FINAL PROGRESS REPORT

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Strategies for Safety of Older Adult Farmers

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List of Abbreviations

AAA	American Automobile Association
ATV	All-Terrain Vehicle
FACE	Fatality Assessment and Control Evaluation
IRB	Institutional Review Board
ISASH	International Society for Agricultural Safety and Health
NAGCAT	North American Guidelines for Children's Agricultural Tasks
NASD	National Ag Safety Database
NASS	National Agricultural Statistics Service
NIOSH	National Institute of Occupational Safety and Health
NYCAMH	New York Center for Agricultural Medicine and Health
OISPA	Occupational Injury Surveillance of Production Agriculture
OVAR/GEC	Ohio Valley Appalachia Geriatric Education Consortium
PI	Principal Investigator
PTO	Power Take-Off
UK	University of Kentucky
U.S.	United States
USDA	United States Department of Agriculture

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ABSTRACT

This exploratory project solicited the perspectives of senior farmers, their spouses and their adult children, about farm work hazards, the ways farmers adapt farm tasks as they age, risk perception, and task decision-making processes. In addition, a working group of interdisciplinary professionals was established to support the academic/education/practice aspects of the exploration. The purpose was to develop a consensus statement based on input from this cohort that outlines the next steps in injury prevention strategies for older farmers.

The specific aims were to:

1. Identify the top ten hazardous tasks of older (senior) farmers.
2. Develop a job hazard analysis matrix that includes the task hazards, minimum ability set, personal risk factors and action plan for the top ten hazardous tasks.
3. Test the feasibility of developing work guidelines or other injury prevention interventions for these hazards.
4. Establish sustainable work groups to design and test strategies and interventions identified in the consensus statement.

Focus groups and personal interviews across seven states were conducted to obtain the perspectives of the farmers and their families (n=107). A group of agricultural health and safety professionals (n = 68) was developed through NIOSH agricultural centers, the International Society for Agricultural Safety and Health (ISASH), and the American Farm Bureau.

Farmers attributed external factors (e.g. machinery, animals) as creating the greatest risk for injury while family members and the interdisciplinary professionals identified internal factors (e.g., vision, musculoskeletal issues, medication). Combining the expertise of all the stakeholders and analyzing the multiple perspectives of work risk of senior farmers assisted in developing the consensus statement on how to proceed in creating programs and products that can decrease the high injury and fatality rates of aging farmers while protecting their right to work.

Consensus statement:

> Experienced senior farmers and their families are acutely aware of the risks they face each day in the agricultural environment, safety precautions that can be taken to reduce the risk of injury, and health issues associated with aging. The probability of a farm-related injury is perceived as a normal part of a farmer's occupation. Any successful program or guide must consider a farmer's need to be part of the farming process, recognize the valuable input senior farmers offer to the agricultural community, provide resources that are realistic and allow the senior farmer to make his/her own decisions about adaptations, and utilize venues that are trusted by the farming community. Strategies should avoid the use of the word "aging" or "old" and examine the capabilities and limitations of all, not just those who have reached a specific age. A combination of physical, mental, and functional ability needs to be assessed as opposed to strictly chronological age. The use of humor and stories are considered the best methods for farmers to analyze situations "outside" themselves and then adapt the strategies within their own lives.

Work should go forward to decrease the excessive fatality rates of senior farmers, protect their right to work, and promote the overall health of the family unit. Attention should also be turned to the psychological well-being of the farmer and the family. Stress, both in the occupation and in the home, must be regarded as a leading challenge as age advances. The results underscore the importance of the NIOSH Total Worker Health model and its relationship to the vital agricultural community.

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SECTION 1

Significant (Key) Findings

AIM 1: Identify the top ten hazardous tasks of senior farmers. Farmers and their families are acutely aware of the dangers they face each day in the agricultural environment but consider the probability of a farm-related injury as a normal part of their occupation. Consistent with the literature, the top four categories of hazardous job tasks identified by the senior farmers were tractors, livestock, machinery, and climbing/falling. Family members and agricultural support specialists were more likely to name intrinsic features, such as slowed reaction time, stress, and tasks involving newer technology. Farmers did not equate the lack of or weakness in these areas as the hazard itself. Agricultural support specialists who reviewed the farmer data (agricultural engineers, agricultural researchers, safety specialists, and health care professionals who provide clinical care to farmers and their families) produced a deeper understanding of the complexities of factors that coalesce to form the hazardous tasks face by farmers: external, internal, and cultural factors.

AIM 2: Develop a job hazard analysis matrix that includes the task hazards, minimum ability set, personal risk factors and action plan for the top ten hazardous tasks. This aim was partially met. Narrative data from focus groups and personal interviews along with consultations with the literature and the project's consultant was used to determine three broad categories that contributed to risk: external mechanical forces, including the environment and equipment; the farmer's state of health (internal factors); and the farmer's relationship to the farm operation. Some information regarding specific tasks, and the abilities to do that task, were identified but need further substantiation.

