis, MN 55455
612-626-0900
Fax: 612-626-0650

REGIONAL RURAL INJURY STUDY - II COLLABORATORS

MINNESOTA

- Susan G. Gerberich, Ph.D.,
Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- Robert W. Gibson, Ph.D.
Co-Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- L. Ronald French, Ph.D.
Co-Principal Investigator
Minnesota Department of Health
- John Shutske, Ph.D.
Co-Investigator and Agricultural
Engineer
Agricultural Extension Service
University of Minnesota
- Michael Hunst
State Statistician
USDA National Agricultural
Statistics Service

NEBRASKA

- David Morgan
Agricultural Engineer
Biological Systems Engineering
Department
University of Nebraska
- David G. Loos
State Statistician
USDA National Agricultural
Statistics Service

NORTH DAKOTA

- George G. Maher
Agricultural Safety Specialist
Extension Service
North Dakota State University
- Larry W. Beard
State Statistician
USDA National Agricultural
Statistics Service

SOUTH DAKOTA

- Larry Tidemann
Coordinator
Cooperative Extension Service
South Dakota State University
- William G. Hamlin
State Statistician
USDA National Agricultural
Statistics Service

WISCONSIN

- Mark A. Purschwitz, Ph.D.
Extension Agricultural Safety
and Health Specialist
Cooperative Extension Service
University of Wisconsin
- Robert J. Battaglia
State Statistician
USDA National Agricultural
Statistics Service

[DATE]

[NAME/ADDRESS]

Dear [NAME]:

Thank you for your willingness to participate in the project, the Regional Rural Injury Study II, that is being conducted by the University of Minnesota and the USDA National Agricultural Statistics Services, in cooperation with other agencies in your state. The information that you can provide will help in better understanding the range of farming/ranching activities and the nature of injuries experienced in the agricultural community. This project, which will be used to develop injury prevention programs, is being conducted in the five states of Minnesota, Wisconsin, North Dakota, South Dakota, and Nebraska; your farm or ranch was randomly selected from all the farms and ranches in these states.

As you know, you will be contacted for telephone interviews sometime after July 1st of this year to provide information on the first six months of 1999 and, again, after January 1st, next year, to provide information on the second six months of 1999. The interviews will include questions about your household members, your farm operation, and about *both farming and non-farming-related injuries* that have occurred to members of your household during those periods of time. In some households, children who have been injured, as well as a random sample of those who have not been injured, will be asked questions about their farming/ranching activities and other activities for a particular period of time. The interviews are estimated to take between 30 and 45 minutes to complete.

For the first interview, to be conducted after July 1st, a packet of cards is enclosed to help the interview proceed more quickly and efficiently. Please fill out the information, as appropriate, and keep the cards near your telephone.

All the information collected for this project will remain completely confidential. No information on individuals or farms/ranches will ever be released.

As you know, every farm selected for this project is eligible to participate in a drawing for a \$100 Treasury Bond. Your household will have at least a 1 in 32 chance to receive a bond.

To ensure that complete information is obtained, it is very important for all farms to participate whether, or not, any injuries occur during 1999. If you have any questions about the project, please contact our Project Director, or me, at 612-624-4801 or 1-888-260-8636 (toll-free).

Sincerely,

Susan Goodwin Gerberich, Ph.D.
Professor and Director
Regional Injury Prevention Research Center

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Environmental and Occupational Health
School of Public Health

Box 807 Mayo
420 Delaware Street S.E.
Minneapolis, MN 55455
612-626-0900
Fax: 612-626-0650

REGIONAL RURAL INJURY STUDY - II COLLABORATORS

MINNESOTA

- Susan G. Gerberich, Ph.D.,
Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- Robert W. Gibson, Ph.D.
Co-Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- L. Ronald French, Ph.D.
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Minnesota Department of Health
- John Shutske, Ph.D.
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Engineer
Agricultural Extension Service
University of Minnesota
- Michael Hunst
State Statistician
USDA National Agricultural
Statistics Service

NEBRASKA

- David Morgan
Agricultural Engineer
Biological Systems Engineering
Department
University of Nebraska
- David G. Loos
State Statistician
USDA National Agricultural
Statistics Service

NORTH DAKOTA

- George G. Maher
Agricultural Safety Specialist
Extension Service
North Dakota State University
- Larry W. Beard
State Statistician
USDA National Agricultural
Statistics Service

SOUTH DAKOTA

- Larry Tidemann
Coordinator
Cooperative Extension Service
South Dakota State University
- William G. Hamlin
State Statistician
USDA National Agricultural
Statistics Service

WISCONSIN

- Mark A. Purschwitz, Ph.D.
Extension Agricultural Safety
and Health Specialist
Cooperative Extension Service
University of Wisconsin
- Robert J. Battaglia
State Statistician
USDA National Agricultural
Statistics Service

[DATE]

[NAME/ADDRESS]

Dear [NAME]:

Thank you for your willingness to participate in the project, the Regional Rural Injury Study II, that is being conducted by the University of Minnesota and the USDA National Agricultural Statistics Services, in cooperation with other agencies in your state. The information that you can provide will help in better understanding the range of farming/ranching activities and the nature of injuries experienced in the agricultural community. This project, which will be used to develop injury prevention programs, is being conducted in the five states of Minnesota, Wisconsin, North Dakota, South Dakota, and Nebraska; your farm or ranch was randomly selected from all the farms and ranches in these states.

As you know, you will be contacted for telephone interviews sometime after July 1st of this year to provide information on the first six months of 1999 and, again, after January 1st, next year, to provide information on the second six months of 1999. The interviews will include questions about your household members, your farm operation, and about *both farming and non-farming-related injuries* that have occurred to members of your household during those periods of time. In some households, children who have been injured, as well as a random sample of those who have not been injured, will be asked questions about their farming/ranching activities and other activities for a particular period of time. The interviews are estimated to take between 30 and 45 minutes to complete.

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All the information collected for this project will remain completely confidential. No information on individuals or farms/ranches will ever be released.

As you know, every farm selected for this project is eligible to participate in a drawing for a \$100 Treasury Bond. Your household will have at least a 1 in 32 chance to receive a bond.

To ensure that complete information is obtained, it is very important for all farms to participate whether, or not, any injuries occur during 1999. If you have any questions about the project, please contact our Project Director, or me, at 612-624-4801 or 1-888-260-8636 (toll-free).

Sincerely,

Susan Goodwin Gerberich, Ph.D.
Professor and Director
Regional Injury Prevention Research Center



MINNESOTA AGRICULTURAL STATISTICS SERVICE

*U.S. Department of Agriculture in cooperation with
the Minnesota Department of Agriculture*



FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

As you know the Minnesota Agricultural Statistics Service is collaborating with the University of Minnesota on a five state regional project that will provide information for development of prevention efforts to reduce injuries among farm household members. We greatly appreciate your willingness to participate in this project.

Sometime after July 1st, of this year, a representative of our agency will call to conduct an interview that will include questions about farming activities, persons who live in your farm household, and about injuries that have occurred to *any* household members between January 1st and June 30th, 1999; *both farming and non-farming-related injuries are included.*

To ensure complete information, it is important for all selected farms to participate in this interview whether, or not, any injuries have occurred. The enclosed letter further explains the project which will also include a second interview after January 1st of next year.

Thank you for your participation in this important project!

Sincerely,

Michael Hunst
State Agricultural Statistician



North Dakota
**Agricultural
Statistics Service**

U.S. Department of Agriculture - National Agricultural Statistics Service

P.O. Box 3166, Fargo, ND 58108-3166
Telephone: 701-239-5306 FAX: 701-239-5613
E-mail: nass-nd@nass.usda.gov

FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

As you know the North Dakota Agricultural Statistics Service is collaborating with the University of Minnesota on a five state regional project that will provide information for development of prevention efforts to reduce injuries among farm household members. We greatly appreciate your willingness to participate in this project.

Sometime after July 1st, of this year, a representative of our agency will call to conduct an interview that will include questions about farming activities, persons who live in your farm household, and about injuries that have occurred to *any* household members between January 1st and June 30th, 1999; *both farming and non-farming-related injuries are included.*

To ensure complete information, it is important for all selected farms to participate in this interview whether, or not, any injuries have occurred. The enclosed letter further explains the project which will also include a second interview after January 1st of next year.

Thank you for your participation in this important project!

Sincerely,

A handwritten signature in cursive script that reads "Larry Beard".

Larry Beard
State Agricultural Statistician



NEBRASKA

Agricultural Statistics Service

P.O. BOX 81069, 273 FEDERAL BUILDING
LINCOLN, NEBRASKA 68501
PHONE: (402) 437-5541

FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

As you know the Nebraska Agricultural Statistics Service is collaborating with the University of Minnesota on a five state regional project that will provide information for development of prevention efforts to reduce injuries among farm household members. We greatly appreciate your willingness to participate in this project.

Sometime after July 1st, of this year, a representative of our agency will call to conduct an interview that will include questions about farming activities, persons who live in your farm household, and about injuries that have occurred to *any* household members between January 1st and June 30th, 1999; *both farming and non-farming-related injuries are included.*

To ensure complete information, it is important for all selected farms to participate in this interview whether, or not, any injuries have occurred. The enclosed letter further explains the project which will also include a second interview after January 1st of next year.

Thank you for your participation in this important project!

Sincerely,

David G. Loos
State Agricultural Statistician



FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME) FIELD(STATEALPHA), FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

As you know the South Dakota Agricultural Statistics Service is collaborating with the University of Minnesota on a five state regional project that will provide information for development of prevention efforts to reduce injuries among farm household members. We greatly appreciate your willingness to participate in this project.

Sometime after July 1st, of this year, a representative of our agency will call to conduct an interview that will include questions about farming activities, persons who live in your farm household, and about injuries that have occurred to *any* household members between January 1st and June 30th, 1999; *both farming and non-farming-related injuries are included.*

To ensure complete information, it is important for all selected farms to participate in this interview whether, or not, any injuries have occurred. The enclosed letter further explains the project which will also include a second interview after January 1st of next year.

Thank you for your participation in this important project!

Sincerely,

Bill Hamlin

Bill Hamlin
State Agricultural Statistician

Wisconsin Agricultural Statistics Service

P.O. Box 8934
Madison, WI 53708-8934
(608) 224-4848

National Agricultural Statistics Service, USDA
WI Department of Agriculture, Trade & Consumer Protection



FIELD(FIRSTNAME) FIELD(LASTNAME)
FIELD(ADDRDELIVE)
FIELD(PLACENAME), FIELD(STATEALPHA) FIELD(ZIP5)-FIELD(ZIP4)

Dear FIELD(FIRSTNAME) FIELD(LASTNAME):

As you know the Wisconsin Agricultural Statistics Service is collaborating with the University of Minnesota on a five state regional project that will provide information for development of prevention efforts to reduce injuries among farm household members. We greatly appreciate your willingness to participate in this project.

Sometime after July 1st, of this year, a representative of our agency will call to conduct an interview that will include questions about farming activities, persons who live in your farm household, and about injuries that have occurred to *any* household members between January 1st and June 30th, 1999; *both farming and non-farming-related injuries are included.*

To ensure complete information, it is important for all selected farms to participate in this interview whether, or not, any injuries have occurred. The enclosed letter further explains the project which will also include a second interview after January 1st of next year.

Thank you for your participation in this important project!

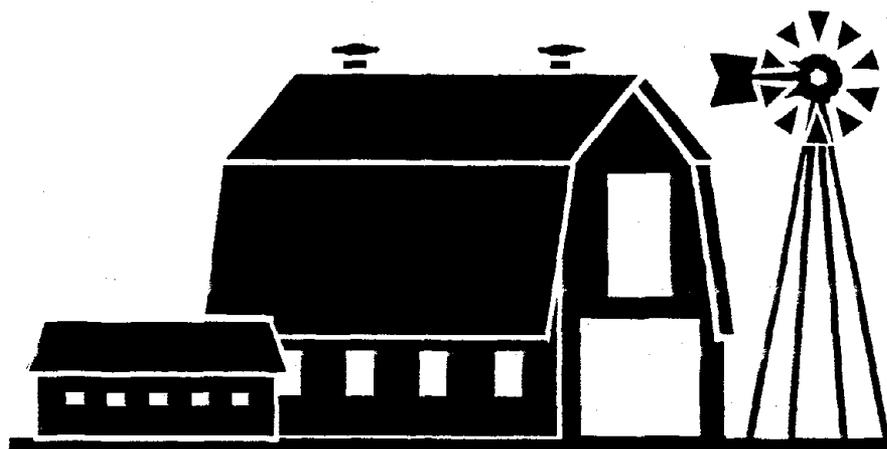
Sincerely,

A handwritten signature in black ink that reads "Robert J. Battaglia". The signature is written in a cursive style and is located below the "Sincerely," text.

Robert J. Battaglia
State Statistician

Regional Rural Injury Study II

**A PROJECT TO REDUCE INJURIES AMONG
FARM AND RANCH HOUSEHOLD MEMBERS**



**Collaboration between the
University of Minnesota
and the
USDA National Agricultural
Statistics Service**

CONTACT INFORMATION:

**Susan Gerberich, PhD
Professor and Director
Regional Injury Prevention Research Center
Division of Environmental and Occupational Health
School of Public Health
University of Minnesota
Box 807 Mayo
420 Delaware Street SE
Minneapolis, MN 55455
612-626-4801
1-888-260-8636 (toll-free)**

REGIONAL RURAL INJURY STUDY II

INTERVIEW INFORMATION CARDS

The following color-coded cards are designed to make the telephone interview, that will be conducted sometime after July 1, 1999, go as quickly and smoothly as possible. Please take some time to go through these cards with the members of your household before the interview. Where possible, fill in any information that is noted on the colored cards, and update them as necessary.

The sequence and types of information that will be requested include:

1. Household Members

You will be asked general questions about the people living in your household. For this portion of the interview, you will be asked to refer to the **gold card** in your packet to assist in answering these questions.—*It would be helpful to fill this one out ahead of time.*

2. Accidents/Injuries

You will be asked about any accidents/injuries that occurred to *any member* of your household between January 1, 1999 and June 30, 1999. (A calendar is provided at the back of this packet for your reference.) *These accidents/injuries may have resulted from either farming/ranching-related or non-farming/non-ranching-related activities.* The following cards from your packet will assist you in answering these questions:

- **Light blue card:** Injury Definition
- **Dark blue card:** Location of injury/Body part affected (refer to figure)
- **Beige cards:** Types of Injuries/Persistent Problems
- **Rose cards:** List of persons injured/Details about injury event(s)—*It would be helpful to fill this one out ahead of time.*

3. Activities

In some households, questions will also be asked about activities and experiences of selected children; these experiences include the following:

- farming/ranching activities, including work or activities with animals, tractors and other large farm/ranch equipment
- school and other non-farm/non-ranch activities
- general health information
- farm/ranch safety training

Both parents and selected children, 12 years of age and older, may be asked questions during this portion of the interview; parents will be asked to respond for children less than 12 years of age.

4. General Farm Operation

We will ask a few general questions about your farming/ranching operation.

PLEASE KEEP THESE CARDS NEXT TO YOUR TELEPHONE SO THAT YOU CAN USE THEM WHEN THE INTERVIEWER CALLS.

Thank you!

HOUSEHOLD MEMBERS

In part of the interview, we will ask some general questions about each person who was a member of your household as of January 1, 1999. [This includes persons who moved or joined after January 1; it includes students away at college or children who reside in multiple households, including yours, etc.] Please provide the following information on these household members:

All household members as of January 1, 1999: Full Name	Date of Birth	Number of months worked or did chores on your farming/ranching operation between January 1 and June 30, 1999	Number of weeks per month worked or did chores on your farming/ranching operation between January 1 and June 30, 1999	Hours per week on average worked or did chores on your farming/ranching operation between January 1 and June 30, 1999	Covered by medical/health care insurance (Yes/No)

INJURY DEFINITION

In this project, any of the following that occurred between **January 1, 1999 and June 30, 1999** will be included as an accident/injury:

- **Any accident/injury restricting normal activities for at least four hours; and/or**
- **Loss of consciousness, loss of awareness, or amnesia for any length of time (for example, due to a blow to the head or being overcome by fumes); and/or**
- **Any accident/injury for which professional care was sought (for example, seeing a doctor, nurse, dentist, chiropractor or other healthcare professional).**

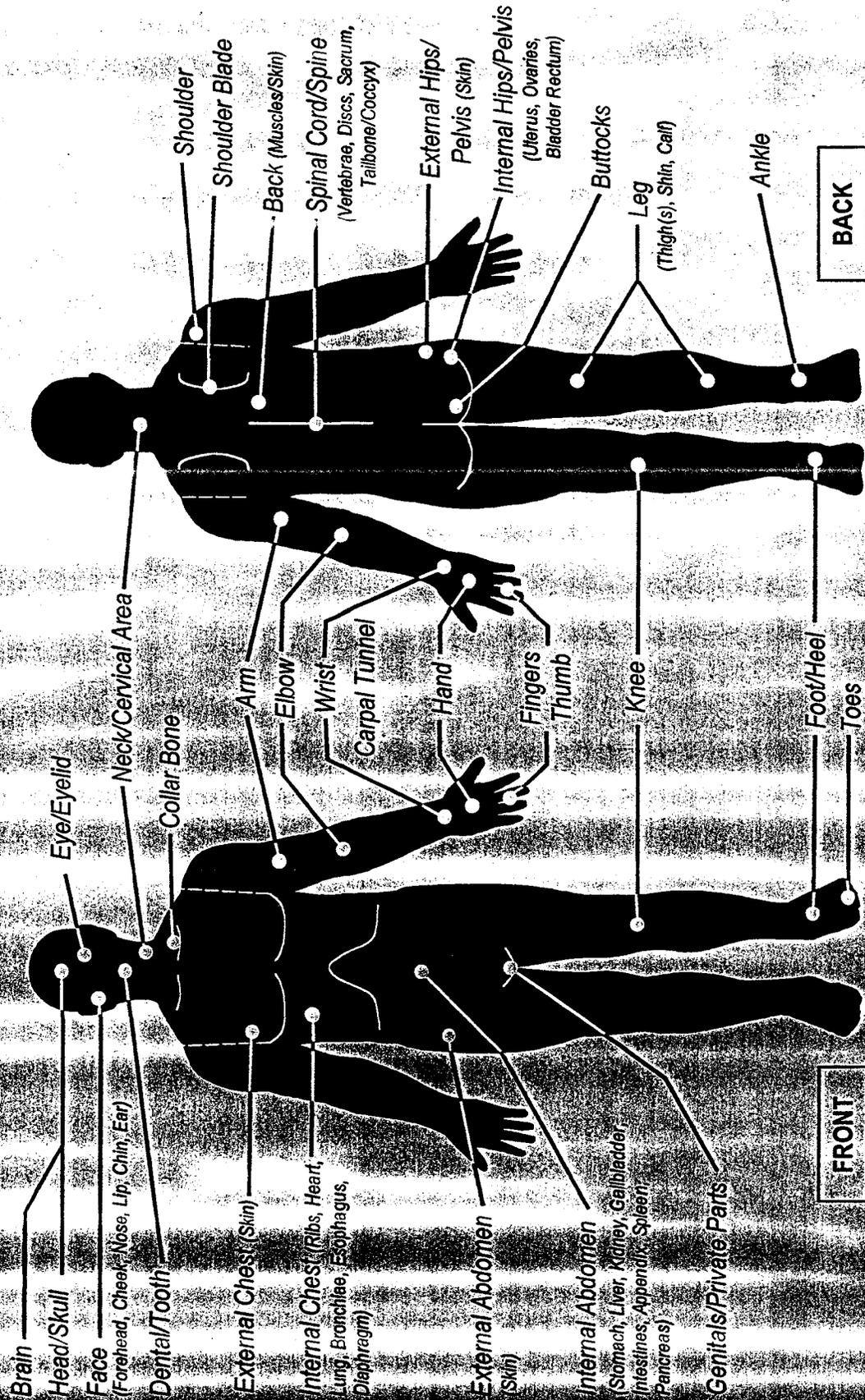
All accidents/injuries that fit any part of the injury definition above are to be included.

This includes both farming/ranching and non-farming/non-ranching activity-related accidents/injuries that were minor, serious or fatal.

Some examples of injuries and sources of the injuries:

- A brain injury resulting from a fall
- A broken arm from working with machinery
- An animal bite or kick
- A brief loss of consciousness after breathing a toxic gas such as silo gas or manure pit gas
- A burn or blister due to heat or chemical contact
- Abdominal injuries resulting from a motor vehicle crash
- A leg fracture from a sports or recreational activity
- Strained/pulled back from lifting, twisting, etc.
- Cut/laceration from working with a tool
- Bruise/contusion from falling item or being struck by/against equipment or an animal

The following diagrams may be of assistance in describing the exact location(s) of each injury that we discuss during the interview.



Includes internal and external injuries

TYPES OF INJURIES/PERSISTENT PROBLEMS

During the telephone interview, you will be asked about the *type of injury* for each part of the body that was injured, according to the injury definition. You will also be asked about *persistent problems* or *symptoms* resulting from the injuries. The following list may help in describing these injuries.

Using the information below, please record the type of injury for household members injured either on or off the farm/ranch in a farming/ranching or non-farming/non-ranching-related accident/injury between January 1, 1999 and June 30, 1999. Also, identify any persistent problems or symptoms. Please use the **rose cards** for this purpose and have it on hand for the interview.

<u>TERM</u>	<u>DESCRIPTION</u>
Scrape/Abrasion	Removal of skin, or portion of skin
Bruise/Contusion	Discoloration of the skin or other soft tissue due to blood clotting within the soft tissue
Burn/Blister/Scald	Lesion/wound of the skin due to heat or chemical exposure
Sprain/Strain/ Torn Ligament	Injury to the soft tissue of a joint/muscle or tissue connecting cartilage or organs
Cut/Laceration	Tearing of soft tissue/skin
Puncture/Stab/Jab	Wound made by a piercing instrument
Broken Bone/Fracture	Break of bone or cartilage
Dislocation	Disturbance of the normal relation of a bone and joint
Traumatic Rupture	Tearing or bursting of internal organ tissue due to physical force
Crushed/Mangled	Severe and multiple injuries due to being caught in, under, or between objects
Loss of Body Part	Loss of a limb or other body part
Nerve Injury	Injury to a nerve, which may result in numbness, tingling, or weakness of a portion of the body

➡ CONTINUED ON NEXT PAGE ➡

TYPES OF INJURIES/PERSISTENT PROBLEMS – Continued

<u>TERM</u>	<u>DESCRIPTION</u>
Poisoning	Swallowing a poisonous or toxic substance or skin/eye contact with substance
Concussion/Loss of Consciousness/ Loss of Awareness	Injury involving loss of consciousness for any length of time due to a blow to the head or neck or from inhalation of toxic fumes
Suffocation/Choking	Suffocation or choking as a result of something caught in the throat or as a result of a blow to the throat or strangulation
Drowning or Near Drowning	Fatal or non-fatal injury resulting from immersion in liquid or solid, granular substances
Paralysis	Any type of paralysis (temporary or permanent) or inability to move part or parts of the body
Pain	Discomfort or pain at any site in the body as a result of an injury event

PERSISTENT PROBLEMS OR SYMPTOMS RESULTING FROM INJURIES

Continued problems or symptoms following the injury event may include any of the following:

- Pain
- Numbness or tingling
- Persistent or recurrent headache
- Paralysis
- Loss of body part
- Weakness/fatigue
- Decreased range of motion
- Impaired vision, speech, or hearing
- Dizziness
- Reduced ability to concentrate or do physical work
- Epilepsy
- Convulsions/seizures

PERSONS INJURED

At the time of the telephone interview, it will be helpful if the information below is available for all members of your household who were injured between January 1, 1999 and June 30, 1999. Please include both farming/ranching and non-farming/non-ranching-related injuries.

Name	Date of Injury	Where Injury Happened	How Injury Happened	Source of Injury (e.g., Animals, Tractors, Large Machinery, Small Power/Hand Tools, Chemicals, Sports, Housework, Fall)	Body Part Injured (See Figure)	Type of Injury (See Beige Card)	Current Persistent Problems/Symptoms (See Beige Card)	Length of Restriction of Normal Activity (Hours, Days, Months)

➡ Continue to next page, as necessary ➡

PERSONS INJURED--Continued

Name	Date of Injury	Where Injury Happened	How Injury Happened	Source of Injury (e.g., Animals, Tractors, Large Machinery, Small Power/Hand Tools, Chemicals, Sports, Housework, Fall)	Body Part Injured (See Figure)	Type of Injury (See Beige Card)	Current Persistent Problems/ Symptoms (See Beige Card)	Length of Restriction of Normal Activity (Hours, Days, Month)

January 1999						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

April 1999						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

February 1999						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

May 1999						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

March 1999						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June 1999						
Sun	Mon	Tues	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

APPENDIX D

FULL INTERVIEW DATA COLLECTION INSTRUMENTS PROGRAMMED INTO CATI SYSTEM

- **FIRST SIX-MONTH INTERVIEW**
- **SECOND SIX-MONTH INTERVIEW**

**ETIOLOGY AND CONSEQUENCES OF INJURIES
AMONG CHILDREN IN FARM HOUSEHOLDS:
A REGIONAL RURAL INJURY STUDY - 1999**

***CHILDHOOD AGRICULTURAL SAFETY AND HEALTH RESEARCH
PROGRAM ANNOUNCEMENT: 817***

RO1/CCR514375

DATA COLLECTION INSTRUMENTS

**FIRST SIX-MONTH INTERVIEW
(January 1 through June 30, 1999)**

**Regional Injury Prevention Research Center
Division of Environmental and Occupational Health
School of Public Health
University of Minnesota
Minneapolis, Minnesota
612-625-5934**

.....
Initial Programming Note: The following variables are brought forward from the participation interview:

>Resp_type< (1 = Female head of household; 3 = Male head of household)
>Resp_name< (Participation interview respondent's name)
>prevfemale20< (Number of females 20 years of age and over as of January 1, 1999)
>prevmale20< (Number of males 20 years of age and over as of January 1, 1999)
>prevfemale19< (Number of females 19 years of age and under as of January 1, 1999)
>prevmale19< (Number of males 19 years of age and under as of January 1, 1999)
.....

-- Script Before Entering CATI Program --

**Dial number from call sheet prepared by the USDA National Agricultural
Statistics Service (NASS).**

When someone answers the phone --

Ask:

"Hello, is this the _____ residence?"

If it is not the residence you are calling, follow standard NASS procedures verifying number, etc

If it's the correct household:

Ask: **"May I please speak with the female head of household?"**

Female head of household comes to the phone (*continue interview*)

Female head of household is unavailable (*go to >callback<*)

There is no female head of household -

Ask: **"Then, may I please speak to the male head of household?"**

Male head of household comes to the phone (*continue interview*)

Male head of household is unavailable (*go to >callback<*)

*Please enter a comment that there is no female head of household, so the
enumerator who places the next call will know to ask for the male head of
household.*

**-- When an appropriate respondent (female or male head of household) has
come to the phone begin the CATI interview --**

.....

CATI Interview

Household Log Interview

>Who_Pi< [Enumerator: Who is the current respondent? Enter name.]

>Cur_Resp< [Enumerator: Enter code.]

- 1 Female head of household
- 3 Male head of household

>int_ProgNote< [Programming Note:
If >Cur_Resp< = >Resp_type< (from participation interview)
 >Who_Pi2< = "you"
 >he_she1< = "you"
Else
 >Who_Pi2< =>Resp_name<
 If (>Resp_type< = 1)
 >he_she1< = "she"
 Else
 >he_she1< = "he"
 End If
End If]

>Intro< "Hello, this is >EnumName< calling for the >StateName< agricultural statistics service. I'm calling to follow up on a project we are conducting with the University of Minnesota about farming and ranching activities and injuries. The results from the project will be used to develop injury prevention programs that can benefit all households."

- 1 Continue

>Intrdctn< "When we spoke with >Who_Pi2< recently, >he_she1< said that you would be willing to help us with this project. We would like to conduct the full interview now, to obtain information about members of your household, your farming or ranching activities, and any injuries that may have occurred in the first six months of this year. All information we collect is confidential. If you are uncomfortable with any question, you may choose not to answer that question, and we will move on to the next question. Is this a convenient time?"

- 1 Yes (go to >cards<)
- 3 No, not a convenient time (go to >callback<)
- 9 Refusal (go to >reconsider1<)

>Monitoring< "For quality control purposes, my supervisor may monitor this call."

- 1 Continue

>cards< "After we spoke with >Who_Pi2<, we mailed you an interview information packet containing two letters and a set of colored cards. It would be helpful if you had the cards in front of you as we speak. Do you have them available?"

- 1 Yes (go to >HH_totalA<)
- 3 No (go to >getcards<)

>getcards< "Can you get the cards?"

- 1 Yes (go to >HH_totalA<)
- 3 No (go to >proceed<)

>proceed< "We can proceed with the interview anyway. May we continue?"

- 1 Yes (go to >HH_totalA<)
- 3 No (go to >callback<)

>HH_totalA< "Let me verify the number of people that lived in your household as of January 1, 1999. I have:
 20 years of age and older: female(s) - >prevfemale20< male(s) - >prevmale20<
 19 years of age and under: female(s) - >prevfemale19< male(s) - >prevmale19<.
 Is this correct?"

- 1 Yes (go to >hh_ProgNote1<)
- 3 No (go to >female20<)

>female20< "How many females in your household were 20 YEARS OF AGE or OLDER, as of January 1, 1999?" _____

>female19< "How many females in your household were 19 YEARS OF AGE or YOUNGER?" _____

>male20< "How many males in your household were 20 YEARS OF AGE or OLDER, as of January 1, 1999?" _____

>male19< "How many males in your household were 19 YEARS OF AGE or YOUNGER?" _____

>HH_totalB< "Let me verify the number of people that lived in your household as of January 1, 1999. I have:
 20 years of age and older: female(s) - >female20< male(s) - >male20<
 19 years of age and under: female(s) - >female19< male(s) - >male19<.
 Is this correct?"

- 1 Yes (go to >hh_ProgNote1<)
- 3 No (go to >female20<)

>hh_ProgNote1< [*Programming Note: If >female19< = 0 and >male19< = 0, go to >not_qual<; else go to >hh_ProgNote2<*]

>not_qual< "Since no one in your household was 19 years of age or younger, as of January 1, 1999, your household is not eligible for our project. However, you are still eligible for the drawing for a \$100 treasury bond that we told >Who_Pi2< about during our earlier conversation. Thank you for your time and cooperation. Goodbye."

- 1 Continue (go to to >hh_exit1<)

>hh_ProgNote2< [*Programming Note: If >proceed< = 1 (go to >hh_log<); Else (go to >get_gold<)*]

>get_gold< "For the next questions it will be helpful for you to have the gold card from the packet in front of you. Do you have the gold card?" (*Wait for the respondent to get the gold card or say that it is not available.*)

- 1 Continue

>hh_log< "Now I need to collect some basic information about each member of your household. Starting with the Female 20 and over (if there is one)...."

1 Continue

>hh_ProgNote3< [Programming Note: Set >kids< = 0. The program loops through the age X gender groups. First Female 20 and Over, person 0 thru >female20< (>type_pers< = "adult"); then Female 19 and Under, person 0 thru >female19< (increment >kids< = >kids< + 1, and >type_pers< = "child"); then Male 20 and Over, person 0 thru >male20< (>type_pers< = "adult"); and Male 19 and Under, person 0 thru >male19< (increment >kids< = >kids< + 1, and >type_pers< = "child"). As it goes through the loop, each subject is also assigned an incremental subject number >noinfarm<, and the total number of people in the farm household, >totinfarm< set to >female20< + >female19< + >male20< + >male19<.]

>first_name< "What is their first name?" _____

>hh_ProgNote4< [Programming note:
If the household member you're asking about is also the respondent (person #1)
>first_name's< = "your"; >Title< = "you"; >self_relat< = 1 (self); >was_is< = "is";
>was_were< = "were"; >is_are< = "Are"
If >HHLog_resp< = 1 (FHH)
>gender< = 3 (female)
Else
>gender< = 1 (male)
Endif
Else
>was_is< = "is"
>is_are< = "Is"
>was_were< = "was"
>first_name's< = ">first_name<'s"
>Title< = >first_name<]
Endif]

>last_name< "What is >first_name's< last name?" _____

>hh_ProgNote5< [Programming note: If the household member you're asking about is also the respondent (person #1) go to >dob<]

>hh_moved< "Did >first_name< live in your household as of JUNE 30, 1999?" [Note: People on vacation on June 30, 1999 are considered to be living in the household.]

- 1 Yes (go to >self_relat<)
- 3 No (go to >hh_other<)

>hh_other< "Did >first_name< move or pass away between January 1 and June 30, 1999?
(moved – includes those who left for school or to live in another household, whether temporarily or permanently)"

- 1 Moved
- 3 Passed away (Set >was_is< = "was")

>month_left< "In what month did this occur?" _____

>day_left< "On what day of the month?" _____

>leadin< "I'd like to ask you some questions about >first_name< even though he/she is not living with you now."

1 Continue

>hh_ProgNote5a< [Programming Note: If >self_relat< = 1 (self), >his_her< = "your";>him_her< = "you", >he_she< = "you"; go to >dob<]

>self_relat< "What >was_is< >first_name's< relationship TO YOU"?

- | | |
|-------------------------|----------------|
| 1 Self | 5 Parent |
| 2 Spouse / Life partner | 6 Other family |
| 3 Child (son/daughter) | 7 Non-family |
| 4 Sibling | 8 Unknown |
| 9 Refused | |

>gender< "Is >first_name< male or female?"

- 1 Male (Set >his_her< = "his"; >he_she< = "he", >him_her< = "him")
- 3 Female (Set >his_her< = "her"; >he_she< = "she", >him_her< = "her")

>dob< "What >was_is< >his_her< birthdate?" ___/___/___ (YYYY/MM/DD)

>hh_ProgNote6< [Programming note: If respondent does not know date of birth or refuses to give it, go to >current<; Else go to >hh_ProgNote6a<]

>current< "What was >his_her< age on January 1, 1999?" ___ Years

>hh_ProgNote6a< [Programming Note:
If (>type_pers< = "child")
 >kid_num< = >kids<
Else
 >kid_num< = 99
End If
If (>dob< known)
 >age< = trunc((((01/01/1999) - >dob<)/365.25),0)
Else
 >age< = >current<
End If

>race< "What >was_is< >first_name's< race? (You may indicate more than one race.)" [Enumerator: Read list of possible answers – You may enter a maximum of seven codes; when finished press enter.]

- | | |
|-------------------------------------|---------------------------------------|
| 1 White | 6 Native Hawaiian or Pacific Islander |
| 2 Black or African American | 7 Mixed Race or Something else |
| 3 American Indian or Alaskan Native | 8 Unknown |
| 4 Hispanic or Latino | 9 Refused |
| 5 Asian | |

>hh_ProgNote7< [Programming note: If any of the codes entered in >race< is 7, go to >race_specify<; else go to >hh_ProgNote8<]

>race_specify< "Please specify other OR mixed race." _____

>hh_ProgNote8< [Programming note: If household member you're asking about is < 16 years of age, go to >insurance<]

>married< "As of January 1, 1999, what was >his_her< marital status?"

- | | |
|--------------------------------|-----------|
| 1 Married or living as married | 5 Widowed |
| 2 Never married | 8 Unknown |
| 3 Separated | 9 Refused |
| 4 Divorced | |

>insurance< "From January 1, 1999 through June 30, 1999, was >first_name< covered by any type of health or medical insurance, including Medicare or Medicaid?"

- | | |
|--|--------------------------------|
| 1 Yes, all of that time (go to >type_ins<) | 8 Unknown (go to >yrs_school<) |
| 3 Yes, part of that time (go to >type_ins<) | 9 Refused (go to >yrs_school<) |
| 5 No, none of that time (go to >yrs_school<) | |

>type_ins< "Under which of the following types was/were >he_she< covered?" [Enumerator: Read list of possible answers – You may enter a maximum of six codes; when finished press enter.]

- | | |
|--|-----------------------------------|
| 1 Employer provided (paid) medical plan | 5 Medicaid |
| 2 Household provided (paid) medical plan | 6 More than one or Something else |
| 3 Medicare with a supplemental policy | 8 Unknown |
| 4 Medicare without a supplemental policy | 9 Refused |

>hh_ProgNote9< [Programming note: If any of the codes entered in >type_ins< is 6, go to >type_ins_specify<; else go to >hh_ProgNote10<]

>type_ins_specify< "Please specify other insurance." _____

>hh_ProgNote10< [Programming note: If household member you're asking about is < 5 years of age, go to >mo_farmwork6<]

>yrs_school< "As of January 1, 1999, what was the highest grade in school >he_she< completed?"

- 0 Less than kindergarten (includes pre-school & no school) (go to >mo_farmwork6<)
- 1 Eighth grade or less (includes kindergarten) (go to >mo_farmwork6<)
- 2 Some high school (go to >mo_farmwork6<)
- 3 High school graduate or GED (go to >mo_farmwork6<)
- 4 Some technical school (go to >mo_farmwork6<)
- 5 Technical school graduate (go to >mo_farmwork6<)
- 6 Some college (go to >mo_farmwork6<)
- 7 College graduate (go to >mo_farmwork6<)
- 8 Post graduate/Professional school (graduate school, medicine, law, etc.) (go to >mo_farmwork6<)
- 9 Other (go to >yrs_school_specify<)
- 98 Unknown (go to >mo_farmwork6<)
- 99 Refused (go to >mo_farmwork6<)

>yrs_school_specify< "Please specify other schooling." _____

>mo_farmwork6< "Between January 1, 1999 and June 30, 1999, how many months did >Title< work or do chores in any activity related to your farming or ranching operation?"

- 0 None (go to >hh_next_member<)
- _____ 1 – 6 months
- 8 Unknown
- 9 Refused

>hrs_farmwork6< "On average, how many HOURS PER WEEK?"

- ___ 1 – 130 hours
- 998 Unknown
- 999 Refused

>hh_next_member< [Programming note: If no more HH members remain - go to >cards2c< else continue]
"Now, let's talk about the next member of your household."

1 go to >hh_ProgNote3<

>reconsider1< "May I ask why you prefer not to continue at this time?"

- 1 Operation too small (go to >reconsider3<)
- 2 Didn't have any injuries (go to >reconsider2<)
- 3 Haven't been farming long enough (go to >reconsider3<)
- 4 Not a convenient time – Too busy (go to >callback<)
- 5 Personal crisis (go to >callback<)
- 6 Does not want to cooperate (Doesn't like surveys) – Just not interested (go to >reconsider3<)

>reconsider2< "Your participation will be very important in efforts to reduce farming and ranching accidents and injuries for ALL farm families. It is important to include ALL types of operations, whether or not there were accidents or injuries. This will help in better understanding both farming and ranching activities, and injuries in your region. Would you reconsider participating?"

- 1 Yes (go to >cards<)
- 3 Not a convenient time – Too busy (go to >callback<)
- 5 No, don't want to participate (go to >abbrev1<)

>reconsider3< "The results of this project will be used to develop effective injury prevention programs that can benefit all farming and ranching households. When we spoke with >Who_Pi2< earlier >he_she1< agreed to participate in the project. Your participation is very important. Would you please reconsider?"

- 1 Yes (go to >cards<)
- 3 Not a convenient time – Too busy (go to >callback<)
- 5 No, don't want to participate (go to >abbrev1<)

>abbrev1< "In that case, would you consider answering a few brief questions about the members of your household and any injuries that occurred between January 1, and June 30, 1999?"

- 1 Yes (go to >ab_acres<)
- 3 No (go to >hh_end1<)

.....

Abbreviated Interview

>ab_acres< "The first set of questions are about YOUR farming or ranching operation.

Between January 1st, 1999 and June 30th, 1999, of the acres that you own, plus the acres that you rent or lease, how many did you have in use or active production, including land in hay and pasture? Do not include wasteland, woodlands, or land in long-term CRP (Conservation Reserve Programs) or any set-aside programs."

0-99,999 acres [*Enumerator: Note - If >0 & <1, code as 1*]

>ab_enterpr< "During that time, of the following farming/ranching enterprises, which ONE required the most amount of WORK TIME on your operation?" [*Enumerator: Read list of possible answers.*]

- 1 Beef cattle (*go to >ab_HH_totalA<*)
- 2 Dairy cattle (*go to >ab_HH_totalA<*)
- 3 Other animals (i.e. poultry, sheep, swine, horses, etc.) (*go to >ab_HH_totalA<*)
- 4 Field, forage or specialty crops (*go to >ab_HH_totalA<*)
- 5 CRP (Conservation Reserve Program) or Set-aside program (*go to >ab_HH_totalA<*)
- 6 Other (*go to >ab_enterpr_specify<*)
- 8 Unknown (*go to >ab_HH_totalA<*)
- 9 Refused (*go to >ab_HH_totalA<*)

>ab_enterpr_specify< "Please specify other enterprise." _____

>ab_HH_totalA< "Let me verify the number of people that lived in your household as of January 1, 1999. I have:

20 years of age and older: female(s) - >prevfemale20< male(s) - >prevmale20<

19 years of age and under: female(s) - >prevfemale19< male(s) - >prevmale19<.

Is this correct?"

- 1 Yes (*go to >ab_ProgNote1<*)
- 3 No (*go to >ab_female20<*)

>ab_female20< "How many females in your household were 20 YEARS OF AGE or OLDER, as of January 1, 1999?" _____

>ab_female19< "How many females in your household were 19 YEARS OF AGE or YOUNGER?" _____

>ab_male20< "How many males in your household were 20 YEARS OF AGE or OLDER, as of January 1, 1999?" _____

>ab_male19< "How many males in your household were 19 YEARS OF AGE or YOUNGER?" _____

>ab_HH_totalB< "Let me verify the number of people that lived in your household as of January 1, 1999. I have:

20 years of age and older: female(s) - >ab_female20< male(s) - >ab_male20<

19 years of age and under: female(s) - >ab_female19< male(s) - >ab_male19<.

Is this correct?"

- 1 Yes (*go to >ab_ProgNote1<*)

>ab_ProgNote3< [Programming Note: The program loops through the age X gender groups. First Female 20 and Over, person 0 thru >ab_female20<; then Female 19 and Under, person 0 thru >ab_female19<; then Male 20 and Over, person 0 thru >ab_male20<; and Male 19 and Under, person 0 thru >ab_male19<. If male, >he_she< = "he", >his_her< = "his"; else if female, >he_she< = "she", >his_her< = "her".]

>ab_age< "What was >his_her< age on January 1, 1999?" __ Years. [Enumerator: If <1, enter 0.]

>ab_ProgNote4< [Programming Note: If >ab_farminj< = 3 (no), go to >ab_ProgNote5<.]

>ab_farm< "Between January 1st and June 30th, 1999, did >he_she< have any accidents or injuries related to YOUR operation?"

- | | | | |
|---|---------------------------|---|--------------------------------|
| 1 | Yes | 8 | Unknown (go to >ab_ProgNote5<) |
| 3 | No (go to >ab_ProgNote5<) | 9 | Refused (go to >ab_ProgNote5<) |

>ab_num1< "How many?"

- | | |
|----|---------|
| __ | 1-9 |
| 98 | Unknown |
| 99 | Refused |

>ab_wk6< "During those months, how many months did >he_she< work or do chores in any activity related to your farming or ranching operation?"

- | | |
|----|--------------------------------|
| 0 | None (go to >ab_ProgNote5<) |
| __ | 1 - 6 months |
| 8 | Unknown (go to >ab_ProgNote5<) |
| 9 | Refused (go to >ab_ProgNote5<) |

>ab_hr6< "On average, how many HOURS PER WEEK?"

- | | |
|-----|-------------|
| __ | 1-130 hr/wk |
| 998 | Unknown |
| 999 | Refused |

>ab_ProgNote5< [Programming Note: If >ab_non_farminj< = 3 (no), go to >ab_next_member<.]

>ab_nonfarm< "During those months did >he_she< have any accidents or injuries related to activities OTHER THAN farming or ranching?"

- | | | | |
|---|-----------------------------|---|-----------------------------------|
| 1 | Yes | 8 | Unknown (go to >ab_next_member <) |
| 3 | No (go to >ab_next_member<) | 9 | Refused (go to >ab_next_member <) |

>ab_num2< "How many?"

- | | |
|----|---------|
| __ | 1-9 |
| 98 | Unknown |
| 99 | Refused |

>ab_next_member< [Programming note: If no more HH members remain - go to >ab_end2<; else continue]

"Now, let's talk about the next member of your household."

- 1 go to >ab_ProgNote3<

.....

Injury Section

>cards2c< "The light blue card in your packet also defines what we mean by INJURY and will be helpful for the next few questions. Do you have the packet in front of you?"

- 1 Yes (*go to >cards2a<*)
- 3 No

>getcard< "Can you get the card?"

- 1 Yes
- 3 No

>cards2a< "The next questions are about accidents and injuries that occurred TO MEMBERS OF YOUR HOUSEHOLD BETWEEN JANUARY 1st AND JUNE 30th OF THIS YEAR. These may have resulted from activities related to farming or ranching, AS WELL AS from other activities NOT related to farming or ranching."

"The injured person could have been directly involved in the activities or simply standing or playing in the area. These accidents and injuries INCLUDE MINOR AS WELL AS SERIOUS AND FATAL ACCIDENTS OR INJURIES that:"

- 1 *Continue*

>card2b< [*Enumerator: Read slowly!!*]

- "Restricted normal activities for at least 4 hours;
AND/OR
- Resulted in loss of consciousness, loss of awareness, or amnesia for any length of time;
AND/OR
- Required professional healthcare, including care by doctors, nurses, chiropractors, dentists or other healthcare professionals."

- 1 *Continue*

>i_ProgNote1< [*Programming Note: If >cards2c< = 1 (yes) or >getcard< = 1 (yes) go to >questions<, else, go to >nocard1<.*]

>nocard1< "Let me give you a few examples of the types of injuries we're interested in. These include:

- A brain injury or loss of consciousness resulting from a fall;
- A broken arm from working with machinery;
- An animal bite or kick;
- A brief loss of consciousness after breathing toxic gas such as silo gas or manure pit gas;
- A burn or blister due to heat or chemical contact;"

- 1 *Continue*

>nocard2< • "Abdominal injuries resulting from a motor vehicle crash;

- A leg fracture from a sports or recreation activity;
- A strained/pulled back from lifting, twisting, etc.;
- A cut or laceration from working with a tool;
- A bruise or contusion from a falling item or being struck by or against equipment or an animal."

"Do you have questions about the type of injuries we're interested in?"

- 1 Yes [Enumeratror: Answer questions and repeat description, as necessary, then go to >i_next_member<]
- 3 No (go to >i_next_member<)

>questions< "Do you have any questions about the types of injuries we're interested in?"

- 1 Yes (go to >nocard1<)
- 3 No

>i_next_member< [Programming Note: The program loops through the study subjects , for >noinfam< = 1 to >totinfam<; Then go to >e_ProgNote1<. Identifiers carried forward for each member from the Household Log are >Title<, >he_she<, >his_her<, >is_are< and >was_were<.]

>prior_injury1< "At any time PRIOR to January 1st, 1999, did >Title< EVER have any type of farming/ranching-related accidents or injuries?"

- 1 Yes
- 3 No (go to >injlog<)
- 8 Unknown (go to >injlog<)
- 9 Refused (go to >injlog<)

>prior_injnumber< "How many injuries or accidents did >he_she< have?"

- ___ 1-20
- 98 Unknown
- 99 Refused

>prior_loss1< "Did this injury (any of these injuries) result in permanent disabilities? This includes the loss of a body part or other disfigurement, permanent pain or discomfort, or restricted activity."

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refused

>inj_log< "DURING THE SIXTH MONTH PERIOD BETWEEN JANUARY 1 AND JUNE 30, 1999, Did >Title< have ANY type of accidents or injuries?"

- 1 Yes
- 3 No (go to >i_next_member<)
- 8 Unknown (go to >i_next_member<)
- 9 Refused (go to >i_next_member<)

>inj_farmop< "During that time, how many accidents or injuries did >Title< have, that were in any way related to YOUR farming or ranching operation? This includes activities such as transportation on roadways, or any other aspect of your operation, including raising animals for recreation or home use? It could also include someone who was injured while standing or playing in an area where these activities were taking place."

- ___ 0-5
- 8 Unknown
- 9 Refused

>inj_othrfarm< "How many accidents or injuries did >Title< have, related to SOMEONE ELSE'S operation?"

___ 0-5
8 Unknown
9 Refused

>inj_nonfarmop< "How many accidents or injuries did >Title< have, that were related to activities OTHER THAN farming or ranching?"

___ 0-5
8 Unknown
9 Refused

>i_ProgNote2< [*Programming Note: Set >total_injuries< = >inj_farmop< + >inj_othrfarm< + >inj_nonfarmop<*]

>verify_inj< "So >Title< had >total_injuries< injuries total, from JANUARY 1 to JUNE 30, 1999.

>inj_farmop< - Related to YOUR Operation /.

>inj_othrfarm< - Related to Someone Else's Operation /.

>inj_nonfarmop< - Related to Activities OTHER THAN Farming or Ranching.

Is this correct?"

- 1 Yes
- 3 No (go to >inj_farmop<)

>i_next_event< [*Programming Note: Set all month of farm injury fields to zero and set total farm injured months to zero.*

Loop i = 1,6
>mo_inj< = 0

Continue

>no_fmonths< = 0

Then, the interview first loops through all injury events related to their own farming or ranching operation, >type_inj< = "On your own operation - injury #", >iinj< = 0 to >inj_farmop<;

Then,

Loop i = 1,6

If (>mo_inj< = 1) >no_fmonths< = >no_fmonths< + 1

Continue;

Then the interview loops through all injury events related to someone else's farming or ranching operation, >type_inj< = "On someone elses operation - injury #", >iinj< = 0 to >inj_othrfarm<; Then the interview loops through all injury events related to something other than farming or ranching, >type_inj< = "Activities other than farm/ranch - injury #", >iinj< = 0 to >inj_nonfarmop<;

Then,

Loop i = 1,6

If (>mo_inj< = 1) >no_fmonths< = >no_fmonths< + 1

Continue

go to >i_next_member<]

>inj_where< "Referring to >type_inj<>iinj<, where did the accident or injury happen?"

- 1 Around the farm or ranch (go to >inj_source1<)
- 2 Roadway (farm/ranch operation road or public road) (go to >inj_source1<)
- 3 In or around the house (go to >inj_source1<)
- 4 Sports or recreation area (go to >inj_source1<)
- 5 Work (other than on the farm or ranch) (go to >inj_source1<)
- 6 School (go to >inj_source1<)

- 7 Public place (restaurant or other public place) (go to >inj_source1<)
- 8 Someone else's house (go to >inj_source1<)
- 9 Someone else's farm or ranch (go to >inj_source1<)
- 10 Other
- 98 Unknown (go to >inj_source1<)
- 99 Refused (go to >inj_source1<)

>inj_where_specify< "Specify the place." _____

>inj_source1< "Referring to >type_inj<>iinj<:

Which of the following SOURCES were involved in the accident/injury? I need to read the entire list before you give me your answer. After I read the list, please tell me the one or two sources that were most directly involved in causing the accident:

- | | |
|-----------------------------------|--|
| 1 Tractor | 11 Housework |
| 2 Motor Vehicle | 12 Yardwork/gardening |
| 3 Other Large machinery/
Equip | 13 Work related (nonfarm) |
| 4 Sm. power equip/hand tools | 14 Something else, specify [Enumerator:
Type response exactly as stated + end
with ///. After entering information, press
ESC to continue with interview.] |
| 5 Livestock or animals | 15 General Activity |
| 6 Storage structures | 16 None - No secondary source |
| 7 Chemicals/drugs/
medications | 98 Unknown |
| 8 Body of water | 99 Refused |
| 9 Falls | |
| 10 Sports/Recreation | |

>i_ProgNote3< [Programming Note: Set >Src_Cnt< = 1<, go to >i_ProgNote4<]

>inj_source2< "Referring to >type_inj<>iinj<:

Were any of the other sources that I read to you involved in the accident/injury?"

- | | |
|-----------------------------------|--|
| 1 Tractor | 11 Housework |
| 2 Motor Vehicle | 12 Yardwork/gardening |
| 3 Other Large machinery/
Equip | 13 Work related (nonfarm) |
| 4 Sm. power equip/hand tools | 14 Something else, specify [Enumerator:
Type response exactly as stated + end
with ///. After entering information, press
ESC to continue with interview.] |
| 5 Livestock or animals | 15 General Activity |
| 6 Storage structures | 16 None - No secondary source (go to
>inj_activity<) |
| 7 Chemicals/drugs/
medications | 98 Unknown (go to >inj_activity<) |
| 8 Body of water | 99 Refused (go to >inj_activity<) |
| 9 Falls | |
| 10 Sports/Recreation | |

>i_ProgNote4< [Programming Note: If((>inj_source1< = 1 and >Src_Cnt< = 1) or (>inj_source2< = 1 and >Src_Cnt< = 2)), go to >inj_tractor<, else go to >i_ProgNote5<]

>inj_tractor< "Was the tractor A LARGE TRACTOR WITH MORE THAN 20 HORSEPOWER, A SMALL TRACTOR WITH LESS THAN OR EQUAL TO 20 HORSEPOWER, OR A SKID/STEER TRACTOR (I.E. BOBCAT)?"

- 1 Tractor more than 20 HP (call **Subroutine PTO**)
- 2 Tractor less than or equal to 20 HP (i.e. garden tractor) (call **Subroutine PTO**)
- 3 A skid steer tractor (e.g., Bobcat) (go to >i_ProgNote5<)
- 8 Unknown (go to >i_ProgNote5<)

.....

Subroutine PTO

>inj_PTO< "Was a POWER-TAKE-OFF (PTO) involved in the accident?"

- 1 Yes (go to >inj_shield<)
- 3 No (return)
- 8 Unknown (go to >i_ProgNote5<)
- 9 Refused (go to >i_ProgNote5<)

>inj_shield< "Was the PTO SHIELDED?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refused

RETURN

.....

>i_ProgNote5< [Programming Note: If((>inj_source1< = 2 and >Src_Cnt< = 1) or (>inj_source2< = 2 and >Src_Cnt< = 2)), go to >inj_motorveh<, else go to >i_ProgNote6<]

>inj_motorveh< "What TYPE OF MOTOR VEHICLE was involved in the accident?"

- 1 Car (go to >i_ProgNote6<)
- 2 Van (go to >i_ProgNote6<)
- 3 Sport utility vehicle (go to >i_ProgNote6<)
- 4 Pickup truck (go to >i_ProgNote6<)
- 5 Grain truck (go to >i_ProgNote6<)
- 6 Other truck (go to >i_ProgNote6<)
- 7 Motorcycle or motor bike (go to >i_ProgNote6<)
- 8 All terrain vehicle: ATV (go to >i_ProgNote6<)
- 9 Snowmobile (go to >i_ProgNote6<)
- 10 Personal watercraft (i.e. Ski-doo) (go to >i_ProgNote6<)
- 11 Other
- 98 Unknown (go to >i_ProgNote6<)
- 99 Refused (go to >i_ProgNote6<)

>inj_motorveh_specify< "Please specify the type of motor vehicle." _____

>i_ProgNote6< [Programming Note: If((>inj_source1< = 3 and >Src_Cnt< = 1) or (>inj_source2< = 3 and >Src_Cnt< = 2)), go to >inj_largemach_i<, else go to >i_ProgNote7<]

>inj_largemach_i< "In the following list of large machinery or equipment, WHAT TYPE OR TYPES were involved in the accident? I need to read the entire list before you give me your answer." [Enumerator: Enter multiple responses, for i = 1-5]

- 01 "Tillage equipment (Disc, moldboard plow, field cultivator, chisel plow, rotary hoe, row crop cultivator, powered tiller, cultipacker, etc.)"
- 02 "Planting equipment (i.e. planters, drills, etc.)"
- 03 "Harvesting equipment (Combines, pickers, forage harvesters, mowers balers, stackers, specialty harvesters, etc.)"

- 04 "Augers / Elevators (Portable and fixed augers, elevators or conveyors)"
- 05 "Feed grinder / mixer"
- 06 "Irrigation equipment"
- 07 "Wagons (hay racks, forage wagons, gravity box, graincart, etc.)"
- 08 "Chemical and fertilizer application equipment"
- 09 "Manure application equipment"
- 10 "Other farm equipment; **powered by an external source** (silage / forage blowers, grain dryers, etc.)"
- 11 "Other farm equipment; **self-powered** (Back-hoe, Caterpillar, forklift, earthmoving equipment, etc.)"
- 00 No more machinery involved in accident
- 98 Unknown
- 99 Refusal

>i_ProgNote6a< [Programming Note: If ((>inj_largemach₁< ge 1 and >inj_largemach₁< le 5) or (>inj_largemach₁< ge 8 and >inj_largemach₁< le 10) or (>inj_largemach₂< ge 1 and >inj_largemach₂< le 5) or (>inj_largemach₂< ge 8 and >inj_largemach₂< le 10) or (>inj_largemach₃< ge 1 and >inj_largemach₃< le 5) or (>inj_largemach₃< ge 8 and >inj_largemach₃< le 10) or (>inj_largemach₄< ge 1 and >inj_largemach₄< le 5) or (>inj_largemach₄< ge 8 and >inj_largemach₄< le 10) or (>inj_largemach₅< ge 1 and >inj_largemach₅< le 5) or (>inj_largemach₅< ge 8 and >inj_largemach₅< le 10)) call **Subroutine PTO]**

>i_ProgNote7< [Programming Note: If((>inj_source1< = 4 and >Src_Cnt< = 1) or (>inj_source2< = 4 and >Src_Cnt< = 2)), go to **>inj_smequip<**, else go to **>i_ProgNote8<**]

>inj_smequip< "What TYPE OF SMALL EQUIPMENT OR HAND TOOLS were involved in the accident?"

- 1 Stationary powered shop tools(table saw, drill press, etc.) (go to **>i_ProgNote8<**)
- 2 Portable powered hand tool (portable saw or drill, electric screw driver, etc.) (go to **>i_ProgNote8<**)
- 3 Hand tool (hammer, chisel, saw, etc.) (go to **>i_ProgNote8<**)
- 4 Chain saw (go to **>i_ProgNote8<**)
- 5 Portable grinder (go to **>i_ProgNote8<**)
- 6 Stationary grinder (go to **>i_ProgNote8<**)
- 7 Lawn mower (go to **>i_ProgNote8<**)
- 8 Snow blower (go to **>i_ProgNote8<**)
- 9 Garden tiller (go to **>i_ProgNote8<**)
- 10 Other
- 98 Unknown (go to **>i_ProgNote8<**)
- 99 Refusal (go to **>i_ProgNote8<**)

>inj_smequip_specify< "Please specify the type of small equipment." _____

>i_ProgNote8< [Programming Note: If((>inj_source1< = 5 and >Src_Cnt< = 1) or (>inj_source2< = 5 and >Src_Cnt< = 2)), go to **>inj_animals<**, else go to **>i_ProgNote9<**]

>inj_animals< "What TYPE OF LIVESTOCK OR OTHER ANIMALS were involved in the accident?"

- 1 Dairy cow with newborn calf (go to **>i_ProgNote9<**)
- 2 Dairy cow or heifer (go to **>i_ProgNote9<**)
- 3 Dairy bull (go to **>i_ProgNote9<**)
- 4 Dairy calf (go to **>i_ProgNote9<**)
- 5 Beef cow with newborn calf (go to **>i_ProgNote9<**)

- 6 Beef cow, steer or heifer (go to >i_ProgNote9<)
- 7 Beef bull (go to >i_ProgNote9<)
- 8 Beef calf (go to >i_ProgNote9<)
- 9 Sow with piglets (go to >i_ProgNote9<)
- 10 Sow without piglets / Gilt (go to >i_ProgNote9<)
- 11 Feeder pig (go to >i_ProgNote9<)
- 12 Boar (go to >i_ProgNote9<)
- 13 Poultry (go to >i_ProgNote9<)
- 14 Sheep (go to >i_ProgNote9<)
- 15 Horse (go to >i_ProgNote9<)
- 16 Stud horse / Stallion (go to >i_ProgNote9<)
- 17 Other
- 98 Unknown (go to >i_ProgNote9<)
- 99 Refusal (go to >i_ProgNote9<)

>inj_animals_specify< "Please specify the type of livestock." _____

>i_ProgNote9< [Programming Note: If((>inj_source1< = 6 and >Src_Cnt< = 1) or (>inj_source2< = 6 and >Src_Cnt< = 2)), go to >inj_storage<, else go to >i_ProgNote9<]

>inj_storage< "What KIND OF STORAGE STRUCTURE was it?"

- 1 Feed container / feed bunk (go to >i_ProgNote10<)
- 2 Livestock barn (go to >i_ProgNote10<)
- 3 Grain bin / granary (go to >i_ProgNote10<)
- 4 Corn crib (go to >i_ProgNote10<)
- 5 Silo (go to >i_ProgNote10<)
- 6 Machine shed (go to >i_ProgNote10<)
- 7 Garage (go to >i_ProgNote10<)
- 8 Workshop / tool shed (go to >i_ProgNote10<)
- 9 Manure pit / tank (go to >i_ProgNote10<)
- 10 Fruit or other non-grain crop storage (go to >i_ProgNote10<)
- 11 Other
- 98 Unknown (go to >i_ProgNote10<)
- 99 Refusal (go to >i_ProgNote10<)

>inj_storage_specify< "Please specify the kind of storage structure." _____

>i_ProgNote10< [Programming Note: If((>inj_source1< = 7 and >Src_Cnt< = 1) or (>inj_source2< = 7 and >Src_Cnt< = 2)), go to >inj_chemical<, else go to >i_ProgNote11<]

>inj_chemical< "What TYPE OF CHEMICALS, DRUGS OR MEDICATIONS were involved in the accident?"

- 1 Pesticides including: insecticides, herbicides, fungicides and fumigants (go to >inj_pesticide<)
- 2 Anhydrous ammonia (go to >inj_pesticide<)
- 3 Fuels, lubricants or cleaning agents (go to >inj_pesticide<)
- 4 Other chemical products, such as household products, paint, solvents, etc. (go to >i_ProgNote11<)
- 5 Veterinary medicines (go to >i_ProgNote11<)
- 6 Other (go to >i_ProgNote11<)
- 8 Unknown (go to >inj_chemical_specify<)
- 9 Refusal (go to >i_ProgNote11<)

>inj_chemical_specify< "Specify the type and name." _____ (go to >i_ProgNote11<)

>inj_pesticide< "Was the chemical or pesticide STORED IN A CONTAINER LABELED WITH THE SIGNAL WORD 'DANGER' OR 'WARNING'?"

- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |

>i_ProgNote11< [Programming Note: If((>inj_source1< = 8 and >Src_Cnt< = 1) or (>inj_source2< = 8 and >Src_Cnt< = 2)), go to >inj_water<, else go to >i_ProgNote12<]

>inj_water< "What TYPE OF BODY OF WATER was involved in the accident?"

- 1 Lake (go to >i_ProgNote12<)
- 2 River, stream, or creek (go to >i_ProgNote12<)
- 3 Swamp (go to >i_ProgNote12<)
- 4 Pond (including stock pond) (go to >i_ProgNote12<)
- 5 Stock tank (go to >i_ProgNote12<)
- 6 Water-filled ditch (go to >i_ProgNote12<)
- 7 Swimming pool (go to >i_ProgNote12<)
- 8 Bath tub (go to >i_ProgNote12<)
- 9 Hot tub or spa (go to >i_ProgNote12<)
- 10 Other
- 98 Unknown (go to >i_ProgNote12<)
- 99 Refusal (go to >i_ProgNote12<)

>inj_water_specify< "Please specify the type of body of water." _____

>i_ProgNote12< [Programming Note: If((>inj_source1< = 9 and >Src_Cnt< = 1) or (>inj_source2< = 9 and >Src_Cnt< = 2)), go to >inj_fall<, else go to >i_ProgNote13<]

>inj_fall< "When >he_she< fell, did >he_she< fall on LEVEL GROUND OR FROM A DIFFERENT LEVEL?" [Enumerator: If fall from one level to another, probe to classify into #1-6. Use 7 only if fall can't be classified into #1-6.]

- 1 Fall on or from stairs or steps
- 2 Fall on or from ladders or scaffolding more than 20 ft.
- 3 Fall on or from ladders or scaffolding less than or equal to 20 ft.
- 4 Fall from or out of building or other structure
- 5 Fall into hole or other opening in surface
- 6 Fall on same level from slipping, tripping, or stumbling
- 7 Fall from one level to another
- 8 Slips & trips not resulting in a fall
- 98 Unknown
- 99 Refusal

>i_ProgNote13< [Programming Note: If((>inj_source1< = 10 and >Src_Cnt< = 1) or (>inj_source2< = 10 and >Src_Cnt< = 2)), go to >inj_sports<, else go to >i_ProgNote14<]

>inj_sports< "What SPORT OR RECREATIONAL ACTIVITY was >he_she< involved in when when >he_she< got hurt?"

- | | |
|--|---|
| 11 Aerobics workout | 38 Running/jogging |
| 12 Archery | 39 Skateboarding |
| 13 Baseball | 40 Skiing, crosscountry |
| 14 Basketball | 41 Skiing/Snow-boarding, downhill |
| 15 Bicycling | 42 Sledding |
| 16 Boating | 43 Snowmobiling |
| 17 Bowling | 44 Soccer |
| 18 Broadjumping | 45 Softball |
| 19 Broomball | 46 Swimming / Diving |
| 20 Cheerleading | 47 Target practice/shooting (firearm, other than hunting) |
| 21 Dancing | 48 Tennis |
| 22 Field Hockey | 49 Track and field |
| 23 Football | 50 Volleyball |
| 24 Golf | 51 Water skiing |
| 25 Gymnastics | 52 Weight lifting |
| 26 Horseplay(adult) | 53 3 - Wheeling / 4 - wheeling |
| 27 Hunting | 54 Wrestling |
| 28 Ice fishing/Fishing | 10 Other, specify [Enumerator: <i>Type response exactly as stated + end with ///. After entering information, press ESC to continue with interview.</i>] |
| 29 Ice hockey | 98 Unknown |
| 30 Ice skating | 99 Refusal |
| 31 Martial arts (judo, karate etc) | |
| 32 Physical education activities, general (non-specific) | |
| 33 Play activities, general childrens' (non-specific) | |
| 34 Playground activities | |
| 35 Racquetball | |
| 36 Rollerskating | |
| 37 Rollerblading | |

>i_ProgNote14< [Programming Note:

If ((>inj_source1< = 11 and >Src_Cnt< = 1) or (>inj_source2< = 11 and >Src_Cnt< = 2))

>activity< = "HOUSEWORK"

go to >inj_general<

Else if (>inj_source1< = 12 and >Src_Cnt< = 1) or (>inj_source2< = 12 and >Src_Cnt< = 2)

>activity< = "YARDWORK"

go to >inj_general<

Else if (>inj_source1< = 13 and >Src_Cnt< = 1) or (>inj_source2< = 13 and >Src_Cnt< = 2)

>activity< = "WORK UNRELATED TO FARM WORK"

go to >inj_general<

Else if (((>inj_source1< = 15 or >inj_source1< = 16 or >inj_source1< = 98 or >inj_source1< = 99) and >Src_Cnt< = 1) or (>inj_source2< = 15 and >Src_Cnt< = 2)

>activity< = "ACTIVITY"

go to >inj_general<

Else if (>Src_Cnt< = 1)

>Src_Cnt< = 2

go to >inj_source2<

Else

go to >inj_activity<

End if]

>inj_general< "What type of >activity< >was_were< >he_she< involved in when >he_she< got hurt?" _____

>inj_activity< "Tell me in your own words, what >was_were< >Title< DOING at the time of the injury?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.] _____

>injury_how< "In your own words, HOW did the accident happen?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.] _____

>inj_date< "What was the DATE of the accident?"

____/____/____ (mm/dd/yyyy) (go to >inj_time<)
99999998 Unknown
99999999 Resusal (go to >i_end1<)

>inj_month< "THEN, can you tell me the MONTH in which the accident happened?"

1	January (go to >inj_time<)	8	August (go to >inj_time<)
2	February (go to >inj_time<)	9	September (go to >inj_time<)
3	March (go to >inj_time<)	10	October (go to >inj_time<)
4	April (go to >inj_time<)	11	November (go to >inj_time<)
5	May (go to >inj_time<)	12	December (go to >inj_time<)
6	June (go to >inj_time<)	98	Unknown
7	July (go to >inj_time<)	99	Refusal (go to >i_end1<)

>inj_season< "Could you tell me if this accident happened in the SPRING, SUMMER, FALL OR WINTER?"

1	Spring (Mar / Apr / May)	4	Winter (Dec / Jan / Feb)
2	Summer (Jun / Jul / Aug)	8	Unknown
3	Fall (Sept / Oct / Nov)	9	Refusal (go to >i_end1<)

>inj_time< "What TIME OF DAY did it happen?"

____:____ (hh:mm) military time (go to >inj_part1<)
99999998 Unknown
99999999 Resusal

>inj_time2< "THEN, could you tell me if this accident happened in the MORNING, AFTERNOON, EVENING OR NIGHT?"

1	Morning (6:00 am - 11:59 am)	4	Night (12:00 am - 5:59 am)
2	Afternoon (12:00 pm - 5:59 pm)	8	Unknown
3	Evening (6:00 pm - 11:59 pm)	9	Refusal

>inj_part1;< "What PARTS OF THE BODY were injured? If you have the DARK BLUE card with the figure, it will help you to answer this question." [Enumerator: Enter multiple responses, for i = 1-6]

101 Head / Skull
102 Brain
103 Face (Forehead, Cheek, Nose, Lip, Chin, Ear)
104 Eye / Eyelid
105 Dental / Tooth

- 106 Neck (Cervical area)
- 107 Spinal cord / Spine (Vertebrae, Sacrum, Tailbone / Coccyx, Discs)
- 108 Back (muscles/skin)
- 109 Internal chest (Ribs, Heart, Lung, Bronchial, Esophagus, Diaphragm)
- 110 External chest (Skin)
- 111 Internal abdomen (Stomach, Liver, Kidney, Gall bladder, Intestines, Appendix, Spleen, Pancreas)
- 112 External abdomen (Skin)
- 113 Shoulder / Collar bone / Shoulder blade
- 114 Arm / Elbow / Wrist / Carpal tunnel
- 115 Hand
- 116 Finger (s) / Thumb (s)
- 117 Internal hips / Pelvis (Uterus, Ovaries, Bladder, Rectum)
- 118 External hips / Pelvis (Skin)
- 119 Buttocks
- 120 Genitals / "Private parts"
- 121 Leg (Thigh (s), Shin, Calf)
- 122 Knee
- 123 Ankle
- 124 Foot / Heel
- 125 Toes
- 126 General systems
- 127 No additional body parts
- 128 Other
- 998 Unknown
- 999 Refusal

>i_ProgNote15< [Programming Note: Loop through body parts listed from i = 1 to 6, at end go to >inj_loc<; otherwise
 If (>inj_part1,< = 127 or >inj_part1,< = 998 or >inj_part1,< = 999)
 go to >inj_loc<
 Else If (>inj_part1,< = 128)
 go to >inj_part1_specify<
 Else
 go to >desc_inj,<
 End If]

>inj_part1_specify< "Specify the body part." _____

>desc_inj,< "Describe what types of injuries occurred to the >inj_part1,< Examples include: bruise or contusion, broken bone or fracture, amputation, or loss of consciousness."
 [Enumerator: **Type response exactly as stated + end with ///.** After entering information, press ESC to continue with interview.]

_____ (go to >i_ProgNote15<)

>inj_serious< "How would you RATE THE SERIOUSNESS of this overall injury. Was it Minor, Moderate, Serious, Severe or Life-threatening?" [Enumerator: If death occurred, enter 6.]

- | | | | |
|---|----------|---|---------------------------|
| 1 | Minor | 5 | Life threatening |
| 2 | Moderate | 6 | Death (go to >inj_care1<) |
| 3 | Serious | 8 | Unknown |
| 4 | Severe | 9 | Refusal |

>inj_loc< "As a result of this accident, was there a LOSS OF CONSCIOUSNESS?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >inj_amesia<) |
| 3 No (go to >inj_amesia<) | 9 Refusal (go to >inj_amesia<) |

>inj_loc2< "Was this due to a BLOW TO THE HEAD, BEING OVERCOME BY FUMES OR SOMETHING ELSE?"

- | |
|--|
| 1 A blow to the head (go to >inj_loc3<) |
| 2 Being overcome by fumes (go to >inj_loc3<) |
| 3 Other |
| 8 Unknown (go to >inj_loc3<) |
| 9 Refusal (go to >inj_loc3<) |

>inj_loc2_specify< "Specify the reason for unconsciousness." [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

>inj_loc3< "HOW LONG did it last?"

- | | |
|----------------------------------|---------------------------------|
| 1 Less than 5 minutes | 6 6 hours to less than 24 hours |
| 2 5 to less than 10 minutes | 7 24 hours or more |
| 3 10 to less than 30 minutes | 8 Unknown |
| 4 30 minutes to less than 1 hour | 9 Refusal |
| 5 1 hour to less than 6 hours | |

>inj_amesia< "Was there a LOSS OF AWARENESS, AMNESIA, OR CONFUSION?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >inj_restrict<) |
| 3 No (go to >inj_restrict<) | 9 Refusal (go to >inj_restrict<) |

>inj_amesia2< "Was this due to a BLOW TO THE HEAD, BEING OVERCOME BY FUMES OR SOMETHING ELSE?"

- | |
|---|
| 1 A blow to the head (go to >inj_amesia3<) |
| 2 Being overcome by fumes (go to >inj_amesia3<) |
| 3 Other |
| 8 Unknown (go to >inj_amesia3<) |
| 9 Refusal (go to >inj_amesia3<) |

>inj_amesia2_specify< "Specify the reason for amnesia." [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

>inj_amesia3< "HOW LONG did it last?"

- | | |
|----------------------------------|---------------------------------|
| 1 Less than 5 minutes | 6 6 hours to less than 24 hours |
| 2 5 to less than 10 minutes | 7 24 hours or more |
| 3 10 to less than 30 minutes | 8 Unknown |
| 4 30 minutes to less than 1 hour | 9 Refusal |
| 5 1 hour to less than 6 hours | |

>inj_restrict< "HOW LONG were normal activities restricted? Normal activities are the things a person would ordinarily do on any given day."

- | | | | |
|---|------------------------------------|---|-------------------------------|
| 0 | No restriction (go to >inj_care1<) | 5 | 14 days to less than 1 month |
| 1 | 0 to less than 4 hours | 6 | 1 month to less than 3 months |
| 2 | 4 hrs to less than 1 day | 7 | 3 months or more |
| 3 | 1 day to less than 7 days | 8 | Unknown (go to >inj_care1<) |
| 4 | 7 days to less than 14 days | 9 | Refusal (go to >inj_care1<) |

>lost_farmwork< "Did >he_she< lose ANY TIME from work around YOUR farming or ranching operation as a result of the accident?"

- | | | | |
|---|----------------------------|---|---------------------------------|
| 1 | Yes | 8 | Unknown (go to >lostotherwork<) |
| 3 | No (go to >lostotherwork<) | 9 | Refusal (go to >lostotherwork<) |

>lostfarmtime< "How MUCH TIME did >he_she< lose from work?"

- | | | | |
|---|------------------------------|---|-------------------------------|
| 1 | 0 to less than 4 hours | 6 | 1 month to less than 3 months |
| 2 | 4 hrs to less than 1 day | 7 | 3 months or more |
| 3 | 1 day to less than 7 days | 8 | Unknown |
| 4 | 7 days to less than 14 days | 9 | Refusal |
| 5 | 14 days to less than 1 month | | |

>lostotherwork< "Did >he_she< lose ANY TIME from work at job(s) NOT RELATED to YOUR farming or ranching operation as a result of the accident?"

- | | | | |
|---|---------------------------|---|--------------------------------|
| 1 | Yes | 8 | Unknown (go to >restrict_now<) |
| 3 | No (go to >restrict_now<) | 9 | Refusal (go to >restrict_now<) |

>lostothertime< "How MUCH TIME did >he_she< lose from these job(s)?"

- | | | | |
|---|------------------------------|---|-------------------------------|
| 1 | 0 to less than 4 hours | 6 | 1 month to less than 3 months |
| 2 | 4 hrs to less than 1 day | 7 | 3 months or more |
| 3 | 1 day to less than 7 days | 8 | Unknown |
| 4 | 7 days to less than 14 days | 9 | Refusal |
| 5 | 14 days to less than 1 month | | |

>restrict_now< ">is_are< >Title< STILL RESTRICTED from carrying out >his_her< normal activities as a result of this injury?"

- | | | | |
|---|---------------------------|---|--------------------------------|
| 1 | Yes | 8 | Unknown (go to >inj_symptoms<) |
| 3 | No (go to >inj_symptoms<) | 9 | Refusal (go to >inj_symptoms<) |

>restrict_now2< "To what degree would you say >his_her< normal activities are CURRENTLY restricted? A small amount, a moderate amount or a large amount?"

- | | | | |
|---|-------------------|---|---------|
| 1 | A small amount | 8 | Unknown |
| 2 | A moderate amount | 9 | Refusal |
| 3 | A large amount | | |

>inj_symptoms< "If you can turn to the two beige cards in the packet, it will help you identify some of these problems and symptoms.

At the present time, are there any PERSISTANT problems or symptoms related to this injury, including things such as numbness, pain, weakness, or some type of impairment?"

- | | | | |
|---|------------------------|---|-----------------------------|
| 1 | Yes | 8 | Unknown (go to >inj_care1<) |
| 3 | No (go to >inj_care1<) | 9 | Refusal (go to >inj_care1<) |

>inj_symptoms2_i< "What part(s) of the body is/are affected? If you can turn to the dark blue card with the figure, it will help you answer this question." [Enumerator: Enter multiple responses, for i = 1-6]

- 101 Head / Skull
- 102 Brain
- 103 Face (Forehead, Cheek, Nose, Lip, Chin, Ear)
- 104 Eye / Eyelid
- 105 Dental / Tooth
- 106 Neck (Cervical area)
- 107 Spinal cord / Spine (Vertebrae, Sacrum, Tailbone / Coccyx, Discs)
- 108 Back (muscles/skin)
- 109 Internal chest (Ribs, Heart, Lung, Bronchial, Esophagus, Diaphragm)
- 110 External chest (Skin)
- 111 Internal abdomen (Stomach, Liver, Kidney, Gall bladder, Intestines, Appendix, Spleen, Pancreas)
- 112 External abdomen (Skin)
- 113 Shoulder / Collar bone / Shoulder blade
- 114 Arm / Elbow / Wrist / Carpal tunnel
- 115 Hand
- 116 Finger (s) / Thumb (s)
- 117 Internal hips / Pelvis (Uterus, Ovaries, Bladder, Rectum)
- 118 External hips / Pelvis (Skin)
- 119 Buttocks
- 120 Genitals / "Private parts"
- 121 Leg (Thigh (s), Shin, Calf)
- 122 Knee
- 123 Ankle
- 124 Foot / Heel
- 125 Toes
- 126 General systems
- 127 No additional body parts
- 128 Other
- 998 Unknown
- 999 Refusal

>i_ProgNote16< [Programming Note: Loop through body parts listed from i = 1 to 6, at end go to >inj_care1<; otherwise
If (>inj_symptoms2_i< = 127 or >inj_symptoms2_i< = 998 or >inj_symptoms2_i< = 999)
go to >inj_care1<
Else If (>inj_symptoms2_i< = 128)
go to >inj_sympoms2_specify<
Else
go to >desc_sym_i<
End If]

>inj_symptoms2_specify< "Specify the body part." _____

>desc_sym_i< "What are the exact types of persistent problems or symptoms occurring to the >inj_symptoms2_i<.

Please refer to the two beige cards."

0 Persistent physical or mental impairment

- 1 Persistent numbness or tingling of injured area
- 2 Persistent pain only upon exertion or movement / intermittent pain
- 3 Persistent pain in injured area at all times
- 4 Headache that persists for more than a single day
- 5 General weakness
- 6 Weakness of arms or legs
- 7 Decreased range of motion
- 8 Paralysis
- 9 Loss of body part / amputation
- 10 Impaired vision, including blurred or double vision
- 11 Impaired speech
- 12 Impaired hearing
- 13 Reduced sense of balance or dizziness
- 14 Reduced ability to concentrate
- 15 Epilepsy / Convulsions
- 16 Reduced ability to do heavy work
- 17 Other, specify [Enumerator: **Type response exactly as stated + end with ///. After entering information, press ESC to continue with interview.**]
- 98 Unknown at this time if there will be permanent impairment
- 99 refusal

>inj_care1< "The following questions are about care of the injury. Was the injury treated by a health care professional, such as a doctor, nurse, chiropractor, dentist or other healthcare professional?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >i_ProgNote18<) |
| 3 No (go to >i_ProgNote18<) | 9 Refusal (go to >i_ProgNote18<) |

>inj_care2,< "In which of the following places did >Title< receive care?" [Enumerator: Enter multiple responses, for i = 1-7]

- | | |
|---|----------------------------------|
| 1 A doctor's office | 6 At the scene of the accident |
| 2 A hospital emergency room | 7 Any other health care facility |
| 3 A hospital as an in-patient
(admitted to a hospital) | 8 Unknown |
| 4 A dentist's office | 9 Refusal |
| 5 A chiropractor's office | |

>i_ProgNote17< [Programming Note:

If (>inj_care2,< not equal 3 and >inj_care2,< not equal 3 and
>inj_care2,< not equal 3 and >inj_care2,< not equal 3 and >inj_care2,<
not equal 3 and >inj_care2,< not equal 3 and >inj_care2,< not equal 3)
go to >inj_insurance<
End If]

>inj_hospital< "How long was >he_she< in the hospital?"

- ____ days
998 Unknown
999 Refusal

>inj_insurance< "What percentage of the costs of care for this injury was covered by health or medical insurance? Was it none, less than 50%, 50% to less than 100% or 100%(no deductible)?"

- | | |
|-------------------------|------------------------|
| 0 None | 3 100% (No deductible) |
| 1 Less than 50% | 8 Unknown |
| 2 50% to less than 100% | 9 Refusal |

>i_ProgNote18< [Programming Note:

If (>type_inj< = "On your own operation – injury #")

If ((>inj_restrict< > 1 and >inj_restrict< < 8) or >inj_loc< = 1 or >inj_amnesia< = 1
or >inj_care1< = 1)

If (>inj_date< less than 02011999 or >inj_month< = 1 or >inj_season< = 4)
>mo_inj₁< = 1

Else If (>inj_date< less than 03011999 or >inj_month< = 2)
>mo_inj₂< = 1

Else If (>inj_date< less than 04011999 or >inj_month< = 3)
>mo_inj₃< = 1

Else If (>inj_date< less than 05011999 or >inj_month< = 4 or >inj_season< =
1)
>mo_inj₄< = 1

Else If (>inj_date< less than 06011999 or >inj_month< = 5)
>mo_inj₅< = 1

Else If (>inj_date< less than 99999998 or >inj_month< = 6 or >inj_season< =
2)
>mo_inj₆< = 1

Endif

End If

End If

go to >i_next_event<]

Exposure Section

Control Selection Process

>e_ProgNote1< *[Programming Note: Generate 3 random numbers, >random1<, >random2< and >random3<.*

Set: >controlHH< = 0; >caseHH< = 0

household control selection

If (>random1< is less than or equal to 0.135)
Household is selected as a control household
>controlHH< = 1
Else
go to >e_next_caco<
End If

subject control selection

If (>random2< greater than 0 and >random2< less than or equal to 1/>kids<)
>exp< = 1
Else If (>random2< greater than 1/>kids< and >random2< less than or equal to 2/>kids<)
>exp< = 2
.....
Else If (>random2< greater than >kids<-1/>kids< and >random2< less than or equal to >kids</>kids<)
>exp< = >kids<
End If
Set control subject to household member with >kid_num< = >exp<

index month control selection

n = 40
If (>mo_inj₁< = 1) n = n - 2
If (>mo_inj₂< = 1) n = n - 1
If (>mo_inj₃< = 1) n = n - 4
If (>mo_inj₄< = 1) n = n - 6
If (>mo_inj₅< = 1) n = n - 12
If (>mo_inj₆< = 1) n = n - 15
>a< = 0
>b< = 0
If (>mo_inj₁< = 0)
>b< = >b< + 2/n
If (>random3< greater than >a< and >random3< less than or equal to >b<)
>control_month< = 1
go to >e_next_caco<
Else
>a< = >b<
End If
End If
If (>mo_inj₂< = 0)

```

>b< = >b< + 1/n
If (>random3< greater than >a< and >random3< less than or equal to >b<)
  >control_month< = 2
  go to >e_next_caco<
Else
  >a< = >b<
End If
End If
If (>mo_inj3< = 0)
  >b< = >b< + 4/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 3
    go to >e_next_caco<
  Else
    >a< = >b<
  End If
End If
If (>mo_inj4< = 0)
  >b< = >b< + 6/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 4
    go to >e_next_caco<
  Else
    >a< = >b<
  End If
End If
If (>mo_inj5< = 0)
  >b< = >b< + 12/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 5
    go to >e_next_caco<
  Else
    >a< = >b<
  End If
End If
If (>mo_inj6< = 0)
  >b< = >b< + 15/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 6
    go to >e_next_caco<
  Else
    >a< = >b<
  End If
End If

```


>nonfarmwk_hrs< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>grade< "During >month_before<, what was >first_name's< grade in school?"

0 Kindergarten
_____ 1-16 Years
97 N/A – None (go to >sports1<)
98 Unknown
99 Refusal

>school_wks< "During >month_before<, HOW MANY WEEKS did >he_she< spend in classes at school?"

0 None – Did not go to school (go to >sports1<)
_____ 1-4 weeks
8 Unknown
9 Refusal

>school_hrs< "On average, how many HOURS PER WEEK?"

_____ 1-40 hours
98 Unknown
99 Refusal

>school_rate< "How would you rate >his_her< school performance? Was it excellent, above average, average, below average or not satisfactory?"

1 Excellent (go to >sports1<)	5 Not satisfactory (go to >sports1<)
2 Above average (go to >sports1<)	6 Other
3 Average (go to >sports1<)	8 Unknown (go to >sports1<)
4 Below average (go to >sports1<)	9 Refusal (go to >sports1<)

>school_specify< "Please specify other." _____

>sports1< "During >month_before<, did >Title< participate in any sports or recreational activities?"

1 Yes	8 Unknown (go to >introduction14<)
3 No (go to >introduction14<)	9 Refusal (go to >introduction14<)

>sports2< "In which sports or recreational activities did >he_she< particitpate?" [Enumerator: Enter multiple responses, for i = 1-7]

- | | |
|--|---|
| 11 Aerobics workout | 36 Rollerskating |
| 12 Archery | 37 Rollerblading |
| 13 Baseball | 38 Running/jogging |
| 14 Basketball | 39 Skateboarding |
| 15 Bicycling | 40 Skiing, crosscountry |
| 16 Boating | 41 Skiing/Snow-boarding, downhill |
| 17 Bowling | 42 Sledding |
| 18 Broadjumping | 43 Snowmobiling |
| 19 Broomball | 44 Soccer |
| 20 Cheerleading | 45 Softball |
| 21 Dancing | 46 Swimming / Diving |
| 22 Field Hockey | 47 Target practice/shooting (firearm, other than hunting) |
| 23 Football | 48 Tennis |
| 24 Golf | 49 Track and field |
| 25 Gymnastics | 50 Volleyball |
| 26 Horseplay(adult) | 51 Water skiing |
| 27 Hunting | 52 Weight lifting |
| 28 Ice fishing/Fishing | 53 3 - Wheeling / 4 - wheeling |
| 29 Ice hockey | 54 Wrestling |
| 30 Ice skating | 10 Other |
| 31 Martial arts (judo, karate etc) | 98 Unknown |
| 32 Physical education activities, general (non-specific) | 99 Refusal |
| 33 Play activities, general childrens' (non-specific) | |
| 34 Playground activities | |
| 35 Racquetball | |

>e_ProgNote4< [Programming Note: If (>sports2< not equal 10 and >sports2< not equal 10) go to >sports_wks<]

>sports_specify< "Please specify other." _____

>sports_wks< "During that month, HOW MANY WEEKS did >he_she< participate in these sports or recreational activities?"

- ___ 1-4 weeks
- 8 Unknown (go to >introduction14<)
- 9 Refusal (go to >introduction14<)

>sports_hrs< "On average, how many HOURS PER WEEK?"

- ___ 1-60 hours
- 98 Unknown
- 99 Refusal

>introduction14< "In the following questions, I will be asking about >first_name's< prior health status, medication use and general health habits."

1 Continue

>prior_health< "Prior to >month<, did >he_she< have any of the following health or medical problems, that were diagnosed at ANY TIME by a physician, osteopath, chiropractor, or other health care provider?"

1 Continue

>pain< "Chronic or periodic pain in any part of their body?"

1 Yes 8 Unknown
3 No 9 Refusal

>movement< "Restriction of movement of any body part?"

1 Yes 8 Unknown
3 No 9 Refusal

>arthritis< "Arthritis?"

1 Yes 8 Unknown
3 No 9 Refusal

>liver< "Liver disease?"

1 Yes 8 Unknown
3 No 9 Refusal

>kidney< "Kidney disease?"

1 Yes 8 Unknown
3 No 9 Refusal

>heart< "Heart disease?"

1 Yes 8 Unknown
3 No 9 Refusal

>blood_pressure< "High blood pressure?"

1 Yes 8 Unknown
3 No 9 Refusal

>diabetes< "Diabetes?"

1 Yes 8 Unknown
3 No 9 Refusal

>ADHD< "Hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD)?"

1 Yes 8 Unknown
3 No 9 Refusal

>vision< "Vision problems not correctable with lenses?"

1 Yes 8 Unknown
3 No 9 Refusal

>stress< "Stress?"

1 Yes 8 Unknown
3 No 9 Refusal

>depress< "Depression or other psychological problems?"

1	Yes	8	Unknown
3	No	9	Refusal

>brain< "Brain or spinal cord injury or disease?"

1	Yes	8	Unknown
3	No	9	Refusal

>epilepsy< "Epilepsy?"

1	Yes	8	Unknown
3	No	9	Refusal

>asthma< "Asthma?"

1	Yes	8	Unknown
3	No	9	Refusal

>allergies< "Allergies?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote5< [Programming Note: If (>pain< not equal 1, go to >e_ProgNote6<]

>pain_int< "During >month_before<, did CHRONIC OR PERIODIC PAIN interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote6< [Programming Note: If (>movement< not equal 1, go to >e_ProgNote7<]

>movement_int< "During >month_before<, did RESTRICTION OF MOVEMENT interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote7< [Programming Note: If (>arthritis< not equal 1, go to >e_ProgNote8<]

>arthritis_int< "During >month_before<, did ARTHRITIS interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote8< [Programming Note: If (>liver< not equal 1, go to >e_ProgNote9<]

>liver_int< "During >month_before<, did LIVER DISEASE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote9< [Programming Note: If (>kidney< not equal 1, go to >e_ProgNote10<]

>kidney_int< "During >month_before<, did KIDNEY DISEASE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote10< [*Programming Note: If (>heart< not equal 1, go to >e_ProgNote11<*]

>heart_int< "During >month_before<, did HEART DISEASE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote11< [*Programming Note: If (>blood_pressure< not equal 1, go to >e_ProgNote12<*]

>blood_pressure_int< "During >month_before<, did HIGH BLOOD PRESSURE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote12< [*Programming Note: If (>diabetes< not equal 1, go to >e_ProgNote13<*]

>diabetes_int< "During >month_before<, did DIABETES interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote13< [*Programming Note: If (>ADHD< not equal 1, go to >e_ProgNote14<*]

>ADHD_int< "During >month_before<, did HYPERACTIVITY OR ADHD interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote14< [*Programming Note: If (>vision< not equal 1, go to >e_ProgNote15<*]

>vision_int< "During >month_before<, did VISION PROBLEMS NOT CORRECTABLE WITH LENSES interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote15< [*Programming Note: If (>stress< not equal 1, go to >e_ProgNote16<*]

>stress_int< "During >month_before<, did STRESS interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote16< [*Programming Note: If (>depress< not equal 1, go to >e_ProgNote17<*]

>depress_int< "During >month_before<, did DEPRESSION OR OTHER PSYCHOLOGICAL PROBLEMS interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote17< [Programming Note: If (>brain< not equal 1, go to >e_ProgNote18<]

>brain_int< "During >month_before<, did BRAIN OR SPINAL CORD INJURY OR DISEASE interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote18< [Programming Note: If (>epilepsy< not equal 1, go to >e_ProgNote19<]

>epilepsy_int< "During >month_before<, did EPILIPSY interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote19< [Programming Note: If (>asthma< not equal 1, go to >e_ProgNote20<]

>asthma_int< "During >month_before<, did ASTHMA interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote20< [Programming Note: If (>allergies< not equal 1, go to >gen_health<]

>allergies_int< "During >month_before<, did ALLERGIES interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>gen_health< "During >month_before<, how would you rate >first_name's< general state of health: excellent, good, average, fair or poor?"

1 Excellent 5 Poor
2 Good 8 Unknown
3 Average 9 Refusal
4 Fair

>height_feet< "During that month, what was >his_her< approximate height?
In FEET"

___ 1-7
8 Unknown
9 Refusal

>height_inches< "and INCHES"

___ 0-11
98 Unknown
99 Refusal

>weight< "What was >his_her< approximate weight?

_____ 1-400
998 Unknown
999 Refusal

>hand< ">is_are< >he_she< Right-handed, Left-handed or Ambidextrous?"

1 right handed 8 Unknown
2 left handed 9 Refusal
3 ambidextrous

>medication< "During >month_before<, did >Title< REGULARLY take ANY of the following medications?
Regularly means DAILY for at LEAST ONE WEEK, or 3-4 TIMES per week during the month."

1 Continue

>allergies_med< "Antihistamines, or allergy medications, such as Actifed, Allerest, Allegra, Claritin or Benadryl?"

1 Yes 8 Unknown
3 No 9 Refusal

>prepain_med< "Prescription pain medication such as Tylenol #3, codeine, phenylbutazone, Darvocet, Lortab or Ansaid?"

1 Yes 8 Unknown
3 No 9 Refusal

>otcpain_med< "Over the counter (OTC) pain relievers, such as aspirin, Advil, Aleve, Orudis or Tylenol?"

1 Yes 8 Unknown
3 No 9 Refusal

>ritalin_med< "Ritalin or other medicine for treatment of hyperactivity?"

1 Yes 8 Unknown
3 No 9 Refusal

>heart_med< "Heart medication?"

1 Yes 8 Unknown
3 No 9 Refusal

>blood_med< "Blood Pressure medications?"

1 Yes 8 Unknown
3 No 9 Refusal

>depress_med< "Anti-depressants / Mood elevators?"