AIM 3: Test the feasibility of developing work guidelines or other injury prevention interventions for these hazards. Three different templates of work guidelines were developed during the course of the project – one based on the North American Guidelines for Children's Agricultural Tasks (NAGCAT), one modeled after AAA's popular senior driving self-assessment, and one that combined concepts of both with stories and humor gathered from the farmers themselves. All three prototypes were rejected, with farmers emphatically stating they would not use any tools that had unilateral directives (e.g. stop doing the task). A second strategy explored utilized popular farm press with short articles based on stories from farmers interwoven with research findings. This approach resonated much better with farmers and resulted in increased participation and presentations. The challenge with this venue was the inability to evaluate the effectiveness of the publications and presentations. After fully analyzing the data and returning to the literature with a broader perspective, three short sociodramas (plays) were crafted from stories shared by farmers throughout the career of the PI and tested in a farm dinner theater that mimicked a usual farm meeting. The plays utilized local farmers as the actors and allowed the farmers and their families a "third person" view of the risks, results, and possibilities of adaptation. The pilot of this intervention was rated very favorably and behavior changes were made as a result of attending the production. Requests for this type of intervention are already being received. We plan to continue this work and test a larger intervention if funding is secured.

AIM 4: Establish sustainable work groups to design and test strategies and interventions identified in the consensus statement. This aim was successfully accomplished and collaborations are moving forward. Interest in this work is very high. Sixty-eight agricultural safety and health professionals participated in the study. Members of the International Society for Agricultural Safety and Health (ISASH) serve as the foundation for the sustainability of this group. Other interdisciplinary groups that were part of the study included members of the New York Center for Agricultural Medicine and Health (NYCAMH) and state safety coordinators from the American Farm Bureau. Collaborations between American Farm Bureau, popular farm press, and Cooperative Extension have already yielded dissemination of the research to date. Two major keys to carrying this work forward include continued communication and action and funding to further explore the farm theater intervention. The initial results are very promising as the intervention has proven acceptable to farmers and effective in changing their behavior. It should be studied not only with the aging farm population but has potential for all farmers (beginning farmers, youth, parents of children on farms, and groups that work with farmers) to better understand the reality of their lives and tailor care for them in that context. Work with the farm press will be ongoing to encourage inclusion of articles on aging.

Translation of Findings

This exploratory project sparked interest of a variety of farm organizations, press, academics, and others who serve farm communities. Findings from the study have resulted in public and scientific presentations, training sessions by the principal investigator for professionals who work with farmers, and the genesis of "farm theater" in a local community. The consensus statement provides the "accumulated voice" of the farm and professional communities to go forward with work in aging and farming. The statement is the foundation for curriculum development and programmatic direction.

Outcomes/ Impact

Potential outcomes: Identification of risks and acceptable interventions has the potential to reduce morbidity and mortality among senior farmers. Findings from the farm community also identified the need for improved communication strategies among farm families to tackle sensitive topics related to risk and work. Basing interventions and communications within the perceived reality of farmers will aid the effectiveness of new interventions. The sustained work group on aging and farming has the potential for new collaborative projects.

Intermediate outcomes: The interdisciplinary reach of the project exceeded expectations. Publications (including farm press articles) and presentations based on the findings of the project have resulted in a strong interest in the subject from farmers, farm families, and interdisciplinary groups. Work with the American Farm Bureau on aging and farming is in progress with direct interface with farm communities. The PI's involvement in nursing education efforts has allowed aging farmer and health content to be added to nursing curriculum.

End outcomes: Most important, limited evaluation revealed that 33% of farm theater participants made positive safety behavior changes within one week of the event. These changes can lead to the desired goal of reducing injuries experienced by the aging farm population.

SECTION 2

Scientific Report

Background

Farmers represent one of the most aged occupational workforces in the United States (Myers, Layne, & Marsh, 2009). The aging of farm operators has been observed for nearly three decades. The average age of the principal farm operator has increased roughly one year in each census cycle from 50.3 in 1978 to 57.1 in 2007 (USDA, 2007). Farmers over age 55 now comprise over half (50.94%) of all farm operators. The fastest growing group of farm operators are those 65 years and older. The 2007 Census of Agriculture further identified nearly 300,000 farm operators aged 75 years and older. The average age of farmers is expected to continue this upward trend into the next decade and beyond.

Agriculture is one of the nation's most hazardous industries and one of the few industries where there is no mandatory or customary retirement age. Older farmers carry workloads similar to their younger counterparts working as much as 10-12 hours per day (Lizer & Petrea, 2007; Marcum, Browning, Reed, & Charnigo, 2011a; Reed, Rayens, Conley, Westneat, & Adkins, 2012; Voaklander, Dosman, Hagel, Warsh, & Pickett (2010). However, senior farmers suffer a disproportionate number of injuries and the highest fatal injury rate of all age groups who farm. A study by Myers, Layne, & Marsh (2009) examined data from the NIOSH Occupational Injury Surveillance of Production Agriculture (OISPA) conducted by the USDA National Agricultural Statistics Service (NASS) for the years 2001 and 2004. Their examination revealed that farmers and farm workers age 55 and older averaged 26,873 lost-time injuries in each of those years, constituting an injury rate of 4.5 injuries/100 workers/year. In addition, senior farmers/farm workers accounted for over half of all farming deaths between 1992 and 2004 (3.671 of 7064 deaths). These fatalities were most often attributed to tractors (46%), trucks (7%), and animals (5%). Other common sources of fatal injuries included agriculture harvesters and mowers. During 2011-2012, twenty-five Kentucky farmers died doing their work. Over three fourths were farmers aged 50 and over; while those over age 65 comprised 48% of the deaths (N. Hanner, Kentucky Injury Prevention Center FACE Program, personal communication August 28, 2013). These grim, but not unusual statistics, underscore the importance of working with farmers to develop strategies for their safety, especially as they reach later years of life.