1 Yes 8 Unknown
3 No 9 Refusal

>diet_med< "Amphetamines, decongestants, or pep pills, including diet pills?"

1 Yes 8 Unknown
3 No 9 Refusal

- >insulin_med< "Insulin?"
- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |
- >tranq_med< "Tranquilizers, sedatives, sleeping medications, such as Valium or Diazepam?"
- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |
- >antibiotics_med< "Antibiotics, such as penicillin, erythromycin, tetracycline or sulfa drugs?"
- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |
- >diuretics_med< "Diuretics or water pills?"
- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |
- >introduction14a< "The next questions are about >first_name's< sleep and exercise patterns during >month_before<."
- 1 *Continue*
- >sleep1< "During that month, on average, how many hours of sleep did >he_she< get each night?"
- | | | | |
|-----|------------|--|--|
| ___ | 1-24 hours | | |
| 98 | Unknown | | |
| 99 | Refusal | | |
- >sleep2< "How often was it difficult for >him_her< to wake up on mornings >he_she< needed to be up for chores, work or school: never, sometimes, often or always?"
- | | | | |
|---|-----------|---|---------|
| 1 | Never | 4 | Always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >sleep3< "How often was it difficult for >him_her< to go to sleep at night, such as taking more than an hour to get to sleep: never, sometimes, often or always?"
- | | | | |
|---|-----------|---|---------|
| 1 | Never | 4 | Always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >exercise< "During >month_before<, did >Title< actively participate in any regular exercise at least 3 days a week, for twenty minutes or more, that made >him_her< sweat?"
- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |
- >introduction15< "The next few questions ask about YOUR experience in strictness with >Title<. We recognize that parents differ in how strict they are with their children because of children's abilities at different ages.
- Prior to >month<, how STRICT were you about the FOLLOWING: not strict, somewhat strict, moderately strict or very strict?"
- 1 *Continue*

>strict1< "Knowing where >he_she< was?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict2< "Knowing who >he_she< was with when >he_she< was out?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict3< "Making certain that >he_she< used a seatbelt or car seat when riding or driving in a car or other motor vehicle?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict4< "Making certain that >he_she< used farm equipment safely?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict5< "Making certain that >he_she< worked safely around animals?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>e_ProgNote21< [*Programming Note: If (>age< < 5) go to >introduction16b<*]

>introduction16< "The next questions are about your perception of >first_name's< behaviors or actions during >month_before<. Choose the answer that best describes HOW OFTEN the following happened or WAS TRUE of >him_her< during that month. Would you say that >he_she< ALMOST NEVER, SOMETIMES, OFTEN or ALMOST ALWAYS..."

1 *Continue*

>complete< "Completed >his_her< work and chores?"

- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |

>followrules< "Followed rules?"

- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |

>thinking<	"Acted without thinking?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>fights<	"Got into fights?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>hard<	"Worked hard?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>impulse<	"Was impulsive?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>broke<	"Broke rules?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>careful<	"Liked to plan carefully before going ahead?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>still<	"Couldn't sit still?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>distract<	"Was easily distracted?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>cautious<	"Was cautious?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	
>irritable<	"Was irritable?"		
	1 Almost never	4 Almost always	
	2 Sometimes	8 Unknown	
	3 Often	9 Refusal	

>runaway< "Left the house or farm without permission?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>attention< "Paid attention?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>sad< "Looked sad or down?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>bully< "Bullied or was mean to others?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>energy< "Had low energy?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>conc< "Had good concentration?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>introduction16b< "The next questions are about stress >Title<, you and the rest of your family experienced during the three months PRIOR TO >month<; NOT STRESSFUL, SOMEWHAT STRESSFUL, MODERATELY STRESSFUL or VERY STRESSFUL."

1 *Continue*

>stress1< "During that period, how stressful did you feel life was for >Title<?"

1	Not stressful	4	Very stressful
2	Somewhat stressful	8	Unknown
3	Moderately stressful	9	Refusal

>stress2< "How stressful did you feel life was for you?"

1	Not stressful	4	Very stressful
2	Somewhat stressful	8	Unknown
3	Moderately stressful	9	Refusal

>stress3< "How stressful did you feel life was for your family?"

1	Not stressful	4	Very stressful
2	Somewhat stressful	8	Unknown
3	Moderately stressful	9	Refusal

>introduction17< "The next questions are about children and their abilities as they mature. When you are deciding whether a child is READY to do a new chore on the farm or ranch, HOW IMPORTANT are each of the following in making that decision? NOT IMPORTANT, SOMEWHAT IMPORTANT, MODERATELY IMPORTANT or VERY IMPORTANT?"

1 Continue

>ready1< "How important is the child's age?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready2< "The size of the child?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready3< "Whether the child is a boy or a girl?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready4< "The maturity of the child, or how responsible the child is?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready5< "How important are the skills of the child?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready6< "The danger level of the task, or new chore?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready7< "Prior formal training of the child, such as 4-H or Vo-Ag training?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready8< "Other training of the child, by people involved in YOUR operation?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready_othr< "Are there any other characteristics about a child that you consider important in deciding if they are ready for a new chore?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >safety1<) |
| 3 No (go to >safety1<) | 9 Refusal (go to >safety1<) |

>ready_specify< "Please specify." _____

>safety1< "In your opinion, at what age would an average young person be ready to work with animals (including beef cattle, dairy cattle and swine)--- feeding, cleaning, etc.?"

- ___ 0-19 years
- 98 Unknown
- 99 Refusal

>safety2< "At what age would a child be ready to ride on or in a tractor?"

- ___ 0-19 years
- 98 Unknown
- 99 Refusal

>safety3< "At what age would a child be ready to drive or operate a tractor?"

- ___ 0-19 years
- 98 Unknown
- 99 Refusal

>introduction18< "Next I would like to ask about chores or farmwork >Title< may have performed on YOUR farming or ranching operation, during >month_before<."

- 1 Continue

>chores_many< "During that month, would you say that >he_she< did as many chores or farmwork as were expected by the family, more chores or less chores than were expected?"

- 0 N/A – None were expected (go to >introduction19<)
- 1 Did less than expected
- 2 Did about what was expected
- 3 Did more than expected
- 8 Unknown
- 9 Refusal

>chores_well< "How well would you say that >he_she< performed the chores or farmwork that were expected by the family? Better than expected, about what was expected or worse than expected?"

- 1 Did worse than expected
- 2 Did about what was expected
- 3 Did better than expected
- 8 Unknown
- 9 Refusal

>introduction19< "The next few questions are about YOUR farming or ranching operation."

- 1 Continue

>farming1< "Prior to >month<, how many years had you been farming or ranching?"

- 0 < 0 year
- ___ 1-90 years
- 98 Unknown
- 99 Refusal

>acres< "During >month_before<, of the acres that you own, plus the acres that you rent or lease, how many did you have in use or active production, including land in hay and pasture? Do not include wasteland, woodlands, or land in long term CRP (Conservation Reserve Programs) or any set aside programs." [Enumerator: If > 0 and < 1, code as 1.]

_____ 0-99,997
99998 Unknown
99999 Refusal

>enterpr< "During >month_before<, of the following farm enterprises, which ONE required the MOST amount of WORK TIME on your farm or ranch?" [Enumerator: Read list of possible answers.]

- 1 Beef cattle (go to >roadways<)
- 2 Dairy cattle (go to >roadways<)
- 3 Other animals (i.e. poultry, sheep, swine, horses, etc.) (go to >roadways<)
- 4 Field, forage or specialty crops (go to >roadways<)
- 5 CRP (Conservation Reserve Program) or Set-aside program (go to >roadways<)
- 6 Other
- 8 Unknown (go to >roadways<)
- 9 Refusal (go to >roadways<)

>enterpr_specify< "Specify other." _____

>roadways< "During that month, did anyone involved in your operation travel on public roadways with farm equipment? Public roadways refers to township, county and state roads. Field roads or private roads should not be considered public roadways."

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>milking1< "During >month_before<, did you have any type of milking system in use?"

- | | |
|--------------------------|-------------------------------|
| 1 Yes | 8 Unknown (go to >firearms1<) |
| 3 No (go to >firearms1<) | 9 Refusal (go to >firearms1<) |

>milking2< "What type?"

- 1 Automatic Pipeline Washing System (Clean in Place – CIP) (go to >firearms1<)
- 2 Bucket/Manual System (Open) (go to >firearms1<)
- 3 Other
- 8 Unknown (go to >firearms1<)
- 9 Refusal (go to >firearms1<)

>milking_specify< "Please specify." _____

>firearms1< "During >month_before<, were there any firearms present on your operation?"

- | | |
|-----------------------|----------------------------|
| 1 Yes | 8 Unknown (go to >income<) |
| 3 No (go to >income<) | 9 Refusal (go to >income<) |

>firearms2< "How many were shotguns?"

_____ 0-97
98 Unknown
99 Refusal

.....

Exposure Section – Part II

Respondent Selection Process

>intro< "In the next series of questions, I will be asking questions about selected people who HAD AN INJURY BETWEEN JANUARY 1st, 1999 and JUNE 30, 1999 as well as selected people who DID NOT HAVE AN INJURY during that period. This will provide important information on factors that may either cause an injury or protect people from injury and can be used to develop effective prevention programs."

>e_ProgNote22< [Programming Note: Set >Exp_Resp< = >Cur_Resp<]
If (>Age< ≥ 12 years old)
 go to >child_permission<
Else If (>Exp_Resp< = 2)
 go to >Introduction>
Else
 go to >best_respondent1<
End If]

>child_permission< "May I speak with >Title< to ask some questions about >his_her< activities on the farm or ranch? The interview should take approximately 20 minutes."
1 Yes (go to >inf_consent4a<)
3 No
5 Parent agrees, but child is not available (go to >callback<)

>e_ProgNote23< [Programming Note: If (>Exp_Resp< not equal 2) go to >best_respondent2<]

>cont_resp< "In that case, we would like to ask you the remaining questions. You can have someone else assist with the answers, if you wish."
1 go to >Introduction<

>best_respondent1< "We would like to speak with the adult in your household who knows the most about >first_name's< farming or ranching related activities and how many hours >he_she< spent on these activities during >month_before<. Would that be you or the male head of household?"
1 Current respondent – Female head of household (go to > Introduction<)
3 Male head of household (go to >get_other<)
5 Someone Else (go to >want_HH<)
9 Refusal (go to >exp_end2<)

>best_respondent2< "In that case, we would like to speak with the adult in your household who knows the most about >first_name's< farming or ranching related activities and how many hours >he_she< spent on these activities during >month_before<. Would that be you or the male head of household?"
1 Current respondent – Female head of household (go to > Introduction<)
3 Male head of household (go to >get_other<)
5 Someone Else (go to >want_HH<)

- >want_HH<** "We prefer to ask these questions only of the female head of household or the male head of household, but you can certainly have someone else assist with the answers. Can you continue with these questions, or should I speak with the male head of household?"
- 1 Continue with current respondent – Female head of household (*go to > Introduction<*)
 - 3 Male head of household (*go to >get_other<*)
 - 9 Refusal (*go to >exp_end2<*)
- >get_other<** "Is he available now to answer questions?" ("May I speak with him?")
- 1 Yes, he comes to the phone (*go to >inf_consent5a<*)
 - 3 No, he's not willing to answer (*go to >cont_resp<*)
 - 5 No, he's not available
- >willing<** "Since he's not available to answer these questions now, would you be willing to try to answer these questions for us? You can have someone else assist with the answers, if you wish."
- 1 Yes (*go to > Introduction<*)
 - 3 No (*go to >callback<*)
 - 9 Refusal (*go to >exp_end2<*)
- >inf_consent4a<** "Hello, this is >EnumName< calling for the >StateName< Agricultural Statistics Service. We are conducting a project with the University of Minnesota on farming and ranching operations. >Who_Pi< agreed to have your household participate in this project and has been answering questions about who resides in your household, some characteristics of your operation and any injuries that may have occurred."
- 1 Continue
- >inf_consent4b<** "We would like to ask you some questions about your activities on your farming or ranching operation. You do not have to answer these questions but your cooperation is important for us to get accurate information. If you are uncomfortable with any question, you may choose not to answer that one, and we will move on to the next question. All the information we collect is confidential. Would you be willing to help us by answering some questions about your activities on the farm or ranch?"
- 1 Yes [*Set: >Exp_Resp2< = 3;(go to >Introduction<)*]
 - 3 No [*If (>Age< ≥ 18) go to >reasonc<*]
- >HHLog_back<** "Would you be able to put >Who_Pi< back on the phone so I may speak with him/her?"
- 1 Yes, prior respondent comes back
 - 3 No (*go to >callback<*)
- >HHLog_again<** ">Title< has requested not to be interviewed."
- 1 *go to >best_respondent2<*
- >reasonc<** "May I ask why you prefer not to continue at this time?"
- 1 Doesn't have time now (*go to >callback<*)
 - 2 Isn't comfortable with the questions (*go to >reconsider5c<*)
 - 3 Can't see the value of the interview (*go to >reconsider6c<*)
 - 4 No clear reason, just refuses (*go to >reconsider7c<*)
- >reconsider5c<** "If you are uncomfortable with any question, we can skip that one and go on to another. Would you be willing to continue if we skip the questions you prefer not to answer?"

- 1 Yes [Set: >Exp_Resp< = 3;(go to >Introduction<)]
- 3 No (go to >exp_end2<)

>reconsider6c< “The results of this project will be used to develop effective injury prevention programs that will benefit all farming and ranching households. It is important that we interview all eligible households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries. May we continue?”

- 1 Yes [Set: >Exp_Resp2< = 3;(go to >Introduction<)]
- 3 No (go to >exp_end2<)

>reconsider7c< “The results of this project will be used to develop effective injury prevention programs that will benefit all farming and ranching households. It is important that we interview all eligible households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries. If you are uncomfortable with any question, we can skip that one and go on to another. Or we can call back at a time that is more convenient. May we continue, or would you prefer that we call back?”

- 1 Yes, continue [Set: >Exp_Resp2< = 3;(go to >Introduction<)]
- 3 No, refuses to continue (go to >exp_end2<)
- 5 Schedule a callback (go to >callback<)

>inf_consent5a< “Hello, this is >EnumName< calling for the >StateName< Agricultural Statistics Service. We are conducting a project with the University of Minnesota on farming and ranching operations. >Who_Pi< agreed to have your household participate in this project and has been answering questions about who resides in your household, some characteristics of your operation and any injuries that may have occurred.”

- 1 Continue

>inf_consent5b< “We would like to ask some questions about >first_name's< activities on your farming or ranching operation. You do not have to answer these questions but your cooperation is important for us to get accurate information. If you are uncomfortable with any question, you may choose not to answer that one, and we will move on to the next question. All the information we collect is confidential. Would you be willing to help us by answering some questions about >first_name's< activities on the farm or ranch?”

- 1 Yes [Set: >Exp_Resp2< = 2;(go to >Introduction<)]
- 3 No

>HHLog_back2< “Would you be able to put >Who_Pi< back on the phone so I may speak with him/her?”

- 1 Yes, prior respondent comes back
- 3 No (go to >callback<)

>HHLog_again2< “>Title< has requested not to be interviewed.”

- 1 go to >cont_resp<

.....

Exposure Section – Part II

Interview

>introduction< “In this section we would like to ask some questions about chores or work >Title< did. These questions relate specifically to FARMWORK, and by farmwork I mean any activities connected with your farming or ranching operation, either on or off the farm/ranch, including driving to town to get supplies. This will also include information about working with animals, driving vehicles, operating farm machinery and other tasks. Some of the questions will be general, while others will ask about a certain month of the year.”

1 Continue

>farmwork< “During >month_before<, did >Title< work in any type of activities or do chores related to YOUR operation?”

- | | |
|-------------------------|------------------------------|
| 1 Yes | 8 Unknown (go to >othrfarm<) |
| 3 No (go to >othrfarm<) | 9 Refusal (go to >othrfarm<) |

>wks_farmwork< “During that month, HOW MANY WEEKS did >he_she< work on these activities?”

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs_farmwork< “On average, how many HOURS PER WEEK?”

- | |
|-----------------|
| ___ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>othrfarm< “During >month_before<, did >Title< work in any type of activities or do chores related to SOMEONE ELSE'S farming or ranching operation?”

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote24<) |
| 3 No (go to >e_ProgNote24<) | 9 Refusal (go to >e_ProgNote24<) |

>wks_othrfarm< “During that month, HOW MANY WEEKS did >he_she< work on these activities?”

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs_othrfarm< “On average, how many HOURS PER WEEK?”

- | |
|-----------------|
| ___ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>e_ProgNote24< [Programming Note: If (>farmwork< not equal 1) go to >bystanding1<]

>introduction2< “The following questions are about work or chores >Title< did with animals on YOUR farming or ranching operation during >month_before<.”

1 Continue

>animals< "During that month, did >he_she< work or do chores with ANY TYPE of animals?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >bystanding1<) |
| 3 No (go to >bystanding1<) | 9 Refusal (go to >bystanding1<) |

>dairy< "Did >he_she< work or do chores with any type of dairy cattle? (Do not include dairy steers.)"

- | | |
|---------------------|--------------------------|
| 1 Yes | 8 Unknown (go to >beef<) |
| 3 No (go to >beef<) | 9 Refusal (go to >beef<) |

>dairy1< "Which of the following types of dairy cattle did >he_she< work with:

A dairy cow with it's newborn calf or calves?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>dairy2< "A dairy calf away from it's mother?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>dairy3< "Dairy bulls?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>dairy4< "Dairy cows or heifers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>act1_dairy< "The next questions are about >his_her< activities when working with dairy cattle on YOUR operation. During >month_before<, which of the following did >he_she< do:

Feed the dairy cattle?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >act2_dairy<) |
| 3 No (go to >act2_dairy<) | 9 Refusal (go to >act2_dairy<) |

>wks1_dairy< "For HOW MANY WEEKS?"

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs1_dairy< "On average, how many HOURS PER WEEK?"

- | |
|-----------------|
| ___ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>act2_dairy< "Did >he_she< milk the cows?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >act3_dairy<) |
| 3 No (go to >act3_dairy<) | 9 Refusal (go to >act3_dairy<) |

>wks2_dairy< "For HOW MANY WEEKS?"

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs2_dairy< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>act3_dairy< "Did >he_she< clean inside the barn, including the stalls?"

1 Yes 8 Unknown (go to >act4_dairy<)
3 No (go to >act4_dairy<) 9 Refusal (go to >act4_dairy<)

>wks3_dairy< "For HOW MANY WEEKS?"

__ 1-4 weeks
8 Unknown
9 Refusal

>hrs3_dairy< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>act4_dairy_i< "Which of the following OTHER activities did >he_she< do with dairy cattle?"

[Enumerator: Read list of possible answers and enter multiple responses, for i = 1-9]

0 None	6 Branding
1 Calving	7 Butchering
2 Footwork	8 Castration
3 Herding, moving, loading, or unloading cattle	9 Other
4 Giving medical treatments, including injections	98 Unknown
5 Dehorning	99 Refusal

>e_ProgNote25< [Programming Note:

If (>act4_dairy_1< = 0)
go to >beef<

Else If (>act4_dairy_1< = 9 or >act4_dairy_2< = 9 or >act4_dairy_3< = 9 or
>act4_dairy_4< = 9 or >act4_dairy_5< = 9 or >act4_dairy_6< = 9 or >act4_dairy_7<
= 9 or >act4_dairy_8< = 9 or >act4_dairy_9< = 9)
go to >act_dairy_specify<

Else
go to >wks4_dairy<
End If]

>act_dairy_specify< "Specify other activity." _____

>wks4_dairy< "During that month, HOW MANY WEEKS did >he_she< do any of these OTHER activities, with the dairy cattle?"

__ 1-4 weeks
8 Unknown
9 Refusal

>hrs4_dairy< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>beef< "During >month_before<, did >Title< work or do chores with any type of beef cattle, including dairy steers, on YOUR operation?"

- | | |
|----------------------|---------------------------|
| 1 Yes | 8 Unknown (go to >swine<) |
| 3 No (go to >swine<) | 9 Refusal (go to >swine<) |

>beef1< "Which of the following types of beef cattle did >he_she< work with:

A beef cow with it's newborn calf or calves?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef2< "A beef calf away from it's mother?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef3< "Beef bulls?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef4< "Beef cows or heifers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef5< "Steers, including both dairy and beef steers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>act1_beef< "The next questions are about >his_her< activities when working with beef cattle on YOUR operation. During >month_before<:

Did >he_she< feed the beef cattle?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>act3_beef_i< "Which of the following OTHER activities did >he_she< do with the beef cattle?"

[Enumerator: Read list of possible answers and enter multiple responses, for i = 1-9]

- | | |
|--|--------------|
| 0 None | 6 Branding |
| 1 Calving | 7 Butchering |
| 2 Footwork | 8 Castration |
| 3 Herding, moving, loading, or unloading
cattle | 9 Other |
| 4 Giving medical treatments, including
injections | 98 Unknown |
| 5 Dehorning | 99 Refusal |

>e_ProgNote26< [Programming Note:

If (>act3_beef₁< = 9 or >act3_beef₂< = 9 or >act3_beef₃< = 9 or >act3_beef₄< = 9 or >act3_beef₅< = 9 or >act3_beef₆< = 9 or >act3_beef₇< = 9 or >act3_beef₈< = 9 or >act3_beef₉< = 9)

go to >act_beef_specify<

Else

go to >wks_beef<

End If]

>act_beef_specify< "Specify other activity." _____

>wks_beef< "During that month, HOW MANY WEEKS did >he_she< do any activities with the beef cattle?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_beef< "On average, how many HOURS PER WEEK?"

- _____ 1-130 hours
- 998 Unknown
- 999 Refusal

>swine< "During >month_before<, did >Title< work or do chores with any type of swine or pigs, on YOUR operation?"

- 1 Yes
- 3 No (go to >othranimal<)
- 8 Unknown (go to >othranimal<)
- 9 Refusal (go to >othranimal<)

>swine_1< "Which of the following types of swine did >he_she< work with:

Sows with piglets?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>swine_2< "Sows without piglets / gilt?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>swine_3< "Feeder pigs?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>swine_4< "Boars?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act1_swine< "The next questions are about >his_her< activities when working with swine on YOUR operation. During >month_before<, did >he_she<:

Feed the swine?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act2_swine< "Clean the pens or crates?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act3_swine< "Move, load or unload the swine?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act4_swine_i< "Which of the following OTHER activities did >he_she< do with the swine."
[Enumerator: Read list of possible answers and enter multiple responses, for i = 1-4]

- | | | | |
|---|---|---|---------|
| 0 | None | 4 | Other |
| 1 | Giving medical treatments, including injections | 8 | Unknown |
| 2 | Butchering | 9 | Refusal |
| 3 | Castration | | |

>e_ProgNote27< [Programming Note:
If (>act4_swine₁< = 4 or >act4_swine₂< = 4 or >act4_swine₃< = 4 or
>act4_swine₄< = 4)
go to >act_swine_specify<
Else
go to >wks_swine<
End If]

>act_swine_specify< "Specify other activity." _____

>wks_swine< "During that month, HOW MANY WEEKS did >he_she< do any activities with the swine?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_swine< "On average, how many HOURS PER WEEK?"

- ___ 1-130 hours
- 998 Unknown
- 999 Refusal

>othranimal< "During >month_before<, did >Title< work or do chores with any other type of livestock or animals, including horses, sheep, or poultry, on YOUR operation?"

- | | | | |
|---|-------------------------|---|------------------------------|
| 1 | Yes | 8 | Unknown (go to >riskanimal<) |
| 3 | No (go to >riskanimal<) | 9 | Refusal (go to >riskanimal<) |

>horse< "Did >he_she< work with any horses?"

- | | | | |
|---|--------------------|---|-------------------------|
| 1 | Yes | 8 | Unknown (go to >sheep<) |
| 3 | No (go to >sheep<) | 9 | Refusal (go to >sheep<) |

>horse_1< "Did >he_she< work with stallions or stud horses?"

- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |

>othrhorse< "Did >he_she< work with any other types of horses?"

- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |

>wks_horse< "During that month, HOW MANY WEEKS did >he_she< work with the horses?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_horse< "On average, how many HOURS PER WEEK?"

>introduction3a< "In the following questions I will be asking if, during >month_before<, >Title< operated or rode, IN OR ON, any motor vehicles, FOR ACTIVITIES DIRECTLY RELATED TO YOUR FARMING OR RANCHING OPERATION."

1 Continue

>motorveh1< "During that month, did >he_she< operate a car, van, sport utility vehicle, pickup truck, grain truck or other truck?"

- | | |
|-------------------------|------------------------------|
| 1 Yes | 8 Unknown (go to >vehride1<) |
| 3 No (go to >vehride1<) | 9 Refusal (go to >vehride1<) |

>wks_motorveh1< "For HOW MANY WEEKS did >he_she< operate any of these vehicles?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_motorveh1< "On average, how many HOURS PER WEEK?"

- ___ 1-130 hours (go to >vehride1<)
- 998 Unknown (go to >vehride1<)
- 999 Refusal (go to >vehride1<)

>introduction3b< "In the following questions I will be asking if, during >month_before<, >Title< rode, IN OR ON, any motor vehicles, FOR ACTIVITIES DIRECTLY RELATED TO YOUR FARMING OR RANCHING OPERATION."

1 Continue

>vehride1< "Did >he_she< ride as a passenger in a car, van, sport utility vehicle, pickup truck, grain truck or other truck?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote29<) |
| 3 No (go to >e_ProgNote29<) | 9 Refusal (go to >e_ProgNote29<) |

>wks_vehride1< "For HOW MANY WEEKS did >he_she< ride in any of these vehicles?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_vehride1< "On average, how many HOURS PER WEEK?"

- ___ 1-130 hours
- 998 Unknown
- 999 Refusal

>e_ProgNote29< [Programming Note:

If (>motorveh1< not equal 1 and >vehride1< not equal 1)

go to >motorveh2<

Else If (>Age< ≥ 5)

go to >seatbelt2<

End If]

>seatbelt1< "When they rode in one of these vehicles, how often did they wear a seatbelt or use a car safety seat? Never, seldom, sometimes, nearly always or always?"

- | | |
|-------------------------------------|--------------------------------|
| 1 Never (go to >motorveh2<) | 5 Always (go to >motorveh2<) |
| 2 Seldom (go to >>motorveh2<) | 8 Unknown (go to >>motorveh2<) |
| 3 Sometimes (go to >motorveh1<) | 9 Refusal (go to >>motorveh2<) |
| 4 Nearly always (go to >motorveh2<) | |

>seatbelt2< "When >he_she< operated or rode in one of these vehicles, how often did >he_she< wear a seatbelt? Never, seldom, sometimes, nearly always or always?"

- | | |
|-----------------|-----------|
| 1 Never | 5 Always |
| 2 Seldom | 8 Unknown |
| 3 Sometimes | 9 Refusal |
| 4 Nearly always | |

>motorveh2< "During >month_before<, did >he_she< operate or ride on a motorcycle, all terrain vehicle (ATV or ATC) or snowmobile?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >bystanding5<) |
| 3 No (go to >bystanding5<) | 9 Refusal (go to >bystanding5<) |

>wks_motorveh2 "During that month, HOW MANY WEEKS did >he_she< operate or ride on any of these vehicles?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_motorveh2< "On average, how many HOURS PER WEEK?"

- _____ 1-130 hours
- 998 Unknown
- 999 Refusal

>helmet< "When they operated or rode in ANY of these vehicles, how often did they wear a helmet? Never, seldom, sometimes, nearly, always or always?"

- | | |
|-----------------|-----------|
| 1 Never | 5 Always |
| 2 Seldom | 8 Unknown |
| 3 Sometimes | 9 Refusal |
| 4 Nearly always | |

>bystanding5< "During >month_before<, how often >was_were< >he_she< watching activities, playing or standing around, but not working, in the driveway. Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>e_ProgNote30< [Programming Note:
If (>farmwork< not equal 1)
go to >bystanding3<
Else If (>Age< < 5)
go to >introduction5<
End If]

>introduction4< "Now I will ask about work or chores >Title< did with large farm machinery, on YOUR farming or ranching operation, during >month_before<. By large machinery I mean tractors, tillage equipment, and other farm implements."

1 Continue

>tractor1< "During that month, did >he_she< operate any tractors greater than 20 horsepower, on your farming or ranching operation?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor2< "Did >he_she< operate any tractors 20 horsepower or less, on your farming or ranching operation? This does not include skid steer tractors?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote31< [*Programming Note: If (>tractor1< not equal 1 and >tractor2< not equal 1) go to >tractor3<*]

>tractor1_many< "How many of either of these tractors did >he_she< operate?"

___ 1-10 hours
98 Unknown
99 Refusal

>tractor1_wks "During that month, HOW MANY WEEKS did >he_she< operate EITHER of these types of tractors?"

___ 1-4 weeks
8 Unknown
9 Refusal

>tractor1_hrs< "On average, how many HOURS PER WEEK?"

___ 1-130 hours
998 Unknown
999 Refusal

>tractor1_PTO< "Did ANY of the tractors have a Power-Take-Off?"

1 Yes 8 Unknown (go to >tractor1_ROPS<)
3 No (go to >tractor1_ROPS<) 9 Refusal (go to >tractor1_ROPS<)

>tractor1_shield< "Did ALL of THESE have a PTO shield in place when >he_she< used it?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor1_PTODrive< "Did ANY of the tractors use a PTO to drive another piece of equipment?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor1_conn< Did >he_she< connect an implement to ANY of the PTOs?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor1_ROPS< "Did ALL of the tractors have an approved Roll Over Protective Structure? This could include a 2 or 4 post frame or a cab with a built-in ROP structure."

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>tractor3< "During >month_before<, did >he_she< operate ANY skid steer tractors, such as a Bobcat?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote32<) |
| 3 No (go to >e_ProgNote32<) | 9 Refusal (go to >e_ProgNote32<) |

>tractor3_wks "During that month, HOW MANY WEEKS did >he_she< operate this type of tractor?"

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>tractor3_hrs< "On average, how many HOURS PER WEEK?"

- | |
|-----------------|
| ___ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>e_ProgNote32< [Programming Note: If (>tractor1< not equal 1 and >tractor2< not equal 1 and >tractor3< not equal 1) go to >introduction5<]

>tractor_age< "At what age did >Title< begin to drive or operate any type of tractor on your operation?"

- | |
|------------|
| ___ 1-19 |
| 98 Unknown |
| 99 Refusal |

>tractor_risk< "PRIOR to >month<, how much risk of injury did you believe there was for >Title< when RIDING ON OR WORKING WITH tractors on YOUR operation? No risk, some risk, moderate risk, or a lot of risk"

- | | |
|-----------------|-----------------|
| 1 No risk | 4 A lot of risk |
| 2 Some risk | 8 Unknown |
| 3 Moderate risk | 9 Refusal |

>introduction5< "In the following questions, I will ask about time >Title< spent RIDING ON a tractor, as a passenger or as a helper, on YOUR farming or ranching operation, during >month_before<."

- | |
|------------|
| 1 Continue |
|------------|

>ride_tractor< "During that month, did >he_she< ride on/in ANY type of tractor as a passenger or helper?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote35<) |
| 3 No (go to >e_ProgNote35<) | 9 Refusal (go to >e_ProgNote35<) |

>ridetractor1< "Did >he_she< ride on/in any tractor greater than 20 horsepower?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>ridetractor2< "During >month_before<, did >Title< ride on/in any tractor 20 Horsepower or less?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>e_ProgNote33< [Programming Note: If (>ridetractor1< not equal 1 and >ridetractor2< not equal 1) go to >ridetractor3<]

- | | |
|------------------------------|-----------------------------------|
| 1 Yes | 8 Unknown (go to >introduction6<) |
| 3 No (go to >introduction6<) | 9 Refusal (go to >introduction6<) |

>training2a< "PRIOR to >month<, when did the most recent training take place?

What year?"

- | | |
|-------|-----------|
| _____ | 1980-1999 |
| 9998 | Unknown |
| 9999 | Refusal |

>training2b< "What month?"

- | | |
|----|---------|
| __ | 1-12 |
| 98 | Unknown |
| 99 | Refusal |

>training3< "How many hours of training did this involve?"

- | | |
|-------|-------------|
| _____ | 1-130 hours |
| 998 | Unknown |
| 999 | Refusal |

>introduction6< "Next I will ask about LARGE EQUIPMENT that >Title< may have worked with on YOUR farming or ranching operation, during >month_before<.

- 1 Continue

>largemach< "During that month, did >he_she< operate or help to operate ANY large pieces of machinery or equipment, such as any tillage, planting or harvesting equipment, augers, elevators, feed grinders, mixers or wagons?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >largemach2<) |
| 3 No (go to >largemach2<) | 9 Refusal (go to >largemach2<) |

>tillage_scr< "Did >he_she< operate or help to operate any tillage equipment, such as discs, field cultivators or plows?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >planting_scr<) |
| 3 No (go to >planting_scr<) | 9 Refusal (go to >planting_scr<) |

>tillage0< "Did >he_she< operate or help to operate any powered tillers?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >tillage<) |
| 3 No (go to >tillage<) | 9 Refusal (go to >tillage<) |

>tillage_PTO< "Did ANY of the powered tillers have a Power-Take-Off?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >tillage<) |
| 3 No (go to >tillage<) | 9 Refusal (go to >tillage<) |

>tillage_shield< "Were ALL of the PTOs on the powered tillers shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>tillage_i< "Which of the following other types of tillage equipment did >he_she< operate or help to operate?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-8]

- | | |
|-------------------------------------|-----------------------|
| 0 None – No other tillage equipment | 6 Row crop cultivator |
| 1 Disc | 7 Cultipacker |
| 2 Moldboard plow | 8 Other |
| 3 Field cultivator | 98 Unknown |
| 4 Chisel plow | 99 Refusal |
| 5 Rotary hoe | |

>e_ProgNote36< [Programming Note:

If (>tillage₁< = 8 or >tillage₂< = 8 or >tillage₃< = 8 or >tillage₄< = 8 or >tillage₅< = 8 or >tillage₆< = 8 or >tillage₇< = 8 or >tillage₈< = 8)

go to >tillage_specify<

Else

go to >planting_scr<

End If]

>tillage_specify< "Specify other." _____

>planting_scr< "During >month_before<, did >Title< operate or help to operate any planting equipment, such as planters or drills?"

- | | |
|-------------------------------|------------------------------------|
| 1 Yes | 8 Unknown (go to >harvesting_scr<) |
| 3 No (go to >harvesting_scr<) | 9 Refusal (go to >harvesting_scr<) |

>planting_i< "Which of the following types of planting equipment did >he_she< operate or help to operate?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-3]

- | | |
|-------------------------------------|-----------|
| 0 None – No other tillage equipment | 3 Other |
| 1 Planters | 8 Unknown |
| 2 Drills | 9 Refusal |

>e_ProgNote37< [Programming Note:

If (>planting₁< = 3 or >planting₂< = 3 or >planting₃< = 3)

go to >planting_specify<

Else

go to >planting_PTO<

End If]

>planting_specify< "Specify other." _____

>planting_PTO< "Did ANY of the planting equipment have a Power-Take-Off?"

- | | |
|-------------------------------|-------------------------------------|
| 1 Yes | 8 Unknown (go to >harvesting_scr<) |
| 3 No (go to >harvesting_scr<) | 9 Refusal (go to >harvesting_scr<<) |

>planting_shield< "Were ALL of the PTOs on the planting equipment shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>harvesting_scr< "During that month, did >he_she< operate or help to operate any harvesting equipment, such as combines or pickers?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >augers_scr<) |
| 3 No (go to >augers_scr<) | 9 Refusal (go to >augers_scr<) |

>harvesting< "Did >he_she< operate or help to operate any self-propelled combines?"

- | | |
|--------------------------------|-------------------------------------|
| 1 Yes | 8 Unknown (go to >harvesting2_scr<) |
| 3 No (go to >harvesting2_scr<) | 9 Refusal (go to >harvesting2_scr<) |

>combine_shield< "Were ALL of the moving parts of the combines shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>harvesting2_scr< "Did >he_she< operate or help to operate any other harvesting equipment connected to a tractor, such as a forage harvester, mower, baler, stacker, pull-type combine, corn picker or specialty harvester?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >augers_scr<) |
| 3 No (go to >augers_scr<) | 9 Refusal (go to >augers_scr<) |

>pickers_i< "Which of the following types of harvesting equipment did >he_she< operate or help to operate?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-8]

- | | |
|--|-----------------------|
| 0 None – No other harvesting equipment | 6 Row crop cultivator |
| 1 Disc | 7 Cultipacker |
| 2 Moldboard plow | 8 Other |
| 3 Field cultivator | 98 Unknown |
| 4 Chisel plow | 99 Refusal |
| 5 Rotary hoe | |

>e_ProgNote38< [Programming Note:
If (>pickers₁< = 8 or >pickers₂< = 8 or >pickers₃< = 8 or >pickers₄< = 8 or
>pickers₅< = 8 or >pickers₆< = 8 or >pickers₇< = 8 or >pickers₈< = 8)
go to >pickers_specify<
Else
go to >pickers_PTO<
End If]

>pickers_specify< "Specify other." _____

>pickers_PTO< "Did ANY of these types of harvesting equipment have a Power-Take-Off?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >augers_scr<) |
| 3 No (go to >augers_scr<) | 9 Refusal (go to >augers_scr<) |

>pickers_shield< "Were ALL of the PTOs on the harvesting equipment shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>augers_scr< "During >month_before<, did >Title< operate or help to operate any augers or elevators?"

- | | |
|--------------------------------|-------------------------------------|
| 1 Yes | 8 Unknown (go to >feedgrinder_scr<) |
| 3 No (go to >feedgrinder_scr<) | 9 Refusal (go to >feedgrinder_scr<) |

>augers1< "Which of the following did >he_she< operate or help to operate:

Portable or fixed augers?"

1	Yes	8	Unknown
3	No	9	Refusal

>augers2< "Elevators or conveyors?"

1	Yes	8	Unknown
3	No	9	Refusal

>augers_PTO< "Did ANY of the augers or elevators have a Power-Take-Off?"

1	Yes	8	Unknown (go to >feedgrinder_scr<)
3	No (go to >feedgrinder_scr<)	9	Refusal (go to >feedgrinder_scr<<)

>augers_shield< "Were ALL of the PTOs on the implements shielded?"

1	Yes	8	Unknown
3	No	9	Refusal

>feedgrinder_scr< "During that month, did >he_she< operate or help to operate any feed grinders or mixers?"

1	Yes	8	Unknown (go to >wagons_scr<)
3	No (go to >wagons_scr<)	9	Refusal (go to >wagons_scr<)

>feedgrinder1< "Which of the following did >he_she< operate or help to operate:

Feed grinders?"

1	Yes	8	Unknown
3	No	9	Refusal

>feedgrinder2< "Mixers?"

1	Yes	8	Unknown
3	No	9	Refusal

>feedgrinder_PTO< "Did ANY of the feed grinders or mixers have a Power-Take-Off?"

1	Yes	8	Unknown (go to >wagons_scr<)
3	No (go to >wagons_scr<)	9	Refusal (go to >wagons_scr<<)

>grinder_shield< "Were ALL of the PTOs on the feed grinders or mixers shielded?"

1	Yes	8	Unknown
3	No	9	Refusal

>wagons_scr< "During >month_before<, did >Title< work on or with any wagons, such as hay racks, forage wagons, gravity boxes or grain carts?"

1	Yes	8	Unknown (go to >largemach2<)
3	No (go to >largemach2<)	9	Refusal (go to >largemach2<)

>wagons₁< "Which of the following types of wagons did >he_she< work on or with?" [Enumerator:
Read list of possible answers and enter multiple responses, for i = 1-5]

- | | |
|----------------|-----------|
| 1 Hay rack | 5 Other |
| 2 Forage wagon | 8 Unknown |
| 3 Gravity box | 9 Refusal |
| 4 Grain cart | |

>e_ProgNote39< [Programming Note:
If (>wagons₁< = 5 or >wagons₂< = 5 or >wagons₃< = 5 or >wagons₄< = 5 or
>wagons₅< = 5)
go to >wagons_specify<
Else
go to >wagons_PTO<
End If]

>wagons_specify< "Specify other." _____

>wagons_PTO< "Did ANY of the wagons have a Power-Take-Off?"

- | | |
|---------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >wagons_scr<) |
| 3 No (go to >wagons_scr<) | 9 Refusal (go to >wagons_scr<<) |

>wagons_shield< "Were all of the PTOs on the wagons shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>largemach2< "During >month_before<, did >Title< operate or help to operate ANY equipment for irrigation,
chemical or fertilizer application, manure application, or other external or self-powered farm or
ranch equipment?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote40<) |
| 3 No (go to >e_ProgNote40<) | 9 Refusal (go to >e_ProgNote40<) |

>irrigation< "Which of the following did >he_she< operate or help to operate:
Irrigation equipment?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>manure< "Manure application equipment?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>externalpower< "Other equipment powered by an external source, such as silage or forage blowers, or
grain dryers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>selfpower< "Other self-powered equipment, such as back-hoes, caterpillars, forklifts, or earth moving
equipment?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>largemach2_PTO< "Did ANY of the these types of equipment have a Power-Take-Off?"

- | | |
|-----------------------------|-----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote40<) |
| 3 No (go to >e_ProgNote40<) | 9 Refusal (go to >e_ProgNote40<<) |

>largemach2_shield< "Were ALL of the PTOs on this equipment shielded? "

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>e_ProgNote40< [Programming Note: If (>largemach< not equal 1 and >largemach2< not equal 1) go to >bystanding3<]

>riskequip< "PRIOR to >month<, how much risk of injury did you believe there was for >Title< when working with large equipment on YOUR operation? No risk, some risk, moderate risk, or a lot of risk"

- | | |
|-----------------|-----------------|
| 1 No risk | 4 A lot of risk |
| 2 Some risk | 8 Unknown |
| 3 Moderate risk | 9 Refusal |

>bystanding3< "During >month_before<, how often was/were >he_she< watching activities, playing or standing around, but not working, in fields where machinery was being used? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>bystanding4< "During that month, how often >was_were< >he_she< watching activities, playing or standing around, but not working, in fields where machinery was stored? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>e_ProgNote41< [Programming Note: If (>farmwork< not equal 1 or >Age< < 5) go to >bystanding2<]

>introduction7< "Next I will ask about small power equipment and hand tools >Title< may have worked with on YOUR farming or ranching operation, during >month_before<."

- 1 Continue

>smallequip< "During that month, did >he_she< operate or handle any grinders, powered shop tools, chain saws, garden tillers or hand tools, to perform activities on YOUR operation?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >bystanding2<) |
| 3 No (go to >bystanding2<) | 9 Refusal (go to >bystanding2<) |

>smallequip1< "Which of the following did >he_she< operate or handle:
Portable grinders?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>smallequip2< "Stationary grinders?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>smallequip3< "Stationary powered shop tools, such as a table saw or drill press?"

1 Yes 8 Unknown
3 No 9 Refusal

>smallequip4< "Portable powered shop tools, such as a portable saw or drill?"

1 Yes 8 Unknown
3 No 9 Refusal

>smallequip5< "Chain saw?"

1 Yes 8 Unknown
3 No 9 Refusal

>smallequip6< "Other small powered equipment such as a garden tiller, lawn mower or snow blower?"

1 Yes 8 Unknown
3 No 9 Refusal

>smallequip7< "Hand tools, such as hammers, chisels or saws?"

1 Yes 8 Unknown
3 No 9 Refusal

>bystanding2< "During >month_before<, how often >was_were< >he_she< watching activities, playing or standing around, but not working, in a farm or ranch shop? Never, sometimes or frequently?"

1 Never 8 Unknown
2 Sometimes 9 Refusal
3 Frequently

>e_ProgNote42< [*Programming Note: If (>farmwork< not equal 1) go to >bystanding6<*]

>introduction8< "Next I will ask questions about work >Title< may have done inside ANY type of storage structure, on YOUR farming or ranching operation, during >month_before<."

1 Continue

>storage< "During that month, did >he_she< work inside any storage structure, such as a grain bin, silo, fruit storage bin or manure pit?"

1 Yes 8 Unknown (go to >introduction9<)
3 No (go to >introduction9<) 9 Refusal (go to >introduction9<)

>storage1< "Which of the following did >he_she< work inside:

A grain bin or grainary?"

1 Yes 8 Unknown
3 No 9 Refusal

>storage2< "A silo?"

1 Yes 8 Unknown
3 No 9 Refusal

>storage3< "A fruit or other non-grain storage structure?"

1 Yes 8 Unknown
3 No 9 Refusal

>storage4< "A manure pit?"

>water_yes_i< "Which of the following bodies of water did >he_she< work in or near?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-7]

- | | |
|---------------------------|----------------------|
| 1 Lake | 6 Water-filled ditch |
| 2 River, stream, creek | 7 Other |
| 3 Swamp | 8 Unknown |
| 4 Pond (incl. Stock pond) | 9 Refusal |
| 5 Stock tank | |

>e_ProgNote44< [Programming Note:

If (>water_yes₁< = 7 or >water_yes₂< = 7 or >water_yes₃< = 7 or >water_yes₄< = 7 or >water_yes₅< = 7 or >water_yes₆< = 7 or >water_yes₇< = 7)

go to >water_specify<

Else

go to >bystanding6<

End If]

>water_specify< "Specify other." _____

>bystanding6< "During >month_before<, how often >was_were< >he_she< watching activities, playing or standing around, but not working, near bodies of water? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>e_ProgNote45< [Programming Note: If (>farmwork< not equal 1) go to >bystanding7<]

>ladder< "During that month, did >he_she< work on ANY ladders or scaffolding, on YOUR operation?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >general<) |
| 3 No (go to >general<) | 9 Refusal (go to >general<) |

>ladder1< "Which of the following did >he_she< work on:

Ladders or scaffolding greater than 20 feet tall?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>ladder2< "Ladders or scaffolding 20 feet tall or less?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>general< "During >month_before<, did >he_she< perform general farming or ranching related activities that we haven't discussed, such as repairing fences or other items?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >bystanding7<) |
| 3 No (go to >bystanding7<) | 9 Refusal (go to >bystanding7<) |

>general_yes< "What types of activities did >he_she< do?" [Enumerator: Type response exactly as stated + end with ///. After entering information, press ESC to continue with interview.]

>bystanding7< "During >month_before<, how often >was_were< >he_she< watching activities, playing or standing around, but not working, out in the fields or barnyard? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>riskplay< "PRIOR to >month<, how much risk of injury did you believe there was for >Title<, while watching activities, playing or standing around the farm yard, on YOUR operation? No risk, some risk, moderate risk, or a lot of risk"

- | | |
|-----------------|-----------------|
| 1 No risk | 4 A lot of risk |
| 2 Some risk | 8 Unknown |
| 3 Moderate risk | 9 Refusal |

>e_ProgNote46< [Programming Note: If (>Age< < 5) go to >e_next_caco<]

>training4< "PRIOR to >month<, how many hours had >he_she< spent in training or seminars concerned with farm safety and injury prevention?"

- 0 None (go to >e_ProgNote47<)
- _____ 1-130 hours
- 998 Unknown (go to >e_ProgNote47<)
- 999 Refusal (go to >e_ProgNote47<)

>training5a< "PRIOR to >month<, when did the most recent course or seminar take place?
What year?"

- _____ 1980-1999
- 9998 Unknown
- 9999 Refusal

>training5b< "What month?"

- ___ 1-12
- 98 Unknown
- 99 Refusal

>e_ProgNote47< [Programming Note: If (>Exp_Resp2< not equal 3) go to >e_next_caco<]

>rchores_many< "During that >month_before<, would you say that you did as many chores or farmwork as were expected by the family, more chores or less chores than were expected?"