Health and agriculture

While many people realize the hazards of working in agriculture, they are not as familiar with the additional risks that accompany an aging population of farmers (Freeman, Schwab, & Miller, 2000). Complex and multidimensional physiological and psychological changes conspire to place senior farmers at a higher risk for injury and poorer outcomes than their younger counterparts. For example, physiological changes involved in the aging process may include impairments, disabilities, and handicaps experienced by older adults and thus increase their susceptibility to injury. Decreased strength and flexibility, vision problems, hearing loss, onset of a long-term illness, and depression limit the senior farmer's physical capabilities to farm safely

(Cole & Donovan, 2008; Freeman, Schwab, & Miller, 2000). Literature supports that age-related health problems contribute to an elevated risk for injury. Senior farmers reporting chronic bronchitis/emphysema, arthritis, and sleeping problems have been found to have significantly higher odds of sustaining a farm-related injury (Heaton, Azuero, Phillips, Pickens, & Reed, 2012; Marcum, Browning, Reed, & Charnigo, 2011b; Heaton, Azuero, & Reed, 2010). Heavy lifting, repetitive bending and kneeling, and awkward work positions increase the aging farmer's risk for the development of osteoarthritis in the hips and knees (Heaton, et al., 2012). Farmers with mobility problems are twice as likely to experience a farm work injury compared to those without mobility problems (Heaton, et al., 2012). Chronic health problems, however, have only a minor impact on the number of hours worked on the farm (Marcum, Browning, Reed, & Charnigo, 2011).

Functional cognitive declines associated with aging may decrease older adults' ability to comprehend and act in risky situations that may be associated with farming. Older adults generally adjust to the decline in mental resources in normal life by selecting tasks they can do well or planning more thoroughly but the pressures of farmwork do not always allow these strategies to work in the agricultural arena (McLaughlin & Sprufera, 2011). While senior farmers are acutely aware of slower reaction times, they are driven by the fact that the work still needs to get done. Therefore, despite changes in physical and mental abilities, senior farmers trudge on with a general attitude that the potential for accidents is a normal part of their occupation (McLaughlin & Sprufera, 2011).

Compounding these risks, many older adults typically consume more medications than middle-aged or younger adults to treat these chronic conditions. Increased consumption of pharmaceuticals intensifies the risk for older adults to experience negative drug interactions and adverse side effects. A study of the association of medication use by older farmers and injury suggested that a strong relationship between the recent use of pain medication and subsequent injury does exist (Voaklander, et al., 2006). Age-related health changes must be taken into consideration as the average age of farmers continues to rise (Voaklander, Umbarger-Mackey, & Wilson, 2009).

The computerized mechanization of farm equipment may also have an impact on injury risk for aging farm workers. While newer equipment comes with better safeguards and is designed to make work easier and faster, much of the equipment is also computerized. Senior farmers may not be familiar with the new technology. McLaughlin & Mayhorn (2011) pose the question, "How much are older farmers expected to learn about new technology and new techniques as they continue to work?" [p.35]. It is not that older farmers are not capable of learning new techniques, it is that they perceive the unfamiliar equipment as a greater risk for injury.

The normal aging process, increased use of medications, and the demands of mechanization place the aging farm worker at greater risk for occupational injury. Addressing these multiple and often complex issues is difficult. To effectively minimize the risks faced by older farmers and farm workers, Myers, Layne, & Marsh (2009) emphasized that a thorough understanding of older workers' beliefs, values, and motivations, and the adoption of nontraditional prevention programs is required.

Culture and agriculture

The culture of farming is unique and farmers have a different perspective of the role that work plays in their health outcomes. Farmers firmly link their life satisfaction to their sense of accomplishment from their work (Reed, et al., 2012; Maciuba, Westneat, & Reed, 2013). Older farmers define good health as the ability to work (Reed, et al., 2012; Ingham, 2009). Even in the presence of chronic health conditions, work continues. The ability to work is "as necessary as breathing"; farming is their purpose, meaning, and passion in life (Ingham, 2009). Farm work provides enjoyment and satisfaction, and cannot be disconnected from senior farmers' heritage and culture. This desire and need to work closely aligns with the continuity theory of aging which proposes that individuals age successfully when they continue the habits, preferences, lifestyles and relationships from midlife into late life (Gullifer & Thompson, 2006). Cole & Donovan (2008) suggest that healthy older adults are capable of making positive adaptations that can offset the age-related issues being experienced. Experience, expertise, and wisdom allow the older adult to develop behavioral strategies that compensate for physical limitations (Cole & Donovan, 2008). Ingenuity is a dominant characteristic of the farming community and farmers generally pride themselves in overcoming any obstacle that comes their way. Psychosocial epidemiological research has established that older adults who "actively participate in community organizations, assess their health status as excellent or good, remain active, and derive satisfaction from their work live longer and healthier lives than persons without these characteristics" (Cole & Donovan, 2008, p.88-89). These factors contribute to the ability of aging farmers to continue working productively and safely in the face of declining physical and mental faculties (Cole & Donovan, 2008).