- 0 N/A – None were expected (go to >rprevent1<)
- 1 Did less than expected
- 2 Did about what was expected
- 3 Did more than expected
- 8 Unknown
- 9 Refusal

>rchores_well< "How well would you say that you performed the chores or farmwork that were expected by the family? Better than expected, about what was expected or worse than expected?"

- 1 Did worse than expected
- 2 Did about what was expected
- 3 Did better than expected
- 8 Unknown
- 9 Refusal

>rprevent1< "Do you believe that some farming or ranching operator related injuries can be prevented?"

1	Yes	8	Unknown (go to >e_next_caco<)
3	No (go to >rprevent3<)	9	Refusal (go to >e_next_caco<)

>rprevent2< "What are the two main things that you think can be done to prevent injuries that occur on the farm or ranch?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

(go to >e_next_caco<)

>rprevent3< "Why is it that you feel they can't be prevented?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

(go to >e_next_caco<)

.....

Exit Module

>hh_end1< "Thank you very much for your time today. Goodbye."

1 go to >hh_exit<

>ab_end2< "Thank you very much for your time today. Goodbye."

1 go to >ab_exit2<

>i_end1< "Thank you very much for your time today. Goodbye."

1 go to >i_exit<

>exp_the_end< "Thank you very much for your time today. Your cooperation gives us important information about factors that may prevent injuries, and may be used to develop injury prevention programs that will benefit all farm families. We will be calling your household again in approximately six months. We look forward to speaking with you then. GOOD-BYE."

>final_ProgNote< [Programming Note:
 If (>controlHH< = 1 and >caseHH< = 0)
 go to >final_exit3<
 Else If (>controlHH< = 0 and >caseHH< = 1)
 go to >final_exit4<
 Else
 go to >final_exit5<
 End If]

>exp_end2< "Thank you very much for your time today. GOOD-BYE."

1 Continue to >exp_exit2<

>callback< [Enumerator: Setup callback. Press CONTROL-ENTER to go to the appointment block. Remember to record the appointment on the call sheet.]

>hh_exit< [Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (1) REFUSED TO PARTICIPATE.]

- >hh_exit1< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (2) NO KIDS UNDER 19 IN HOUSEHOLD.]*
- >i_exit< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (1) REFUSED TO PARTICIPATE DURING INJURY LOG.]*
- >ab_exit1< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (4) ABBREV INTERVIEW - NO KIDS UNDER 19 IN HOUSEHOLD.]*
- >ab_exit2< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (5) COMPLETED ABBREVIATED INTERVIEW.]*
- >exp_exit2< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (8) REFUSED IN MIDDLE OF CASE-CONTROL.]*
- >final_exit3< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (7) COMPLETED INTERVIEW - CONTROL.]*
- >final_exit4< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (6) COMPLETED INTERVIEW - CASE.]*
- >final_exit5< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (3) COMPLETED - NOT A CASE OR CONTROL.]*

**ETIOLOGY AND CONSEQUENCES OF INJURIES
AMONG CHILDREN IN FARM HOUSEHOLDS:
A REGIONAL RURAL INJURY STUDY - 1999**

***CHILDHOOD AGRICULTURAL SAFETY AND HEALTH RESEARCH
PROGRAM ANNOUNCEMENT: 817***

RO1/CCR514375

DATA COLLECTION INSTRUMENTS

**SECOND SIX-MONTH INTERVIEW
(July 1 through December 31, 1999)**

**Regional Injury Prevention Research Center
Division of Environmental and Occupational Health
School of Public Health
University of Minnesota
Minneapolis, Minnesota
612-625-5934**

.....

Initial Programming Note: The following variables are brought forward from the 1st 6 month interview:

>Resp_type< (1 = Female head of household; 3 = Male head of household)
>Resp_name< (Participation interview respondent's name)
>kids< (Total number of household members < 19 years of age)
>totinfarm< (Total number of household members)

Household Roster Elements

>first_name< (First name)
>last_name< (Last name)
>noinfarm< (Person number within household)
>hh_other1< (Status as of June 30, 1999)
>self_relat< (Relationship to respondent)
>gender< (Gender)
>type_pers< (Type of person)
>dob< (Birthdate)
>Age1< (Age as of January 1, 1999)

If (>self_relat< = 1)

>first_name's< = "your"
>Title< = "you"
>was_is< = "is"
>was_were< = "were"
>is_are< = "Are"
>his_her< = "your"
>him_her< = "you"
>he_she< = "you"

Else

>was_is< = "is"
>is_are< = "Is"
>was_were< = "was"
>first_name's< = ">first_name<'s"
>Title< = >first_name<]

If (>gender< = 1)

>his_her< = "his"
>he_she< = "he"
>him_her< = "him"

Else

>his_her< = "her"
>he_she< = "she"
>him_her< = "her"

End If

End If

.....

-- Script Before Entering CATI Program --

Dial number from call sheet prepared by the USDA National Agricultural Statistics Service (NASS).

When someone answers the phone --

Ask:

"Hello, is this the _____ residence?"

If it is not the residence you are calling, follow standard NASS procedures verifying number, etc

If it's the correct household:

Ask: **"May I please speak with >Resp_name<?"**

>Resp_name< comes to the phone (*continue interview*)

>Resp_name< is unavailable (*go to >callback<*)

>Resp_name< will NEVER be available -

Ask: **"Then, may I please speak to the female or male head of household?"**

Female or male head of household comes to the phone (*continue interview*)

Female and male head of household are unavailable (*go to >callback<*)

Please enter a comment that >Resp_name< is no longer available, so the enumerator who places the next call will know to ask for the Female or male head of household.

-- When an appropriate respondent (female or male head of household) has come to the phone begin the CATI interview --

.....

CATI Interview

Household Log Interview

>Who_Pi< [Enumerator: Who is the current respondent? Enter name.]

>Cur_Resp< [Enumerator: Enter code.]

- 1 Female head of household
- 3 Male head of household

>int_ProgNote< [Programming Note:
If >Cur_Resp< = >Resp_type< (from 1st 6 mo. interview)
 >Who_Pi2< = "you"
 >he_she1< = "you"
Else
 >Who_Pi2< =>Resp_name<
 If (>Resp_type< = 1)
 >he_she1< = "she"
 Else
 >he_she1< = "he"
 End If
End If]

>Intro< "Hello, this is >EnumName< calling for the >StateName< agricultural statistics service. I am calling to follow up on the second six months interview for the project that we are conducting with the University of Minnesota about farming and ranching activities and injuries. As you know, your household is a participant in this project and the results from the project will be used to develop injury prevention programs that can benefit all households. You are still eligible for the drawing of a \$100 treasury bond that we told you about in the letter and during the previous interview."

- 1 Continue

>Intrdctn< "We would like to conduct the interview now, to obtain information about members of your household, your farming or ranching activities, and any injuries that may have occurred in the second six months of 1999. All information we collect is confidential. If you are uncomfortable with any question, you may choose not to answer that question, and we will move on to the next question. Is this a convenient time?"

- 1 Yes (go to >cards<)
- 3 No, not a convenient time (go to >callback<)
- 9 Refusal (go to >reconsider1<)

>Monitoring< "For quality control purposes, my supervisor may monitor this call."

- 1 Continue

>cards< "We recently mailed you a new interview information packet containing two letters and a set of colored cards. It would be helpful if you had the cards in front of you as we speak. Do you have them available?"

- 1 Yes (go to >introhh<)

3 No (go to >getcards<)

>getcards< "Can you get the cards?"

- 1 Yes (go to >Introhh<)
- 3 No (go to >proceed<)

>proceed< "We can proceed with the interview anyway. May we continue?"

- 1 Yes (go to >introhh<)
- 3 No (go to >callback<)

>Introhh< "The first set of questions are about the people who were identified as members of your household AS OF JANUARY 1, 1999. This includes those living in your household now, and anyone who may have moved out or passed away since January 1, students away at college, and children who reside in multiple households, including yours."

1 Continue

>hh_ProgNote2< [Programming Note: If >proceed< = 1 (go to >hh_log<); Else (go to >get_gold<)]

>get_gold< "For these questions it will be helpful for you to have the gold card from the packet in front of you. Do you have the gold card?" (Wait for the respondent to get the gold card or say that it is not available.)

1 Continue

>hh_log< "Now I need to collect some basic information about each member of your household.."

1 Continue

>hh_ProgNote3< [Programming Note: The program loops through the subjects in the household from the individual with >noinfarm< = 1 to the individual with >noinfarm< = >totinfarm<, then goes to >cards2c<]

>hh_ProgNote4< [Programming note:
If (>hh_other1< = 3)
go to >hh_next_member<
Else If (>self_relat< = 1)
go to >married<
End If]

>hh_moved< "Did >first_name< live in your household as of DECEMBER 31, 1999?" [Note: People on vacation on December 31, 1999 are considered to be living in the household.]

- 1 Yes (go to >hh_ProgNote5<)
- 3 No (go to >hh_other<)

>hh_other< "Did >first_name< move or pass away between July 1 and December 31, 1999? (moved – includes those who left for school or to live in another household, whether temporarily or permanently)"

- 1 Moved
- 3 Passed away (Set >was_is< = "was")

>month_left< "In what month did this occur?" _____

>hh_ProgNote4a< [Programming note: Loop through >mo_inj_i<, for i = 1 through 6, then set >mo_inj_i< = 9, for i = >month_left< - 6 through 6]

>day_left< "On what day of the month?" _____

>leadin< "I'd like to ask you some questions about >first_name< even though he/she is not living with you now."

1 Continue

>hh_ProgNote5 [Programming Note: If (>dob< not equal 99999998 and >dob< not equal 99999999) go to >hh_ProgNote6a<]

>dob< "What >was_is< >his_her< birthdate?" ____/____/____ (YYYY/MM/DD)

>hh_ProgNote6< [Programming note: If respondent does not know date of birth or refuses to give it, go to >current<; Else go to >hh_ProgNote6a<]

>current< "What was >his_her< age on July 1, 1999?" ____ Years

>hh_ProgNote6a< [Programming Note:
If (>type_pers< = "child")
>kid_num< = >kids<
Else
>kid_num< = 99
End If
If (>dob< known)
>age< = trunc((((07/01/1999) - >dob<)]/365.25),0)
Else
>age< = >current<
End If

>hh_ProgNote8< [Programming note: If household member you're asking about is < 16 years of age, go to >insurance<]

>married< "As of July 1, 1999, what was >his_her< marital status?"

- | | |
|--------------------------------|-----------|
| 1 Married or living as married | 5 Widowed |
| 2 Never married | 8 Unknown |
| 3 Separated | 9 Refused |
| 4 Divorced | |

>insurance< "From July 1, 1999 through December 31, 1999, was >first_name< covered by any type of health or medical insurance, including Medicare or Medicaid?"

- | | |
|--|--------------------------------|
| 1 Yes, all of that time (go to >type_ins<) | 8 Unknown (go to >yrs_school<) |
| 3 Yes, part of that time (go to >type_ins<) | 9 Refused (go to >yrs_school<) |
| 5 No, none of that time (go to >yrs_school<) | |

>type_ins< "Under which of the following types was/were >he_she< covered?" [Enumerator: Read list of possible answers – You may enter a maximum of six codes; when finished press enter.]

- | | |
|--|-----------------------------------|
| 1 Employer provided (paid) medical plan | 5 Medicaid |
| 2 Household provided (paid) medical plan | 6 More than one or Something else |
| 3 Medicare with a supplemental policy | 8 Unknown |
| 4 Medicare without a supplemental policy | 9 Refused |

>hh_ProgNote9< [Programming note: If any of the codes entered in >type_ins< is 6, go to >type_ins_specify<; else go to >hh_ProgNote10<]

>type_ins_specify< "Please specify other insurance." _____

>hh_ProgNote10< [Programming note: If household member you're asking about is < 5 years of age, go to >mo_farmwork6<]

>yrs_school< "As of July 1, 1999, what was the highest grade in school >he_she< completed?"

- 0 Less than kindergarten (includes pre-school & no school) (go to >mo_farmwork6<)
- 1 Eighth grade or less (includes kindergarten) (go to >mo_farmwork6<)
- 2 Some high school (go to >mo_farmwork6<)
- 3 High school graduate or GED (go to >mo_farmwork6<)
- 4 Some technical school (go to >mo_farmwork6<)
- 5 Technical school graduate (go to >mo_farmwork6<)
- 6 Some college (go to >mo_farmwork6<)
- 7 College graduate (go to >mo_farmwork6<)
- 8 Post graduate/Professional school (graduate school, medicine, law, etc.) (go to >mo_farmwork6<)
- 9 Other
- 98 Unknown (go to >mo_farmwork6<)
- 99 Refused (go to >mo_farmwork6<)

>yrs_school_specify< "Please specify other schooling." _____

>mo_farmwork6< "Between July 1, 1999 and December 31, 1999, how many months did >Title< work or do chores in any activity related to your farming or ranching operation?"

- 0 None (go to >hh_next_member<)
- _____ 1 – 6 months
- 8 Unknown
- 9 Refused

>hrs_farmwork6< "On average, how many HOURS PER WEEK?"

- _____ 1 – 130 hours
- 998 Unknown
- 999 Refused

>hh_next_member< [Programming note: If no more HH members remain - go to >cards2c< else continue]
"Now, let's talk about the next member of your household."

- 1 go to >hh_ProgNote3<

>reconsider1< "May I ask why you prefer not to continue at this time?"

- 1 Operation too small (go to >reconsider3<)
- 2 Didn't have any injuries (go to >reconsider2<)
- 3 Haven't been farming long enough (go to >reconsider3<)
- 4 Not a convenient time – Too busy (go to >callback<)
- 5 Personal crisis (go to >callback<)
- 6 Does not want to cooperate (Doesn't like surveys) – Just not interested (go to >reconsider3<)

>reconsider2< "Your participation will be very important in efforts to reduce farming and ranching accidents and injuries for ALL farm families. It is important to include ALL types of operations, whether or not there were accidents or injuries. This will help in better understanding both farming and ranching activities, and injuries in your region. Would you reconsider participating?"

- 1 Yes (go to >cards<)
- 3 Not a convenient time – Too busy (go to >callback<)
- 5 No, don't want to participate (go to >abbrev1<)

>reconsider3< “The results of this project will be used to develop effective injury prevention programs that can benefit all farming and ranching households. When we spoke with >Who_Pi2< earlier >he_she1< agreed to participate in the project. Your participation is very important. Would you please reconsider?”

- 1 Yes (go to >cards<)
- 3 Not a convenient time – Too busy (go to >callback<)
- 5 No, don't want to participate (go to >abbrev1<)

>abbrev1< “In that case, would you consider answering a few brief questions about the members of your household and any injuries that occurred between July 1, and December 31, 1999?”

- 1 Yes (go to >ab_acres<)
- 3 No (go to >hh_end1<)

.....

Abbreviated Interview

>ab_acres< "The first set of questions are about YOUR farming or ranching operation.

Between July 1st, 1999 and December 31st, 1999, of the acres that you own, plus the acres that you rent or lease, how many did you have in use or active production, including land in hay and pasture? Do not include wasteland, woodlands, or land in long-term CRP (Conservation Reserve Programs) or any set-aside programs."

0-99,999 acres [*Enumerator: Note - If >0 & <1, code as 1*]

>ab_enterpr< "During that time, of the following farming/ranching enterprises, which ONE required the most amount of WORK TIME on your operation?" [*Enumerator: Read list of possible answers.*]

- 1 Beef cattle (*go to >ab_farminja<*)
- 2 Dairy cattle (*go to >ab_farminja<*)
- 3 Other animals (i.e. poultry, sheep, swine, horses, etc.) (*go to >ab_farminja<*)
- 4 Field, forage or specialty crops (*go to >ab_farminja<*)
- 5 CRP (Conservation Reserve Program) or Set-aside program (*go to >ab_farminja<*)
- 6 Other
- 8 Unknown (*go to >ab_farminja<*)
- 9 Refused (*go to >ab_farminja<*)

>ab_enterpr_specify< "Please specify other enterprise." _____

>ab_farminja< "Next I will be asking a few questions about each member of your household and any injury events they may have experienced. By injury we mean any accident or injury event that:

[READ SLOWLY]

- Restricted normal activities for at least 4 hours; **AND/OR**
- Resulted in loss of consciousness, loss of awareness, or amnesia for any length of time; **AND/OR"**

1 *Continue*

>ab_farminjb< "• Required professional health care, including doctors, nurses, chiropractors, dentists, or other health care professionals.

This includes accidents or injuries that:

- 1) Happened on or off the farm or ranch **AND** 2) Were minor, serious or fatal."

1 *Continue*

>ab_farminjc< "Some examples of injuries include:

- A twisted ankle or broken leg;
- Briefly passing out while pouring chemicals;
- An animal bite or kick;
- A blow to the head or other part of the body."

1 *Continue*

1-9
98 Unknown
99 Refused

>ab_next_member< *[Programming note: If no more HH members remain - go to >ab_end2<; else continue]*

"Now, let's talk about the next member of your household."

1 go to >ab_ProgNote3<

.....

Injury Section

>cards2c< "The light blue card in your packet also defines what we mean by INJURY and will be helpful for the next few questions. Do you have the packet in front of you?"

- 1 Yes (go to >cards2a<)
- 3 No

>getcard< "Can you get the card?"

- 1 Yes
- 3 No

>cards2a< "The next questions are about accidents and injuries that occurred TO MEMBERS OF YOUR HOUSEHOLD BETWEEN JULY 1st AND DECEMBER 31st OF THIS YEAR. These may have resulted from activities related to farming or ranching, AS WELL AS from other activities NOT related to farming or ranching."

"The injured person could have been directly involved in the activities or simply standing or playing in the area. These accidents and injuries INCLUDE MINOR AS WELL AS SERIOUS AND FATAL ACCIDENTS OR INJURIES that:"

- 1 Continue

>card2b< [*Enumerator: Read slowly!!*]

- "Restricted normal activities for at least 4 hours;
AND/OR
- Resulted in loss of consciousness, loss of awareness, or amnesia for any length of time;
AND/OR
- Required professional healthcare, including care by doctors, nurses, chiropractors, dentists or other healthcare professionals."

- 1 Continue

>i_ProgNote1< [*Programming Note: If >cards2c< = 1 (yes) or >getcard< = 1 (yes) go to >questions<, else, go to >nocard1<.*]

>nocard1< "Let me give you a few examples of the types of injuries we're interested in. These include:

- A brain injury or loss of consciousness resulting from a fall;
- A broken arm from working with machinery;
- An animal bite or kick;
- A brief loss of consciousness after breathing toxic gas such as silo gas or manure pit gas;
- A burn or blister due to heat or chemical contact;"

- 1 Continue

>nocard2< • "Abdominal injuries resulting from a motor vehicle crash;

- A leg fracture from a sports or recreation activity;
- A strained/pulled back from lifting, twisting, etc.;
- A cut or laceration from working with a tool;
- A bruise or contusion from a falling item or being struck by or against equipment or an animal."

"Do you have questions about the type of injuries we're interested in?"

- 1 Yes [*Enumerator: Answer questions and repeat description, as necessary, then go to >i_next_member<*]
- 3 No (go to >i_next_member<)

>questions< "Do you have any questions about the types of injuries we're interested in?"

- 1 Yes (go to >nocard1<)
- 3 No

>i_next_member< [*Programming Note: The program loops through the study subjects , for >noinfarm< = 1 to >totinfarm<; Then go to >e_ProgNote1<. Identifiers carried forward for each member from the Household Log are >Title<, >he_she<, >his_her<, >is_are< and >was_were<.*]

>inj_log< "DURING THE SIXTH MONTH PERIOD BETWEEN JULY 1 AND DECEMBER 31, 1999, Did >Title< have ANY type of accidents or injuries?"

- | | |
|------------------------------|-----------------------------------|
| 1 Yes | 8 Unknown (go to >i_next_member<) |
| 3 No (go to >i_next_member<) | 9 Refused (go to >i_next_member<) |

>inj_farmop< "During that time, how many accidents or injuries did >Title< have, that were in any way related to YOUR farming or ranching operation? This includes activities such as transportation on roadways, or any other aspect of your operation, including raising animals for recreation or home use? It could also include someone who was injured while standing or playing in an area where these activities were taking place."

- | |
|-----------|
| __ 0-5 |
| 8 Unknown |
| 9 Refused |

>inj_othrfarm< "How many accidents or injuries did >Title< have, related to SOMEONE ELSE'S operation?"

- | |
|-----------|
| __ 0-5 |
| 8 Unknown |
| 9 Refused |

>inj_nonfarmop< "How many accidents or injuries did >Title< have, that were related to activities OTHER THAN farming or ranching?"

- | |
|-----------|
| __ 0-5 |
| 8 Unknown |
| 9 Refused |

>i_ProgNote2< [*Programming Note: Set >total_injuries< = >inj_farmop< + >inj_othrfarm< + >inj_nonfarmop<*]

>verify_inj< "So >Title< had >total_injuries< injuries total, from JULY 1 to DECEMBER 31, 1999.

>inj_farmop< - Related to YOUR Operation /.

>inj_othrfarm< - Related to Someone Else's Operation /.

>inj_nonfarmop< - Related to Activities OTHER THAN Farming or Ranching.

Is this correct?"

- 1 Yes
- 3 No (go to >inj_farmop<)

>i_next_event< [Programming Note: Set all month of farm injury fields to zero and set total farm injured months to zero.

Loop i = 1,6

>mo_inj,< = 0

Continue

>no_fmonths< = 0

Then, the interview first loops through all injury events related to their own farming or ranching operation, >type_inj< = "On your own operation – injury #", >iinj< = 0 to >inj_farmop<;

Then,

Loop i = 1,6

If (>mo_inj,< = 1) >no_fmonths< = >no_fmonths< + 1

Continue;

Then the interview loops through all injury events related to someone else's farming or ranching operation, >type_inj< = "On someone elses operation – injury #", >iinj< = 0 to >inj_othrfarm<; Then the interview loops through all injury events related to something other than farming or ranching, >type_inj< = "Activities other than farm/ranch – injury #", >iinj< = 0 to >inj_nonfarmop<;

Then,

Loop i = 1,6

If (>mo_inj,< = 1) >no_fmonths< = >no_fmonths< + 1

Continue

go to >i_next_member<]

>inj_where< "Referring to >type_inj<>iinj<, where did the accident or injury happen?"

- 1 Around the farm or ranch (go to >inj_source1<)
- 2 Roadway (farm/ranch operation road or public road) (go to >inj_source1<)
- 3 In or around the house (go to >inj_source1<)
- 4 Sports or recreation area (go to >inj_source1<)
- 5 Work (other than on the farm or ranch) (go to >inj_source1<)
- 6 School (go to >inj_source1<)
- 7 Public place (restaurant or other public place) (go to >inj_source1<)
- 8 Someone else's house (go to >inj_source1<)
- 9 Someone else's farm or ranch (go to >inj_source1<)
- 10 Other
- 98 Unknown (go to >inj_source1<)
- 99 Refused (go to >inj_source1<)

>inj_where_specify< "Specify the place." _____

>inj_source1< "Referring to >type_inj<>iinj<:

Which of the following SOURCES were involved in the accident/injury? I need to read the entire list before you give me your answer. After I read the list, please tell me the one or two sources that were most directly involved in causing the accident:

- | | |
|-----------------------------------|--|
| 1 Tractor | 11 Housework |
| 2 Motor Vehicle | 12 Yardwork/gardening |
| 3 Other Large machinery/
Equip | 13 Work related (nonfarm) |
| 4 Sm. power equip/hand tools | 14 Something else, specify [Enumerator:
Type response exactly as stated + end
with ///. After entering information, press
ESC to continue with interview.] |
| 5 Livestock or animals | 15 General Activity |
| 6 Storage structures | 16 None - No secondary source |
| 7 Chemicals/drugs/
medications | 98 Unknown |
| 8 Body of water | 99 Refused |
| 9 Falls | |
| 10 Sports/Recreation | |

>i_ProgNote3< [Programming Note: Set >Src_Cnt< = 1<, go to >i_ProgNote4<]

>inj_source2< "Referring to >type_inj<>iinj<:

Were any of the other sources that I read to you involved in the accident/injury?"

- | | |
|-----------------------------------|--|
| 1 Tractor | 11 Housework |
| 2 Motor Vehicle | 12 Yardwork/gardening |
| 3 Other Large machinery/
Equip | 13 Work related (nonfarm) |
| 4 Sm. power equip/hand tools | 14 Something else, specify [Enumerator:
Type response exactly as stated + end
with ///. After entering information, press
ESC to continue with interview.] |
| 5 Livestock or animals | 15 General Activity |
| 6 Storage structures | 16 None - No secondary source (go to
>inj_activity<) |
| 7 Chemicals/drugs/
medications | 98 Unknown (go to >inj_activity<) |
| 8 Body of water | 99 Refused (go to >inj_activity<) |
| 9 Falls | |
| 10 Sports/Recreation | |

>i_ProgNote4< [Programming Note: If((>inj_source1< = 1 and >Src_Cnt< = 1) or (>inj_source2< = 1 and >Src_Cnt< = 2)), go to >inj_tractor<, else go to >i_ProgNote5<]

>inj_tractor< "Was the tractor A LARGE TRACTOR WITH MORE THAN 20 HORSEPOWER, A SMALL TRACTOR WITH LESS THAN OR EQUAL TO 20 HORSEPOWER, OR A SKID/STEER TRACTOR (I.E. BOBCAT)?"

- 1 Tractor more than 20 HP (call **Subroutine PTO**)
- 2 Tractor less than or equal to 20 HP (i.e. garden tractor) (call **Subroutine PTO**)
- 3 A skid steer tractor (e.g., Bobcat) (go to >i_ProgNote5<)
- 8 Unknown (go to >i_ProgNote5<)
- 9 Refusal (go to >i_ProgNote5<)

.....

Subroutine PTO

>inj_PTO< "Was a POWER-TAKE-OFF (PTO) involved in the accident?"

- 1 Yes (go to >inj_shield<)
- 3 No (return)
- 8 Unknown (go to >i_ProgNote5<)
- 9 Refused (go to >i_ProgNote5<)

>inj_shield< "Was the PTO SHIELDED?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refused

RETURN

.....

>i_ProgNote5< [Programming Note: If((>inj_source1< = 2 and >Src_Cnt< = 1) or (>inj_source2< = 2 and >Src_Cnt< = 2)), go to >inj_motorveh<, else go to >i_ProgNote6<]

>inj_motorveh< "What TYPE OF MOTOR VEHICLE was involved in the accident?"

- 1 Car (go to >i_ProgNote6<)
- 2 Van (go to >i_ProgNote6<)
- 3 Sport utility vehicle (go to >i_ProgNote6<)
- 4 Pickup truck (go to >i_ProgNote6<)
- 5 Grain truck (go to >i_ProgNote6<)
- 6 Other truck (go to >i_ProgNote6<)
- 7 Motorcycle or motor bike (go to >i_ProgNote6<)
- 8 All terrain vehicle: ATV (go to >i_ProgNote6<)
- 9 Snowmobile (go to >i_ProgNote6<)
- 10 Personal watercraft (i.e. Ski-doo) (go to >i_ProgNote6<)
- 11 Other
- 98 Unknown (go to >i_ProgNote6<)
- 99 Refused (go to >i_ProgNote6<)

>inj_motorveh_specify< "Please specify the type of motor vehicle." _____

>i_ProgNote6< [Programming Note: If((>inj_source1< = 3 and >Src_Cnt< = 1) or (>inj_source2< = 3 and >Src_Cnt< = 2)), go to >inj_largemach_i<, else go to >i_ProgNote7<]

>inj_largemach_i< "In the following list of large machinery or equipment, WHAT TYPE OR TYPES were involved in the accident? I need to read the entire list before you give me your answer." [Enumerator: Enter multiple responses, for i = 1-5]

- 01 "Tillage equipment (Disc, moldboard plow, field cultivator, chisel plow, rotary hoe, row crop cultivator, powered tiller, cultipacker, etc.)"
- 02 "Planting equipment (i.e. planters, drills, etc.)"
- 03 "Harvesting equipment (Combines, pickers, forage harvesters, mowers balers, stackers, specialty harvesters, etc.)"
- 04 "Augers / Elevators (Portable and fixed augers, elevators or conveyors)"
- 05 "Feed grinder / mixer"

- 06 "Irrigation equipment"
- 07 "Wagons (hay racks, forage wagons, gravity box, graincart, etc.)"
- 08 "Chemical and fertilizer application equipment"
- 09 "Manure application equipment"
- 10 "Other farm equipment; **powered by an external source** (silage / forage blowers, grain dryers, etc.)"
- 11 "Other farm equipment; **self-powered** (Back-hoe, Caterpillar, forklift, earthmoving equipment, etc.)"
- 00 No more machinery involved in accident
- 98 Unknown
- 99 Refusal

>i_ProgNote6a< *[Programming Note: If ((>inj_largemach₁< ge 1 and >inj_largemach₁< le 5) or (>inj_largemach₁< ge 8 and >inj_largemach₁< le 10) or (>inj_largemach₂< ge 1 and >inj_largemach₂< le 5) or (>inj_largemach₂< ge 8 and >inj_largemach₂< le 10) or (>inj_largemach₃< ge 1 and >inj_largemach₃< le 5) or (>inj_largemach₃< ge 8 and >inj_largemach₃< le 10) or (>inj_largemach₄< ge 1 and >inj_largemach₄< le 5) or (>inj_largemach₄< ge 8 and >inj_largemach₄< le 10) or (>inj_largemach₅< ge 1 and >inj_largemach₅< le 5) or (>inj_largemach₅< ge 8 and >inj_largemach₅< le 10)) call **Subroutine PTO**]*

>i_ProgNote7< *[Programming Note: If((>inj_source1< = 4 and >Src_Cnt< = 1) or (>inj_source2< = 4 and >Src_Cnt< = 2)), go to >inj_smequip<, else go to >i_ProgNote8<]*

>inj_smequip< "What TYPE OF SMALL EQUIPMENT OR HAND TOOLS were involved in the accident?"

- 1 Stationary powered shop tools(table saw, drill press, etc.) (go to >i_ProgNote8<)
- 2 Portable powered hand tool (portable saw or drill, electric screw driver, etc.) (go to >i_ProgNote8<)
- 3 Hand tool (hammer, chisel, saw, etc.) (go to >i_ProgNote8<)
- 4 Chain saw (go to >i_ProgNote8<)
- 5 Portable grinder (go to >i_ProgNote8<)
- 6 Stationary grinder (go to >i_ProgNote8<)
- 7 Lawn mower (go to >i_ProgNote8<)
- 8 Snow blower (go to >i_ProgNote8<)
- 9 Garden tiller (go to >i_ProgNote8<)
- 10 Other
- 98 Unknown (go to >i_ProgNote8<)
- 99 Refusal (go to >i_ProgNote8<)

>inj_smequip_specify< "Please specify the type of small equipment." _____

>i_ProgNote8< *[Programming Note: If((>inj_source1< = 5 and >Src_Cnt< = 1) or (>inj_source2< = 5 and >Src_Cnt< = 2)), go to >inj_animals<, else go to >i_ProgNote9<]*

>inj_animals< "What TYPE OF LIVESTOCK OR OTHER ANIMALS were involved in the accident?"

- 1 Dairy cow with newborn calf (go to >i_ProgNote9<)
- 2 Dairy cow or heifer (go to >i_ProgNote9<)
- 3 Dairy bull (go to >i_ProgNote9<)
- 4 Dairy calf (go to >i_ProgNote9<)
- 5 Beef cow with newborn calf (go to >i_ProgNote9<)
- 6 Beef cow, steer or heifer (go to >i_ProgNote9<)
- 7 Beef bull (go to >i_ProgNote9<)

- 8 Beef calf (go to >i_ProgNote9<)
- 9 Sow with piglets (go to >i_ProgNote9<)
- 10 Sow without piglets / Gilt (go to >i_ProgNote9<)
- 11 Feeder pig (go to >i_ProgNote9<)
- 12 Boar (go to >i_ProgNote9<)
- 13 Poultry (go to >i_ProgNote9<)
- 14 Sheep (go to >i_ProgNote9<)
- 15 Horse (go to >i_ProgNote9<)
- 16 Stud horse / Stallion (go to >i_ProgNote9<)
- 17 Other
- 98 Unknown (go to >i_ProgNote9<)
- 99 Refusal (go to >i_ProgNote9<)

>inj_animals_specify< "Please specify the type of livestock." _____

>i_ProgNote9< [Programming Note: If((>inj_source1< = 6 and >Src_Cnt< = 1) or (>inj_source2< = 6 and >Src_Cnt< = 2)), go to >inj_storage<, else go to >i_ProgNote9<]

>inj_storage< "What KIND OF STORAGE STRUCTURE was it?"

- 1 Feed container / feed bunk (go to >i_ProgNote10<)
- 2 Livestock barn (go to >i_ProgNote10<)
- 3 Grain bin / granary (go to >i_ProgNote10<)
- 4 Corn crib (go to >i_ProgNote10<)
- 5 Silo (go to >i_ProgNote10<)
- 6 Machine shed (go to >i_ProgNote10<)
- 7 Garage (go to >i_ProgNote10<)
- 8 Workshop / tool shed (go to >i_ProgNote10<)
- 9 Manure pit / tank (go to >i_ProgNote10<)
- 10 Fruit or other non-grain crop storage (go to >i_ProgNote10<)
- 11 Other
- 98 Unknown (go to >i_ProgNote10<)
- 99 Refusal (go to >i_ProgNote10<)

>inj_storage_specify< "Please specify the kind of storage structure." _____

>i_ProgNote10< [Programming Note: If((>inj_source1< = 7 and >Src_Cnt< = 1) or (>inj_source2< = 7 and >Src_Cnt< = 2)), go to >inj_chemical<, else go to >i_ProgNote11<]

>inj_chemical< "What TYPE OF CHEMICALS, DRUGS OR MEDICATIONS were involved in the accident?"

- 1 Pesticides including: insecticides, herbicides, fungicides and fumigants (go to >inj_pesticide<)
- 2 Anhydrous ammonia (go to >inj_pesticide<)
- 3 Fuels, lubricants or cleaning agents (go to >inj_pesticide<)
- 4 Other chemical products, such as household products, paint, solvents, etc. (go to >i_ProgNote11<)
- 5 Veterinary medicines (go to >i_ProgNote11<)
- 6 Other (go to >i_ProgNote11<)
- 8 Unknown (go to >inj_chemical_specify<)
- 9 Refusal (go to >i_ProgNote11<)

>inj_chemical_specify< "Specify the type and name." _____ (go to >i_ProgNote11<)

>inj_pesticide< "Was the chemical or pesticide STORED IN A CONTAINER LABELED WITH THE SIGNAL WORD 'DANGER' OR 'WARNING'?"

- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |

>i_ProgNote11< [Programming Note: If((>inj_source1< = 8 and >Src_Cnt< = 1) or (>inj_source2< = 8 and >Src_Cnt< = 2)), go to >inj_water<, else go to >i_ProgNote12<]

>inj_water< "What TYPE OF BODY OF WATER was involved in the accident?"

- 1 Lake (go to >i_ProgNote12<)
- 2 River, stream, or creek (go to >i_ProgNote12<)
- 3 Swamp (go to >i_ProgNote12<)
- 4 Pond (including stock pond) (go to >i_ProgNote12<)
- 5 Stock tank (go to >i_ProgNote12<)
- 6 Water-filled ditch (go to >i_ProgNote12<)
- 7 Swimming pool (go to >i_ProgNote12<)
- 8 Bath tub (go to >i_ProgNote12<)
- 9 Hot tub or spa (go to >i_ProgNote12<)
- 10 Other
- 98 Unknown (go to >i_ProgNote12<)
- 99 Refusal (go to >i_ProgNote12<)

>inj_water_specify< "Please specify the type of body of water." _____

>i_ProgNote12< [Programming Note: If((>inj_source1< = 9 and >Src_Cnt< = 1) or (>inj_source2< = 9 and >Src_Cnt< = 2)), go to >inj_fall<, else go to >i_ProgNote13<]

>inj_fall< "When >he_she< fell, did >he_she< fall on LEVEL GROUND OR FROM A DIFFERENT LEVEL?" [Enumerator: If fall from one level to another, probe to classify into #1-6. Use 7 only if fall can't be classified into #1-6.]

- 1 Fall on or from stairs or steps
- 2 Fall on or from ladders or scaffolding more than 20 ft.
- 3 Fall on or from ladders or scaffolding less than or equal to 20 ft.
- 4 Fall from or out of building or other structure
- 5 Fall into hole or other opening in surface
- 6 Fall on same level from slipping, tripping, or stumbling
- 7 Fall from one level to another
- 8 Slips & trips not resulting in a fall
- 98 Unknown
- 99 Refusal

>i_ProgNote13< [Programming Note: If((>inj_source1< = 10 and >Src_Cnt< = 1) or (>inj_source2< = 10 and >Src_Cnt< = 2)), go to >inj_sports<, else go to >i_ProgNote14<]

>inj_sports< "What SPORT OR RECREATIONAL ACTIVITY was >he_she< involved in when
when >he_she< got hurt?"

- | | |
|---|--|
| 11 Aerobics workout | 38 Running/jogging |
| 12 Archery | 39 Skateboarding |
| 13 Baseball | 40 Skiing, crosscountry |
| 14 Basketball | 41 Skiing/Snow-boarding, downhill |
| 15 Bicycling | 42 Sledding |
| 16 Boating | 43 Snowmobiling |
| 17 Bowling | 44 Soccer |
| 18 Broadjumping | 45 Softball |
| 19 Broomball | 46 Swimming / Diving |
| 20 Cheerleading | 47 Target practice/shooting (firearm, other
than hunting) |
| 21 Dancing | 48 Tennis |
| 22 Field Hockey | 49 Track and field |
| 23 Football | 50 Volleyball |
| 24 Golf | 51 Water skiing |
| 25 Gymnastics | 52 Weight lifting |
| 26 Horseplay(adult) | 53 3 - Wheeling / 4 - wheeling |
| 27 Hunting | 54 Wrestling |
| 28 Ice fishing/Fishing | 10 Other, specify [<i>Enumerator: Type
response exactly as stated + end
with ///. After entering information,
press ESC to continue with interview.</i>] |
| 29 Ice hockey | 98 Unknown |
| 30 Ice skating | 99 Refusal |
| 31 Martial arts (judo, karate etc) | |
| 32 Physical education activities,
general (non-specific) | |
| 33 Play activities, general
childrens' (non-specific) | |
| 34 Playground activities | |
| 35 Racquetball | |
| 36 Rollerskating | |
| 37 Rollerblading | |

>i_ProgNote14< [Programming Note:

If ((>inj_source1< = 11 and >Src_Cnt< = 1) or (>inj_source2< = 11 and >Src_Cnt< =
2))

>activity< = "HOUSEWORK"

go to >inj_general<

Else if (>inj_source1< = 12 and >Src_Cnt< = 1) or (>inj_source2< = 12 and
>Src_Cnt< = 2)

>activity< = "YARDWORK"

go to >inj_general<

Else if (>inj_source1< = 13 and >Src_Cnt< = 1) or (>inj_source2< = 13 and
>Src_Cnt< = 2)

>activity< = "WORK UNRELATED TO FARM WORK"

go to >inj_general<

Else if (((>inj_source1< = 15 or >inj_source1< = 16 or >inj_source1< = 98 or
>inj_source1< = 99) and >Src_Cnt< = 1) or (>inj_source2< = 15 and >Src_Cnt< = 2)

>activity< = "ACTIVITY"

go to >inj_general<

Else if (>Src_Cnt< = 1)

>Src_Cnt< = 2

go to >inj_source2<

Else

go to >inj_activity<

End if]

>inj_general< "What type of >activity< >was_were< >he_she< involved in when >he_she< got hurt?" _____

>inj_activity< "Tell me in your own words, what >was_were< >Title< DOING at the time of the injury?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.] _____

>injury_how< "In your own words, HOW did the accident happen?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.] _____

>inj_date< "What was the DATE of the accident?"

____/____/____ (mm/dd/yyyy) (go to >inj_time<)
99999998 Unknown
99999999 Resusal (go to >i_end1<)

>inj_month< "THEN, can you tell me the MONTH in which the accident happened?"

1 July (go to >inj_time<)	8 August (go to >inj_time<)
2 February (go to >inj_time<)	9 September (go to >inj_time<)
3 March (go to >inj_time<)	10 October (go to >inj_time<)
4 April (go to >inj_time<)	11 November (go to >inj_time<)
5 May (go to >inj_time<)	12 December (go to >inj_time<)
6 June (go to >inj_time<)	98 Unknown
7 July (go to >inj_time<)	99 Refusal (go to >i_end1<)

>inj_season< "Could you tell me if this accident happened in the SPRING, SUMMER, FALL OR WINTER?"

1 Spring (Mar / Apr / May)	4 Winter (Dec / Jan / Feb)
2 Summer (Jun / Jul / Aug)	8 Unknown
3 Fall (Sept / Oct / Nov)	9 Refusal (go to >i_end1<)

>inj_time< "What TIME OF DAY did it happen?"

____:____ (hh:mm) military time (go to >inj_part1<)
99999998 Unknown
99999999 Resusal

>inj_time2< "THEN, could you tell me if this accident happened in the MORNING, AFTERNOON, EVENING OR NIGHT?"

1 Morning (6:00 am - 11:59 am)	4 Night (12:00 am - 5:59 am)
2 Afternoon (12:00 pm - 5:59 pm)	8 Unknown
3 Evening (6:00 pm - 11:59 pm)	9 Refusal

>inj_part1,< "What PARTS OF THE BODY were injured? If you have the DARK BLUE card with the figure, it will help you to answer this question." [Enumerator: Enter multiple responses, for i = 1-6]

101 Head / Skull
102 Brain
103 Face (Forehead, Cheek, Nose, Lip, Chin, Ear)
104 Eye / Eyelid
105 Dental / Tooth

- 106 Neck (Cervical area)
- 107 Spinal cord / Spine (Vertebrae, Sacrum, Tailbone / Coccyx, Discs)
- 108 Back (muscles/skin)
- 109 Internal chest (Ribs, Heart, Lung, Bronchial, Esophagus, Diaphragm)
- 110 External chest (Skin)
- 111 Internal abdomen (Stomach, Liver, Kidney, Gall bladder, Intestines, Appendix, Spleen, Pancreas)
- 112 External abdomen (Skin)
- 113 Shoulder / Collar bone / Shoulder blade
- 114 Arm / Elbow / Wrist / Carpal tunnel
- 115 Hand
- 116 Finger (s) / Thumb (s)
- 117 Internal hips / Pelvis (Uterus, Ovaries, Bladder, Rectum)
- 118 External hips / Pelvis (Skin)
- 119 Buttocks
- 120 Genitals / "Private parts"
- 121 Leg (Thigh (s), Shin, Calf)
- 122 Knee
- 123 Ankle
- 124 Foot / Heel
- 125 Toes
- 126 General systems
- 127 No additional body parts
- 128 Other
- 998 Unknown
- 999 Refusal

>i_ProgNote15< *[Programming Note: Loop through body parts listed from i = 1 to 6, at end go to >inj_loc<; otherwise*
If (>inj_part1_i< = 127 or >inj_part1_i< = 998 or >inj_part1_i< = 999)
go to >inj_loc<
Else If (>inj_part1_i< = 128)
go to >inj_part1_specify<
Else
go to >desc_inj_i<
End If]

>inj_part1_specify< "Specify the body part." _____

>desc_inj_i< "Describe what types of injuries occurred to the >inj_part1_i< Examples include: bruise or contusion, broken bone or fracture, amputation, or loss of consciousness."
*[Enumerator: **Type response exactly as stated + end with ///.** After entering information, press ESC to continue with interview.]*

_____ (go to
 >i_ProgNote15<)

>inj_serious< "How would you RATE THE SERIOUSNESS of this overall injury. Was it Minor, Moderate, Serious, Severe or Life-threatening?" *[Enumerator: If death occurred, enter 6.]*

- | | | | |
|---|----------|---|---------------------------|
| 1 | Minor | 5 | Life threatening |
| 2 | Moderate | 6 | Death (go to >inj_care1<) |
| 3 | Serious | 8 | Unknown |
| 4 | Severe | 9 | Refusal |

>inj_loc< "As a result of this accident, was there a LOSS OF CONSCIOUSNESS?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >inj_amnesia<) |
| 3 No (go to >inj_amnesia<) | 9 Refusal (go to >inj_amnesia<) |

>inj_loc2< "Was this due to a BLOW TO THE HEAD, BEING OVERCOME BY FUMES OR SOMETHING ELSE?"

- | |
|--|
| 1 A blow to the head (go to >inj_loc3<) |
| 2 Being overcome by fumes (go to >inj_loc3<) |
| 3 Other |
| 8 Unknown (go to >inj_loc3<) |
| 9 Refusal (go to >inj_loc3<) |

>inj_loc2_specify< "Specify the reason for unconsciousness." [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

>inj_loc3< "HOW LONG did it last?"

- | | |
|----------------------------------|---------------------------------|
| 1 Less than 5 minutes | 6 6 hours to less than 24 hours |
| 2 5 to less than 10 minutes | 7 24 hours or more |
| 3 10 to less than 30 minutes | 8 Unknown |
| 4 30 minutes to less than 1 hour | 9 Refusal |
| 5 1 hour to less than 6 hours | |

>inj_amnesia< "Was there a LOSS OF AWARENESS, AMNESIA, OR CONFUSION?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >inj_restrict<) |
| 3 No (go to >inj_restrict<) | 9 Refusal (go to >inj_restrict<) |

>inj_amnesia2< "Was this due to a BLOW TO THE HEAD, BEING OVERCOME BY FUMES OR SOMETHING ELSE?"

- | |
|--|
| 1 A blow to the head (go to >inj_amnesia3<) |
| 2 Being overcome by fumes (go to >inj_amnesia3<) |
| 3 Other |
| 8 Unknown (go to >inj_amnesia3<) |
| 9 Refusal (go to >inj_amnesia3<) |

>inj_amnesia2_specify< "Specify the reason for amnesia." [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

>inj_amnesia3< "HOW LONG did it last?"

- | | |
|----------------------------------|---------------------------------|
| 1 Less than 5 minutes | 6 6 hours to less than 24 hours |
| 2 5 to less than 10 minutes | 7 24 hours or more |
| 3 10 to less than 30 minutes | 8 Unknown |
| 4 30 minutes to less than 1 hour | 9 Refusal |
| 5 1 hour to less than 6 hours | |

>inj_restrict< "HOW LONG were normal activities restricted? Normal activities are the things a person would ordinarily do on any given day."

- | | | | |
|---|------------------------------------|---|-------------------------------|
| 0 | No restriction (go to >inj_care1<) | 5 | 14 days to less than 1 month |
| 1 | 0 to less than 4 hours | 6 | 1 month to less than 3 months |
| 2 | 4 hrs to less than 1 day | 7 | 3 months or more |
| 3 | 1 day to less than 7 days | 8 | Unknown (go to >inj_care1<) |
| 4 | 7 days to less than 14 days | 9 | Refusal (go to >inj_care1<) |

>lost_farmwork< "Did >he_she< lose ANY TIME from work around YOUR farming or ranching operation as a result of the accident?"

- | | | | |
|---|----------------------------|---|---------------------------------|
| 1 | Yes | 8 | Unknown (go to >lostotherwork<) |
| 3 | No (go to >lostotherwork<) | 9 | Refusal (go to >lostotherwork<) |

>lostfarmtime< "How MUCH TIME did >he_she< lose from work?"

- | | | | |
|---|------------------------------|---|-------------------------------|
| 1 | 0 to less than 4 hours | 6 | 1 month to less than 3 months |
| 2 | 4 hrs to less than 1 day | 7 | 3 months or more |
| 3 | 1 day to less than 7 days | 8 | Unknown |
| 4 | 7 days to less than 14 days | 9 | Refusal |
| 5 | 14 days to less than 1 month | | |

>lostotherwork< "Did >he_she< lose ANY TIME from work at job(s) NOT RELATED to YOUR farming or ranching operation as a result of the accident?"

- | | | | |
|---|---------------------------|---|--------------------------------|
| 1 | Yes | 8 | Unknown (go to >restrict_now<) |
| 3 | No (go to >restrict_now<) | 9 | Refusal (go to >restrict_now<) |

>lostothertime< "How MUCH TIME did >he_she< lose from these job(s)?"

- | | | | |
|---|------------------------------|---|-------------------------------|
| 1 | 0 to less than 4 hours | 6 | 1 month to less than 3 months |
| 2 | 4 hrs to less than 1 day | 7 | 3 months or more |
| 3 | 1 day to less than 7 days | 8 | Unknown |
| 4 | 7 days to less than 14 days | 9 | Refusal |
| 5 | 14 days to less than 1 month | | |

>restrict_now< ">is_are< >Title< STILL RESTRICTED from carrying out >his_her< normal activities as a result of this injury?"

- | | | | |
|---|---------------------------|---|--------------------------------|
| 1 | Yes | 8 | Unknown (go to >inj_symptoms<) |
| 3 | No (go to >inj_symptoms<) | 9 | Refusal (go to >inj_symptoms<) |

>restrict_now2< "To what degree would you say >his_her< normal activities are CURRENTLY restricted? A small amount, a moderate amount or a large amount?"

- | | | | |
|---|-------------------|---|---------|
| 1 | A small amount | 8 | Unknown |
| 2 | A moderate amount | 9 | Refusal |
| 3 | A large amount | | |

>inj_symptoms< "If you can turn to the two beige cards in the packet, it will help you identify some of these problems and symptoms.

At the present time, are there any PERSISTANT problems or symptoms related to this injury, including things such as numbness, pain, weakness, or some type of impairment?"

- | | | | |
|---|------------------------|---|-----------------------------|
| 1 | Yes | 8 | Unknown (go to >inj_care1<) |
| 3 | No (go to >inj_care1<) | 9 | Refusal (go to >inj_care1<) |

>inj_symptoms2_i< "What part(s) of the body is/are affected? If you can turn to the dark blue card with the figure, it will help you answer this question." [Enumerator; Enter multiple responses, for i = 1-6]

- 101 Head / Skull
- 102 Brain
- 103 Face (Forehead, Cheek, Nose, Lip, Chin, Ear)
- 104 Eye / Eyelid
- 105 Dental / Tooth
- 106 Neck (Cervical area)
- 107 Spinal cord / Spine (Vertebrae, Sacrum, Tailbone / Coccyx, Discs)
- 108 Back (muscles/skin)
- 109 Internal chest (Ribs, Heart, Lung, Bronchial, Esophagus, Diaphragm)
- 110 External chest (Skin)
- 111 Internal abdomen (Stomach, Liver, Kidney, Gall bladder, Intestines, Appendix, Spleen, Pancreas)
- 112 External abdomen (Skin)
- 113 Shoulder / Collar bone / Shoulder blade
- 114 Arm / Elbow / Wrist / Carpal tunnel
- 115 Hand
- 116 Finger (s) / Thumb (s)
- 117 Internal hips / Pelvis (Uterus, Ovaries, Bladder, Rectum)
- 118 External hips / Pelvis (Skin)
- 119 Buttocks
- 120 Genitals / "Private parts"
- 121 Leg (Thigh (s), Shin, Calf)
- 122 Knee
- 123 Ankle
- 124 Foot / Heel
- 125 Toes
- 126 General systems
- 127 No additional body parts
- 128 Other
- 998 Unknown
- 999 Refusal

>i_ProgNote16< [Programming Note: Loop through body parts listed from i = 1 to 6, at end go to >inj_care1<; otherwise
If (>inj_symptoms2_i< = 127 or >inj_symptoms2_i< = 998 or >inj_symptoms2_i< = 999)
go to >inj_care1<
Else If (>inj_symptoms2_i< = 128)
go to >inj_sympoms2_specify<
Else
go to >desc_sym_i<
End If]

>inj_symptoms2_specify< "Specify the body part." _____

>desc_sym_i< "What are the exact types of persistent problems or symptoms occurring to the >inj_symptoms2_i<.

Please refer to the two beige cards."

- 0 Persistent physical or mental impairment

- 1 Persistent numbness or tingling of injures area
- 2 Persistent pain only upon exertion or movement / intermittent pain
- 3 Persistent pain in injured area at all times
- 4 Headache that persists for more than a single day
- 5 General weakness
- 6 Weakness of arms or legs
- 7 Decreased range of motion
- 8 Paralysis
- 9 Loss of body part / amputation
- 10 Impaired vision, including blurred or double vision
- 11 Impaired speech
- 12 Impaired hearing
- 13 Reduced sense of balance or dizziness
- 14 Reduced ability to concentrate
- 15 Epilepsy / Convulsions
- 16 Reduced ability to do heavy work
- 17 Other, specify [*Enumerator: Type response exactly as stated + end with ///. After entering information, press ESC to continue with interview.*]
- 98 Unknown at this time if there will be permanent impairment
- 99 refusal

>inj_care1< "The following questions are about care of the injury. Was the injury treated by a health care professional, such as a doctor, nurse, chiropractor, dentist or other healthcare professional?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >i_ProgNote18<) |
| 3 No (go to >i_ProgNote18<) | 9 Refusal (go to >i_ProgNote18<) |

>inj_care2;< "In which of the following places did >Title< receive care?" [*Enumerator: Enter multiple responses, for i = 1-7*]

- | | |
|---|----------------------------------|
| 1 A doctor's office | 6 At the scene of the accident |
| 2 A hospital emergency room | 7 Any other health care facility |
| 3 A hospital as an in-patient
(admitted to a hospital) | 8 Unknown |
| 4 A dentist's office | 9 Refusal |
| 5 A chiropractor's office | |

>i_ProgNote17< [Programming Note:

If (>inj_care2₁< not equal 3 and >inj_care2₂< not equal 3 and
>inj_care2₃< not equal 3 and >inj_care2₄< not equal 3 and >inj_care2₅<
not equal 3 and >inj_care2₆< nt equal 3 and >inj_care2₇< not equal 3)
go to >inj_insurance<
End If]

>inj_hospital< "How long was >he_she< in the hospital?"

- _____ days
998 Unknown
999 Refusal

>inj_insurance< "What percentage of the costs of care for this injury was covered by health or medical insurance? Was it none, less than 50%, 50% to less than 100% or 100%(no deductible)?"

- | | |
|-------------------------|------------------------|
| 0 None | 3 100% (No deductible) |
| 1 Less than 50% | 8 Unknown |
| 2 50% to less than 100% | 9 Refusal |

>i_ProgNote18< [Programming Note:

 If (>type_inj< = "On your own operation – injury #")

 If ((>inj_restrict< > 1 and >inj_restrict< < 8) or >inj_loc< = 1 or >inj_amnesia< = 1
 or >inj_care1< = 1)

 If (>inj_date< >06301999)

 If (>inj_date< less than 08011999 or >inj_month< = 7 or >inj_season< =
 2)

 >mo_inj1< = 1

 Else If (>inj_date< less than 09011999 or >inj_month< = 8)

 >mo_inj2< = 1

 Else If (>inj_date< less than 10011999 or >inj_month< = 9)

 >mo_inj3< = 1

 Else If (>inj_date< less than 11011999 or >inj_month< = 10 or >inj_season< =
 3)

 >mo_inj4< = 1

 Else If (>inj_date< less than 12011999 or >inj_month< = 11)

 >mo_inj5< = 1

 Else If (>inj_date< less than 99999998 or >inj_month< = 12 or >inj_season< =
 2)

 >mo_inj6< = 1

 Endif

 End If

 End If

 go to >i_next_event<]

Exposure Section

Control Selection Process

>e_ProgNote1< [Programming Note: Generate 3 random numbers, >random1<, >random2< and >random3<.

Set: >controlHH< = 0; >caseHH< = 0

household control selection

If (>random1< is less than or equal to 0.125)
Household is selected as a control household
>controlHH< = 1
Else
go to >e_next_caco<
End If

subject control selection

If (>random2< greater than 0 and >random2< less than or equal to 1/>kids<)
>exp< = 1
Else If (>random2< greater than 1/>kids< and >random2< less than or equal to 2/>kids<)
>exp< = 2
.....
Else If (>random2< greater than >kids<-1/>kids< and >random2< less than or equal to >kids</>kids<)
>exp< = >kids<
End If
Set control subject to household member with >kid_num< = >exp<

index month control selection

n = 36
If (>mo_inj₁< = 1 or >mo_inj₁< = 9) n = n - 11
If (>mo_inj₂< = 1 or >mo_inj₂< = 9) n = n - 12
If (>mo_inj₃< = 1 or (>mo_inj₃< = 9) n = n - 4
If (>mo_inj₄< = 1 or >mo_inj₄< = 9) n = n - 5
If (>mo_inj₅< = 1 or >mo_inj₅< = 9) n = n - 3
If (>mo_inj₆< = 1 or >mo_inj₆< = 9) n = n - 1
>a< = 0
>b< = 0
If (>mo_inj₁< = 0)
>b< = >b< + 2/n
If (>random3< greater than >a< and >random3< less than or equal to >b<)
>control_month< = 1
go to >e_next_caco<
Else
>a< = >b<
End If
End If
If (>mo_inj₂< = 0)

```

>b< => b< + 1/n
If (>random3< greater than >a< and >random3< less than or equal to >b<)
  >control_month< = 2
  go to >e_next_caco<
Else
  >a< => b<
End If
End If
If (>mo_inj3< = 0)
  >b< => b< + 4/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 3
    go to >e_next_caco<
  Else
    >a< => b<
  End If
End If
If (>mo_inj4< = 0)
  >b< => b< + 6/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 4
    go to >e_next_caco<
  Else
    >a< => b<
  End If
End If
If (>mo_inj5< = 0)
  >b< => b< + 12/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 5
    go to >e_next_caco<
  Else
    >a< => b<
  End If
End If
If (>mo_inj6< = 0)
  >b< => b< + 15/n
  If (>random3< greater than >a< and >random3< less than or equal to >b<)
    >control_month< = 6
    go to >e_next_caco<
  Else
    >a< => b<
  End If
End If

```


>nonfarmwk_hrs< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>grade< "During >month_before<, what was >first_name's< grade in school?"

0 Kindergarten
_____ 1-16 Years
97 N/A – None (go to >sports1<)
98 Unknown
99 Refusal

>school_wks< "During >month_before<, HOW MANY WEEKS did >he_she< spend in classes at school?"

0 None – Did not go to school (go to >sports1<)
_____ 1-4 weeks
8 Unknown
9 Refusal

>school_hrs< "On average, how many HOURS PER WEEK?"

_____ 1-40 hours
98 Unknown
99 Refusal

>school_rate< "How would you rate >his_her< school performance? Was it excellent, above average, average, below average or not satisfactory?"

1 Excellent (go to >sports1<)	5 Not satisfactory (go to >sports1<)
2 Above average (go to >sports1<)	6 Other
3 Average (go to >sports1<)	8 Unknown (go to >sports1<)
4 Below average (go to >sports1<)	9 Refusal (go to >sports1<)

>school_specify< "Please specify other." _____

>sports1< "During >month_before<, did >Title< participate in any sports or recreational activities?"

1 Yes	8 Unknown (go to >introduction14<)
3 No (go to >introduction14<)	9 Refusal (go to >introduction14<)

>sports2_i< "In which sports or recreational activities did >he_she< particitpate?" [Enumerator: Enter multiple responses, for i = 1-7]

- | | |
|--|---|
| 11 Aerobics workout | 36 Rollerskating |
| 12 Archery | 37 Rollerblading |
| 13 Baseball | 38 Running/jogging |
| 14 Basketball | 39 Skateboarding |
| 15 Bicycling | 40 Skiing, crosscountry |
| 16 Boating | 41 Skiing/Snow-boarding, downhill |
| 17 Bowling | 42 Sledding |
| 18 Broadjumping | 43 Snowmobiling |
| 19 Broomball | 44 Soccer |
| 20 Cheerleading | 45 Softball |
| 21 Dancing | 46 Swimming / Diving |
| 22 Field Hockey | 47 Target practice/shooting (firearm, other than hunting) |
| 23 Football | 48 Tennis |
| 24 Golf | 49 Track and field |
| 25 Gymnastics | 50 Volleyball |
| 26 Horseplay(adult) | 51 Water skiing |
| 27 Hunting | 52 Weight lifting |
| 28 Ice fishing/Fishing | 53 3 - Wheeling / 4 - wheeling |
| 29 Ice hockey | 54 Wrestling |
| 30 Ice skating | 10 Other |
| 31 Martial arts (judo, karate etc) | 98 Unknown |
| 32 Physical education activities, general (non-specific) | 99 Refusal |
| 33 Play activities, general childrens' (non-specific) | |
| 34 Playground activities | |
| 35 Racquetball | |

>e_ProgNote4< [Programming Note: If (>sports2₁< not equal 10 and >sports2₂< not equal 10 and >sports2₃< not equal 10 and >sports2₄< not equal 10 and >sports2₅< not equal 10 and >sports2₆< not equal 10 and >sports2₇< not equal 10) go to >sports_wks<]

>sports_specify< "Please specify other." _____

>sports_wks< "During that month, HOW MANY WEEKS did >he_she< participate in these sports or recreational activities?"

- ___ 1-4 weeks
- 8 Unknown (go to >introduction14<)
- 9 Refusal (go to >introduction14<)

>sports_hrs< "On average, how many HOURS PER WEEK?"

- ___ 1-60 hours
- 98 Unknown
- 99 Refusal

>introduction14< "In the following questions, I will be asking about >first_name's< prior health status, medication use and general health habits."

- 1 Continue

>prior_health< "Prior to >month<, did >he_she< have any of the following health or medical problems, that were diagnosed at ANY TIME by a physician, osteopath, chiropractor, or other health care provider?"

1 *Continue*

>pain< "Chronic or periodic pain in any part of their body?"

1 Yes 8 Unknown
3 No 9 Refusal

>movement< "Restriction of movement of any body part?"

1 Yes 8 Unknown
3 No 9 Refusal

>arthritis< "Arthritis?"

1 Yes 8 Unknown
3 No 9 Refusal

>liver< "Liver disease?"

1 Yes 8 Unknown
3 No 9 Refusal

>kidney< "Kidney disease?"

1 Yes 8 Unknown
3 No 9 Refusal

>heart< "Heart disease?"

1 Yes 8 Unknown
3 No 9 Refusal

>blood_pressure< "High blood pressure?"

1 Yes 8 Unknown
3 No 9 Refusal

>diabetes< "Diabetes?"

1 Yes 8 Unknown
3 No 9 Refusal

>ADHD< "Hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD)?"

1 Yes 8 Unknown
3 No 9 Refusal

>vision< "Vision problems not correctable with lenses?"

1 Yes 8 Unknown
3 No 9 Refusal

>stress< "Stress?"

1 Yes 8 Unknown
3 No 9 Refusal

>depress< "Depression or other psychological problems?"

1	Yes	8	Unknown
3	No	9	Refusal

>brain< "Brain or spinal cord injury or disease?"

1	Yes	8	Unknown
3	No	9	Refusal

>epilepsy< "Epilepsy?"

1	Yes	8	Unknown
3	No	9	Refusal

>asthma< "Asthma?"

1	Yes	8	Unknown
3	No	9	Refusal

>allergies< "Allergies?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote5< [Programming Note: If (>pain< not equal 1, go to >e_ProgNote6<]

>pain_int< "During >month_before<, did CHRONIC OR PERIODIC PAIN interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote6< [Programming Note: If (>movement< not equal 1, go to >e_ProgNote7<]

>movement_int< "During >month_before<, did RESTRICTION OF MOVEMENT interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote7< [Programming Note: If (>arthritis< not equal 1, go to >e_ProgNote8<]

>arthritis_int< "During >month_before<, did ARTHRITIS interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote8< [Programming Note: If (>liver< not equal 1, go to >e_ProgNote9<]

>liver_int< "During >month_before<, did LIVER DISEASE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote9< [Programming Note: If (>kidney< not equal 1, go to >e_ProgNote10<]

>kidney_int< "During >month_before<, did KIDNEY DISEASE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote10< [Programming Note: If (>heart< not equal 1, go to >e_ProgNote11<]

>heart_int< "During >month_before<, did HEART DISEASE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote11< [Programming Note: If (>blood_pressure< not equal 1, go to >e_ProgNote12<]

>blood_pressure_int< "During >month_before<, did HIGH BLOOD PRESSURE interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote12< [Programming Note: If (>diabetes< not equal 1, go to >e_ProgNote13<]

>diabetes_int< "During >month_before<, did DIABETES interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote13< [Programming Note: If (>ADHD< not equal 1, go to >e_ProgNote14<]

>ADHD_int< "During >month_before<, did HYPERACTIVITY OR ADHD interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote14< [Programming Note: If (>vision< not equal 1, go to >e_ProgNote15<]

>vision_int< "During >month_before<, did VISION PROBLEMS NOT CORRECTABLE WITH LENSES interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote15< [Programming Note: If (>stress< not equal 1, go to >e_ProgNote16<]

>stress_int< "During >month_before<, did STRESS interfere with any of >his_her< regular activities?"

1	Yes	8	Unknown
3	No	9	Refusal

>e_ProgNote16< [Programming Note: If (>depress< not equal 1, go to >e_ProgNote17<]

>depress_int< "During >month_before<, did DEPRESSION OR OTHER PSYCHOLOGICAL PROBLEMS interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote17< [Programming Note: If (>brain< not equal 1, go to >e_ProgNote18<]

>brain_int< "During >month_before<, did BRAIN OR SPINAL CORD INJURY OR DISEASE interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote18< [Programming Note: If (>epilepsy< not equal 1, go to >e_ProgNote19<]

>epilepsy_int< "During >month_before<, did EPILIPSY interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote19< [Programming Note: If (>asthma< not equal 1, go to >e_ProgNote20<]

>asthma_int< "During >month_before<, did ASTHMA interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote20< [Programming Note: If (>allergies< not equal 1, go to >gen_health<]

>allergies_int< "During >month_before<, did ALLERGIES interfere with any of >his_her< regular activities?"

1 Yes 8 Unknown
3 No 9 Refusal

>gen_health< "During >month_before<, how would you rate >first_name's< general state of health: excellent, good, average, fair or poor?"

1 Excellent 5 Poor
2 Good 8 Unknown
3 Average 9 Refusal
4 Fair

>height_feet< "During that month, what was >his_her< approximate height?

In FEET"

___ 1-7
8 Unknown
9 Refusal

>height_inches< "and INCHES"

___ 0-11
98 Unknown
99 Refusal

>weight< "What was >his_her< approximate weight?"

_____ 1-400
998 Unknown
999 Refusal

>hand< ">is_are< >he_she< Right-handed, Left-handed or Ambidextrous?"

1 right handed 8 Unknown
2 left handed 9 Refusal
3 ambidextrous

>medication< "During >month_before<, did >Title< REGULARLY take ANY of the following medications?
Regularly means DAILY for at LEAST ONE WEEK, or 3-4 TIMES per week during the month."

1 Continue

>allergies_med< "Antihistamines, or allergy medications, such as Actifed, Allerest, Allegra, Claritin or Benadryl?"

1 Yes 8 Unknown
3 No 9 Refusal

>prepain_med< "Prescription pain medication such as Tylenol #3, codeine, phenylbutazone, Darvocet, Lortab or Ansaid?"

1 Yes 8 Unknown
3 No 9 Refusal

>otcpain_med< "Over the counter (OTC) pain relievers, such as aspirin, Advil, Aleve, Orudis or Tylenol?"

1 Yes 8 Unknown
3 No 9 Refusal

>ritalin_med< "Ritalin or other medicine for treatment of hyperactivity?"

1 Yes 8 Unknown
3 No 9 Refusal

>heart_med< "Heart medication?"

1 Yes 8 Unknown
3 No 9 Refusal

>blood_med< "Blood Pressure medications?"

1 Yes 8 Unknown
3 No 9 Refusal

>depress_med< "Anti-depressants / Mood elevators?"

1 Yes 8 Unknown
3 No 9 Refusal

>diet_med< "Amphetamines, decongestants, or pep pills, including diet pills?"

1 Yes 8 Unknown
3 No 9 Refusal

>insulin_med< "Insulin?"
1 Yes 8 Unknown
3 No 9 Refusal

>tranq_med< "Tranquilizers, sedatives, sleeping medications, such as Valium or Diazepam?"
1 Yes 8 Unknown
3 No 9 Refusal

>antibiotics_med< "Antibiotics, such as penicillin, erythromycin, tetracycline or sulfa drugs?"
1 Yes 8 Unknown
3 No 9 Refusal

>diuretics_med< "Diuretics or water pills?"
1 Yes 8 Unknown
3 No 9 Refusal

>introduction14a< "The next questions are about >first_name's< sleep and exercise patterns during >month_before<."
1 Continue

>sleep1< "During that month, on average, how many hours of sleep did >he_she< get each night?"
__ 1-24 hours
98 Unknown
99 Refusal

>sleep2< "How often was it difficult for >him_her< to wake up on mornings >he_she< needed to be up for chores, work or school: never, sometimes, often or always?"
1 Never 4 Always
2 Sometimes 8 Unknown
3 Often 9 Refusal

>sleep3< "How often was it difficult for >him_her< to go to sleep at night, such as taking more than an hour to get to sleep: never, sometimes, often or always?"
1 Never 4 Always
2 Sometimes 8 Unknown
3 Often 9 Refusal

>exercise< "During >month_before<, did >Title< actively participate in any regular exercise at least 3 days a week, for twenty minutes or more, that made >him_her< sweat?"
1 Yes 8 Unknown
3 No 9 Refusal

>introduction15< "The next few questions ask about YOUR experience in strictness with >Title<. We recognize that parents differ in how strict they are with their children because of children's abilities at different ages.
Prior to >month<, how STRICT were you about the FOLLOWING: not strict, somewhat strict, moderately strict or very strict?"
1 Continue

>strict1< "Knowing where >he_she< was?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict2< "Knowing who >he_she< was with when >he_she< was out?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict3< "Making certain that >he_she< used a seatbelt or car seat when riding or driving in a car or other motor vehicle?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict4< "Making certain that >he_she< used farm equipment safely?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>strict5< "Making certain that >he_she< worked safely around animals?"

- | | | | |
|---|-------------------|---|---------|
| 1 | Not Strict | 7 | N/A |
| 2 | Somewhat Strict | 8 | Unknown |
| 3 | Moderately Strict | 9 | Refusal |
| 4 | Very Strict | | |

>e_ProgNote21< [*Programming Note: If (>age< < 5) go to >introduction16b<*]

>introduction16< "The next questions are about your perception of >first_name's< behaviors or actions during >month_before<. Choose the answer that best describes HOW OFTEN the following happened or WAS TRUE of >him_her< during that month. Would you say that >he_she< ALMOST NEVER, SOMETIMES, OFTEN or ALMOST ALWAYS..."

1 Continue

>complete< "Completed >his_her< work and chores?"

- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |

>followrules< "Followed rules?"

- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |

- >thinking<** "Acted without thinking?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >fights<** "Got into fights?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >hard<** "Worked hard?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >impulse<** "Was impulsive?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >broke<** "Broke rules?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >careful<** "Liked to plan carefully before going ahead?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >still<** "Couldn't sit still?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >distract<** "Was easily distracted?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >cautious<** "Was cautious?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |
- >irritable<** "Was irritable?"
- | | | | |
|---|--------------|---|---------------|
| 1 | Almost never | 4 | Almost always |
| 2 | Sometimes | 8 | Unknown |
| 3 | Often | 9 | Refusal |

>runaway< "Left the house or farm without permission?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>attention< "Paid attention?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>sad< "Looked sad or down?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>bully< "Bullied or was mean to others?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>energy< "Had low energy?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>conc< "Had good concentration?"

1	Almost never	4	Almost always
2	Sometimes	8	Unknown
3	Often	9	Refusal

>introduction16b< "The next questions are about stress >Title<, you and the rest of your family experienced during the three months PRIOR TO >month<: NOT STRESSFUL, SOMEWHAT STRESSFUL, MODERATELY STRESSFUL or VERY STRESSFUL."

1 *Continue*

>stress1< "During that period, how stressful did you feel life was for >Title<?"

1	Not stressful	4	Very stressful
2	Somewhat stressful	8	Unknown
3	Moderately stressful	9	Refusal

>stress2< "How stressful did you feel life was for you?"

1	Not stressful	4	Very stressful
2	Somewhat stressful	8	Unknown
3	Moderately stressful	9	Refusal

>stress3< "How stressful did you feel life was for your family?"

1	Not stressful	4	Very stressful
2	Somewhat stressful	8	Unknown
3	Moderately stressful	9	Refusal

>introduction17< "The next questions are about children and their abilities as they mature. When you are deciding whether a child is READY to do a new chore on the farm or ranch, HOW IMPORTANT are each of the following in making that decision? NOT IMPORTANT, SOMEWHAT IMPORTANT, MODERATELY IMPORTANT or VERY IMPORTANT?"

1 Continue

>ready1< "How important is the child's age?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready2< "The size of the child?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready3< "Whether the child is a boy or a girl?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready4< "The maturity of the child, or how responsible the child is?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready5< "How important are the skills of the child?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready6< "The danger level of the task, or new chore?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready7< "Prior formal training of the child, such as 4-H or Vo-Ag training?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready8< "Other training of the child, by people involved in YOUR operation?"

- | | |
|------------------------|------------------|
| 1 Not important | 4 Very important |
| 2 Somewhat important | 8 Unknown |
| 3 Moderately important | 9 Refusal |

>ready_othr< "Are there any other characteristics about a child that you consider important in deciding if they are ready for a new chore?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >safety1<) |
| 3 No (go to >safety1<) | 9 Refusal (go to >safety1<) |

>ready_specify< "Please specify." _____

>safety1< "In your opinion, at what age would an average young person be ready to work with animals (including beef cattle, dairy cattle and swine)--- feeding, cleaning, etc.?"

- ___ 0-19 years
- 98 Unknown
- 99 Refusal

>safety2< "At what age would a child be ready to ride on or in a tractor?"

- ___ 0-19 years
- 98 Unknown
- 99 Refusal

>safety3< "At what age would a child be ready to drive or operate a tractor?"

- ___ 0-19 years
- 98 Unknown
- 99 Refusal

>introduction18< "Next I would like to ask about chores or farmwork >Title< may have performed on YOUR farming or ranching operation, during >month_before<."

1 Continue

>chores_many< "During that month, would you say that >he_she< did as many chores or farmwork as were expected by the family, more chores or less chores than were expected?"

- 0 N/A – None were expected (go to >introduction19<)
- 1 Did less than expected
- 2 Did about what was expected
- 3 Did more than expected
- 8 Unknown
- 9 Refusal

>chores_well< "How well would you say that >he_she< performed the chores or farmwork that were expected by the family? Better than expected, about what was expected or worse than expected?"

- 1 Did worse than expected
- 2 Did about what was expected
- 3 Did better than expected
- 8 Unknown
- 9 Refusal

>introduction19< "The next few questions are about YOUR farming or ranching operation."

1 Continue

>farming1< "Prior to >month<, how many years had you been farming or ranching?"

- 0 < 0 year
- ___ 1-90 years
- 98 Unknown
- 99 Refusal

>firearms3< "How many were rifles?"

- 0-97
- 98 Unknown
- 99 Refusal

>firearms4< "How many were handguns?"

- 0-97
- 98 Unknown
- 99 Refusal

>enterpr< "Please estimate your 1998 net household income, after taxes, from all sources. Would it be:"
[Enumerator: Read list of possible answers.]

- 1 Less than \$15,000
- 2 \$15,000 - \$29,999
- 3 \$30,000 - \$49,999
- 4 \$50,000 - \$99,999
- 5 \$100,000 - \$174,999
- 6 \$175,000 - \$249,999
- 7 \$250,000 or more
- 8 Unknown
- 9 Refusal

>prevent1< "Do you believe that some farming or ranching operation-related injuries can be prevented?"

- 1 Yes
- 2 No
- 3 No (go to >prevent3<)
- 8 Unknown (go to >intro<)
- 9 Refusal (go to >intro<)

>prevent2< "What are the two main things you think can be done to prevent injuries that occur on the farm or ranch?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

(go to >intro<)

>prevent3< "Why is it that you feel they can't be prevented?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

(go to >intro<)

Exposure Section – Part II

Respondent Selection Process

>intro< "In the next series of questions, I will be asking questions about selected people who HAD AN INJURY BETWEEN JULY 1st, 1999 and DECEMBER 31, 1999 as well as selected people who DID NOT HAVE AN INJURY during that period. This will provide important information on factors that may either cause an injury or protect people from injury and can be used to develop effective prevention programs."

>e_ProgNote22< [Programming Note: Set **>Exp_Resp<** = **>Cur_Resp<**]
If (**>Age<** ≥ 12 years old)
 go to **>child_permission<**
Else If (**>Exp_Resp<** = 2)
 go to **>Introduction>**
Else
 go to **>best_respondent1<**
End If]

>child_permission< "May I speak with **>Title<** to ask some questions about **>his_her<** activities on the farm or ranch? The interview should take approximately 20 minutes."

- 1 Yes (go to **>inf_consent4a<**)
- 3 No
- 5 Parent agrees, but child is not available (go to **>callback<**)

>e_ProgNote23< [Programming Note: If (**>Exp_Resp<** not equal 2) go to **>best_respondent2<**]

>cont_resp< "In that case, we would like to ask you the remaining questions. You can have someone else assist with the answers, if you wish."

- 1 go to **>Introduction<**

>best_respondent1< "We would like to speak with the adult in your household who knows the most about **>first_name's<** farming or ranching related activities and how many hours **>he_she<** spent on these activities during **>month_before<**. Would that be you or the male head of household?"

- 1 Current respondent – Female head of household (go to **> Introduction<**)
- 3 Male head of household (go to **>get_other<**)
- 5 Someone Else (go to **>want_HH<**)
- 9 Refusal (go to **>exp_end2<**)

>best_respondent2< "In that case, we would like to speak with the adult in your household who knows the most about **>first_name's<** farming or ranching related activities and how many hours **>he_she<** spent on these activities during **>month_before<**. Would that be you or the male head of household?"

- 1 Current respondent – Female head of household (go to **> Introduction<**)
- 3 Male head of household (go to **>get_other<**)
- 5 Someone Else (go to **>want_HH<**)

- >want_HH<** "We prefer to ask these questions only of the female head of household or the male head of household, but you can certainly have someone else assist with the answers. Can you continue with these questions, or should I speak with the male head of household?"
- 1 Continue with current respondent – Female head of household (*go to > Introduction<*)
 - 3 Male head of household (*go to >get_other<*)
 - 9 Refusal (*go to >exp_end2<*)
- >get_other<** "Is he available now to answer questions?" ("May I speak with him?")
- 1 Yes, he comes to the phone (*go to >inf_consent5a<*)
 - 3 No, he's not willing to answer (*go to >cont_resp<*)
 - 5 No, he's not available
- >willing<** "Since he's not available to answer these questions now, would you be willing to try to answer these questions for us? You can have someone else assist with the answers, if you wish."
- 1 Yes (*go to > Introduction<*)
 - 3 No (*go to >callback<*)
 - 9 Refusal (*go to >exp_end2<*)
- >inf_consent4a<** "Hello, this is >EnumName< calling for the >StateName< Agricultural Statistics Service. We are conducting a project with the University of Minnesota on farming and ranching operations. >Who_Pi< agreed to have your household participate in this project and has been answering questions about who resides in your household, some characteristics of your operation and any injuries that may have occurred."
- 1 Continue
- >inf_consent4b<** "We would like to ask you some questions about your activities on your farming or ranching operation. You do not have to answer these questions but your cooperation is important for us to get accurate information. If you are uncomfortable with any question, you may choose not to answer that one, and we will move on to the next question. All the information we collect is confidential. Would you be willing to help us by answering some questions about your activities on the farm or ranch?"
- 1 Yes [*Set: >Exp_Resp2< = 3;(go to >Introduction<)*]
 - 3 No [*If (>Age< ≥ 18) go to >reasonc<*]
- >HHLog_back<** "Would you be able to put >Who_Pi< back on the phone so I may speak with him/her?"
- 1 Yes, prior respondent comes back
 - 3 No (*go to >callback<*)
- >HHLog_again<** ">Title< has requested not to be interviewed."
- 1 *go to >best_respondent2<*
- >reasonc<** "May I ask why you prefer not to continue at this time?"
- 1 Doesn't have time now (*go to >callback<*)
 - 2 Isn't comfortable with the questions (*go to >reconsider5c<*)
 - 3 Can't see the value of the interview (*go to >reconsider6c<*)
 - 4 No clear reason, just refuses (*go to >reconsider7c<*)
- >reconsider5c<** "If you are uncomfortable with any question, we can skip that one and go on to another. Would you be willing to continue if we skip the questions you prefer not to answer?"

- 1 Yes [Set: >Exp_Resp< = 3;(go to >Introduction<)]
- 3 No (go to >exp_end2<)

>reconsider6c< "The results of this project will be used to develop effective injury prevention programs that will benefit all farming and ranching households. It is important that we interview all eligible households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries. May we continue?"

- 1 Yes [Set: >Exp_Resp2< = 3;(go to >Introduction<)]
- 3 No (go to >exp_end2<)

>reconsider7c< "The results of this project will be used to develop effective injury prevention programs that will benefit all farming and ranching households. It is important that we interview all eligible households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries. If you are uncomfortable with any question, we can skip that one and go on to another. Or we can call back at a time that is more convenient. May we continue, or would you prefer that we call back?"

- 1 Yes, continue [Set: >Exp_Resp2< = 3;(go to >Introduction<)]
- 3 No, refuses to continue (go to >exp_end2<)
- 5 Schedule a callback (go to >callback<)

>inf_consent5a< "Hello, this is >EnumName< calling for the >StateName< Agricultural Statistics Service. We are conducting a project with the University of Minnesota on farming and ranching operations. >Who_Pi< agreed to have your household participate in this project and has been answering questions about who resides in your household, some characteristics of your operation and any injuries that may have occurred."

- 1 Continue

>inf_consent5b< "We would like to ask some questions about >first_name's< activities on your farming or ranching operation. You do not have to answer these questions but your cooperation is important for us to get accurate information. If you are uncomfortable with any question, you may choose not to answer that one, and we will move on to the next question. All the information we collect is confidential. Would you be willing to help us by answering some questions about >first_name's< activities on the farm or ranch?"

- 1 Yes [Set: >Exp_Resp2< = 2;(go to >Introduction<)]
- 3 No

>HHLog_back2< "Would you be able to put >Who_Pi< back on the phone so I may speak with him/her?"

- 1 Yes, prior respondent comes back
- 3 No (go to >callback<)

>HHLog_again2< ">Title< has requested not to be interviewed."

- 1 go to >cont_resp<

.....

Exposure Section – Part II

Interview

>introduction< “In this section we would like to ask some questions about chores or work >Title< did. These questions relate specifically to FARMWORK, and by farmwork I mean any activities connected with your farming or ranching operation, either on or off the farm/ranch, including driving to town to get supplies. This will also include information about working with animals, driving vehicles, operating farm machinery and other tasks. Some of the questions will be general, while others will ask about a certain month of the year.”

1 Continue

>farmwork< “During >month_before<, did >Title< work in any type of activities or do chores related to YOUR operation?”

- | | |
|-------------------------|------------------------------|
| 1 Yes | 8 Unknown (go to >othrfarm<) |
| 3 No (go to >othrfarm<) | 9 Refusal (go to >othrfarm<) |

>wks_farmwork< “During that month, HOW MANY WEEKS did >he_she< work on these activities?”

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs_farmwork< “On average, how many HOURS PER WEEK?”

- | |
|-----------------|
| ___ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>othrfarm< “During >month_before<, did >Title< work in any type of activities or do chores related to SOMEONE ELSE'S farming or ranching operation?”

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote24<) |
| 3 No (go to >e_ProgNote24<) | 9 Refusal (go to >e_ProgNote24<) |

>wks_othrfarm< “During that month, HOW MANY WEEKS did >he_she< work on these activities?”

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs_othrfarm< “On average, how many HOURS PER WEEK?”

- | |
|-----------------|
| ___ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>e_ProgNote24< [Programming Note: If (>farmwork< not equal 1) go to >bystanding1<]

>introduction2< “The following questions are about work or chores >Title< did with animals on YOUR farming or ranching operation during >month_before<.”

1 Continue

>animals< "During that month, did >he_she< work or do chores with ANY TYPE of animals?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >bystanding1<) |
| 3 No (go to >bystanding1<) | 9 Refusal (go to >bystanding1<) |

>dairy< "Did >he_she< work or do chores with any type of dairy cattle? (Do not include dairy steers.)"

- | | |
|---------------------|--------------------------|
| 1 Yes | 8 Unknown (go to >beef<) |
| 3 No (go to >beef<) | 9 Refusal (go to >beef<) |

>dairy1< "Which of the following types of dairy cattle did >he_she< work with:

A dairy cow with it's newborn calf or calves?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>dairy2< "A dairy calf away from it's mother?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>dairy3< "Dairy bulls?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>dairy4< "Dairy cows or heifers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>act1_dairy< "The next questions are about >his_her< activities when working with dairy cattle on YOUR operation. During >month_before<, which of the following did >he_she< do:

Feed the dairy cattle?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >act2_dairy<) |
| 3 No (go to >act2_dairy<) | 9 Refusal (go to >act2_dairy<) |

>wks1_dairy< "For HOW MANY WEEKS?"

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs1_dairy< "On average, how many HOURS PER WEEK?"

- | |
|-------------------|
| _____ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>act2_dairy< "Did >he_she< milk the cows?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >act3_dairy<) |
| 3 No (go to >act3_dairy<) | 9 Refusal (go to >act3_dairy<) |

>wks2_dairy< "For HOW MANY WEEKS?"

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs2_dairy< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>act3_dairy< "Did >he_she< clean inside the barn, including the stalls?"

1 Yes 8 Unknown (go to >act4_dairy<)
3 No (go to >act4_dairy<) 9 Refusal (go to >act4_dairy<)

>wks3_dairy< "For HOW MANY WEEKS?"

__ 1-4 weeks
8 Unknown
9 Refusal

>hrs3_dairy< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>act4_dairy_i< "Which of the following OTHER activities did >he_she< do with dairy cattle?"

[Enumerator: Read list of possible answers and enter multiple responses, for i = 1-9]

0 None	6 Branding
1 Calving	7 Butchering
2 Footwork	8 Castration
3 Herding, moving, loading, or unloading cattle	9 Other
4 Giving medical treatments, including injections	98 Unknown
5 Dehorning	99 Refusal

>e_ProgNote25< [Programming Note:

If (>act4_dairy_1< = 0)

go to >beef<

Else If (>act4_dairy_1< = 9 or >act4_dairy_2< = 9 or >act4_dairy_3< = 9 or
>act4_dairy_4< = 9 or >act4_dairy_5< = 9 or >act4_dairy_6< = 9 or >act4_dairy_7<
= 9 or >act4_dairy_8< = 9 or >act4_dairy_9< = 9)

go to >act_dairy_specify<

Else

go to >wks4_dairy<

End If]

>act_dairy_specify< "Specify other activity." _____

>wks4_dairy< "During that month, HOW MANY WEEKS did >he_she< do any of these OTHER activities, with the dairy cattle?"

__ 1-4 weeks
8 Unknown
9 Refusal

>hrs4_dairy< "On average, how many HOURS PER WEEK?"

_____ 1-130 hours
998 Unknown
999 Refusal

>beef< "During >month_before<, did >Title< work or do chores with any type of beef cattle, including dairy steers, on YOUR operation?"

- | | |
|----------------------|---------------------------|
| 1 Yes | 8 Unknown (go to >swine<) |
| 3 No (go to >swine<) | 9 Refusal (go to >swine<) |

>beef1< "Which of the following types of beef cattle did >he_she< work with:

A beef cow with it's newborn calf or calves?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef2< "A beef calf away from it's mother?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef3< "Beef bulls?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef4< "Beef cows or heifers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>beef5< "Steers, including both dairy and beef steers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>act1_beef< "The next questions are about >his_her< activities when working with beef cattle on YOUR operation. During >month_before<:

Did >he_she< feed the beef cattle?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>act3_beef_i< "Which of the following OTHER activities did >he_she< do with the beef cattle?"
[Enumerator: Read list of possible answers and enter multiple responses, for i = 1-9]

- | | |
|---|--------------|
| 0 None | 6 Branding |
| 1 Calving | 7 Butchering |
| 2 Footwork | 8 Castration |
| 3 Herding, moving, loading, or unloading cattle | 9 Other |
| 4 Giving medical treatments, including injections | 98 Unknown |
| 5 Dehorning | 99 Refusal |

>e_ProgNote26< [Programming Note:

If (>act3_beef₁< = 9 or >act3_beef₂< = 9 or >act3_beef₃< = 9 or >act3_beef₄< = 9 or >act3_beef₅< = 9 or >act3_beef₆< = 9 or >act3_beef₇< = 9 or >act3_beef₈< = 9 or >act3_beef₉< = 9)

go to >act_beef_specify<

Else

go to >wks_beef<

End If]

>act_beef_specify< "Specify other activity." _____

>wks_beef< "During that month, HOW MANY WEEKS did >he_she< do any activities with the beef cattle?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_beef< "On average, how many HOURS PER WEEK?"

- _____ 1-130 hours
- 998 Unknown
- 999 Refusal

>swine< "During >month_before<, did >Title< work or do chores with any type of swine or pigs, on YOUR operation?"

- 1 Yes
- 3 No (go to >othranimal<)
- 8 Unknown (go to >othranimal<)
- 9 Refusal (go to >othranimal<)

>swine_1< "Which of the following types of swine did >he_she< work with:

Sows with piglets?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>swine_2< "Sows without piglets / gilt?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>swine_3< "Feeder pigs?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>swine_4< "Boars?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act1_swine< "The next questions are about >his_her< activities when working with swine on YOUR operation. During >month_before<, did >he_she<:

Feed the swine?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act2_swine< "Clean the pens or crates?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act3_swine< "Move, load or unload the swine?"

- 1 Yes
- 3 No
- 8 Unknown
- 9 Refusal

>act4_swine1< "Which of the following OTHER activities did >he_she< do with the swine:"
[Enumerator: Read list of possible answers and enter multiple responses, for i = 1-4]

- | | |
|---|-----------|
| 0 None | 4 Other |
| 1 Giving medical treatments, including injections | 8 Unknown |
| 2 Butchering | 9 Refusal |
| 3 Castration | |

>e_ProgNote27< [Programming Note:
If (>act4_swine1< = 4 or >act4_swine2< = 4 or >act4_swine3< = 4 or
>act4_swine4< = 4)
go to >act_swine_specify<
Else
go to >wks_swine<
End If]

>act_swine_specify< "Specify other activity." _____

>wks_swine< "During that month, HOW MANY WEEKS did >he_she< do any activities with the swine?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_swine< "On average, how many HOURS PER WEEK?"

- ___ 1-130 hours
- 998 Unknown
- 999 Refusal

>othranimal< "During >month_before<, did >Title< work or do chores with any other type of livestock or animals, including horses, sheep, or poultry, on YOUR operation?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >riskanimal<) |
| 3 No (go to >riskanimal<) | 9 Refusal (go to >riskanimal<) |

>horse< "Did >he_she< work with any horses?"

- | | |
|----------------------|---------------------------|
| 1 Yes | 8 Unknown (go to >sheep<) |
| 3 No (go to >sheep<) | 9 Refusal (go to >sheep<) |

>horse_1< "Did >he_she< work with stallions or stud horses?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>othrhorse< "Did >he_she< work with any other types of horses?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>wks_horse< "During that month, HOW MANY WEEKS did >he_she< work with the horses?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_horse< "On average, how many HOURS PER WEEK?"

>introduction3a< "In the following questions I will be asking if, during >month_before<, >Title< operated or rode, IN OR ON, any motor vehicles, FOR ACTIVITIES DIRECTLY RELATED TO YOUR FARMING OR RANCHING OPERATION."

1 Continue

>motorveh1< "During that month, did >he_she< operate a car, van, sport utility vehicle, pickup truck, grain truck or other truck?"

- | | |
|-------------------------|------------------------------|
| 1 Yes | 8 Unknown (go to >vehride1<) |
| 3 No (go to >vehride1<) | 9 Refusal (go to >vehride1<) |

>wks_motorveh1< "For HOW MANY WEEKS did >he_she< operate any of these vehicles?"

- | |
|--------------|
| __ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs_motorveh1< "On average, how many HOURS PER WEEK?"

- | |
|-------------------------------------|
| ____ 1-130 hours (go to >vehride1<) |
| 998 Unknown (go to >vehride1<) |
| 999 Refusal (go to >vehride1<) |

>introduction3b< "In the following questions I will be asking if, during >month_before<, >Title< rode, IN OR ON, any motor vehicles, FOR ACTIVITIES DIRECTLY RELATED TO YOUR FARMING OR RANCHING OPERATION."

1 Continue

>vehride1< "Did >he_she< ride as a passenger in a car, van, sport utility vehicle, pickup truck, grain truck or other truck?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote29<) |
| 3 No (go to >e_ProgNote29<) | 9 Refusal (go to >e_ProgNote29<) |

>wks_vehride1< "For HOW MANY WEEKS did >he_she< ride in any of these vehicles?"

- | |
|--------------|
| __ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>hrs_vehride1< "On average, how many HOURS PER WEEK?"

- | |
|------------------|
| ____ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>e_ProgNote29< [Programming Note:

if (>motorveh1< not equal 1 and >vehride1< not equal 1)
go to >motorveh2<
Else If (>Age< ≥ 5)
go to >seatbelt2<
End If]

>seatbelt1< "When they rode in one of these vehicles, how often did they wear a seatbelt or use a car safety seat? Never, seldom, sometimes, nearly always or always?"

- | | | | |
|---|-----------------------------------|---|-----------------------------|
| 1 | Never (go to >motorveh2<) | 5 | Always (go to >motorveh2<) |
| 2 | Seldom (go to >motorveh2<) | 8 | Unknown (go to >motorveh2<) |
| 3 | Sometimes (go to >motorveh1<) | 9 | Refusal (go to >motorveh2<) |
| 4 | Nearly always (go to >motorveh2<) | | |

>seatbelt2< "When >he_she< operated or rode in one of these vehicles, how often did >he_she< wear a seatbelt? Never, seldom, sometimes, nearly always or always?"

- | | | | |
|---|---------------|---|---------|
| 1 | Never | 5 | Always |
| 2 | Seldom | 8 | Unknown |
| 3 | Sometimes | 9 | Refusal |
| 4 | Nearly always | | |

>motorveh2< "During >month_before<, did >he_she< operate or ride on a motorcycle, all terrain vehicle (ATV or ATC) or snowmobile?"

- | | | | |
|---|--------------------------|---|-------------------------------|
| 1 | Yes | 8 | Unknown (go to >bystanding5<) |
| 3 | No (go to >bystanding5<) | 9 | Refusal (go to >bystanding5<) |

>wks_motorveh2 "During that month, HOW MANY WEEKS did >he_she< operate or ride on any of these vehicles?"

- ___ 1-4 weeks
- 8 Unknown
- 9 Refusal

>hrs_motorveh2< "On average, how many HOURS PER WEEK?"