Previous interventions to prevent occupational injuries and health problems among agricultural workers have typically focused on creating awareness among farmers about occupational hazards in farming and the presentation of safety rules and guidelines (Colemont & Van den Broucke, 2006; Cole, 2002; Petrea, 2001). Results of these efforts have disclosed that simply showing or telling someone what to do is not enough to influence behavioral changes. Attitudes that help the individual perceive the relevance of that knowledge to their daily life, perceived social norms, and self-efficacy need to be addressed to raise the effectiveness of prevention programs. (Cole, 2002; Cole, 2000; Colemont & Van den Broucke, 2006).

While much attention has focused on the risks in agriculture, little attention has been paid to the continued work of the senior farmer, typically a person whose entire life has been involved in farm work. A "voice" for the senior farm has not emerged. The intent of this exploratory study was to develop such a voice.

Specific Aims

This study combined the expertise of researchers and the farm community in an attempt to understand what type of injury prevention interventions would have the greatest potential to improve the safety of senior farmers, their families, and others who interact with them. The purpose of this study was to develop a consensus statement based on input from farmers, family members of older farmers, and interdisciplinary professionals involved in the health and safety of

the agricultural community to outline the next steps in injury prevention strategies for older farmers.

The specific aims of this exploratory project were to:
1. Identify the top ten hazardous tasks of older [senior] farmers.
2. Develop a job hazard analysis matrix that includes the task hazards, minimum ability set, personal risk factors and action plan for the top ten hazardous tasks.
3. Test the feasibility of developing work guidelines or other injury prevention interventions for these hazards.
4. Establish sustainable work groups to design and test strategies and interventions identified in the consensus statement.

Methodology

Research Design

The commitment to involve partners and stakeholders throughout the research process is central to NIOSH-funded research (Huy, J., 2010). This project utilized the consensus-development methodology used to develop The North American Guidelines for Children's Agricultural Tasks (NAGCAT) to ensure that a broad spectrum of stakeholders had input into the types of injury prevention programs and products older farmers and their families would find helpful. Strategies for safety that engage the farmer in decision making about his/her farm work choices and injury risks was most critical. The consensus model incorporated the following: (a) it refers to a collective opinion on a matter or course of action; (b) it is achieved when core advisors agree; (c) it uses focus group discussions with experts in the area of inquiry and open forums for the deliberation of action plans; and (d) it agrees that lack of consensus will be documented.

Based on the specific aims of this research, the following steps were adapted from the NAGCAT action plan:

Step 1. Conduct a literature review of any models of guidelines for older adult work, particularly literature specific to older farmers, their work, and health and safety of this age group.
Step 2. Pilot test the feasibility of developing guidelines or other interventions through focus groups of farmers and through discussions with other professionals.
Step 3. Develop a matrix of farm job hazards for aging farmers.
Step 4. Invite a group of interdisciplinary professionals to review and refine the matrix, integrate focus group findings, and develop a consensus for next steps.

Literature Review – Step 1

An extensive literature review was conducted at the beginning of the project and continued throughout the duration of the study. The purpose of this effort was to identify any existing safety strategies offered by farm-related organizations, health professionals, or other groups interested in the safety and health of aging farmers. The review involved five primary resources:

- The PI's and project manager's knowledge of existing literature in the field of the aging farm workforce
- Google Scholar searches using key words such as aging farmers, risks of older farmers, injury rates of older farmers, aging workers, perspectives of aging workers, safety preventions for older farmers
- Surfing of internet using the same key words used in the Google Scholar search
- Weekly reviews of Safety Lit, a free service of the Center for Injury Prevention Policy and Practice at San Diego State University in cooperation with the World Health Organization
- Contributions to the data base by professional peers who participated in the project

Our search focused on articles published since the year 2000 and other resources that provided suggestions for keeping the older farmer/worker safer on the job or offered insight into the design of interventions for the agricultural community. Even with these restrictions, a mass of information was collected which indicates the importance of the agricultural workforce and the rigorous efforts that have been made to prevent injury to this vulnerable population. Appendix D provides a listing, compiled during the course of the project, of 75 articles and other resources available to the public. Most often, issues faced by aging farmers were outlined (vision, hearing, reduced mobility) and suggestions for making the work safer were offered (improved lighting, installation of sturdy handrails, ask for help). However, no specific model for work of the older farmer was identified through this review.

Resources related to senior adults and driving were also examined as part of the literature review. An older adult's decision to stop driving can be compared with an aging farmer's decision to stop farming or doing a particular farm task such as tractor driving. Such decisions mean relinquishing a measure of independence and making that life-altering decision is extremely difficult for the individual as well as family members of the individual. Medical professionals frequently state they would rather tell clients that they have terminal cancer than tell them that they can no longer drive (Eberhard, et al., 2006). The most prominent driving self-assessment tool discovered in our review was AAA's *Roadwise Review* (AAA, n.d.). This tool is designed to help seniors measure certain mental and physical abilities important for safe driving and to assess changes in their safe-driving abilities.

Focus groups with aging farmers and their families – Step 2

Standard focus group methodology was followed to collect the data. Questions tailored to the older farmers and to their family members were based upon the Health Belief Model, the NAGCAT findings, previous research, and a current literature review. In essence, the farmers and their families were considered the "experts" in the discussion. Each participant was encouraged to contribute several separate ideas to each discussion point. The PI and co-investigator served as the primary facilitator for each of the groups.

The primary facilitator utilized exploratory methods to facilitate interactions and a pre-established list of probing questions to narrow discussions and to expand issues. Discussions included information about predominant issues, values, and beliefs held by the senior farmers and their families as well as those identified in our conceptual framework: (1) perceptions of and experience with farming "accidents;" (2) health and injury risks; (3) individual and

organizational responses to the aging farmer; and (4) strengths and challenges of senior farmers. Discussions started with a general introduction to the topic, beginning with general questions about farming and aging (see appendix B-3) and progressing to more specific ones. Establishing a context for the questions before the focused discussion began helped participants to feel at ease and to process the subsequent questions.

A second domain of inquiry focused on perceptions of programs and policies needed to effectively and efficiently prevent farming injuries by meeting the safety needs of aging farmers. Examples of guideline prototypes and job hazard matrices were shared with the groups to gather feedback on the feasibility of using these methods as strategies for injury prevention.

To obtain potentially different perspectives on safety concerns, detailed information was gathered from two distinct sets of focus groups. Farmers age 55 and older comprised the first set of focus groups, while the second set consisted of the farmers' families (e.g., spouses, adult children of older farmers). All participants had direct experience with safety issues confronting older farmers. Focus groups were the primary means to identify personal knowledge and understanding of the safety issues of older farmers. Focus group meetings were held in the local community and were generally coordinated through cooperative extension offices. The meetings lasted 2 to 2 ½ hours. After consent was obtained, the participants completed an anonymous demographic sheet recording gender, age, type of farm operation, number of hours worked on the farm, number of years spent in farming, perceived health status, perceived risk of injury, and relationship to the senior farmer (if a family member). The purpose of the demographic sheet was to provide the investigators with an understanding of the breadth and depth of each participant's farming experience. See appendices B-1 and B-2 for copies of the demographic forms used.

The focus group discussion centered on work, risks, and decision-making processes. Flip chart notes were taken during the meetings and posted for group review. This process clarified, verified, served as a member check, and assisted in developing consensus (Corbin & Strauss, 1990; Anfara, Brown, & Mangione, 2002). In addition, notes were taken by research team members of key points expressed and observations made. Discussions were audio-taped for subsequent review as a validity check to ensure no critical information was overlooked and compared to the written notes.

In addition to the focus groups, personal interviews were conducted with farmers aged 55 and over to increase the number of participants and cover a broader geographic area. These interviews used identical design and interview questions as used in the focus groups. Each interview lasted 1.5 – 2.0 hours and took place in a private setting selected by the participant. Interviews were audio-taped so the interviewer could place primary focus on the participant and the interview.

Audio-tapes of all interviews were reviewed and compared to the notes taken during the interviews. Selected data bits (quotes) of outstanding examples, challenges, and unique experiences were extracted and transcribed for thematic analysis. Tapes were destroyed following final review for completeness.

Development of job hazards matrix – Step 3

The purpose of the job hazards matrix was to identify the top ten hazardous tasks perceived by aging farmers, hazards associated with those tasks, physical and mental requirements needed to perform the tasks, and safety precautions most often used in performing those tasks (Blahey, 2002). To assist in the development of the matrix, a form was designed for use in the focus group discussions that outlined each component of perceived hazards (see appendix B-4). Senior farmers were asked to complete the form based on their experience in farming. The results were summarized in aggregate and presented to the interdisciplinary focus group participants for discussion. A consultant was also secured to review the data and develop the job hazards matrix.

Focus groups with interdisciplinary agricultural health and safety professionals – Step 4

Annual in-person group meetings of health and safety professionals were conducted to convey focus group/personal interview findings and resultant recommendations. Individuals with professional involvement and experience in agricultural safety and health were invited to attend group meetings in conjunction with relevant agricultural safety and health conferences. These individuals included farmers, cooperative extension agents, agriculture safety specialists, researchers, and health professionals. Participants were equipped with a synopsis of the literature review, epidemiologic reports pertaining to injury of older workers and farmers in particular, and findings from the focus group meetings/personal interviews. Armed with this information, the participants discussed next steps and possible interventions. The on-going interaction with this cohort through electronic communication and presentations at professional meetings of the various organizations established a sustainable work group for future projects.

Recruitment and Informed Consent

Recruitment of farmer focus group participants was primarily achieved with the help of cooperative extension agents across the United States. Their familiarity and rapport with farmers enhanced the recruitment of participants that understood the challenges of farm work decisions. Local support from this respected and well-known agricultural organization also added credibility to the study.

For personal interviews, a database was maintained by the PI of the names of potential subjects volunteered to the PI by professional and farm group audiences. The individuals were contacted by the PI to explain the study. If interested in participating, and they met the inclusion criteria, an in person or telephone interview was scheduled.

A meal was provided for each focus group, a strategy that the investigators have used effectively in the past to increase participation. Also, to compensate participants for their time and expertise, each participant was paid $30. The monetary incentive was refused by some participants who expressed their relief that this topic was being explored.

All personal interviews were audio-recorded to capture full data but no transcriptions were made. Focus group discussions were also audio-recorded. Tapes were destroyed after project completion.