- ___ 1-130 hours
- 998 Unknown
- 999 Refusal

>helmet< "When they operated or rode in ANY of these vehicles, how often did they wear a helmet? Never, seldom, sometimes, nearly, always or always?"

- | | | | |
|---|---------------|---|---------|
| 1 | Never | 5 | Always |
| 2 | Seldom | 8 | Unknown |
| 3 | Sometimes | 9 | Refusal |
| 4 | Nearly always | | |

>bystanding5< "During >month_before<, how often >was_were< >he_she< watching activities, playing or standing around, but not working, in the driveway. Never, sometimes or frequently?"

- | | | | |
|---|------------|---|---------|
| 1 | Never | 8 | Unknown |
| 2 | Sometimes | 9 | Refusal |
| 3 | Frequently | | |

>e_ProgNote30< [Programming Note:
If (>farmwork< not equal 1)
go to >bystanding3<
Else If (>Age< < 5)
go to >introduction5<
End If]

>introduction4< "Now I will ask about work or chores >Title< did with large farm machinery, on YOUR farming or ranching operation, during >month_before<. By large machinery I mean tractors, tillage equipment, and other farm implements."

1 Continue

>tractor1< "During that month, did >he_she< operate any tractors greater than 20 horsepower, on your farming or ranching operation?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor2< "Did >he_she< operate any tractors 20 horsepower or less, on your farming or ranching operation? This does not include skid steer tractors?"

1 Yes 8 Unknown
3 No 9 Refusal

>e_ProgNote31< [Programming Note: If (>tractor1< not equal 1 and >tractor2< not equal 1) go to >tractor3<]

>tractor1_many< "How many of either of these tractors did >he_she< operate?"

___ 1-10 hours
98 Unknown
99 Refusal

>tractor1_wks "During that month, HOW MANY WEEKS did >he_she< operate EITHER of these types of tractors?"

___ 1-4 weeks
8 Unknown
9 Refusal

>tractor1_hrs< "On average, how many HOURS PER WEEK?"

___ 1-130 hours
998 Unknown
999 Refusal

>tractor1_PTO< "Did ANY of the tractors have a Power-Take-Off?"

1 Yes 8 Unknown (go to >tractor1_ROPS<)
3 No (go to >tractor1_ROPS<) 9 Refusal (go to >tractor1_ROPS<)

>tractor1_shield< "Did ALL of THESE have a PTO shield in place when >he_she< used it?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor1_PTODrive< "Did ANY of the tractors use a PTO to drive another piece of equipment?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor1_conn< Did >he_she< connect an implement to ANY of the PTOs?"

1 Yes 8 Unknown
3 No 9 Refusal

>tractor1_ROPS< "Did ALL of the tractors have an approved Roll Over Protective Structure? This could include a 2 or 4 post frame or a cab with a built-in ROP structure."

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>tractor3< "During >month_before<, did >he_she< operate ANY skid steer tractors, such as a Bobcat?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote32<) |
| 3 No (go to >e_ProgNote32<) | 9 Refusal (go to >e_ProgNote32<) |

>tractor3_wks "During that month, HOW MANY WEEKS did >he_she< operate this type of tractor?"

- | |
|---------------|
| ___ 1-4 weeks |
| 8 Unknown |
| 9 Refusal |

>tractor3_hrs< "On average, how many HOURS PER WEEK?"

- | |
|-----------------|
| ___ 1-130 hours |
| 998 Unknown |
| 999 Refusal |

>e_ProgNote32< [Programming Note: If (>tractor1< not equal 1 and >tractor2< not equal 1 and >tractor3< not equal 1) go to >introduction5<]

>tractor_age< "At what age did >Title< begin to drive or operate any type of tractor on your operation?"

- | |
|------------|
| ___ 1-19 |
| 98 Unknown |
| 99 Refusal |

>tractor_risk< "PRIOR to >month<, how much risk of injury did you believe there was for >Title< when RIDING ON OR WORKING WITH tractors on YOUR operation? No risk, some risk, moderate risk, or a lot of risk"

- | | |
|-----------------|-----------------|
| 1 No risk | 4 A lot of risk |
| 2 Some risk | 8 Unknown |
| 3 Moderate risk | 9 Refusal |

>introduction5< "In the following questions, I will ask about time >Title< spent RIDING ON a tractor, as a passenger or as a helper, on YOUR farming or ranching operation, during >month_before<."

- | |
|------------|
| 1 Continue |
|------------|

>ride_tractor< "During that month, did >he_she< ride on/in ANY type of tractor as a passenger or helper?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote35<) |
| 3 No (go to >e_ProgNote35<) | 9 Refusal (go to >e_ProgNote35<) |

>ridetractor1< "Did >he_she< ride on/in any tractor greater than 20 horsepower?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>ridetractor2< "During >month_before<, did >Title< ride on/in any tractor 20 Horsepower or less?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>e_ProgNote33< [Programming Note: If (>ridetractor1< not equal 1 and >ridetractor2< not equal 1) go to >ridetractor3<]

>ridetractor1_wks "During that month, HOW MANY WEEKS did >he_she< ride on EITHER of these types of tractors?"

___ 1-4 weeks
8 Unknown
9 Refusal

>ridetractor1_hrs< "On average, how many HOURS PER WEEK?"

___ 1-130 hours
998 Unknown
999 Refusal

>ride1_cab< "Did ALL of the tractors have an approved Roll Over Protective Structure? This could include a 2 or 4 post frame or a cab with a built-in ROP structure."

1 Yes 8 Unknown
3 No 9 Refusal

>ride1_impl1< "Was an implement connected to any of the tractors?"

1 Yes 8 Unknown (go to >ridetractor3<)
3 No (go to >ridetractor3<) 9 Refusal (go to >ridetractor3<)

>ride1_impl2< "Did >he_she< ride on any of the implements connected to the tractors?"

1 Yes 8 Unknown
3 No 9 Refusal

>ridetractor3< "During >month_before<, did >Title< ride on any skid steer tractor, such as a Bobcat?"

1 Yes 8 Unknown (go to >e_ProgNote34<)
3 No (go to >e_ProgNote34<) 9 Refusal (go to >e_ProgNote34<)

>ridetractor3_wks "During that month, HOW MANY WEEKS did >he_she< ride on/in this type of tractor?"

___ 1-4 weeks
8 Unknown
9 Refusal

>ridetractor3_hrs< "On average, how many HOURS PER WEEK?"

___ 1-130 hours
998 Unknown
999 Refusal

>e_ProgNote34< [Programming Note: If (>ridetractor1< not equal 1 and >ridetractor2< not equal 1 and >ridetractor3< not equal 1) go to e_ProgNote35<]

>tractor_age2< "At what age did >Title< begin to ride on/in ANY type of tractor on YOUR operation?"

___ 1-19
98 Unknown
99 Refusal

>e_ProgNote35< [Programming Note: If (>Age< < 5) go to >bystanding3<]

>training1< "PRIOR to >month<, did >month< ever take a 4-H or Vo-Ag training program to learn to operate a tractor?"

- | | |
|------------------------------|-----------------------------------|
| 1 Yes | 8 Unknown (go to >introduction6<) |
| 3 No (go to >introduction6<) | 9 Refusal (go to >introduction6<) |

>training2a< "PRIOR to >month<, when did the most recent training take place?

What year?"

- | | |
|-------|-----------|
| _____ | 1980-1999 |
| 9998 | Unknown |
| 9999 | Refusal |

>training2b< "What month?"

- | | |
|----|---------|
| __ | 1-12 |
| 98 | Unknown |
| 99 | Refusal |

>training3< "How many hours of training did this involve?"

- | | |
|-------|-------------|
| _____ | 1-130 hours |
| 998 | Unknown |
| 999 | Refusal |

>introduction6< "Next I will ask about LARGE EQUIPMENT that >Title< may have worked with on YOUR farming or ranching operation, during >month_before<.

1 Continue

>largemach< "During that month, did >he_she< operate or help to operate ANY large pieces of machinery or equipment, such as any tillage, planting or harvesting equipment, augers, elevators, feed grinders, mixers or wagons?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >largemach2<) |
| 3 No (go to >largemach2<) | 9 Refusal (go to >largemach2<) |

>tillage_scr< "Did >he_she< operate or help to operate any tillage equipment, such as discs, field cultivators or plows?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >planting_scr<) |
| 3 No (go to >planting_scr<) | 9 Refusal (go to >planting_scr<) |

>tillage0< "Did >he_she< operate or help to operate any powered tillers?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >tillage<) |
| 3 No (go to >tillage<) | 9 Refusal (go to >tillage<) |

>tillage_PTO< "Did ANY of the powered tillers have a Power-Take-Off?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >tillage<) |
| 3 No (go to >tillage<) | 9 Refusal (go to >tillage<) |

>tillage_shield< "Were ALL of the PTOs on the powered tillers shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>tillage_i< "Which of the following other types of tillage equipment did >he_she< operate or help to operate?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-8]

- | | |
|-------------------------------------|-----------------------|
| 0 None – No other tillage equipment | 6 Row crop cultivator |
| 1 Disc | 7 Cultipacker |
| 2 Moldboard plow | 8 Other |
| 3 Field cultivator | 98 Unknown |
| 4 Chisel plow | 99 Refusal |
| 5 Rotary hoe | |

>e_ProgNote36< [Programming Note:

If (>tillage₁< = 8 or >tillage₂< = 8 or >tillage₃< = 8 or >tillage₄< = 8 or >tillage₅< = 8 or >tillage₆< = 8 or >tillage₇< = 8 or >tillage₈< = 8)

go to >tillage_specify<

Else

go to >planting_scr<

End If]

>tillage_specify< "Specify other." _____

>planting_scr< "During >month_before<, did >Title< operate or help to operate any planting equipment, such as planters or drills?"

- | | |
|-------------------------------|------------------------------------|
| 1 Yes | 8 Unknown (go to >harvesting_scr<) |
| 3 No (go to >harvesting_scr<) | 9 Refusal (go to >harvesting_scr<) |

>planting_i< "Which of the following types of planting equipment did >he_she< operate or help to operate?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-3]

- | | |
|-------------------------------------|-----------|
| 0 None – No other tillage equipment | 3 Other |
| 1 Planters | 8 Unknown |
| 2 Drills | 9 Refusal |

>e_ProgNote37< [Programming Note:

If (>planting₁< = 3 or >planting₂< = 3 or >planting₃< = 3)

go to >planting_specify<

Else

go to >planting_PTO<

End If]

>planting_specify< "Specify other." _____

>planting_PTO< "Did ANY of the planting equipment have a Power-Take-Off?"

- | | |
|-------------------------------|------------------------------------|
| 1 Yes | 8 Unknown (go to >harvesting_scr<) |
| 3 No (go to >harvesting_scr<) | 9 Refusal (go to >harvesting_scr<) |

>planting_shield< "Were ALL of the PTOs on the planting equipment shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>harvesting_scr< "During that month, did >he_she< operate or help to operate any harvesting equipment, such as combines or pickers?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >augers_scr<) |
| 3 No (go to >augers_scr<) | 9 Refusal (go to >augers_scr<) |

>harvesting< "Did >he_she< operate or help to operate any self-propelled combines?"

- | | |
|--------------------------------|-------------------------------------|
| 1 Yes | 8 Unknown (go to >harvesting2_scr<) |
| 3 No (go to >harvesting2_scr<) | 9 Refusal (go to >harvesting2_scr<) |

>combine_shield< "Were ALL of the moving parts of the combines shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>harvesting2_scr< "Did >he_she< operate or help to operate any other harvesting equipment connected to a tractor, such as a forage harvester, mower, baler, stacker, pull-type combine, corn picker or specialty harvester?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >augers_scr<) |
| 3 No (go to >augers_scr<) | 9 Refusal (go to >augers_scr<) |

>pickers_i< "Which of the following types of harvesting equipment did >he_she< operate or help to operate?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-8]

- | | |
|--|-----------------------|
| 0 None – No other harvesting equipment | 6 Row crop cultivator |
| 1 Disc | 7 Cultipacker |
| 2 Moldboard plow | 8 Other |
| 3 Field cultivator | 98 Unknown |
| 4 Chisel plow | 99 Refusal |
| 5 Rotary hoe | |

>e_ProgNote38< [Programming Note:
If (>pickers₁< = 8 or >pickers₂< = 8 or >pickers₃< = 8 or >pickers₄< = 8 or >pickers₅< = 8 or >pickers₆< = 8 or >pickers₇< = 8 or >pickers₈< = 8)
go to >pickers_specify<
Else
go to >pickers_PTO<
End If]

>pickers_specify< "Specify other." _____

>pickers_PTO< "Did ANY of these types of harvesting equipment have a Power-Take-Off?"

- | | |
|---------------------------|--------------------------------|
| 1 Yes | 8 Unknown (go to >augers_scr<) |
| 3 No (go to >augers_scr<) | 9 Refusal (go to >augers_scr<) |

>pickers_shield< "Were ALL of the PTOs on the harvesting equipment shielded?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>augers_scr< "During >month_before<, did >Title< operate or help to operate any augers or elevators?"

- | | |
|--------------------------------|-------------------------------------|
| 1 Yes | 8 Unknown (go to >feedgrinder_scr<) |
| 3 No (go to >feedgrinder_scr<) | 9 Refusal (go to >feedgrinder_scr<) |

>augers1< "Which of the following did >he_she< operate or help to operate:

Portable or fixed augers?"

1	Yes	8	Unknown
3	No	9	Refusal

>augers2< "Elevators or conveyors?"

1	Yes	8	Unknown
3	No	9	Refusal

>augers_PTO< "Did ANY of the augers or elevators have a Power-Take-Off?"

1	Yes	8	Unknown (go to >feedgrinder_scr<)
3	No (go to >feedgrinder_scr<)	9	Refusal (go to >feedgrinder_scr<<)

>augers_shield< "Were ALL of the PTOs on the implements shielded?"

1	Yes	8	Unknown
3	No	9	Refusal

>feedgrinder_scr< "During that month, did >he_she< operate or help to operate any feed grinders or mixers?"

1	Yes	8	Unknown (go to >wagons_scr<)
3	No (go to >wagons_scr<)	9	Refusal (go to >wagons_scr<<)

>feedgrinder1< "Which of the following did >he_she< operate or help to operate:

Feed grinders?"

1	Yes	8	Unknown
3	No	9	Refusal

>feedgrinder2< "Mixers?"

1	Yes	8	Unknown
3	No	9	Refusal

>feedgrinder_PTO< "Did ANY of the feed grinders or mixers have a Power-Take-Off?"

1	Yes	8	Unknown (go to >wagons_scr<)
3	No (go to >wagons_scr<)	9	Refusal (go to >wagons_scr<<)

>grinder_shield< "Were ALL of the PTOs on the feed grinders or mixers shielded?"

1	Yes	8	Unknown
3	No	9	Refusal

>wagons_scr< "During >month_before<, did >Title< work on or with any wagons, such as hay racks, forage wagons, gravity boxes or grain carts?"

1	Yes	8	Unknown (go to >largemach2<)
3	No (go to >largemach2<)	9	Refusal (go to >largemach2<<)

>wagons_i< "Which of the following types of wagons did >he_she< work on or with?" [Enumerator:
Read list of possible answers and enter multiple responses, for i = 1-5]

- | | |
|----------------|-----------|
| 1 Hay rack | 5 Other |
| 2 Forage wagon | 8 Unknown |
| 3 Gravity box | 9 Refusal |
| 4 Grain cart | |

>e_ProgNote39< [Programming Note:
If (>wagons₁< = 5 or >wagons₂< = 5 or >wagons₃< = 5 or >wagons₄< = 5 or
>wagons₅< = 5)
go to >wagons_specify<
Else
go to >wagons_PTO<
End If]

>wagons_specify< "Specify other." _____

>wagons_PTO< "Did ANY of the wagons have a Power-Take-Off?"

- | | |
|---------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >wagons_scr<) |
| 3 No (go to >wagons_scr<) | 9 Refusal (go to >wagons_scr<<) |

>wagons_shield< "Were all of the PTOs on the wagons shielded? "

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>largemach2< "During >month_before<, did >Title< operate or help to operate ANY equipment for irrigation,
chemical or fertilizer application, manure application, or other external or self-powered farm or
ranch equipment?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote40<) |
| 3 No (go to >e_ProgNote40<) | 9 Refusal (go to >e_ProgNote40<) |

>irrigation< "Which of the following did >he_she< operate or help to operate:
Irrigation equipment?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>manure< "Manure application equipment?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>externalpower< "Other equipment powered by an external source, such as silage or forage blowers, or
grain dryers?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>selfpower< "Other self-powered equipment, such as back-hoes, caterpillars, forklifts, or earth moving
equipment?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>largemach2_PTO< "Did ANY of the these types of equipment have a Power-Take-Off?"

- | | |
|-----------------------------|----------------------------------|
| 1 Yes | 8 Unknown (go to >e_ProgNote40<) |
| 3 No (go to >e_ProgNote40<) | 9 Refusal (go to >e_ProgNote40<) |

>largemach2_shield< "Were ALL of the PTOs on this equipment shielded? "

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>e_ProgNote40< [Programming Note: If (>largemach< not equal 1 and >largemach2< not equal 1) go to >bystanding3<]

>riskequip< "PRIOR to >month<, how much risk of injury did you believe there was for >Title< when working with large equipment on YOUR operation? No risk, some risk, moderate risk, or a lot of risk"

- | | |
|-----------------|-----------------|
| 1 No risk | 4 A lot of risk |
| 2 Some risk | 8 Unknown |
| 3 Moderate risk | 9 Refusal |

>bystanding3< "During >month_before<, how often was/were >he_she< watching activities, playing or standing around, but not working, in fields where machinery was being used? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>bystanding4< "During that month, how often >was_were< >he_she< watching activities, playing or standing around, but not working, in fields where machinery was stored? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>e_ProgNote41< [Programming Note: If (>farmwork< not equal 1 or >Age< < 5) go to >bystanding2<]

>introduction7< "Next I will ask about small power equipment and hand tools >Title< may have worked with on YOUR farming or ranching operation, during >month_before<."

- 1 Continue

>smallequip< "During that month, did >he_she< operate or handle any grinders, powered shop tools, chain saws, garden tillers or hand tools, to perform activities on YOUR operation?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >bystanding2<) |
| 3 No (go to >bystanding2<) | 9 Refusal (go to >bystanding2<) |

>smallequip1< "Which of the following did >he_she< operate or handle:

Portable grinders?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>smallequip2< "Stationary grinders?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>smallequip3< "Stationary powered shop tools, such as a table saw or drill press?"

- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |

>introduction9< "Next I will ask questions about work or chores >Title< may have done with chemicals, or activities near water and on ladders, on YOUR farming or ranching operation, during >month_before<."

1 Continue

>chemical< "During that month, did >he_she< mix, handle or apply any type of agricultural chemicals, including anhydrous ammonia, pesticides, fuels, lubricants, cleaning agents, veterinary medicines or other chemicals?"

- | | | | |
|---|--------------------|---|-------------------------|
| 1 | Yes | 8 | Unknown (go to >water<) |
| 3 | No (go to >water<) | 9 | Refusal (go to >water<) |

>chemical1< "Did >he_she< handle anhydrous ammonia?"

- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |

>chemical2< "Did >he_she< mix, handle or apply pesticides, including: Insecticides, herbicides, fungicides and fumigants?"

- | | | | |
|---|------------------------|---|-----------------------------|
| 1 | Yes | 8 | Unknown (go to >chemical3<) |
| 3 | No (go to >chemical3<) | 9 | Refusal (go to >chemical3<) |

>pesticides< "Were ALL the pesticides stored in containers labeled with the word DANGER or WARNING?"

- | | | | |
|---|-----|---|---------|
| 1 | Yes | 8 | Unknown |
| 3 | No | 9 | Refusal |

>chemical3,< "Which of the following other types of chemicals did >he_she< mix, handle or apply?"
[Enumerator: Read list of possible answers and enter multiple responses, for i = 1-4]

- 1 Fuels, lubricants or cleaning agents
- 2 Veterinary Medicines
- 3 Other chemical products, such as household products, paint, solvents, etc.
- 4 Other
- 8 Unknown
- 9 Refusal

>e_ProgNote43< [Programming Note:

If (>chemical3₁< = 4 or >chemical3₂< = 4 or >chemical3₃< = 4 or
>chemical3₄< = 4)
 go to >chemical_specify<
Else
 go to >water<
End If]

>chemical_specify< "Specify other." _____

>water< "During >month_before<, did >he_she< work in or near a body of water, such as a lake, river, swamp or pond on YOUR operation? This also includes stock tanks and water filled ditches."

- | | | | |
|---|--------------------------|---|-------------------------------|
| 1 | Yes | 8 | Unknown (go to >bystanding6<) |
| 3 | No (go to >bystanding6<) | 9 | Refusal (go to >bystanding6<) |

>water_yes_i< "Which of the following bodies of water did >he_she< work in or near?" [Enumerator: Read list of possible answers and enter multiple responses, for i = 1-7]

- | | |
|---------------------------|----------------------|
| 1 Lake | 6 Water-filled ditch |
| 2 River, stream, creek | 7 Other |
| 3 Swamp | 8 Unknown |
| 4 Pond (incl. Stock pond) | 9 Refusal |
| 5 Stock tank | |

>e_ProgNote44< [Programming Note:

If (>water_yes₁< = 7 or >water_yes₂< = 7 or >water_yes₃< = 7 or >water_yes₄< = 7 or >water_yes₅< = 7 or >water_yes₆< = 7 or >water_yes₇< = 7)

go to >water_specify<

Else

go to >bystanding6<

End If]

>water_specify< "Specify other." _____

>bystanding6< "During >month_before<, how often >was_were< >he_she< watching activities, playing or standing around, but not working, near bodies of water? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>e_ProgNote45< [Programming Note: If (>farmwork< not equal 1) go to >bystanding7<]

>ladder< "During that month, did >he_she< work on ANY ladders or scaffolding, on YOUR operation?"

- | | |
|------------------------|-----------------------------|
| 1 Yes | 8 Unknown (go to >general<) |
| 3 No (go to >general<) | 9 Refusal (go to >general<) |

>ladder1< "Which of the following did >he_she< work on:

Ladders or scaffolding greater than 20 feet tall?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>ladder2< "Ladders or scaffolding 20 feet tall or less?"

- | | |
|-------|-----------|
| 1 Yes | 8 Unknown |
| 3 No | 9 Refusal |

>general< "During >month_before<, did >he_she< perform general farming or ranching related activities that we haven't discussed, such as repairing fences or other items?"

- | | |
|----------------------------|---------------------------------|
| 1 Yes | 8 Unknown (go to >bystanding7<) |
| 3 No (go to >bystanding7<) | 9 Refusal (go to >bystanding7<) |

>general_yes< "What types of activities did >he_she< do?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

>bystanding7< "During >month_before<, how often >was_were< >he_she< watching activities, playing or standing around, but not working, out in the fields or barnyard? Never, sometimes or frequently?"

- | | |
|--------------|-----------|
| 1 Never | 8 Unknown |
| 2 Sometimes | 9 Refusal |
| 3 Frequently | |

>riskplay< "PRIOR to >month<, how much risk of injury did you believe there was for >Title<, while watching activities, playing or standing around the farm yard, on YOUR operation? No risk, some risk, moderate risk, or a lot of risk"

- | | |
|-----------------|-----------------|
| 1 No risk | 4 A lot of risk |
| 2 Some risk | 8 Unknown |
| 3 Moderate risk | 9 Refusal |

>e_ProgNote46< [*Programming Note: If (>Age< < 5) go to >e_next_caco<*]

>training4< "PRIOR to >month<, how many hours had >he_she< spent in training or seminars concerned with farm safety and injury prevention?"

- 0 None (go to >e_ProgNote47<)
- _____ 1-130 hours
- 998 Unknown (go to >e_ProgNote47<)
- 999 Refusal (go to >e_ProgNote47<)

>training5a< "PRIOR to >month<, when did the most recent course or seminar take place?
What year?"

- _____ 1980-1999
- 9998 Unknown
- 9999 Refusal

>training5b< "What month?"

- __ 1-12
- 98 Unknown
- 99 Refusal

>e_ProgNote47< [*Programming Note: If (>Exp_Resp2< not equal 3) go to >e_next_caco<*]

>rchores_many< "During that >month_before<, would you say that you did as many chores or farmwork as were expected by the family, more chores or less chores than were expected?"

- 0 N/A – None were expected (go to >rprevent1<)
- 1 Did less than expected
- 2 Did about what was expected
- 3 Did more than expected
- 8 Unknown
- 9 Refusal

>rchores_well< "How well would you say that you performed the chores or farmwork that were expected by the family? Better than expected, about what was expected or worse than expected?"

- 1 Did worse than expected
- 2 Did about what was expected
- 3 Did better than expected
- 8 Unknown
- 9 Refusal

>rprevent1< "Do you believe that some farming or ranching operator related injuries can be prevented?"

- 1 Yes
- 3 No (go to >rprevent3<)
- 8 Unknown (go to >e_next_caco<)
- 9 Refusal (go to >e_next_caco<)

>rprevent2< "What are the two main things that you think can be done to prevent injuries that occur on the farm or ranch?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

(go to >e_next_caco<)

>rprevent3< "Why is it that you feel they can't be prevented?" [Enumerator: **Type response exactly as stated + end with ///**. After entering information, press ESC to continue with interview.]

(go to >e_next_caco<)

.....

Exit Module

>hh_end1< "Thank you very much for your time today. Goodbye."

- 1 go to >hh_exit<

>ab_end2< "Thank you very much for your time today. Goodbye."

- 1 go to >ab_exit2<

>i_end1< "Thank you very much for your time today. Goodbye."

- 1 go to >i_exit<

>exp_the_end< "Thank you very much for your time today. Your cooperation gives us important information about factors that may prevent injuries, and may be used to develop injury prevention programs that will benefit all farm families. We will be calling your household again in approximately six months. We look forward to speaking with you then. GOOD-BYE."

>final_ProgNote< [Programming Note:

If (>controlHH< = 1 and >caseHH< = 0)
go to >final_exit3<
Else If (>controlHH< = 0 and >caseHH< = 1)
go to >final_exit4<
Else
go to >final_exit5<
End If]

>exp_end2< "Thank you very much for your time today. GOOD-BYE."

- 1 Continue to >exp_exit2<

>callback< [Enumerator: Setup callback. Press CONTROL-ENTER to go to the appointment block. Remember to record the appointment on the call sheet.]

>hh_exit< [Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (1) REFUSED TO PARTICIPATE.]

- >hh_exit1< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (2) NO KIDS UNDER 19 IN HOUSEHOLD.]*
- >i_exit< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (1) REFUSED TO PARTICIPATE DURING INJURY LOG.]*
- >ab_exit1< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (4) ABBREVIATED INTERVIEW - NO KIDS UNDER 19 IN HOUSEHOLD.]*
- >ab_exit2< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (5) COMPLETED ABBREVIATED INTERVIEW.]*
- >exp_exit2< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (8) REFUSED IN MIDDLE OF CASE-CONTROL.]*
- >final_exit3< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (7) COMPLETED INTERVIEW - CONTROL.]*
- >final_exit4< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (6) COMPLETED INTERVIEW - CASE.]*
- >final_exit5< *[Enumerator: Use CONTROL-ENTER and select EXITMODULE. Reason for exiting (3) COMPLETED - NOT A CASE OR CONTROL.]*

APPENDIX E

SIMPLIFIED CODING STRUCTURE

REGIONAL RURAL INJURY STUDY – II
CODES
2000

REGIONAL RURAL INJURY STUDY – II
SOURCE CODES
(SOURCE 1/ SOURCE 2)

1	Tractor (including skid steer tractors)
2	Motor vehicle (car, pickup, truck, motorcycle, ATV, personal watercraft (Ski-Doo), snowmobile, bicycle, etc.)
3	Other large machinery or equipment
4	Small power equipment / hand tools
5	Livestock or animals
6	Storage structure
7	Chemicals / drugs / medications/ bio-aerosols (silage gas, molds, pollens, etc.)
8	Body of water
9	Falls / Surfaces
10	Sports / Recreation
11	Housework
12	Yardwork/Gardening
13	Work-related (Non-farming/ranching work)
14	Something else, (specify)- special objects such as fencing materials, ladders, gates, grass, rocks, etc.
15	General Activity
16	None / no secondary source
F5	Unknown
F6	Refusal

REGIONAL RURAL INJURY STUDY – II

ACTIVITY CODES

- | | |
|--|---|
| 001 Feeding | 046 Handling/Transporting Equipment |
| 002 Milking | 047 Bystander |
| 003 Herding/Moving | 048 Horseplay/Horsing Around |
| 004 Cleaning | 049 Riding animals |
| 005 Breeding | 050 Riding/passenger tractor/vehicle (except ATV's, see 141) |
| 006 Castrating | 051 Spreading manure |
| 007 Branding (includes tattooing/tagging) | 052 Handling/Transferring – feed/grain |
| 010 Treatment | 053 Chasing animals |
| 011 Helping with birthing | 054 Struck by animal |
| 012 Trim hooves/shoeing | 056 Bending |
| 013 Shearing | 057 Struck by/Struck against - Object |
| 014 Butchering | 058 Carrying objects |
| 015 De-horning | 059 Driving tractor/vehicle (except ATV's, see 141) |
| 018 Walking (NEC) | 060 Planting |
| 019 Sitting (NEC) | 061 Travel to/from field |
| 020 Running/Jogging (NEC) | 062 Applying chemicals |
| 021 Going up or down stairs (NEC) | 063 Harvesting |
| 026 Jumping (NEC) | 064 General farm work |
| 022 Climbing/Climbing Ladder | 065 Woodworking |
| 023 Standing/standing-getting up | 066 General work/ <u>off</u> farm |
| 024 Construction | 067 Drilling |
| 025 Mowing/Chopping | 068 Hammering |
| 027 Tackling | 069 Grinding |
| 040 Mounting/Dismounting | 070 Welding |
| 041 Hitching/Adjusting Load | 071 Using as power unit |
| 042 General Repairs | 072 Cutting wood |
| 043 Adjusting Machinery | 073 Tilling/cultivating |
| 044 Lifting | 074 Filling tank/container |
| 045 Pushing/Pulling | |

ACTIVITY CODES (continued)

147 Fencing/ fixing fence

148 Shovelling

149 Haying/ making hay

150 General work- animal

101 Aerobics workout

102 Archery

103 Baseball

104 Basketball

105 Bowling

106 Broomball

107 Dancing

108 Field hockey

109 Football

110 General physical education activities (non-specific)

111 General play activities (non-specific)

112 Golf

113 Gymnastics

115 Hunting

116 Ice Hockey

117 Martial arts (judo, karate, etc.)

118 Playground activities

119 Raquetball

121 Skateboarding

122 Skiing, cross-country

123 Skiing, downhill/ snowboarding

124 Soccer

125 Softball

126 Target practice/shooting (firearm, other than hunting)

127 Tennis

128 Track and field

129 Volleyball

130 Weight lifting

131 Wrestling

132 Rollerskating

133 Rollerblading

134 Ice skating

135 Broad jumping

136 Ice fishing/ Fishing

137 Bicycling

138 Swimming/Diving

139 Cheerleading

140 Sledding

141 3-Wheeling/ 4-Wheeling

142 Water skiing

143 Snowmobiling

144 Boating

151 Jumping on trampoline

152 Yardwork/gardening (NEC)

153 Rodeo competition/practice (NEC)

145 Cutting/Slicing

146 Eating

077 Other (Specify)

088 Unknown

099 Refused/Missing

000 None

Decisions:

- Use 57 only when not hitting the ground (e.g., for falls as a source)
- 48 (horseplay) is for all ages

REGIONAL RURAL INJURY STUDY- II
BODY PARTS

101 Head/skull	116 Finger(s)/ thumb
102 Brain	117 Internal hips/ pelvis (uterus, ovaries, bladder, rectum)
103 Face (forehead, cheek, nose, lip, chin, ear)	118 External hips/ pelvis (muscles/skin)
104 Eye/ eyelid	119 Buttocks
105 Dental/ tooth	120 Genitals/ "private parts"
106 Neck (cervical area)	121 Leg (thigh(s), shin, calf)
107 Spinal cord/ spine (vertebrae, sacrum, tailbone/coccyx, discs)	122 Knee
108 Back (muscles/skin)	123 Ankle
109 Internal chest (ribs, heart, lung, bronchial, esophagus, diaphragm)	124 Foot/ heel
110 External chest (skin)	125 Toe(s)
111 Internal abdomen (stomach, liver, kidney, gall bladder, intestines, appendix, spleen, pancreas)	126 General systems
112 External abdomen (skin)	127 None
113 Shoulder/ collar bone/ shoulder blade	128 Other, specify _____
114 Arm/ elbow/ wrist/ carpal tunnel	129 Entire body
115 Hand	F5 Unknown F6 Refusal

REGIONAL RURAL INJURY STUDY- II

TYPE OF INJURY/DIAGNOSIS

- 01** Abrasion; blister (not burn related)
- 02** Amputation
- 03** Asphyxia
- 04** Bite/sting
- 05** Bruise/contusion
- 06** Burn
- 07** Concussion (Loss of consciousness/awareness)
- 08** Crushing/mangling
- 09** Cut/laceration/scratch
- 10** Fracture/dislocation
- 11** Nerve injury
- 12** Penetration injury, including puncture
- 13** Poisoning
- 14** Rupture
- 15** Sexual assault
- 16** Sprain/Strain (includes inflammation, tendonitis, and bursitis)
- 17** Stunned
- 18** Temporary discoloration/slap mark
- 19** Torn ligament
- 22** Pain & swelling, not elsewhere classifiable
- 23** General systems problem/illness
- 24** Rash or skin irritation (includes itching)
- 25** Torn meniscus/cartilage
- 26** Parasitic infestation/infection
- 20** Other, specify:
- 21** None

REGIONAL RURAL INJURY STUDY – II

E-CODES (SUPPLEMENTAL)¹

A description of the supplemental codes follows within the context of the standard ICD-9 external cause codes (“E-codes”). The supplemental codes are in bold.

E817, E818, E824, E825: Select motor vehicle traffic and non-traffic accidents.
 A supplemental fifth digit is used for these codes to designate falls from moving farm machinery. The supplemental codes designate the type of farm machinery as follows:

- E8_._.1 Fall from moving tractor
- E8_._.2 Fall from other moving self-propelled farm machinery
- E8_._.3 Fall from non-self propelled farm machinery

<u>E-CODES</u>	Type of Fall	CATI BRANCHING #
E880	Fall on or from stairs or steps	01
E881	Fall on or from ladders or scaffolding- Greater than 20 ft= (02) , Less than 20 ft= (03)	02/03
E882	Fall from or out of building or other structure	04
E883	Fall into hole or other opening in surface	05
E884	Fall from one level to another (see attached supplemental codes for 884)	07
E885	Fall on same level from slipping, tripping, or stumbling	06
E888	Unknown- fall not otherwise classified	88
E927.4	Slips/trips <i>without falls</i> are included under Falls/Surfaces in CATI	08

¹ Carr, WP, French, LR, Gerberich, SG, Gibson, RW, Gunderson, PD, Renier, CM. Supplemental ICD-9-CM external cause codes for agricultural injuries. *Presented at the Third International Symposium: Issues in Health, Safety, and Agriculture*. Saskatoon, Saskatchewan, Canada. May 1992.

RRIS-II Supplemental E-codes Table (supplemental codes in bold)	
<p><i>E828 Accident involving animal being ridden</i> E828.1 Fall or thrown from animal being ridden E828.2 Kicked by animal being ridden E828.3 Trampled by animal being ridden E828.4 Animal being ridden stumbled or fell E828.5 <i>Collision</i> between animal being ridden and other animal, or vehicle, or object, or pedestrian E828.8 Other accident involving animal being ridden E828.9 Unspecified accident involving animal being ridden</p>	<p><i>E919.0 Accidents caused by agricultural machinery</i> E919.00 Caused by auger E919.01 Caught in power take-off E919.02 Tractor/machine or part thereof falling or collapsing on person E919.03 Fall from operating tractor E919.04 Fall from operating machinery E919.05 Tractor overturn E919.06 Run over by tractor E919.07 Run over by machine or drawn implement E919.08 Other specified farm machinery accident E919.09 Farm machinery accident- type unspecified</p>
<p><i>E884 Other fall from one level to another (see Falls E880-E885)</i> E884.0 Fall from playground equipment E884.1 Fall from cliff E884.2 Fall from chair or bed E884.91 Falling, slipping, or being thrown from a non-operating tractor E884.92 Falling, slipping, or being thrown from non-operating farm machinery E884.9 Other fall from one level to another</p>	<p><i>E925 Accident caused by electric current</i> E925.0 Domestic wiring and appliances E925.1 Electric power generating plants, distribution stations, transmission lines E925.2 Industrial wiring, appliances, and electrical machinery E925.3 Other electric current E925.4 Farm machinery in contact with transmission lines E925.8 Other electric current E925.9 Unspecified electric current</p>
<p><i>E906 Other injury caused by animals</i> E906.0 Dog bite E906.1 Rat bite E906.2 Bite of nonvenomous snakes and lizards E906.3 Bite of other animal except arthropod E906.4 Bite of nonvenomous arthropod E906.5 Butted/ crushed by animal E906.6 Kicked by animal not being ridden E906.7 Trampled on or trodden on by animal(s) not being ridden E906.8 Other specified injury caused by animal E906.9 Unspecified injury caused by animal</p>	<p><i>E927 Overexertion and strenuous movements</i> E927.0 Overexertion and strenuous movements E927.1 Jump/land/twist E927.2 Lifting/back strain E927.3 Muscle or tendon pull, not due to a fall E927.4 Twisting or wrenching of joint</p>
<p><i>E917 Striking against or struck accidentally by objects or persons</i> E917.0 In sports E917.1 Caused by a crowd, by collective fear, or panic E917.2 In running water E917.3 Striking against or struck by persons in other circumstances E917.4 Striking against objects E917.5 Struck by objects E917.6 Striking against the ground or floor E917.9 Other</p>	<p><i>E850-E858 (Accidental poisoning by drugs, medicinal substances, and biologicals) and E860-E869 (Accidental poisoning by other solid and liquid substances, gases, and vapors) add the following fifth digit subdivisions:</i> E_ _ _ _ 1 Inhaled E_ _ _ _ 2 Ingested E_ _ _ _ 3 Exposure to skin or eyes E_ _ _ _ 4 Injected</p>

APPENDIX F

NON-RESPONDENT SURVEY INSTRUMENT

UNIVERSITY OF MINNESOTA

Twin Cities Campus

*Environmental and Occupational Health
School of Public Health*

*Box 807 Mayo
420 Delaware Street S.E.
Minneapolis, MN 55455
612-626-0900
Fax: 612-626-0650*

REGIONAL RURAL INJURY STUDY - II

MINNESOTA

- Susan G. Gerberich, Ph.D.,
Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- Bruce Alexander, Ph.D.
Co-Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- L. Ronald French, Ph.D.
Co-Principal Investigator
Minnesota Department of Health
- John Shutske, Ph.D.
Co-Investigator and Agricultural
Engineer
Agricultural Extension Service
University of Minnesota
- Michael Hunst
State Statistician
USDA National Agricultural
Statistics Service

NEBRASKA

- David Morgan
Agricultural Engineer
Biological Systems Engineering
Department
University of Nebraska
- David G. Loos
State Statistician
USDA National Agricultural
Statistics Service

NORTH DAKOTA

- George G. Maher
Agricultural Safety Specialist
Extension Service
North Dakota State University
- Larry W. Beard
State Statistician
USDA National Agricultural
Statistics Service

SOUTH DAKOTA

- Larry Tidemann
Coordinator
Cooperative Extension Service
South Dakota State University
- William G. Hamlin
State Statistician
USDA National Agricultural
Statistics Service

WISCONSIN

- Mark A. Purschwitz, Ph.D.
Extension Agricultural Safety
and Health Specialist
Cooperative Extension Service
University of Wisconsin
- Robert J. Battaglia
State Statistician
USDA National Agricultural
Statistics Service

Dear –OPERATOR’S NAME–:

I am contacting you about a very important project conducted by the University of Minnesota and the USDA National Agricultural Statistics Service, in cooperation with other agencies in your state. This project, the Regional Rural Injury Study II, was designed to better understand the range and types of injuries that occur to members of farm and ranch households and will lead to injury prevention programs that can benefit all household members.

You should have previously received information about this project; however, it is possible that you never received the mailing and we were unable to contact you by telephone. We are hoping, however, that you will be willing to answer a few questions about your farming or ranching operation that will clarify whether, or not, you would have been eligible for the project; no further contact will be made to you for this project. While these questions may seem trivial, they are critical to the quality of information so that we can explain any bias associated with farm/ranch households that did not participate in the complete study.

Filling out the attached form will take only *five minutes* and all of the information collected will remain completely confidential. No information on individuals or individual farms/ranches will ever be released. Completion of this form is voluntary, and your future relationship with any of the agencies or institutions, associated with this project, will not be affected if you do not complete the form. However, your answers to the attached questions would be greatly appreciated. Enclosed with this letter is a self-addressed, stamped envelope to make it easier for you to respond.

Thank you for your help. If you have any questions about the project, please contact our Project Director or me at (612) 626-4801 or 1-888-260-8636 (toll-free).

Sincerely,

Susan Goodwin Gerberich, PhD
Professor and Director
Regional Injury Prevention Research Center

Enclosure: one page survey

YOUR ANSWERS TO THE FOLLOWING QUESTIONS ARE VERY IMPORTANT TO INFORMATION QUALITY AND THE DEVELOPMENT OF USEFUL INJURY PREVENTION PROGRAMS. THANK YOU FOR TAKING THE TIME TO ANSWER THEM.

1. **During 1999**, was there a **household** associated with your farming/ranching operation? (Check Yes or No.)

- YES
 NO → *Please go to question #5.*

2. As of **January 1, 1999**, were you **actively farming or ranching**, or did you have land in the **Conservation Reserve Program (CRP)**? (Check Yes or No.)

- YES
 NO

3. During **1998**, did you **produce** or have **annual sales of agricultural goods of \$1,000 or more** or were you involved in the **Conservation Reserve Program (CRP)**? (Check Yes or No.)

- YES
 NO

4. Please provide the following information on the **members of your household as of January 1, 1999**. *Include those who lived with you during 1999, anyone who may have moved out, or anyone who may have died after January 1, 1999. (This includes students away at college or children who reside in multiple households, including yours.) (Please specify number in each box.)*

a. How many **females** in your household were **20 years of age or older** as of January 1, 1999?

b. How many **females** in your household were **19 years of age or younger** as of January 1, 1999?

c. How many **males** in your household were **20 years of age or older** as of January 1, 1999?

d. How many **males** in your household were **19 years of age or younger** as of January 1, 1999?

5. If you received information about this project, already, could you please tell us why you did not participate? (It is possible that we were never able to contact you.)

I DO NOT WISH TO COMPLETE THIS FORM

THANK YOU FOR YOUR HELP IN MAKING THIS A BETTER PROJECT.

APPENDIX G

VALIDATION STUDY DATA COLLECTION FORMS

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Environmental and Occupational Health
School of Public Health

Box 807 Mayo
420 Delaware Street S.E.
Minneapolis, MN 55455
612-626-0900
Fax: 612-626-0650

Date

<<MailTo>>

REGIONAL RURAL INJURY STUDY - II

Line 2

Line 3

MINNESOTA

- Susan G. Gerberich, Ph.D.,
Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- L. Ronald French, Ph.D.
Co-Principal Investigator
Minnesota Department of Health
- John Shutske, Ph.D.
Co-Investigator and
Agricultural Engineer
Agricultural Extension Service
University of Minnesota
- Michael Hunst
State Statistician
USDA National Agricultural
Statistics Service

<<salutation>>:

We are writing to thank you for your help with the Regional Rural Injury Study-II, and to seek your permission for another important aspect of the study. As you know, the goal of this work is to learn better ways to prevent or reduce injuries to farming and ranching families. Five states (listed at left) are collaborating with the University of Minnesota and the United States Department of Agriculture's Statistics Service to collect information on accidents and injuries that can be used to develop prevention efforts in this region and, ultimately, throughout the country.

NEBRASKA

- David Morgan
Agricultural Engineer
Biological Systems Engineering
Department
University of Nebraska
- William G. Hamlin
State Statistician
USDA National Agricultural
Statistics Service

In 1999 and early 2000, you and many other families participated in telephone interviews, sharing information relevant to the study of accidents and injuries experienced by the people who lived in your home, including children. As part of this ongoing study, it is important now that we collect information from health care providers *about children in the family who were injured and also a comparison group of children who were not injured*. Only information relevant to injuries would be requested from the health care providers. This would enable us to show the quality of information that is available both from families and health care records about farming and ranching injuries that occur to young people. It is important for us to demonstrate the quality of the information collected in the study in order for the findings to have a greater impact on programs to prevent injuries.

NORTH DAKOTA

- George G. Maher
Agricultural Safety Specialist
Extension Service
North Dakota State University
- Douglas A. Hartwig
State Statistician
USDA National Agricultural
Statistics Service

We hope that you will help with this part of our study. We are enclosing two forms with this letter. If you choose to participate, please list the name(s) and address(es) of any health care provider(s) that may have seen <<name>> between July 1st, 1998, and June 30th, 2000. Health care providers include Physicians, Nurses, Chiropractors, Dentists, or other health care professionals. With your permission, we would then send these health care providers a brief form to complete. For your information, we have enclosed a copy of the letter and the form that would be sent to your health care providers.

SOUTH DAKOTA

- Larry Tidemann
Coordinator
Cooperative Extension Service
South Dakota State University
- Carter Anderson
State Statistician
USDA National Agricultural
Statistics Service
- William P. Campbell
Farm Machinery & Safety
Specialist
Cooperative Extension Service
South Dakota State University

Any information that is obtained from health care providers will remain **completely confidential**. In any reports resulting from this study, **no individuals or identifying information will ever be provided**. Only overall information for the participants as a group will be presented.

WISCONSIN

- Mark A. Purschwitz, Ph.D.
Extension Agricultural Safety
and Health Specialist
Cooperative Extension Service
University of Wisconsin
- Robert J. Battaglia
State Statistician
USDA National Agricultural
Statistics Service

If you have any questions about this request, please call the Project Director or Dr. Gerberich, the Principal Investigator, at 1-888-260-8636 (toll-free). We will be happy to assist you.

Sincerely,

Susan Goodwin Gerberich, Ph.D.
Principal Investigator

Authorization to Obtain Information from Medical Records

I authorize the release of information from <<name2>>'s medical records, pertaining to all injuries for which health care was received, between July 1st, 1998, and June 30th, 2000. This is to be sent to the staff of the Regional Rural Injury Study-II, a research project in which I recently participated.

I understand that the information transferred will be related only to the diagnosis and care received for injuries between July 1st, 1998, and June 30th, 2000, and will include only information pertaining to the type of injury, the body part(s) involved, the possible source of injury, and the initial date of treatment of the injury, as noted on the attached form. I understand that this information will be kept strictly confidential. I also understand that this authorization may be revoked by me at any time, in writing, but such revocation would not apply to any information already released in good faith. I understand that participation with this part of the study is voluntary, and that if I refuse to participate, it will not affect my relationship with the University of Minnesota or any institutions involved in this effort.

Signature of person identified below
(or Parent, if minor child less than 18 years of age)

Date

<<name2>>

<<birthdate>>

Please return this form in the enclosed stamped envelope.

THANK-YOU!