Professional groups consisted of one meeting with members of the New York Center for Agricultural Medicine and Health (NYCAMH) and two meetings held in conjunction with the International Society for Agricultural Safety and Health (ISASH) annual conferences. The two ISASH meetings were purposely planned while the NYCAMH meeting was requested by NYCAMH when the researchers were on-site to conduct farmer and family focus groups. A third venue for professional group meetings was attempted at the Priester Conference sponsored through cooperative extension. However, difficulties with scheduling occurred and no participants attended the meeting. Additional groups were solicited from local and national farm organizations. This is discussed further later in this report.

Consent for participation in farmer or family member focus groups

Informed consent procedures were reviewed and approved by IRB at the University of Kentucky. Signed consent forms were obtained from focus group and personal interview participants following a full explanation of participation by a member of the research team. A copy of all IRB-approved consent forms are provided in Appendix A. The purpose of the project was fully explained to the participants prior to any data collection. Participants were also asked to complete a demographic form in which age, type of farming, number of years in farming, and other information were obtained. The demographic forms did not contain any names and information collected was used in aggregate for general information only.

Consent for participation in agricultural professional focus groups

Waiver of requirement for documentation of informed consent was approved by UK's IRB for these participants. However, invitations were sent to ISASH members explaining the study prior to the meeting and the study purpose was explained again at the onset of the meeting prior to any data collection. No personal data was collected from the participants.

Measures and Analysis

As previously described, participant demographic forms were used to gather insight into the participants' background in agriculture, self-perceived knowledge and risk perception about agriculture health/safety, age, gender, marital status, and farm operation. A semi-structured interview questionnaire (appendix B-3) guided the discussions with participants. Senior farmers were also asked to complete a job matrix form to identify their perceptions of farm hazards, risks associated with such hazards, and the physical and mental requirements to reduce risk of injury from the hazards. This form was designed from one of our consultant's work with aging farmers in Canada (Blahey, 2002).

Consistent with established qualitative analysis procedures, data collection and analysis was ongoing and integrated (Corbin & Strauss, 1990; Anfara, Brown, & Mangione, 2002). Such ongoing analysis allowed us to identify and obtain insights on previously unexplored phenomena that emerged from the focus groups as critical and to eliminate lines of questioning that appeared vague or irrelevant. Data analysis began during the sessions as the facilitator decided which

responses to probe further and which to redirect. This was followed by engaging the participants in data verification and theme identification (Anfara, Brown, & Mangione, 2002). After the sessions, research team members shared their observations and perceptions of group members' interactions and confirmed major themes of the session.
Three primary processes were used to capture data from these groups. Flip chart notes were recorded by a research team member during focus group discussions. These notes provided a way for participants to view the progress of the discussion and clarify any statements misinterpreted. Individual notes were also taken by research team members to document the overall environment of the focus group or personal interview, characteristics of the participants, key concepts and statements expressed by the participants, and their general evaluation of the discussion. Focus groups and personal interviews were audio recorded to ensure all information was accurately captured. The tapes were used to validate flipchart notes taken during the sessions and team member notes about the sessions.

Because the analysis of the farmer and family focus groups and professional group data was qualitative rather than quantitative, participants' *responses* to the interview questions and the group discussions were the focus of our analysis rather than *how many* participants expressed a particular belief or concern. Responses from the farm-based focus group discussions and personal interviews from all three data collection processes were compiled in aggregate and reviewed to reveal any patterns found within the data. Key themes and strategies were identified and shared with the interdisciplinary professional groups for further discussion and validation and to identify future directions. In addition, quarterly teleconferences with consultant Dr. Barbara Marlenga, who has directed the NAGCAT studies, were conducted to discuss progress and analysis. She provided guidance on how to proceed.

The combined input from senior farmers, family members of senior farmers, and the interdisciplinary professionals established the basis for developing the consensus statement. Information gleaned from the literature review was also critical in building the consensus statement and identifying possible intervention strategies.

Results and Discussion

Sample

Participants in this study were comprised of three different groups – senior farmers (age 55 years and older), family members of senior farmers, and agricultural health and safety professionals. In addition, a final focus group was held to test a novel intervention and verify stories told by focus group participants. Overall, 175 individuals were involved in focus groups or personal interviews (see table 1 for breakdown by participant group). Within the senior farmer group nearly 80% of the participants were male. There was an equal representation by gender in the family members group.

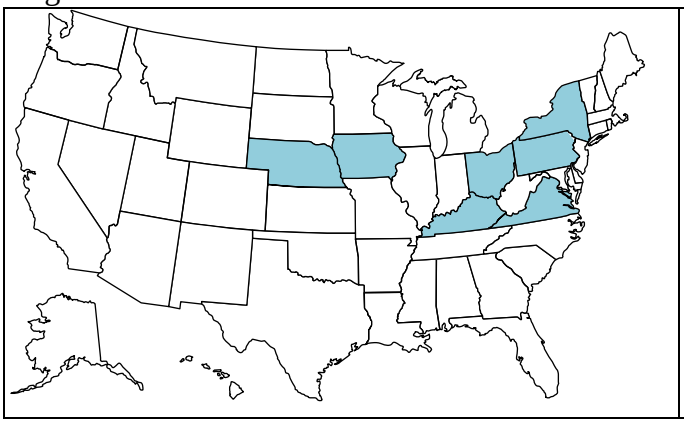
Table 1. Enrollment by participant groups

Participant Group	Male	Female	Unknown	Total
Senior farmers	34	9	-	43
Family members	19	19	-	38
Final focus group (new participants only)	13	13	-	26
Agricultural safety & health professionals	14	15	39	68
Totals	**80**	**56**	**39**	**175**

Five focus groups consisting of senior farmers, five personal interviews with senior farmers, and five focus groups involving family members were conducted during the course of the study. In addition four focus groups with interdisciplinary professionals were held. The geographic distribution of data collection spanned from the Midwest to the Eastern section of the United States, covering seven different states (see figure 1). Despite attempts to include the western states, we were unable to assemble groups in that area. However, conversations and possibilities have since evolved through intense networking with the interdisciplinary groups.

Focus groups with interdisciplinary professionals encompassed individuals from all across America and at least three other nations (Sweden, Finland, Canada). This group represented agricultural health and safety advocates from federal, state, and local government agencies such as NIOSH-funded agricultural centers, AgrAbility, and cooperative extension offices; colleges and universities; Farm Bureau, other farm organizations, and farm equipment manufacturers.

Figure 1. Data collection sites from older farmers and family members



States	Older Farmers	Family Members
Iowa	√	√
Kentucky	√	√
Nebraska	√	√
New York	√	√
Ohio	√	
Pennsylvania	√	
Virginia	√	√

Demographics of Senior Farmers

Farmers ranged in age from 56 to 83 but most were in the 60-69 and 70-79 age groups (table 2). The average number of years in farming by this cohort was 56.1 years. The group averaged 43 hours per week working on the farm and 58% identified themselves as full-time farmers. Eighteen of the farmers reported working 50 or more hours per week. Even those who considered themselves “retired” reported working as much as 40 hours per week.

Table 2. Senior farmer work status and average hours worked per week by age group

Age Group	# in Study	Self-Reported Farmer Status				Avg. Hrs/Week
		FT	PT	Retired	Not Answered	
56-59	3	3				67
60-69	18	14	3	1		51
70-79	16	7	7	1	1	38
80-83	6	1	1	4		12
Totals	**43**	**25**	**11**	**6**	**1**	**42**

***Note**: These figures do not include participants from the final focus group that involved the farm theater. The focus of the final focus group was different from the regular focus groups.*

Demographics of Family Members

The majority of family member participants were either spouses or adult children/grandchildren of the senior farmers (see table 3). All of them had performed farm work at some point in their lives and over 80% of the family members were currently involved in farm work. Hours worked on the farm ranged from ½ hour to 90 hours per week with an average of 37.8 hours per week. Most of the participants considered themselves full or part-time farmers (87%). Only 2 reported they were "not a farmer" and three claimed they were retired. Thus, overall, family members were well-versed in farming activities and safety concerns.

Table 3. Family member participants by relationship dynamic

Relationship to Senior Farmer	# of Participants
Spouse	15
Adult child or grandchild	15
Daughter-in-law or son-in-law	2
Not provided	6
Total	**38**

***Note**: These figures do not include participants from the final focus group that involved the farm theater. The focus of the final focus group was different from the regular focus groups.*

Interdisciplinary Professional Participants

Four focus groups with agricultural health and safety specialists were also conducted. Two of the focus groups were held in conjunction with the International Society for Agricultural Safety and Health (ISASH) annual conferences – 2011 in Boise, Idaho, and 2012 in Burlington, Vermont. The remaining two focus groups involved safety specialists of the New York Center (NYCAMH) in Cooperstown, NY and state-based safety coordinators with the American Farm Bureau organization. The purpose of these meetings were to share findings from the farmer/family member focus groups and to gather the participants' opinions on

problem/hazardous areas, needs of older farmers, and suggestions for next steps. Invitations to the ISASH focus groups were made via email. The NYCAMH meeting was an impromptu meeting held immediately following the focus groups with farmers and family members at that location. The principal investigator was invited to the American Farm Bureau safety specialists meeting to discuss the project and gain insight from the group. In all, sixty-eight individuals participated in the interdisciplinary professionals focus groups. No specific demographic information was collected formally. From observation in some of the groups, there was an equal representation by gender.

Specific Aims

Aim 1: Identify the top ten hazardous tasks of older [senior] farmers.

Focus group discussions confirmed that farmers and their families are acutely aware of the dangers they face each day in the agricultural environment. However, only slightly over half of the farmers (52.4%) in this study considered themselves to be at high risk for injury. Family members perceived the farmer's risk for injury greater than did the farmers themselves (see table 4). Discussions with the senior farmers disclosed that they simply consider the probability of a farm-related injury as a normal part of their occupation just like weather, disease, and other adverse conditions.

Table 4. Risk of farm injury to senior farmer as perceived by focus group participants

Assessment Category	Senior Farmers Self-Assessment		Family Members' Assessment	
	Number	*Percentage*	*Number*	*Percentage*
Very low	5	11.9	1	2.7
Somewhat low	15	35.7	10	27.8
Somewhat high	20	47.6	20	55.6
Very high	2	4.8	5	13.9
Total Responses	**42**	**100**	**36**	**100**

Other studies have suggested that farmers assess risk by comparing themselves to other situations and other farmers (Green, 1999) or creating unique perceptions about what has to be done for them to stay safe (Seiz & Downey, 2001). In the agricultural setting, farmers watch what other farmers are doing, whether related to new production methods or with regard to safety and health, and create what they consider to be the social norm. This perception influences how they approach their work and safety on the farm. This concept was confirmed in our focus groups, as the farmers would often converse about local trends, actions, and advice regarding agricultural activities. Thus, an effective intervention would need to incorporate a safety strategy that farmers would embrace as the "social norm" within their community.