For office use Only: <<FarmID>>

Date

Inside Address

Line 2

Line 3

Line 4

**REGIONAL RURAL
INJURY STUDY - II**

MINNESOTA

- Susan G. Gerberich, Ph.D.,
Principal Investigator
Regional Injury Prevention
Research Center
University of Minnesota
- L. Ronald French, Ph.D.
Co-Principal Investigator
Minnesota Department of
Health
- John Shutske, Ph.D.
Co-Investigator and
Agricultural Engineer
Agricultural Extension Service
University of Minnesota
- Michael Hunst
State Statistician
USDA National Agricultural
Statistics Service

Request for Medical Records Enclosed

Patient: <<first name>> <<middle name>> <<last name>>

Birth date: <<birth date>>

Dear Medical Records Administrator:

NEBRASKA

- David Morgan
Agricultural Engineer
Biological Systems
Engineering
Department
University of Nebraska
- William G. Hamlin
State Statistician
USDA National Agricultural
Statistics Service

<<Patient/Parent of minor child>> has given us permission to contact you in order to verify injury information we obtained in a recent telephone interview. This interview was part of the Rural Regional Injury Study-II, a five state study on injuries among farm/ranch household members that was conducted by the University of Minnesota, in collaboration with the organizations listed in the sidebar. Through this study, we expect to obtain information on injuries that will serve as a basis for the development of effective injury prevention efforts.

NORTH DAKOTA

- George G. Maher
Agricultural Safety Specialist
Extension Service
North Dakota State University
- Douglas A. Hartwig
State Statistician
USDA National Agricultural
Statistics Service

<<Patient/Parent of minor child>> has reported that <<child>> received his/her health care from you during the period of July 1st, 1998 through June 30th, 2000. We appreciate your verifying whether *any kind of treatment pertaining to injuries* was received during this time. **The enclosed table on the second page should help facilitate this reporting. For each injury seen by your clinic, please verify the date of the initial visit, the type(s) of injury and the body part(s) involved, and the source(s) of injury, if identified. If no injuries have been seen during the time period of interest, please check the appropriate box at the end of the form.** A copy of the family's signed release form is enclosed as well as a stamped, return envelope for your convenience.

SOUTH DAKOTA

- Larry Tidemann
Coordinator
Cooperative Extension
Service
South Dakota State University
- Carter Anderson
State Statistician
USDA National Agricultural
Statistics Service
- William P. Campbell
Farm Machinery & Safety
Specialist
Cooperative Extension Service
South Dakota State University

If you have any questions about this form or about the study, please feel free to call Dr. Susan Gerberich, Principal Investigator, or the Project Director at 1-888-260-8636 (toll-free). We look forward to your potential involvement in this important study and appreciate your completing and returning this form as soon as possible.

Sincerely,

WISCONSIN

- Mark A. Purschwitz, Ph.D.
Extension Agricultural Safety
and Health Specialist
Cooperative Extension
Service
University of Wisconsin
- Robert J. Battaglia
State Statistician
USDA National Agricultural

Susan Goodwin Gerberich, Ph.D.
Principal Investigator

Patient: <<first name>> <<middle name>> <<last name>>

Birth date: <<birth date>>

Regional Rural Injury Study-II

We are interested in collecting medical information on *unintentional injuries treated between July 1st, 1998, and June 30th, 2000*. Please complete the following form for <<name>> for this time period, and return it in the enclosed envelope. If there have been more than four accidents/injury events, please copy this form, or call 1-888-260-8636 (toll free) for additional copies. If no injuries have been treated by your clinic during the time period of interest, please check the appropriate box at the end of the form.

1. Date of initial visit for each separate accident/injury event:

2. What was the type of physical injury? Check all that apply.

	Mo/Day/Yr	Mo/Day/Yr	Mo/Day/Yr	Mo/Day/Yr
	Event 1	Event 2	Event 3	Event 4
1 Abrasion	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 Amputation	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 Asphyxia	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
4 Bite/sting	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 Bruise/contusion	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 Burn	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 Concussion (Loss of consciousness/awareness)	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
8 Crushing/mangling	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>
9 Cut/laceration/scratch	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>
10 Fracture/dislocation	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>
11 Nerve injury	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>
12 Penetration injury, including puncture	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>
13 Poisoning	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>
14 Rupture	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>
15 Sprain/strain	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>
16 Stunned	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>
17 Torn ligament	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>
18 Pain and swelling	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>
19 General systems (heart stroke, allergic reaction, etc.)	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>
20 Rash or skin irritation	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>
21 Torn meniscus/cartilage	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>
22 Parasitic infestation/infection	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>
23 Other	23 <input type="checkbox"/>	23 <input type="checkbox"/>	23 <input type="checkbox"/>	23 <input type="checkbox"/>
Specify				

SAMPLE

3. What body part(s) was (were) injured? Check all that apply.

1 Head/skull/brain	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 Face (forehead, cheek, nose, lip, jaw, ear)	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 Eye/eyelid	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
4 Teeth	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 Neck (cervical area)	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 Back (muscles, skin)	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 Internal chest	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
8 External chest (muscles, skin)	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>
9 Spinal cord/spine (vertebrae, sacrum, tailbone, coccyx, disks)	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>
10 Internal abdomen	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>
11 External abdomen (muscles, skin)	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>
12 Shoulder/collar bone, shoulder blade	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>
13 Arm/elbow/wrist	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>
14 Hand/fingers/thumb(s)	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>
15 Internal hips/pelvis (uterus, ovaries, bladder, rectum)	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>
16 External hips/pelvis (muscles, skin)	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>
17 Buttocks	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>
18 Genitalia	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>
19 Leg (thigh, shin, calf, knee, ankle)	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>
20 Foot/heel, toes	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>
21 General systems	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>
22 Other	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>
Specify				

	<u>Event 1</u>	<u>Event 2</u>	<u>Event 3</u>	<u>Event 4</u>
4. Which of the following sources were involved in the accident/injury? Check all that apply.				
1 Tractor	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 Motor vehicle (including bicycles)	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 Other large machinery	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
4 Small power equipment/Hand tools	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 Livestock or animals, including insects	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 Storage structures	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 Chemicals/Drugs/Medications	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
8 Body of water	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>
9 Falls/Surfaces	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>
10 Sports/Recreation	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>
11 Housework	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>
12 Yardwork/Gardening	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>
13 Work-related (non-farming)	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>
14 Something else Specify _____	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>
15 General Activity Specify _____	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>
16 None	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>
17 Unknown	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>

If there have been no patient visits regarding any injury events between July 1st, 1998, and June 30th, 2000, please check this box and return this form in the enclosed envelope.

No injury events treated between July 1st, 1998, and June 30th, 2000.

Print name of person completing this form

(Signature of person completing this form)

(Date)

(Title of person completing this form)

Thank you for your participation!

Please also see other side.

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Environmental and Occupational Health
School of Public Health

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Line 2

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State Statistician
USDA National Agricultural

Request for Medical Records Enclosed

Patient: <<first name>> <<middle name>> <<last name>>

Birth date: <<birth date>>

Dear Medical Records Administrator:

<<Patient/Parent of minor child>> has given us permission to contact you in order to verify injury information we obtained in a recent telephone interview. This interview was part of the Rural Regional Injury Study-II, a five state study on injuries among farm/ranch household members that was conducted by the University of Minnesota, in collaboration with the organizations listed in the sidebar. Through this study, we expect to obtain information on injuries that will serve as a basis for the development of effective injury prevention efforts.

<<Patient/Parent of minor child>> has reported that <<child>> received his/her health care from you during the period of July 1st, 1998 through June 30th, 2000. We appreciate your verifying whether *any kind of treatment pertaining to injuries* was received during this time. **The enclosed table on the second page should help facilitate this reporting. For each injury seen by your clinic, please verify the date of the initial visit, the type(s) of injury and the body part(s) involved, and the source(s) of injury, if identified. If no injuries have been seen during the time period of interest, please check the appropriate box at the end of the form.** A copy of the family's signed release form is enclosed as well as a stamped, return envelope for your convenience.

If you have any questions about this form or about the study, please feel free to call Dr. Susan Gerberich, Principal Investigator, or the Project Director at 1-888-260-8636 (toll-free). We look forward to your potential involvement in this important study and appreciate your completing and returning this form as soon as possible.

Sincerely,

Susan Goodwin Gerberich, Ph.D.
Principal Investigator

Patient: <<first name>> <<middle name>> <<last name>>

Birth date: <<birth date>>

Regional Rural Injury Study-II

We are interested in collecting medical information on *unintentional injuries treated between July 1st, 1998, and June 30th, 2000*. Please complete the following form for <<name>> for this time period, and return it in the enclosed envelope. If there have been more than four accidents/injury *events*, please copy this form, or call 1-888-260-8636 (toll free) for additional copies. If no injuries have been treated by your clinic during the time period of interest, please check the appropriate box at the end of the form.

1. Date of initial visit for each separate accident/injury event:

2. What was the type of physical injury? Check all that apply.

	/ / Mo/Day/Yr Event 1	/ / Mo/Day/Yr Event 2	/ / Mo/Day/Yr Event 3	/ / Mo/Day/Yr Event 4
1 Abrasion	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 Amputation	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 Asphyxia	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
4 Bite/sting	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 Bruise/contusion	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 Burn	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 Concussion (Loss of consciousness/awareness)	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
8 Crushing/mangling	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>
9 Cut/laceration/scratch	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>
10 Fracture/dislocation	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>
11 Nerve injury	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>
12 Penetration injury, including puncture	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>
13 Poisoning	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>
14 Rupture	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>
15 Sprain/strain	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>
16 Stunned	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>
17 Torn ligament	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>
18 Pain and swelling	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>
19 General systems (heat stroke, allergic reaction, etc.)	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>
20 Rash or skin irritation	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>
21 Torn meniscus/cartilage	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>
22 Parasitic infestation/infection	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>
23 Other	23 <input type="checkbox"/>	23 <input type="checkbox"/>	23 <input type="checkbox"/>	23 <input type="checkbox"/>
Specify				

3. What body part(s) was (were) injured? Check all that apply.

1 Head/skull/brain	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 Face (forehead, cheek, nose, lip, jaw, ear)	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 Eye/eyelid	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
4 Teeth	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 Neck (cervical area)	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 Back (muscles, skin)	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 Internal chest	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
8 External chest (muscles, skin)	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>
9 Spinal cord/spine (vertebrae, sacrum, tailbone, coccyx, disks)	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>
10 Internal abdomen	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>
11 External abdomen (muscles, skin)	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>
12 Shoulder/collar bone, shoulder blade	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>
13 Arm/elbow/wrist	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>
14 Hand/fingers/thumb(s)	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>
15 Internal hips/pelvis (uterus, ovaries, bladder, rectum)	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>
16 External hips/pelvis (muscles, skin)	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>
17 Buttocks	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>
18 Genitalia	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>	18 <input type="checkbox"/>
19 Leg (thigh, shin, calf, knee, ankle)	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>	19 <input type="checkbox"/>
20 Foot/heel, toes	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>	20 <input type="checkbox"/>
21 General systems	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>	21 <input type="checkbox"/>
22 Other	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>	22 <input type="checkbox"/>
Specify				

Please continue to next page →

	<u>Event 1</u>	<u>Event 2</u>	<u>Event 3</u>	<u>Event 4</u>
4. Which of the following sources were involved in the accident/injury? <i>Check all that apply.</i>				
1 Tractor	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 Motor vehicle (including bicycles)	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 Other large machinery	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
4 Small power equipment/Hand tools	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 Livestock or animals, including insects	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 Storage structures	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 Chemicals/Drugs/Medications	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
8 Body of water	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>
9 Falls/Surfaces	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>
10 Sports/Recreation	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>
11 Housework	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>	11 <input type="checkbox"/>
12 Yardwork/Gardening	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>	12 <input type="checkbox"/>
13 Work-related (non-farming)	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>	13 <input type="checkbox"/>
14 Something else Specify _____	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>	14 <input type="checkbox"/>
15 General Activity Specify _____	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>	15 <input type="checkbox"/>
16 None	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>	16 <input type="checkbox"/>
17 Unknown	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>	17 <input type="checkbox"/>

If there have been no patient visits regarding any injury events between July 1st, 1998, and June 30th, 2000, please check this box and return this form in the enclosed envelope.

No injury events treated between July 1st, 1998, and June 30th, 2000.

Print name of person completing this form

(Signature of person completing this form)

(Title of person completing this form)

(Date)

Thank you for your participation!

Please also see other side.

APPENDIX H

INTERVIEWER INFORMATION

REGIONAL RURAL INJURY STUDY II

INTERVIEWER MANUAL

JULY 1999

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REGIONAL RURAL INJURY STUDY - II
INTERVIEWER MANUAL

A COLLABORATIVE EFFORT:

University of Minnesota
Regional Injury Prevention Research Center
and
U.S.D.A. National Agricultural Statistics Service

REGIONAL RURAL INJURY STUDY - II

INTERVIEWER MANUAL

**First Full Project Interview
July 1999**

IV. FULL PROJECT INTERVIEWS

A. Overview

The purpose of the Full Project Interviews is to determine the magnitude of the injury problem among farm/ranch household members in a five state region and to identify relevant risk factors for the farming/ranching-related injuries. This information will be used as a basis for developing injury prevention programs that will benefit all farm households.

In order to accomplish this, information will be collected about members of the farm/ranch households, including information about injuries that may have occurred in the first and second six month periods of 1999, and information about farming/ranching-related activities and exposures (e.g., activities associated with exposures such as animals, equipment, etc.). In the first Full Project Interview, information is obtained about the period from January 1 through June 30, 1999. This **Full Project Interview** consists of three basic sections:

Introduction/Household log, Injury Log, and Exposure Section.

1. Introduction/Household Log.

In this section, you will first clarify the person with whom you are speaking, ensure that you are speaking with the preferred respondent, and remind them of the previous five minute interview during which they (or a primary head of their household) have agreed to participate in the Full Project Interview. You will then continue on with this section of the interview which enables you to obtain the names, birthdates/ages, and other information for all the people who were members of the household as of January 1, 1999.

2. Injury Log.

In this section, that will continue with the preferred respondent, you will ask about the injury experience of each member of the household for the period between January 1 and June 30, 1999. Information is to be obtained on all types of injuries, according to the injury definition provided. This includes *both farming and non-farming/ranching-related injuries* For each injury event, you will obtain specific information about the type(s) of injury(ies) and body part(s) affected as well as information about the source(s) of the injury(ies) (e.g., animals,

machinery, etc.), associated activity(ies) and surrounding circumstances, and various consequences of the injuries (e.g., severity, including health care required, restricted activity, residual disability, etc.)

3. Exposure Section.

In this section of the interview, you will ask about health status and general activities, as well as a variety of farming/ranching-related activities, that include specific exposures to animals, machinery, etc.; questions will be asked pertinent to a specific month or a specific period of time. *These questions will be relevant to both those who were injured as well as those who were not, and who were 19 years of age or less as of January 1, 1999. This is a very important component that allows us to learn more about what protects people from injuries as well as what may cause injuries.* There are two parts to this section of the interview:

Part 1. In the first part of this section, that will continue with the preferred respondent, you will obtain general information, including overall number of hours worked either on or off the farm/ranch, school participation, sports activities, general health and behavior, stress perception, parental attitudes towards strictness and performance of certain tasks, and general characteristics about the farm/ranch.

Part 2. In the second part of this section, that will be completed either by the female (or male head of household) or a person 12 years of age or older, you will obtain specific information about the types of equipment and/or animals to which the person was exposed, and the kinds of activities in which he/she was involved on the farm/ranch.

B. Preferred Respondents

A "preferred respondent" is the person believed to best be able to answer the questions that are included in the CATI instrument for the RRIS-II. Although these preferences will not always apply, as is the case when there is only one head of household/parent living in the household, they will be used as a basis for determining the respondent for different portions of the interview, whenever possible. However, it is *more important to complete the interview* than it is to obtain the preferred respondent. So, in situations when the preferred respondent cannot or will not answer questions, but another respondent can, a secondary respondent will be asked to participate. The following table shows the "preferred respondent" for the different sections of the First Full Project Interview:

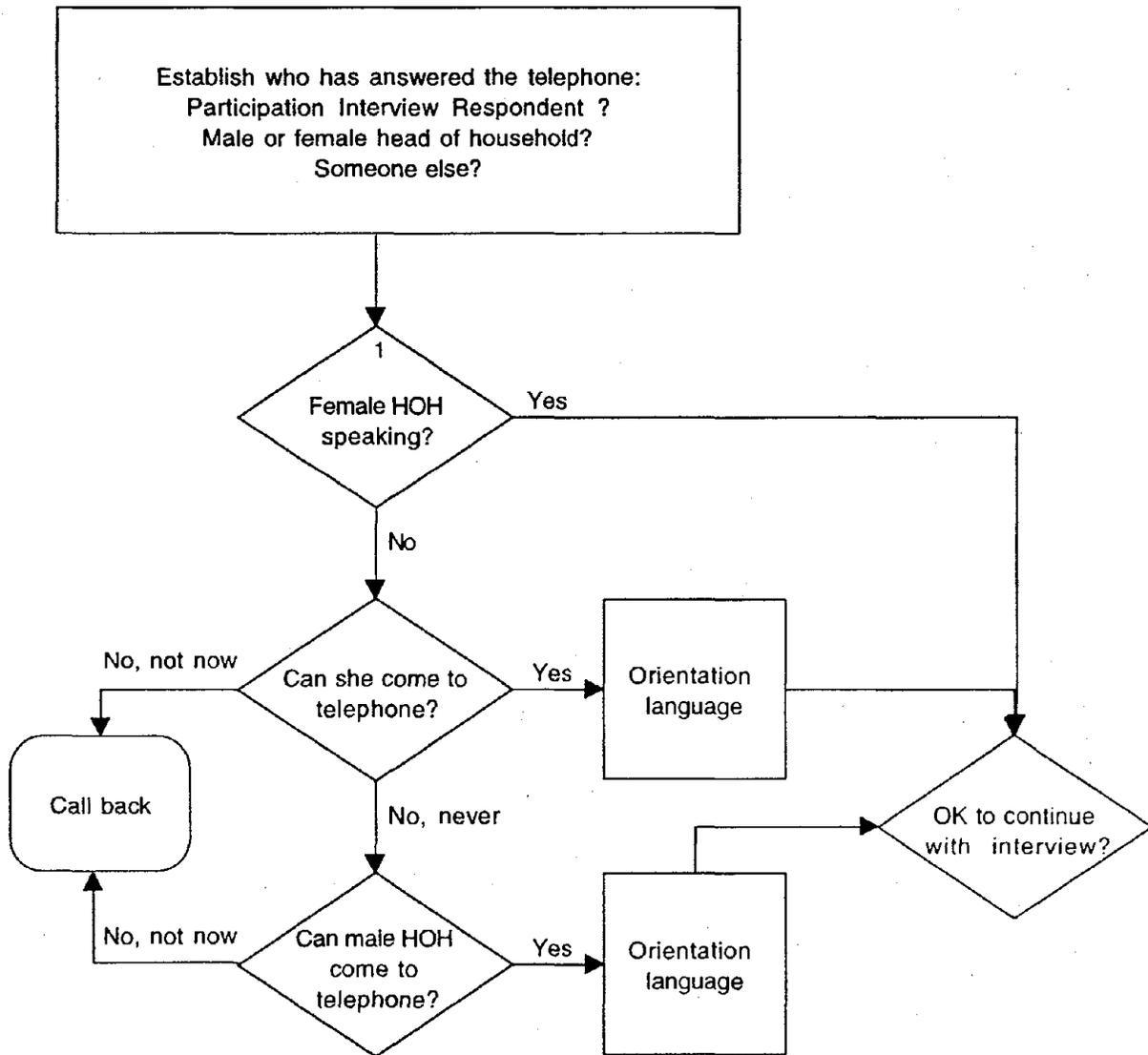
**TABLE 1. PREFERRED RESPONDENTS FOR DIFFERENT SECTIONS
OF THE FULL PROJECT INTERVIEW**

Segment of Interview	Preferred Respondent	(If preferred respondent is unable or unwilling to answer questions) Secondary Respondent
Introduction/Household Log	Female head of household	Male head of household
Injury Log	Female head of household	Male head of household
Exposure - Part I	Female head of household	Male head of household
Exposure - Part II	<p>If the person is <i>12 years of age or older</i>, he/she is the preferred respondent (12 years of age to <u>less than</u> 18 years requires parental consent)</p> <p>If the person is <i>less than 12 years of age</i>, the preferred respondent is the adult most knowledgeable about the child's activities on the farming/ranching operation. Usually this is the male head of household; but it may be the female head of household.</p>	Head of household

There are two places in the Full Project Interview when you will ask to speak to the person who is the preferred respondent: 1) immediately following the Introduction, when you are establishing the identity of the person who has answered the telephone; and 2) at the completion of Part I of the Exposure Section, in preparation for Part II of the Exposure Section interview.

1. Obtaining the Appropriate Respondent for the Initial Sections of the Interview

FIGURE 4. OBTAINING THE APPROPRIATE RESPONDENT



At the very *beginning of the interview*, immediately after you have introduced yourself to the person who has answered the telephone, there are *two initial goals*: 1) *Determine*

to whom you are speaking. Are you speaking with the person who gave consent to participate during the participation interview? If YES, was that the male or female head of household? If NO, are you speaking with the male or female head of household, or someone else. The CATI system will guide you through the questions to ask and offer you the appropriate language and additional questions depending upon the answers you receive. 2)

Attempt to speak to the female head of household. The female head of household is the preferred respondent for the first part of the interview. If she is available, the CATI system will give you the appropriate introductory and orientation language that takes into account whether or not the female head of household was the Participation Interview respondent, and whether or not she was the person who first answered the telephone.

If the female head of household is not available at the time you call, attempt to schedule a call-back. If the female head of household will never be available, or if there is no female head of household, or if the male head of household prefers to answer the questions, continue the interview with the male head of household, if possible. Again, the CATI system will give you the appropriate introductory and orientation language.

During the process of obtaining confirmation to continue, from the female head of household, the person with whom you are speaking may express confusion about who you are and why you are calling. If you obtain this response, simply ***key that entry*** and the CATI system will provide you with appropriate response language. It also is possible that the person with whom you are speaking expresses reluctance to continue. Again, ***key that entry*** and the CATI system will provide you with appropriate language.

2. Obtaining the Appropriate Respondent for Part II of the Exposure Section

The preferred respondent for Part II of the Exposure Section depends upon the age of the person who is selected for the interview questions. **For persons less than 12 years of age, the preferred respondent is the adult most knowledgeable** about the person's activities on the farm or ranch (male or female parent/head of household). ***For persons***

between the ages of 12 and 19 years, the preferred respondent is that person.

If the preferred respondent (age 12-19) is not available, you will either: 1) schedule a callback if the person will be available at another time; or 2) ask to speak to the next preferred respondent if the person (age 12-19) will never be available.

a. Person selected for interview questions is less than 12 years old

If the person is less than 12 years old, the preferred respondent is the adult (male or female parent/head of household) most knowledgeable about the person's activities on the farm or ranch. You will ask if that is the current respondent or some other adult in the household. If it is the current respondent, you will continue the interview with that person. If it is some other adult in the household, you will verify who that person is and ask to speak with them. If they are unavailable, you will either: 1) schedule a callback if the person will be available at another time; or 2) continue with the current respondent if the preferred respondent will never be available. However if the preferred respondent is available, and comes to the telephone, the CATI system will prompt you with appropriate language to introduce yourself and orient the new person to the purpose of the interview. You then will obtain confirmation to proceed.

b. Person selected for interview questions is 12 or more years old

If the person is 12 or more years of age, the preferred respondent is *that* person. If the person is between the ages of 12 and 17, you must obtain permission from the parent to interview that person. If the current respondent does not grant permission, you will then ask to speak to the most knowledgeable adult as you would have done if the person were less than 12 years of age. If the current respondent does grant permission, or if the person is 18 or 19 years of age (adult permission is not required), you will ask if the person can come to the telephone. If that person cannot come to the telephone, you will either: 1) schedule a callback if the person will be available at another time; or 2) ask to speak to next preferred respondent if the person (age 12-19) *will never be available*.

If the person (age 12-19) comes to the telephone, you will ask if he/she is willing to answer the questions. If NO, ask to speak to the parent again; if YES, continue with the interview.

The CATI system will prompt you with all the appropriate questions, depending upon the answers to previous questions. You do not need to remember all these conditions and what you are supposed to do in each situation. This information is provided so that you will have an overall sense of the flow of the interview.

C. Reluctant Respondents

A reluctant respondent is someone who hesitates to commit to the full interview, and has particular reservations about the amount of time it may take. Although you will make every attempt to encourage them to complete the full interview, if it seems clear that they are willing to answer a few questions but not all, you will have an option to branch into an abbreviated interview.

It is extremely important to note that every household you will contact has previously agreed to participate in the Full Project Interviews. The information that they can provide is critical to understanding both the factors that cause injury as well as those that protect from injury -- and will be used to develop prevention programs that will benefit all farm/ranch household members.

The exact wording that appears on your screen, which would lead you to an abbreviated interview, will follow after several attempts to invite the respondent to reconsider participating:

>abbrev1< Would you consider answering a few brief questions about the members of your household and any injuries that occurred between January 1, 1999 and June 30, 1999?

If the respondent answers YES, you will then proceed to ask about:

- Number of acres in active production between January 1 and June 30, 1999;
- The farm or ranch enterprise that required the most amount of work time on the farming/ranching operation;
- The total number of males and females 20 years of age and older and 19 years of age and younger who lived in the household as of January 1, 1999;
- Accidents or injuries incurred by any members of the household;

D. Questions Asked in Different Sections of the Interview

1. Introduction/Household Log

This is your first telephone contact with the participants since the initial Participation Interview was conducted and since the packet of cards, with cover letters, was mailed to them in early June. It is very important to establish rapport immediately. If the respondent is also the person who consented to participate in the study, you must remind them what the study is about and that they previously had agreed to participate. If the respondent is not the person who gave consent during the participation interview, you must explain the study, and state that the male or female head of household had consented to participate. The CATI will direct you through these situations. As noted in the previous section, the preferred respondent for this section of the interview is the female head of household; however, it is appropriate to speak with the male head of household if the female head of household will not ever be available or if the male head of household is insistent upon being the respondent.

During this section of the interview, you will obtain demographic information for each person who was a member of the household as of January 1, 1999. *It is important to collect information about people who were members of the household on January 1, even if they are not living there at the time you are conducting the interview. This includes people who may have moved or died since January 1,*

1999. It also includes people who reside in multiple households, such as students away at college, or children who live with different family members at different times. This does not include information about people who have joined the household since January 1, 1999.

Once you have the preferred respondent on the telephone, you will verify with whom you are speaking. You need to determine if it is the male or female head of household, and if the person with whom you are speaking was also the Participation Interview respondent. Thus, there are four possible combinations or choices: Female or (male) head of household and previous respondent (or not) to the Participation Interview.

Once you have established with whom you are speaking, you will advise them that, since the last time their household was contacted, an information packet with two cover letters was mailed to them. You will suggest that it would be helpful if they had the cards contained in the packet in front of them as you speak with them; you will ask if they have the packet available. If they do not have the cards in front of them, you will ask if they can get them. It is important to give them the chance to retrieve the cards since having the cards near the phone will make it easier for them to follow the interview. The cards will be referred to throughout the interview. However, if the respondent did not receive the cards, or if they are not available, do not refer to the cards during the interview.

The interview then proceeds by first clarifying the number of persons in the household, by age and gender, according to information collected during the Participation Interview. Following confirmation of the correct number of household members, the interview proceeds by collecting a roster of names for all persons who were members of the household as of January 1, 1999. For each person, you will ask the same set of basic demographic questions. These questions are:

First name: Be sure to obtain the correct spelling of the person's name. For the remainder of the interview, you will refer to this person by their name.

Last name: Obtain correct spelling.

Does the person live in the household now?: If the person does not live there now, you will ask if they have moved or died. If they have died, you will collect information on the month and day of death. You will advise the respondent that you will be asking questions about **all** persons who were members of their household as of January 1, 1999, even though they do not currently live there.

Relationship to the respondent: You will ask the household member's relationship to the respondent. The possible responses for relationship are:

- 1 = Self
- 2 = Spouse/Life partner
- 3 = Child (son/daughter)
- 4 = Sibling (brother/sister)
- 5 = Parent
- 6 = Other family
- 7 = Non-family
- 8 = Unknown
- 9 = Refused

The first person for whom you will complete the roster is the respondent, and the relationship is coded as "self". If the respondent asks what you mean when you ask for the relationship within the household, give alternatives that seem appropriate for the person you are speaking to or about. For example, suggest "spouse" if it is an adult woman with whom you are speaking. You should be able to translate their answer into one of the possible responses; for example, if the respondent says "She's my sister-in-law," record 6 = Other family. "Non-family" should be used when no family relationship exists.

Gender: This screen asks the gender (male or female) of the person in question.

Date of Birth: You will ask for each person's date of birth. Record all four digits of the year first followed by a two-digit month and finally a two-digit date. If the respondent does not know the exact date of birth, you will ask what the person's age was as of January 1, 1999.

Race: You will have the following list of possible races. The respondent may indicate more than one race for each person, reflecting interracial heritage; this will be entered as code #7 and specified. If the respondent needs prompting or gives an inappropriate answer such as "German," read the response categories.

- 1 = White

- 2 = Black or African American
- 3 = American Indian or Alaskan Native
- 4 = Hispanic or Latino
- 5 = Asian
- 6 = Native Hawaiian or other Pacific island
- 7 = Mixed Race or Something else (specify)
- 8 = Unknown
- 9 = Refused

It is important to ask this question for each member of the household, without assuming that they are all of the same race, or that they are of only one race.

Marital status: You will ask about marital status if the household member is 16 years of age or older, as of January 1, 1999. The following choices are given:

- 1 = Married or living as married
- 2 = Never married
- 3 = Separated
- 4 = Divorced
- 5 = Widowed
- 8 = Unknown
- 9 = Refused

If you remember that the person is the spouse of the respondent, you do not have to ask the question. Simply enter #1 as the response.

Health insurance: You will ask if the household member was covered by any type of health or medical insurance from January 1, 1999 through June 30, 1999. This question refers to any part of the six month period, and includes insurance which is free to certain individuals, such as veteran's insurance. If they were covered during all or part of that time, you will ask if they were covered by:

- 1 = Employer provided (paid) medical plan
- 2 = Household provided (paid) medical plan
- 3 = Medicare with a supplemental policy
- 4 = Medicare without a supplemental policy
- 5 = Medicaid
- 6 = More than one or Something else (specify)
- 8 = Unknown
- 9 = Refused

You will record all of the types of insurance that covered them during this time.

Years of formal schooling: You will ask how many years of formal schooling the household member had completed as of January 1, 1999. Formal schooling starts with first grade, continues through high school, and includes any post-high school formal education. This includes technical school, college, post-college or professional school. Home-schooled children are considered to have received formal schooling.

Amount of farm or ranch work: You will ask how many months between January 1 and June 30 of 1999 the household member worked or did chores in any type of activity related to the farm or ranch operation. You also will ask the number of hours per week working in those activities during the months identified. In this question, the respondent may need further clarification as to what is meant by "farm/ranch-related activities." "Farm/ranch-related activities" refers to any work activity or chore that is associated with the farm/ranch operation, even if is on an unpaid basis.

Months Worked or Did Chores: The number of months of farm/ranch work-related activities refers to work on that particular farm, since the farm is the unit of study. If the person worked in farm-related activities off and on during the study period, simply add up the total months. If a person worked one month or less record "1"; otherwise, round to the nearest month.

Hours per Week Worked or Did Chores: Hours per week worked in farm/ranch -related activities means the usual number of hours worked per week during the months identified. Hours worked on the farm may vary considerably from season to season. For example, if they worked for four weeks full-time at harvest-time, which only lasted one month, then the correct response may be 40 (or more) hours. This question may be difficult for respondents to answer. However, it is important to get the respondent's best estimate of the usual number of hours worked per week.

This completes the cycle of questions for each household member. When the cycle is complete for one member, you will begin with the next until all persons who were members of the household as of January 1, 1999 have been covered. At this point, the screen will show the household roster that the respondent has reported in order for you to verify that all household members have been logged. Read the list to the respondent. At this point, names may be appended or deleted.

2. Injury Log

a. Introduction

The next section of the interview deals with ALL injuries that occurred to ANY household member between January 1, 1999 and June 30, 1999. *This includes accidents or injuries that resulted from activities related to farming or ranching, and also those that resulted from other activities not related to farming or ranching. A full and specific definition is provided in the CATI system.*

As you enter this portion of the interview, please refer the respondent to the **LIGHT BLUE card in their packet**. *If they do not have the card in front of them, give them time to get it. The LIGHT BLUE card contains definitions and examples of injuries.* You will have a copy of this card and you also will have these definitions and examples on your computer screen. *You are to read these definitions and examples slowly, making sure the respondent understands.*

For this project, an accident/injury is defined if at least one of the following:

- 1. Restricted normal activities for at least four hours;**
- 2. Resulted in a loss of consciousness, loss of awareness, or amnesia for any length of time;**
- 3. Required professional health care, including care by doctors, nurses, chiropractors, dentists or other healthcare professionals.**

Examples of possible injuries (listed on the light blue card and on your screen) include:

- A brain injury or loss of consciousness resulting from a fall;
- A broken arm from working with machinery;
- An animal bite or kick;
- A brief loss of consciousness after breathing toxic gas such as silo gas or manure pit gas;
- A burn or blister due to heat or chemical contact;
- Abdominal injuries resulting from a motor vehicle crash;
- A leg fracture from a sports or recreational activity;
- A strained/pulled back from lifting, twisting, etc.;
- A cut/laceration from working with a tool;

- Bruise/contusion from falling item or being struck by/against equipment or an animal.

Also, note that injuries may occur from:

- excessive exposure to cold, such as frostbite;
- excessive exposure to heat, such as heat stress/heat stroke;
- exposure to bodies of water/liquid, including drowning or near-drowning.

These are examples and not the only injuries that may have occurred. They are just a few of the types of injuries that may have restricted normal activity for at least 4 hours, and/or resulted in a loss of consciousness and/or required some type of healthcare. It also is important to emphasize that you are collecting information on accidents/injuries that occurred between January 1, 1999 and June 30, 1999. (If there is any question about the date, collect all of the pertinent information and make a notation about the date being in question.)

b. Overview of Questions

Once you have finished orienting the respondent to the information on the **LIGHT BLUE card (Definitions)** and **BEIGE cards (Examples of injuries)**, you will now proceed to the **ROSE card (Persons injured)**. The CATI system will route you through each member of the household who is listed on the roster you obtained in the first section of this interview. For *each household member*, you will ask:

>Prior_injury1<
>Prior_injunumber<
>Prior_loss1<

Questions about any type of farming or ranching-related accidents or injuries that occurred PRIOR to January 1, 1999; if YES, how many accidents/injuries they had; and whether these injuries resulted in any permanent disabilities.

You will then proceed to ask the following questions:

>inj_log< During the six month period, between January 1st and June 30th of this year did you (or any household member on the roster) have any type of accidents or injuries?

If the answer is NO, you will ask if any injuries occurred to the next person on the roster. The CATI system will continue to guide you through the list of people who lived in the household as of January 1, 1999. If the answer is YES, for any of the household members, you will be

guided through a set of questions related to the reported injury/injuries (e.g. number of injuries, farming or non-farming, where it happened, source, etc.). For some questions in this section, you will be given the option of writing in an answer after "Other, specify" if the respondent's answer does not fit the categories listed. *These questions are:*

>inj_farmop< During that time, how many accidents or injuries did >Title> have that were in any way related to YOUR farming or ranching operation? This includes activities such as transportation on roadways, or any other aspect of your operation, including raising animals for recreation or home use. It could also include someone who was injured while standing or playing in the area where these activities were taking place.

For this question, do not include bookwork (e.g. household accounting), housework or house repair.

>inj_otherfarm < How many accidents or injuries did >Title< have that were related to SOMEONE ELSE'S operation?

>inj_nonfarmop< How many accidents or injuries did >He_she< have, that were related to activities OTHER THAN farming or ranching?

Next, you will ask questions about where the injury occurred, the source of the injury, the circumstances surrounding the injury event, and the consequences of the injury.

>inj_where< Where did the accident or injury happen?

The computer screen will contain a list of locations, including around the farm or ranch, roadway, in or around the house, sports or recreation area, work, school, and public place.

Examples that fit within the choices include:

1 = Around the farm: or ranch: crop field; pasture; in the farmyard; livestock yard or corral; farm outbuilding; in the barn.

2 = Roadway: on a farm roadway; on a public road;

3 = In or around the house: includes the garage

4 = Sports or recreation areas: on a playing field or sports area at school; on a playing field or sports area other than at school;

5 = Work (other than on the farm) At work other than on the farm, or ranch, e.g. in an office, a business, a construction site, baby-sitting at another home.

6 = School: at school other than on sports area or on playing field.

7 = Public place: restaurant, bus, public building, church, retail establishment, bar or other public facility.

8 = Other: answers that obviously do not match the above. You may need to probe before assigning an answer to "other" since probing might clarify the answer as belonging to one of the categories listed above.

Do NOT read the list of choices to the respondent. Simply ask the question and then enter the number for the choice that most closely matches the respondent's answer.

After you have established where the injury/accident occurred, you then will determine its source, i.e., what external agent was involved with the accident. The question is:

>injury-source< Which of the following SOURCES were involved in the accident/injury? I need to read the entire list before you give me your answer. After I read the list, please tell me the one or two most important sources that were most directly involved in causing the accident.

Then you will read the following list of sources:

- 1 = Tractor (including skid steer tractors)
- 2 = Motor vehicle (car, pickup, truck, motorcycle, ATV, personal watercraft (Ski-doo), snowmobile, etc.)
- 3 = Other large machinery or equipment
- 4 = Small power equipment / hand tools
- 5 = Livestock or animals
- 6 = Storage structure
- 7 = Chemicals / drugs / medications
- 8 = Body of water
- 9 = Falls / Surfaces (other than those associated with the items above)
- 10 = Sports / recreation source
- 11 = Housework
- 12 = Yardwork / gardening
- 13 = Work-related (Non-farming/off the farm)
- 00 = General activity
- 14 = Or something else, specify _____
- 15 = None / no secondary source
- 98 = Unknown
- 99 = Refusal

This list of sources is printed on your screen. It also is printed in the packet of supportive cards attached with this manual. If the respondent cannot identify one or two sources, emphasize that they need to specify the one or two *most important* sources. Once the source(s) have been identified, you will inquire about information related to that particular source of injury. *Please note: For some of the questions related to sources of injury you will be required to read a list of choices to the respondent, but for others you will be prompted not to read the list.* The questions related to each particular source are:

>inj-tractor< Was the tractor A LARGE TRACTOR WITH MORE THAN 20 HORSEPOWER, A SMALL TRACTOR WITH LESS THAN OR EQUAL TO 20 HORSEPOWER, A SKID/STEER TRACTOR (I.E. BOBCAT) OR OTHER TYPE OF TRACTOR?

You also will ask if a power take-off (PTO) was involved in the accident and, if so, if the PTO was shielded.

>inj_motorveh< What type of motor vehicle was involved in the accident?

You will read the following list:

- 1 = Car
- 2 = Van
- 3 = Sport utility vehicle
- 4 = Pickup truck
- 5 = Grain truck
- 6 = Other truck
- 7 = Motorcycle or motorbike
- 8 = All terrain vehicle (ATV)
- 9 = Snowmobile
- 10 = Personal watercraft (i.e., Ski-doo, etc.)
- 11 = Other, Specify
- 98 = Unknown
- 99 = Refusal

>inj_largemach< In the following list of large machinery or equipment, what type or types were involved in the accident? I need to read the entire list before you give me your answer.

"Involved" means the equipment/vehicle the person was riding in or on, or if the person was a bystander. The list of machinery or equipment is printed on your screen.

- 1 = Tillage equipment (Disc, moldboard plow, field cultivator, chisel plow, rotary hoe, row crop cultivator, powered tiller, cultipacker, etc.)
- 2 = Planting equipment (i.e. planters, drills, etc.)
- 3 = Harvesting equipment (Combines, pickers, forage harvesters, mowers balers, stackers, specialty harvesters, etc.)
- 4 = Augers / Elevators (Portable and fixed augers, elevators or conveyors)
- 5 = Feed grinder / mixer
- 6 = Irrigation equipment
- 7 = Wagons (hay racks, forage wagons, gravity box, graincart etc.)
- 8 = Chemical and fertilizer application equipment
- 9 = Manure application equipment
- 10 = Other farm equipment; powered by an external source (silage / forage blowers, grain dryers, etc.)
- 11 = Other farm equipment; self-powered (Back-hoe, Caterpillar, forklift, earthmoving equipment, etc.)
- 98 = Unknown
- 99 = Refused

>inj_smequip< What TYPE OF SMALL EQUIPMENT OR HAND TOOLS were involved in the accident?

Do **not** read the list. Enter the number that most closely matches what the respondent says.

- 1 = Stationary powered shop tools (table saw, drill press, etc.)
- 2 = Portable powered hand tools (portable saw or drill, electric screw driver, etc.)
- 3 = Hand tools (hammer, chisel, saw, etc.)
- 4 = Chain saws
- 5 = Portable grinders
- 6 = Stationary grinders
- 7 = Lawn mower
- 8 = Snow blower
- 9 = Garden tiller
- 10 = Other, Specify
- 98 = Unknown
- 99 = Refusal

>inj_animals< What TYPE OF LIVESTOCK OR OTHER ANIMALS were involved in the accident?

Do **not** read the list. Enter the number that most closely matches what the respondent says.

- | | | |
|---------------------------------|--------------------------|--------------------------|
| 1 = Dairy cow with newborn calf | 7 = Beef bull | 13 = Poultry |
| 2 = Dairy cow or heifer | 8 = Beef calf | 14 = Sheep |
| 3 = Dairy bull | 9 = Sow with piglets | 15 = Horse |
| 4 = Dairy calf | 10 = Sow without piglets | 16 = Stud Horse/Stallion |
| 5 = Beef cow with newborn calf | 11 = Feeder pig | 17 = Other, Specify |
| 6 = Beef cow, steer or heifer | 12 = Boar | 98 = Unknown |
| | | 99 = Refusal |

>inj_storage< What KIND OF STORAGE STRUCTURE was it?

Do **not** read the list. Enter the number that most closely matches what the respondent says.

- | | |
|------------------------------|--|
| 1 Feed container / feed bunk | |
| 2 Livestock barn | 8 Workshop / tool shed |
| 3 Grain bin / granary | 9 Manure pit / tank |
| 4 Corn crib | 10 Fruit or other non-grain crop storage |
| 5 Silo | 11 Other, specify |
| 6 Machine shed | 98 Unknown |
| 7 Garage | 99 Refusal |

>inj_chemical< What TYPE OF CHEMICALS, DRUGS OR MEDICATIONS were involved in the accident?

Do **not** read the list. Enter the number that most closely matches what the respondent says.

- 1 = Pesticides including: insecticides, herbicides, fungicides and fumigants
- 2 = Anhydrous ammonia
- 3 = Fuels, lubricants or cleaning agents
- 4 = Other chemical products, such as household products, paint, solvents, etc.
- 5 = Veterinary medicines
- 6 = Other, specify type and name
- 8 = Unknown
- 9 = Refused

For certain chemicals, you will also ask if the chemical or pesticide was stored in a special container.

>inj_water< What TYPE OF BODY OF WATER was involved in the accident?

Do **not** read the list. Enter the number that most closely matches what the respondent says.

- | | |
|---------------------------------|---------------------|
| 1 = Lake | 8 = Bath tub |
| 2 = River, stream or creek | 9 = Hot tub or spa |
| 3 = Swamp | 10 = Other, specify |
| 4 = Pond (including stock pond) | 98 = Unknown |
| 5 = Stock tank | 99 = Refusal |
| 6 = Water-filled ditch | |
| 7 = Swimming pool | |

>inj_fall< When you/[___] fell, did you fall on LEVEL GROUND OR FROM A DIFFERENT LEVEL?

Do **not** read the list. Enter the number that most closely matches what the respondent says. If necessary, probe for more information to gain more complete information related to the question (e.g., asking if the ladder was over or under 20 feet tall). Choices 1 through 5 describe specific falls from one level to another. Choice #6 also describes falls from one level to another, but **use #6 only when the fall cannot be classified under choices 1 through 5.**

There will be a list of choices on your screen:

- 1 = Fall on or from stairs or steps
- 2 = Fall on or from ladders or scaffolding more than 20 feet
- 3 = Fall on or from ladders or scaffolding less than or equal to 20 feet
- 4 = Fall from or out of building or other structure
- 5 = Fall into hole or other opening in surface
- 6 = Fall from one level to another
- 7 = Fall on same level from slipping, tripping, or stumbling

>inj_sports< What sport or recreational activity was/were [] involved in when [] got hurt?

The following sport and recreational activities will be listed on your screen; however do NOT read the list. Enter the number of the category that is closest to the respondent's answer.

- | | | |
|--------------------|--|---|
| 1 Aerobics workout | 16 Horseplay(adult) | 31 Skiing, downhill |
| 2 Archery | 17 Hunting | 32 Sledding |
| 3 Baseball | 18 Ice fishing | 33 Snowmobiling |
| 4 Basketball | 19 Ice hockey | 34 Soccer |
| 5 Bicycling | 20 Ice skating | 35 Softball |
| 6 Boating | 21 Martial arts (judo, karate etc.) | 36 Swimming / Diving |
| 7 Bowling | 22 Physical education activities, general (non-specific) | 37 Target practice/shooting (firearm, other than hunting) |
| 8 Broadjumping | 23 Play activities, general children's' (non-specific) | 38 Tennis |
| 9 Broomball | 24 Playground activities | 39 Track and field |
| 10 Cheerleading | 25 Racquetball | 40 Volleyball |
| 11 Dancing | 26 Rollerskating | 41 Water skiing |
| 12 Field Hockey | 27 Rollerblading | 42 Weight lifting |
| 13 Football | 28 Running/jogging | 43 Wheeling / 4 - wheeling |
| 14 Golf | 29 Skateboarding | 44 Wrestling |
| 15 Gymnastics | 30 Skiing, crosscountry | 00 Other, specify |
| | | 98 Unknown |
| | | 99 Refused |

The next six questions list no choices for answers. You will type the response **exactly** as the respondent states it. After you type the response, read it back to the respondent for accuracy. Once the answer is typed and checked, you will exit the question and go on to the next one by typing ///. The questions are:

>inj_housework< What TYPE OF HOUSEWORK was/were [] involved in when [] got hurt?

>inj_yardwork< What TYPE OF YARDWORK or gardening was/were [] involved in when [] got hurt?

>inj_general< What type of GENERAL ACTIVITY was/were [] involved in at the time of the accident?

>inj_othrwork< What TYPE OF WORK UNRELATED TO FARMWORK were [] involved in when [] got hurt?

This concludes all of the possible sources of injuries/accidents.

The next questions ask about the circumstances of the injury/accident event:

>inj_activity< Tell me, in your own words, what was/were [] doing at the time of the injury.

You will type in the response exactly as stated, read it back to them, and end with ///

>inj_how< In your own words, HOW did the accident happen?

You will type in the response exactly as stated, read it back to them, and end with ///

The next questions address when the injury happened:

>inj_date< What was the DATE of the accident?

If the respondent is unsure of the exact date, you will ask:

>inj_month< THEN can you tell me the MONTH in which the accident happened?

If unknown, go to >inj_season<

>inj_season< THEN can you tell me if this accident happened in the SPRING, SUMMER, FALL OR WINTER?

If the respondent **does know the date, or if the respondent has answered the season and month**, you then ask:

>inj_time< What TIME of day did it happen?

If the respondent is unsure of the time, you will ask:

>inj_time2< THEN could you tell me if this accident happened in the MORNING, AFTERNOON, EVENING OR NIGHT?

The next questions deal with the nature of the injury.

>inj_part1< What PARTS OF THE BODY were injured?

List up to six body parts as identified on the dark blue card provided to the respondent and as identified on the CATI system.

>inj_type1< Describe what TYPES OF INJURIES occurred to the [] **body part(s)**.

Refer the respondent to the BEIGE card in their packet. This card lists types of injuries, and their definitions. *There may be more than one type of injury for each body part; probe for all types of injuries.*

>inj_loc< As a result of this accident, was there a LOSS OF CONSCIOUSNESS?

If the answer to this question is YES, you will ask:

>inj_loc2< Was this due to a BLOW TO THE HEAD, BEING OVERCOME BY FUMES OR SOMETHING ELSE?

>inj_loc3< HOW LONG did the unconsciousness last?

>inj_amnesia< Was there LOSS OF AWARENESS, AMNESIA, OR CONFUSION?

If the answer to this question is YES, you will ask:

>inj_amnesia2< Was this DUE TO A BLOW TO THE HEAD, OR SOMETHING ELSE?

>inj_amnesia3< HOW LONG did the amnesia or loss of awareness last?

The following questions address the consequences of the injuries:

>inj_restrict< HOW LONG were normal activities restricted? Normal activities are the things a person would ordinarily do on any given day.

>lost_farmwork< Did you / [__] LOSE ANY TIME FROM WORK on your farming or ranching operation as a result of the accident?

If the answer to this question is YES you will ask:

>lostfarmtime< How MUCH TIME did you / [__] lose from work on your operation?

>lostotherwork< Did you / [__] LOSE ANY TIME FROM WORK AT A JOB(S) NOT RELATED to your farming or ranching operation as a result of the accident?

If the answer to this question is YES, you will ask:

>lostothertime< How MUCH TIME did you / [__] lose from your job(s) not related to your operation?

>restrict_now< Are you / is [__] STILL RESTRICTED from carrying out your / (__)'s normal activities as a result of this injury?

If the answer to this question is "yes", you will ask:

>restrict_now2< TO WHAT DEGREE would you say your / (__)'s NORMAL ACTIVITIES ARE CURRENTLY RESTRICTED? A small amount, a moderate amount or a large amount?

>inj_serious< How would you RATE THE SERIOUSNESS of this overall injury. Would it have been Minor, Moderate, Serious, Severe or Life-threatening?

Refer the respondent to the **BEIGE CARDS** and ask:

>inj_symptoms< At the present time, are there any **persistent** problems or symptoms related to this injury, including things such as numbness, pain, weakness, or some type of impairment? If you can turn to the second BEIGE card, it will help you identify some of these problems and symptoms.

If the answer to this question is **YES**, you will refer the respondent to the **DARK BLUE** card and ask:

>inj_symptoms2< What part (s) of the body is affected? If you can turn to the DARK BLUE card with the figure, it will help you to answer this question.

>inj_symptoms3< What are the exact types of persistent problems or symptoms you / () have / has?(SECOND BEIGE CARD)

You then will ask questions about care of the injury:

>inj_care1< Was the injury treated by a health care professional, such as a doctor, nurse, chiropractor, dentist or other healthcare professional?

If the answer to this question is "yes", you will ask:

>inj_care2< In which of the following places did you / () receive care?

You will read the following list and indicate whether or not care was received at each of these places:

- A doctor's office
- A hospital emergency room
- A hospital as an in-patient (admitted to the hospital)*
- A dentist's office
- A chiropractor's office
- At the scene of the accident
- Any other health care facility

*If they received care as a hospital in-patient, ask the following:

>inj_hospital< How long were you/was [] in the hospital?

>inj_insurance< What percentage of the costs of care for this injury was covered by health or medical insurance? Was it none, less than 50% or 50% or more?

When these questions are finished, the CATI system will cycle to the next injury for this household member (or the next member of the household) and ask the same set of questions about that injury.

- END OF INJURY LOG SECTION -

COMMENCE EXPOSURE SECTION

Depending upon the selection of persons for the final section of the interview (Exposure Section), which is A CRITICALLY IMPORTANT SECTION OF THE INTERVIEW, you may or may not proceed. The exposure questions are asked not only for selected injured persons but, also, for a set of randomly selected uninjured persons. The set of questions is extremely important because it provides essential information on both the factors that place persons at risk for injury as well as those that may protect them from injury. This information can then be used to develop prevention programs that will be important to all farm household members.

If there are no persons selected from the household for the next section, the interview ends here. The CATI system will direct you through the appropriate language.

3. Exposure Section

a. Part 1 - Exposure

The questions in Part 1 of the Exposure Section address various non-farming/ranching activities, health status, medication use, general habits, and farming operation information. Each of these will be described in more detail below.

The female head of household is the preferred respondent for this portion of the Exposure Section. Since the female head of household also was the preferred respondent for the previous portions of the interview (Introduction/Household Log and Injury Log), it is likely that you will be speaking with her when you arrive at this section. However, if you are not now speaking with her -- either because she was previously unavailable or preferred not to answer questions -- you may ask again to speak with her now if this is appropriate. The CATI will prompt you to record who the respondent is before you actually begin the questions.

For most questions, you will be asking about activities occurring within a specific month. However, some of the questions will be asked for other periods of time. In either situation, the CATI will provide you with the name of the month and appropriate year.

1) Non-farming/ranching activities

- a) Non-farming/ranching jobs.** In these questions, you will ask if, for the month that is identified by the CATI, the person worked at any paid job NOT related to farming or ranching. If YES, you will ask the number of weeks worked during that month, and the average number of hours per week.
- b) School.** In these questions, you will ask what grade the person was in school for the month identified by the CATI. You also will ask how many weeks in that month the person spent in classes in school and, on average, how many hours per week. You also will ask the respondent to rate the person's performance in school.
- c) Sports/recreational activities.** In these questions, you will ask if the person participated in any sports or recreational activities in the month identified by the

CATI and, If YES, you will ask which sports or recreational activities. For the month identified, you will ask how many weeks in that month the person participated in these activities, and the average number of hours per week.

2) Health status

a) Prior health/medical problems. In these questions, you will ask if the person was diagnosed AT ANY TIME with any of 16 listed health problems prior to the month provided by the CATI. Diagnoses could have been designated by any health care provider, including but not limited to a physician, osteopath, or chiropractor. If the person was diagnosed with any of these conditions, you will also will ask if the condition interfered with any of the person's regular activities during the month identified by the CATI. The list of health problems includes:

- Chronic or periodic pain in any part of the body;
- Restriction of movement of any body part;
- Arthritis;
- Liver disease;
- Kidney disease;
- Heart disease;
- High blood pressure;
- Diabetes;
- Hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD)
- Vision problems not correctable with lenses;
- Stress;
- Depression or other psychological problems;
- Brain or spinal cord injury or disease;
- Epilepsy;
- Asthma;
- Allergies.

b) General health. In this series of questions, you will ask for an assessment of general health status, as well as height and weight, during the month identified by the CATI system. You also will ask if the person is right or left-handed or ambidextrous.

c) **Use of prescription medications.** From a list of 12 categories of medications, you will ask the respondent if the person took any of them regularly during the month identified by the CATI. "Regularly" is defined as daily for at least one week, or 3-4 times per week throughout the entire month. The list of medications includes:

- Antihistamines, or allergy medications, such as *Actifed*, *Allegra*, *Claritin*, or *Benadryl*;
- Prescription pain medication, such as *Tylenol #3*, *codeine*, *phenylbutazone*; *Darvocet*, *Lortab* or *Ansaid*.
- Over-the-counter (OTC) pain relievers such as *aspirin*, *Advil*, *Åleve*, *Orudis*, or *Tylenol*.
- Ritalin or other medicine for treatment of hyperactivity;
- Heart medication;
- Blood pressure medications;
- Anti-depressants/mood elevators;
- Amphetamines, decongestants, or pep pills, including diet pills;
- Insulin;
- Tranquilizers, sedatives, sleeping medications, such as *Valium* or *Diazepam*.
- Antibiotics, such as *penicillin*, *erythromycin*, *tetracycline*, or *sulfa drugs*.
- Diuretics or water pills.

d) **Sleep and exercise.** In these questions, you will ask about sleep and exercise patterns during the month given by the CATI. You will ask how many hours of sleep the person got each night, how often it was difficult for the person to wake up on mornings that included chores, work or school, and how often it was difficult for the person to go to sleep at night. You will then ask if the person actively participated in any regular aerobic exercise at least twenty minutes a day, 3 times a week.

3) **Strictness.** These questions are directed to the respondent, about their experience of strictness with their child prior to the month identified by the CATI. You will be given a four-point scale for the responses: 1) Not strict; 2) Somewhat strict; 3)

Moderately strict; 4) Very strict. There also is an option for not applicable. There are five questions dealing with strictness about knowing where the person was, who the person was with, making sure the person used a seatbelt or car seat when riding or driving in a motorized vehicle, making certain that the person used farm equipment safely, and making certain that the person worked around animals safely.

- 4) Behaviors/Actions.** These questions are asked only if the person is 5 years of age or older. They address the respondent's perception of the person's behavior or actions during the month identified by the CATI. You will ask the respondent how often something happened or how often the statement was true during the month; you will have a four point scale for a response: 1) Almost never; 2) Sometimes; 3) Often; 4) Almost always. The questions address: completing work and chores; following rules; acting without thinking; getting into fights; working hard; being impulsive; breaking rules; planning carefully; inability to sit still; being easily distracted, cautious, or irritable; leaving house or farm without permission; paying attention; looking sad or down; acting as a bully; having low energy; having good concentration.
- 5) Stress.** These questions deal with a three month period identified by the CATI. You will ask how stressful the respondent felt life was for the person, how stressful the respondent felt life was for the respondent, and how stressful the respondent felt life was for the family. You will have a four point scale for responding: 1) Not stressful; 2) Somewhat stressful; 3) Moderately stressful; 4) Very stressful.
- 6) Readiness.** These questions address factors the respondent considers when deciding if a person is ready to do a new chore on the farm or ranch. You will ask how important each factor is, with four possible responses: 1) Not important; 2) Somewhat important; 3) Moderately important; 4) Very important. The factors are

the person's age, the person's size, the person's gender (male or female), the person's maturity or responsibility, the skills of the person, prior training of the person, the danger level of the task or chore. There also is an opportunity for the respondent to indicate other factors they consider important. Finally, you will ask the respondent the age at which they feel an average young person or person would be ready to work with animals, would be ready to ride on or in a tractor, and would be ready to drive or operate a tractor.

7) Safety training. In these, questions you will ask if the person ever took a 4-H or Vo-Ag training program to learn how to operate a tractor. If so, you will ask when the training took place and how many hours of training it involved. You also will ask the number of hours the person spent in any training programs or seminars dealing with farm safety and injury prevention, and if so, when the most recent one occurred. These questions all deal with training programs prior to the month given by CATI.

8) Chores. You will ask about the chores the person performed during the month provided by the CATI. You will ask if the person performed as many chores or farmwork as was expected by the family, or more or less than expected. You also will ask how well the person performed the chores (worse than expected, about what was expected, better than expected).

9) Farming operation information. This section includes very general questions about the respondent's farming or ranching operation. You will ask the number of years the respondent had been farming or ranching, prior to the month given by the CATI. In addition, for a one month period, you will ask about the number of acres in active production or use and which farm enterprise required the most amount of work time -- beef cattle, dairy cattle, other animals, field, forage or specialty crops, CRP, or something else. You will also ask if: anyone involved

in the operation traveled on public roadways with farm equipment; any type of milking system was used and, if so, what kind; any firearms were present on the operation and, if so, the numbers that were shotguns, rifles or handguns.

10) Income. This is a single question in which you will ask the respondent to estimate net household income from all sources, after taxes and withholdings, for 1998.

You will be given seven income categories: Read all categories and ask the respondent to choose one.

11) Prevention. You will ask if the respondent believes that some farming or ranching related injuries can be prevented. If YES, you will ask what the respondent believes are the two main things that can be done to prevent injuries on the farm or ranch. If NO, you will ask why.

End of Part I of the Exposure Section of the interview.

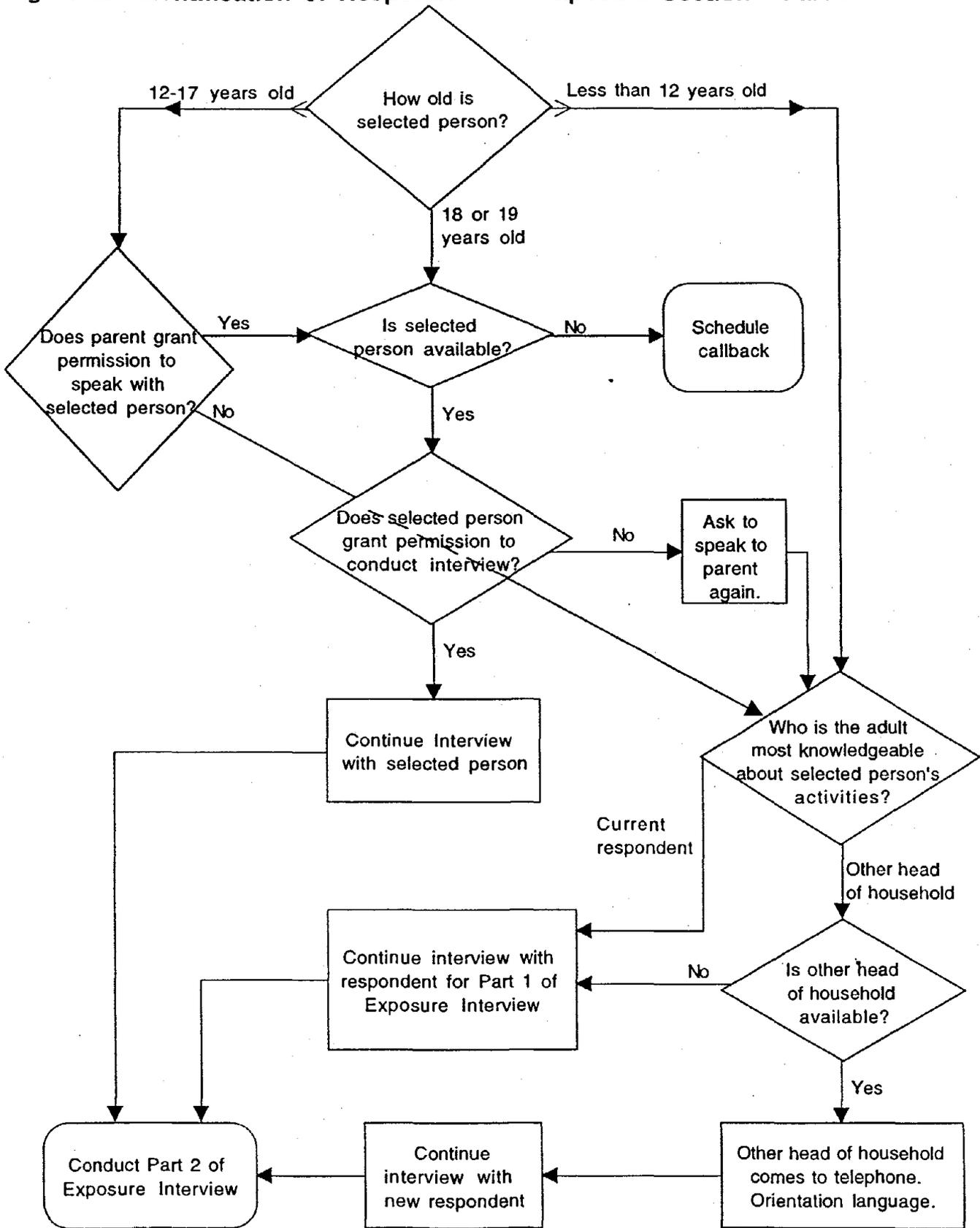
b. Part II - Exposure Section

If the person is *12 years of age or older*, that person is the preferred respondent. *Parental permission is required to interview the person if he/she is less than 18 years old. Parental permission is not required if the person is 18 or 19 years old.* If the person is unavailable at the time, you will schedule a callback; if the person *will never be available* or is unwilling to answer questions, or the parent does not give permission to interview the person, the preferred respondent is the parent/adult head of household who is most familiar with the person's farming- or ranching-related activities, and the number of hours spent on these activities during the exposure month. The CATI system will facilitate this decision-making process.

If the person is *less than 12 years old*, the preferred respondent is the male or female adult head of household who is most familiar with the person's farming- or ranching-related activities, and the number of hours spent on these activities during the exposure month.

The CATI has stored the birthdate/age of the person, and will provide you with the correct questions. Refer to the figure on the following page for identification of the preferred respondent for this section; the text on the following pages provide the script of what you actually will say.

Figure 5. Identification of Respondent for Exposure Section - Part II



1) Possible Conditions At The Beginning Of Exposure Section, Part 2:

a) Person is less than 12 years old:

You will still be speaking to the respondent who answered the questions in Part 1 of the Exposure Section. If this person is the male head of household, you will immediately continue to the introduction of Part 2 of the Exposure Section interview.

If you are currently speaking with the female head of household, you will say:

"We would like to speak with the adult in your household who knows the most about the person's farming or ranching-related activities and how many hours he/she spent on these activities during >month<. Would that be you or another male head of household?"

If the respondent says that the male head of household is more knowledgeable, you will ask to speak with him. If he is available and comes to the telephone, you will ask permission to conduct this portion of the interview:

"Hello, this is ___ calling of the ___ Agricultural Statistics Service. We are conducting a project with the University of Minnesota on farming and ranching operations. [original respondent] agreed to have your household participate. We would like to ask some questions about the person's activities on your farming or ranching operation and [original respondent] said you could help with this. You do not have to answer these questions but your cooperation is important for us to get accurate information. If you are uncomfortable with any question, you may choose not to answer that one, and we will move on to the next question. All the information we collect is confidential. May we continue?"

Under some circumstances, a new respondent will not come to the telephone. These circumstances occur when the respondent for the first section of the interview is the adult most knowledgeable about the person's activities, or if the more knowledgeable adult is unavailable or unwilling to answer questions. Under these circumstances, the interview proceeds with the introduction identified in the CATI system.

b) Person is 12 years or older and less than 18 years old.

You will ask the respondent for permission to interview the person:

"We would like permission to speak with >person<, to ask some questions about his/her activities on the farm or ranch in school. The interview should take approximately 20 minutes.

Are you willing to allow him/her to speak with us?"

If the adult grants permission and the person comes to the telephone, you then must obtain permission from the person to conduct the interview:

"Hello, this is _____ calling for the _____ Agricultural Statistics Service. We are conducting a project with the University of Minnesota on farming and ranching operations. [PI respondent] agreed to have your household participate in this project and has been answering questions about who resides in your household, some characteristics of your operation, and any injuries that may have occurred. We would like to ask you some questions about your activities on your farming or ranching operation. You do not have to answer these questions but your cooperation is important for us to get accurate information. If you are uncomfortable with any question, you may choose not to answer that question, and we will move on to the next question. All the information we collect is confidential. May we continue?"

If the person agrees, you will continue with the questions in this section of the interview. If the person does not agree, you will ask to speak with the parent again:

"Would you be able to put your parent back on the phone so I may speak with them?"

When the adult returns to the telephone, you will ask to speak to the most knowledgeable adult:

">The person< has requested not to be interviewed. We would like to speak with the adult in your household who knows the most about the person's farming or ranching-related activities and how many hours he/she spent on these activities during >month<. Would this be you or another adult (the male head of household)?"

The interview then continues as it would if the person were less than 12 years old.

c) Person is 18 or 19 years old.

If the person is 18 years of age or older, you do not need to request parental permission to conduct the interview. You simply ask if the person is available, and the interview proceeds in the same manner as if the parent already had granted permission to speak with a younger person. If the person is unavailable at the time, you will schedule a callback; if the person *will never be available* or is unwilling to answer questions, the preferred respondent is the adult in the household who is most familiar with the person's farming- or ranching-related activities, and the number of hours spent on these activities during the exposure month.

2) Questions Asked In Part 2 Of Exposure Section

The questions in Part 2 of the Exposure Section address chores or work that the person did during the specified month. The questions are specifically related to activities connected with the farming or ranching operation, either on or off the farm or ranch, and including trips to town. The section begins with a general introduction:

"In this section we would like to ask some questions about chores or work the person did. These questions relate specifically to farmwork and by farmwork I mean any activities connected with your farming or ranching operation, either on or off the farm/ranch, including driving to town to get supplies. This will also include information about working with animals, driving vehicles, operating farm machinery and other tasks. Some of the questions will be general, while others will ask about a certain month of the year".

You will then ask if, during the specified month, the person worked or did chores related to their farming/ranching operation. If so, you will ask how many weeks during the month the person worked, and on average, how many hours per week. Next, you will ask the same set of questions about work on anyone else's farm or ranch operation.

If the person did not do any work or chores on any operation, the CATI system will route you to the next appropriate questions.

If the person did work or do chores on any operation during the specified month, the CATI will route you to a series of questions dealing with the specific nature of different types of exposure. These will be reviewed below. The first question always asks if the person worked

or did chores during that month. If the answer is "no," the CATI will route you to the next appropriate question. If the answer is "yes," the CATI will route you through specific questions about the exposure.

In the following, information is presented on the types of specific exposure questions you will ask if the person worked or did chores on any operation during the given month:

- a) Animals/Livestock.** In this series of questions, you will ask if, during the month identified by the CATI system, the person did any work or chores with animals. You will ask about work with dairy cattle, beef cattle, swine, horses, sheep, and poultry. For each kind of animal/livestock, you will ask specific questions about the nature of the work, the number of weeks during the month the person worked, and the average number of hours per week. A subsequent question addresses the respondent's perception of risk to the person working with animals.
- b) Motor vehicles.** In these questions, you will ask about the person riding in, riding on, or driving motor vehicles for activities related to their farming or ranching operation during the month identified by the CATI system. If the person is less than 5 years old, you will ask if the person rode in or on any motor vehicles; if the person is 5 years old or older, you will ask if the person rode in or on or operated motor vehicles. The kinds of vehicles considered are passenger type enclosed vehicles (car, van, sport utility vehicle, pickup truck, grain truck, other truck) and open vehicles (motorcycle, motorbike, all terrain vehicle, snowmobile). You will ask how many weeks during the month the person rode in or operated these vehicles, and the average number of weeks per month, plus additional questions about the use of safety equipment such as seat belts and helmets.
- c) Tractors.** In this section you will ask questions about the person operating or riding on tractors. If the person is 5 years of age or older, the CATI system will route you through a series of questions that ask if the person operated tractors 20 horsepower or less, more than 20 horsepower, or skid steer type tractors. If the

person operated tractors, you will ask if the tractors had a power take-off (PTO) and, if so, if there was a PTO shield. You will ask how many weeks during the specified month the person was exposed to tractors and the average number of hours per week. You also will ask the age at which the person began to drive or operate a tractor, and what the respondent believes is the risk of injury for the person while riding on or working with tractors.

Next, the CATI system will route you to a series of questions asking if, during >month<, the person rode on any type of tractor as a passenger or helper. You will ask about the person riding on tractors 20 horsepower or less, more than 20 horsepower, and on skid steer type tractors. If the person rode on tractors, you will ask if the tractors had an approved Roll Over Protective (ROP) structure, if an implement was connected to any of the tractors and, if so, if the person rode on the implements. You will ask how many weeks during the month the person rode on the tractors and the average number of hours per week. You also will ask the age at which the person began to ride on any type of tractor on their operation.

Finally, you will ask if the person ever received training about operation of a tractor and, if so, when the most recent training occurred and how many hours it involved.

d) Large machinery. If the person is less than 5 years of age, the CATI system will route you to the next appropriate questions. If the person is 5 years of age or older, the CATI system will route you to an introductory question:

"During >month<, did the person operate or help to operate ANY large pieces of machinery or equipment, such as any tillage, planting or harvesting equipment, augers, elevators, feed grinders, mixers or wagons?"

If the answer is NO, the CATI system will route you to a second introductory question dealing with different types of large machinery:

"During >month<, did the person operate or help to operate ANY equipment for irrigation, chemical fertilizer application, manure application, or other external or self-powered farm or ranch equipment?"

If this answer to this question is NO, the CATI system will route you to the next appropriate questions. However, if the answer to first question about operating machinery is

YES, CATI will route you to a set of questions that ask about the person's operation of specific types of machinery. The goal of these questions is to determine exactly what kinds of equipment the person was operating or helping to operate, and in some cases, whether or not the equipment had certain features. At the end of the questions dealing with specific types of machinery, you will ask: "How much risk of injury did you believe there was for the person when working with large equipment on YOUR operation?"

- e) **Small equipment.** If the person is 5 years of age or older, CATI will route you to a question that asks if, during the specified month, the person operated or handled grinders, powered shop tools, chain saws, garden tillers, or hand tools, to perform activities on their operation. If YES, you will ask specifically which types of equipment they used. If the person is less than 5 years old, or if the person did not operate any small equipment during >month<, the CATI system will route you to the next appropriate question.
- f) **Storage structures.** You will ask if, during the specified month, the person worked or did chores inside any storage structure, such as a grain bin, silo, fruit storage bin, or manure pit, on their operation. If YES, you will ask specifically which type of storage structure.
- g) **Chemicals.** You will ask if, during the specified month, the person mixed, handled, or applied any type of agricultural chemicals on their operation, including anhydrous ammonia, pesticides, fuels, lubricants, cleaning agents, veterinary medicines, or other chemicals. If YES, you will ask specifically what kinds of chemicals were handled.
- h) **Bodies of Water.** You will ask if, during the specified month, the person worked in or near a body of water such as a lake, river, swamp, pond, stock tank or water filled ditch on their operation. If YES, you will ask specifically about the types of body of water.

- i) **Ladders.** You will ask if, during the specified month, the person worked on any ladders or scaffolding on their operation. If so, you will ask if the ladder or scaffolding were more than 20 feet or 20 feet tall or less.
- j) **General/Other.** You will ask if, during the specified month, the person performed general farming or ranching related activities that haven't been discussed in the interview. If YES, you will ask what these activities were and type the answers into the CATI system.
- k) **Training and Prevention.** In this series of questions, you will ask how many hours prior to the specified month the person had spent in training or seminars concerned with farm safety and injury prevention. If the person had spent any hours in safety programs, you will ask when the most recent course or seminar took place. You also will ask if the respondent believes that some farming operation-related injuries can be prevented. If the response is YES, you will ask them to identify the two main things that they think can be done to prevent injuries on the farm or ranch. If the response is NO, you will ask them to explain why.

E. Closure Language

1. Reluctant Respondents

At different times during the interview, the respondent may balk or hesitate to answer additional questions. It is important to determine the reason the respondent has become reluctant and attempt to address their concerns. The CATI system will give you the option to indicate that the respondent has become reluctant, at which point you ask the question:

"May I ask why you prefer not to continue at this time?"

a. The interview is taking too much time.

You offer to schedule a callback at a more convenient time. If the respondent does not agree to a callback, you will ask if they would mind answering a few more questions that will only take five minutes. The CATI system will route you to those questions.

b. Respondent is uncomfortable with questions.

You will tell the respondent that if they are uncomfortable with any question, you can skip that one and go on to another. Then you will ask if they would be willing to continue if you skip the questions they prefer not to answer.

c. The value of the interview is not clear.

The CATI system will provide you with the following response language:

"The results of this project will be used to develop effective injury prevention programs that will benefit all farming and ranching household members. It is important that we interview all eligible households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries. May we continue?"

d. No clear reason, just refuses.

The CATI system will provide you with the following response language:

"The results of this project will be used to develop effective injury prevention programs that will benefit all farming and ranching household members. It is important that we interview all eligible households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries. If you are uncomfortable with any question, we can skip that one and go on to another. Or we can call back at a time that is more convenient. May we continue, or would you prefer that we call back?"

If the respondent still refuses to continue, you end the interview.

2) Completed interviews

When you have completed an interview, the CATI system will provide you with the following closure language:

"Thank you very much for your time today. Your cooperation gives us important information about factors that may prevent injuries, and may be used to develop injury prevention programs that will benefit all farm families. We will be calling your household again in approximately six months. We look forward to speaking with you then. Good-bye."

APPENDIX I

IMPORTANT SURVEY TECHNIQUES

Participants may remember more about how the interview was conducted than they will about the topics covered in the interview. This emphasizes the importance of the interviewer being professional and capable of accepting what the participant says without apparent judgment. It is important to remember that the intent of survey interviews is to collect information. A number of factors can increase the participant's receptiveness and success of the interview:

A. Establishing a Rapport

The participant and the interviewer need to establish a good rapport. Rapport is a term used to refer to the interpersonal connection established between the interviewer and the participant. Rapport sets the foundation for good interviewing. The participant's impression of you during your introduction and early remarks will have a considerable impact on the rapport that will develop. You, the interviewer, need to impress the participant as being someone who is not only understanding and accepting, but sincere and courteous as well.

B. Identifying the Importance of the Project

The extent to which an interviewer might have to explain the project will vary considerably from respondent to respondent. All households that you call should have received a letter explaining the project prior to your contact by telephone. Respondents may have several questions to ask about the project; therefore, do not assume that they will fully cooperate at this point. All prospective participants, even those who are least interested in participating, should feel that the project is important. If they question the importance of the project, you should tell them that farm accidents and injuries are a major problem and that the results of this project will be used to decrease the problem of accidents and injuries in farm households. If they question how their participation can help, you must assure them that their cooperation will be meaningful not only to the project results but, also ultimately, to themselves, their families and their communities.

C. Establishing Confidence Among the Participants

Participants need to feel confident in responding to the interview questions. Participants will usually not interrupt the interviewer. You, the interviewer, must therefore be alert to doubts the participant may have, even if he/she does not express them vocally (i.e., through apparent hesitation). You must attempt to clarify the questions for them.

D. Asking the Questions

Your goal is to collect accurate information through the use of the project questionnaire. Data from project participants must be collected in a uniform manner. Thus, all people in a sample must be asked the same questions in the same way as they have been designed.

The following principles and techniques must be employed when using the questionnaire:

- 1. Always Remain Neutral.** The interviewer must be careful that nothing in his/her words or manner implies criticism, surprise, approval, or disapproval of either the

questions asked or of the participant's answers. The questions should be asked in such a way that the same answers would be obtained no matter who was asking them.

2. Ask all Questions Exactly as Worded. *Even the smallest change can affect the entire meaning of the question. Do not change even one word in the question that is on the screen.* If a respondent does not understand the question the first time you read it, do not re-word it. Simply re-read the question as it is stated, even if you feel the question could be stated differently. Great care was taken in writing each question; every word is there for a reason. In order for all of the data collected to be meaningful and accurate, there must be no doubt that each participant heard exactly the same question asked in the same way before answering.

3. Hold the Participant's Interest. Try to keep your attention focused on the participant and not overly absorbed in the questionnaire. However, you should also try to stay alert to the flow of the interview and whether, or not, the answers being given are sufficient, clear and appropriate to the questions asked.

E. Probing

Probing is the technique used by the interviewer to obtain more specific and necessary information. For example, if an answer seems inadequate in relation to the information needed for the project, you may need to probe in order to obtain more information. Probing has three major functions:

- to motivate the participant to enlarge upon, clarify, or explain his/her answers;
- to focus the participant's answers so that irrelevant and unnecessary information can be eliminated;
- to pinpoint information, such as dates, names, locations, as accurately as possible.

Interviewers must fully understand the purpose and meaning of each question. Once you understand the purpose or rationale of each, you will find it much easier to decide if you have a satisfactory answer or whether you should probe for a clearer and more complete one.

Probing should not bias the response or antagonize the participant.

Probes must always be neutral. Remember, you want to motivate the participant to respond more fully or to focus his/her answer without introducing bias, especially your own views. The potential for bias is great in the use of probes. Under the pressure of the interviewing situation, the interviewer may quite unintentionally imply that some answers are more acceptable than others or may hint that a participant might want to consider this or include that in giving a response. Do not lead the participant into an answer.

1. Types of Probes

A number of different neutral probes that appear as a part of a normal conversation can be used to stimulate a fuller, more complete response.

- An expression of interest and understanding;
- An expectant pause;
- Repeating the question;
- Repeating the participant's reply;
- A neutral question or comment.

a. Probes to Clarify:

- 1) What do you mean by . . . ?
- 2) What do you mean exactly?
- 3) Could you please explain that a little?
- 4) I don't think I quite understand.

b. Probes for Specificity :

- 1) What in particular do you have in mind?
- 2) Can you be more specific about that?
- 3) Tell me about that: who/what/when/where/why . . . ?

c. Probes for Data Specificity:

- 1) Was that before or after your hospitalization?
- 2) What type of farm equipment was that?

3) Were you working at the time?

d. Probes for Relevance:

1) I see. Well, let me ask you again...(Repeat question exactly as worded).

2) Would you tell me exactly how you mean that?

e. Probes for completeness:

1) What else?

2) What else can you think of?

3) What other reason/things/examples can you think of?

2. When to Stop Probing

If at any time the participant becomes obviously irritated or annoyed, discontinue probing. We do not want the participant to refuse the rest of the interview. If the participant accepts the probing, continue until you have obtained as much information as possible to fully answer the question. If the probing is done correctly, you will most likely obtain a complete answer.

APPENDIX II

ANSWERING PARTICIPANTS' QUESTIONS

Respondents will undoubtedly have questions about the interview as the interview progresses. They may also ask similar questions when you make the initial phone contact.

A. Typical Questions Participants Ask:

1. Why are you interviewing me?
2. Who gave you my name?
3. Why are you doing this project?
4. Why are you interviewing me? We didn't have any injuries.
5. Who will see the information I give you?
6. How will the information be used?
7. How long will this take?

You must have ready and convincing answers to questions such as these. Examples of how to respond to these types of questions are given below:

B. Examples of Responses to Respondents' Questions

1. Why are you interviewing me?

It is important that we interview you since this is a project of farm households that are representative of the entire agricultural community.

2. Who gave you my name?

Your farm was picked randomly from a list that is maintained by the National Agricultural Statistics Service for each state.

3. Why are you doing this project?

The purpose of the project is to determine the extent and the causes of farm-related injuries among household members. The findings will also serve as a basis for determining the best ways to prevent such injuries. Specifically, we are asking questions about the farm, farming operation-related activities, and any injuries that may occur during 1999. The findings will provide important information that will be used in the development of relevant injury prevention programs.

4. Why are you interviewing me? We didn't (don't) have any injuries.

Farm households with no injuries are just as important to the project as those households that have injuries. All of the information we obtain is important and essential in helping to gain a full understanding of the injury problem. Because there are many different types of farms and exposures to various activities, it is important to analyze these differences. This information serves as a basis for development of injury prevention programs.

5. Who will see the information I give you? How will the information be used?

A coded number is assigned to each person interviewed so that all information is then identified by the number only. An individual is never identified in any report since results of the project are presented in group form only. For example, a result might be presented in the following form:

- Dairy farming was considered the major farm enterprise for 32% of farms surveyed.
- Injuries occurred among 9% of farms surveyed.
- 53% of all farm-related injuries required a doctor's care.

REGIONAL RURAL INJURY STUDY - II
Interviewer Information Sheet

Purpose of the Project:

To collect information that will be used to develop prevention programs that can benefit all farm household members.

Importance of Participation:

It is essential to have all farm households participate to obtain the most complete information. Without full participation, the resulting information could be misleading.

Participating States:

Minnesota, Wisconsin, North Dakota, South Dakota, and Nebraska

Who will see the information from this project?:

All information obtained is kept completely confidential. No individual or farm operation names are ever identified once the interview is completed; these names are kept confidential by the USDA National Agricultural Statistics Service.

Once the interview is completed, a number is assigned to each person interviewed so that all information can be identified only by a number. An individual or farm operation will never be identified in any report because results are presented in group form only -- either by state or by the total five state region.

Why are you interviewing my son (my daughter) (and asking all of these questions about exposures)? He/she didn't have any injuries.

Both injured and non-injured persons are being interviewed. This information is important in being able to determine both factors that may protect persons from injuries as well as those that may place them at risk for injuries.

RESPONSES FOR RELUCTANT RESPONDENTS

1. "We can't possibly keep track of all the little bumps and scrapes..."

"We only are interested in injuries that restricted normal activities for at least four hours, or resulted in a loss of consciousness for any length of time, or required professional health care."

2. "We didn't have any injuries..."

"It is important that we interview all households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries."

3. "We don't have time for the interview..."

"May we call back at a more convenient time?"

If the respondent does not agree to a callback ==>

"Then would you be willing to answer just a few questions that will only take 5-10 minutes?"

4. "I don't like answering these kinds of questions..."

"If you are uncomfortable with any question, we can skip that one and go on to another."

5. "Why are you doing this?"

"The results of the project will be used to develop effective injury prevention programs that will benefit all farming and ranching household members. It is important that we interview all eligible households, whether or not there were any injuries. This will provide important information about factors that may prevent injuries."

6. (Personal Crisis)

"I am very sorry to have bothered you at this time. May we call you back in a few weeks?"

REGIONAL RURAL INJURY STUDY - II

CALL ATTEMPT PROTOCOL
1999-2000

TYPES OF CALL ATTEMPTS:

1. Attempts to reach a respondent for the identified farm household for the first contact

A total of nine attempts must be made to contact farm households identified, according to the following schedule:

- 5 attempts during the evening, on weekdays, on different days (Monday through Friday) of the week
 - half of these in early evening (4:00-6:30 p.m.)
 - half of these in later evening (6:30-9:00 p.m.)
- 2 attempts during the day, on weekdays
 - one in early morning
 - one during noontime
- 2 attempts on Saturday
 - one in early morning
 - one during noontime

The order of making the weekday and Saturday call attempts need not be fixed according to the order of the list above -- e.g., daytime and Saturday calls can be made prior to completing all of the evening attempts.

2. Attempts to reach a respondent for an appointment for a scheduled call-back

A total of four attempts must be made to reach persons who have scheduled call backs but are unavailable at the scheduled time. Upon the fourth failure to keep an appointment, a determination will be made that specifically addresses the issue of whether the person is ever likely to be available. If it appears that they may be willing to be contacted, a fifth scheduled call-back attempt will be made. If it appears that failure to keep call-back appointments is an indirect method of refusal, no further attempts will be made.



Memorandum

Date: February 7, 2003

From: Adele M. Childress, Ph.D., Program Official
Office of Extramural Programs, NIOSH, E-74

Subject: Final Report is declared 'Confidential' for Grant 5 R01 CC514375-04.

To: William D. Bennett
Data Systems Team, Information Resources Branch, EID, NIOSH, P03/C18

The attached sheet lists the publications for final report that has been received from the principal investigator (PI) on the subject NIOSH grant. The PI requested that the final report remain confidential for a period of four years, as allowed, so the actual report is not being transmitted. If you receive inquiries about this final report, please refer the caller to us.

List of Publications

Gerberich Susan G, Church Timothy R, Renier Colleen M, Gibson Robert W, French Ronald L, Mastem Amme S, Mongin Stephen J, Ferguson Kathleen, Alexander B, Ryan AndrewD, Zhang Xueying: Unique Occupational Injury Surveillance: Regional Rural Injury Study-II. La Medicina del Lavoro 93(5):464-465, 2002

Hard D, Meyer J, Gerberich SG: Traumatic Injuries in Agriculture. Journal of Agricultural Safety and Health, 81(1):51-65, 2001

Gerberich Susan G, Bibson Robert W, Renier Colleen M, French L Ronald, Masten Anne S, Church Timothy R, Luan Xueying, Jensen Kristen E, Shutske John M, Carr W Peter: Risk Factors for Agricultural Injuries Among Children: Regional Rural Injury Study-II. American Journal of Epidemiology, May 2001

Attachment
cc: Sherri Diana, EID, P03/C13

NIOSH Closeout Summary with Publications

Title: Etiology and Consequences of Injuries Among Children in Farm Households: A Regional Rural Injury Study
Investigator: Susan G. Gerberich, Ph.D.
Affiliation: University of Minnesota
City & State: Minneapolis, MN
Telephone: (612) 625-5934
Award Number: 5 R01 CC514375-04
Start & End Date: 9/30/1998–9/29/2002
Total Project Cost: \$819,887
Program Area: Special Populations
Key Words:

Final Report Abstract:

Importance

Agriculture has consistently been identified as one of the most hazardous occupations in the United States, with rates of morbidity and mortality more than twice those for all occupations. Currently, no systems exist that can provide accurate data on the incidence of, and risk factors for, agricultural injury. To date, the majority of studies concerning agricultural injury have used case-series or hospital and emergency department data rather than population-based data. Although case series data are important for descriptive purposes and identifying problem areas, such cases account for only a small proportion of the injury problem in agriculture. The need for injury data systems and the use of epidemiologic data as the basis for developing appropriate injury intervention strategies have been reported as essential to the ultimate control of this major public health problem.

Objectives

The objectives for this study were to: 1) identify risk factors for farming/ranching operation related injuries to persons 20 years of age, using a case-control study design 2) determine the incidence, types, sources, severity, and social and economic consequences of injuries by using an injury data collection system that can serve as a basis for surveillance and 3) modify the RRISI/pilot study rural population injury surveillance data collection system instruments for the current effort, thus, enabling its transportability to other geographic locations nationwide. The relevant research design and specially designed data collection instruments enabled accomplishment of these objectives.

Methods

The study involved a cohort of farming/ranching operation households in Minnesota, Wisconsin, North Dakota, South Dakota, and Nebraska. Data were collected for the two six month periods of 1999 to identify all injury events and relevant demographics for all household members data pertinent to numerous exposures of interest were collected for children and youth, <20 years of age, through the application of a simultaneous nested case-control study.

A random sample of 3,200 operations was selected for each state (total n=16,000), from the United States Department of Agriculture's (USDA) National Agricultural Statistics

Service (NASS) Master List Frame. Introductory letters were sent to each operation subsequent screening telephone interviews were administered, using a computer assisted telephone interview (CA TI). Eligibility involved: being actively engaged in farming/ranching as of January 1, 1999 having sales of agricultural goods \$1,000 in the past year and/or land registered in the Conservation Reserve Program [CRP] and having a household associated with the operation that included at least one child <20 years of age, as of January 1, 1999. Each eligible household, that agreed to participate, subsequently received packets containing detailed information and specially designed cards to assist them in the two subsequent full data-collection interviews.

Any injurious event, that met one or more of the following criteria, was included: restricted nonnal activities for at least four hours; resulted in loss of consciousness, loss of awareness, or amnesia for any length of time, or, required professional .fzealth care. Agricultural-related injuries were those that resulted from any activity related to an agricultural operation, or occurred as a result of bystanding in relevant areas. To determine the total injury burden on the agricultural population, data on injury events related to agricultural operation activity and all other activities, were collected.

For the case-control study, cases were those who incurred an agricultural-related injury associated with their operation up to six controls, per case, were sampled from the population at risk. Interviews enabled data collection on exposures of interest during the months prior to the injury events for cases, or during the months randomly selected for controls, based on an injury incidence algorithm. Validation, relevant to selection bias and information bias, was incorporated.

Personal risk and injury event rates were adjusted for within-household correlation using generalized estimating equations (GEEs), excluding levels for missing values and non-response. Potential selection bias was controlled by inversely weighting observed responses with probabilities of non-response, estimated as a function of characteristics available from the NASS database. To account for unknown eligibility among non-respondents, probability of eligibility was estimated from these same characteristics and also used to weight responses. Analyses of the case-control study included both univariate and multivariate; based on the causal model and relevant directed acyclic graphs, variables were selected to enter in the multivariate model analyses. Logistic regression was used to investigate the relation between specific exposures of interest and the occurrence of agricultural-related injuries.

Results

A total of 16,538 persons were followed through the study period; 51% were <20 years of age. A total of 2,586 total injury events were reported for the study population; 1,198 (46.9%) occurred on one's own agricultural operation; 68 (2.7%) on someone else's operation; and 1,291 (50.5%) were related to activities other than agriculture. Respective rates for these classifications were 74.6, 4.3, and 81.4 injury events per 1,000 persons. The overall annualized rate of injury was only 1.2 times greater for those 20+, compared with <20 years of age (176.0; 145.9). Based on multivariate analyses, the odds of sustaining an injury increased as the number of hours worked per week on one's own

operation increased. The primary sources of injuries, associated with farming/ranching for those <20 years, were animals (41 %) and falls (31 %); for those 20+ years, they were also important sources, as were machinery (19%) and tractors (13%). Consequences of the agricultural-related injury events, for those <20 and 20+ years, respectively, included: treatment by a health care professional (79%; 82%); restricted activity for 4 hours (77%; 71 %); and hospitalization (4%; 5%). Restriction from regular activities for 7 days was reported for 29% of each age group. Of further interest is the impact of injuries, both agricultural-related and those associated with other activities, upon the farming operation; 17% and 14%, respectively, of those <20 and 20+ years of age, identified 7 days of lost agricultural work time, while for non-agricultural-related injuries, this accounted for 17% of each age group. Based on multivariate analyses of case-control data, involving those <20 years of age, increased risks were identified for operating or riding in a motor vehicle and riding on or operating a tractor; increased risks for operating either large or small equipment were suggestive. For animal exposures, increased risks were identified for working with horses, sheep, and beef cattle; exposures to swine and dairy cattle were also suggestive of risk.

Conclusions

This effort has enabled identification of the incidence and consequences of agricultural injuries, in concert with the burden of all injuries, on the agricultural operation for all persons, and the risk factors for agricultural-related injuries among persons less than 20 years of age. Most importantly, the latter data serve as a basis for development of prevention and control strategies essential for the reduction of morbidity and mortality from injuries incurred by children as a result of agricultural operation activities.

Publications

Gerberich Susan G, Church Timothy R, Renier Colleen M, Gibson Robert W, French Ronald L, Mastem Amme S, Mongin Stephen J, Ferguson Kathleen, Alexander B, Ryan Andrew D, Zhang Xueying: Unique Occupational Injury Surveillance: Regional Rural Injury Study-II. *La Medicina del Lavoro* 93(5):464-465, 2002

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Hard D, Meyer J, Gerberich SG: Traumatic Injuries in Agriculture. *Journal of Agricultural Safety and Health*, 81(1):51-65, 2001

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January 3, 2003

Sharron Orum, Grants Management Specialist
Acquisition and Assistance Branch B
Procurement and Grants Office
Centers for Disease Control and Prevention
2920 Brandywine Road, Room 3000
Atlanta, Georgia 30341
Telephone: 770-488-2716

Dear Ms. Orum:

I am enclosing the Final Technical Report for **RO1/CCR514375**, "Etiology and Consequences of Injuries Among Children in Farm Households: A Regional Rural Injury Study - 1999" (original and two copies). This is being submitted according to Option 1 requirements identified in the Assistance Award Closeout Requirements (February 8, 2000) that were provided to me; this report is also submitted to meet the extension deadline of January 13, 2003 (from December 2002), approved by Ms. Mildred Garner in your office.

On behalf of the research team associated with this effort, I am **requesting that dissemination to the public of the following sections be delayed until the associated manuscripts are published to ensure that publication in prestigious journals is not compromised: Abstract; Significant Findings; Results, including tables and figures; Discussion.** Sections that are not affected include: Background; Methods; and Appendices, including Data Collection Instruments. As identified, the manuscripts are in final preparation and are expected to be submitted to peer-reviewed publications shortly.

I appreciate your consideration of this request. Please contact me if you need additional information pertinent to the enclosed report.

Yours sincerely,



Susan Goodwin Gerberich, Ph.D.

Professor and Director

Regional Injury Prevention Research Center,
Center for Violence Prevention and Control,

Occupational Injury Epidemiology and Control Program, and
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