During some of the focus group meetings, senior farmers completed a job hazard form (appendix B-4) that asked them to list tasks they considered most dangerous, the risks associated with those

tasks, strategies taken to decrease the risks, and the physical/mental requirements they considered necessary to perform the tasks safely. The form was used in the first few focus groups but was found to be cumbersome and puzzling to the participants. In lieu of the forms, data collection of farmers' perceptions of hazardous job tasks took the form of verbal discussion only in the later focus groups.

Hazardous job tasks identified by the senior farmers fell within nine categories (see table 5). The top four categories involved tractors, livestock, machinery/PTO equipment, and climbing/falling. Nearly all of the hazards identified by the senior farmers reflected external factors; only one farmer mentioned anything related to the farmer's physical or mental status as a job hazard. Although farmers recognized the need for good vision, balance, grip strength, alertness, and quick reaction time to perform the tasks, they did not equate the lack of or weakness in these areas as the hazard itself. Farmers acknowledged that poor vision, slower reaction time, arthritis, hurrying, and multi-tasking could increase the risk of injury. The most often cited strategies used to reduce risk of injuries included slowing down, paying attention, and having someone with you while performing the task. Some equipment used to offset health challenges (e.g., ATVs) also posed additional risk for injury.

Agriculture health and safety advocates (i.e. interdisciplinary professionals) concurred with the senior farmers that tractors, livestock, machinery/PTO equipment, and climbing/falling were the top four hazardous external factors impacting risk for injury. However, the interdisciplinary group was much more vocal about the internal factors that play a role in aging farmers' potential for injury, as were spouses and family members of the senior farmers. The most often cited physical/mental concerns expressed by this group were balance issues, lack of strength (grip/arm), alertness, medication use, and slower reaction time/inability to move fast. These issues are in line with findings from other studies. Voaklander and colleagues (2009) cited prior injury, hearing and vision deficits, sleep deprivation, arthritis, depression, and balance problems as the primary health- and disease-related risk factors for farm injury. Chronic bronchitis/emphysema, arthritis, and sleeping disorders were found to be associated with increased risk for injury in a cohort of older farmers from Kentucky and South Carolina (Marcum, et al., 2011b).

Table 5. Top job hazards disclosed from senior farmer focus groups

Hazard	Frequency	Risks	Safety Strategies	Physical/Mental Requirements
Tractors	15	Turning over Sliding or jack-knifing on wet hillsides Hooking up to pull stuck trucks; flip backwards Turning too fast Tractor on highway Not watching intersections Going too fast on highway No roll bars Tractors with scoops – overloading Turning over/crashing Newer faster tractors Driving high tec tractors – pushing wrong buttons Falling off or tipping on tractor without cab	Stay off steep places Stay off wet hillsides Go slow Don't turn until loader is down Defensive driving on highway Look out for fast and inconsiderate drivers Slow down/get rest Mostly due to too much speed Focus Study controls & learn them in wide open spaces Don't hurry or become distracted	Good perception Good vision Common sense Balance Quick reaction Be alert
Livestock/cattle	13	Getting kicked Being ran over Change in bull's attitude Stampede; trampling Getting cornered/put down Broken limbs Crushing	Don't push or crowed too close Don't be in pen with them Don't be alone; someone with you Selling fast cattle Better corral panels; better working facilities	Speed; quickness Can't run fast enough Ability to run fast Balance Alertness Mobility
Machinery/PTO equipment	11	Grinder – eyesight Getting caught in moving parts Hand and foot injuries Equipment on highway Breaking bones when jumping from machinery	Safety glasses Be patient; it will be there tomorrow Safe operating speeds Look out for fast and inconsiderate drivers Turn off before adjusting/working on machinery Use safety shields	A lot more thinking Balance Good vision Grip strength Alertness
Climbing/falling	9	Falling off roof; ladder slip Falling; not being able to get down safely Falling out of trees when pruning trees Climbing on bins & bldgs. Slipping or falling when opening cab door	Tie ladder at top; make sure ladder is level Get others to climb Find alternative methods Safety strap Better ladders – tripod type Hang on, go slow, needs steps Avoid windy conditions	Good balance Cardiovascular health Good vision Strength Arm strength
Grain bins/grain tanks/silos	7	Death Sinking in grain; trapped in grain Cave-ins Poisonous gas	Safety harness Have help on outside looking in Have somebody with you Lifeline	Sound mind Balance Grip strength

			Wear masks	
4-wheelers	4	Speed Ground hog holes Hauling children Rolling over	Go slow Use common sense Be observant Be careful on steep hills	
Skid loaders	3	Turning over Overloading How to get out of the mess safely	Lower bucket Put on seat belt Go slow Don't crawl out under arm of skid Keep calm; move slowly	
Inhaling chemicals	2	Toxic fumes associated with grain & fuels Inhaling dangerous chemicals	Wear protective clothing, masks, safety glasses	Use your intelligence Knowledge of chemicals
Slower judgment when driving	1	Not able to make a decision as quick as before	Focus; not be in a hurry	

Aim 2: Develop a job hazard analysis matrix that includes the task hazards, minimum ability set, personal risk factors and action plan for the top ten hazardous tasks.

The hazards identified by our study participants consisted of a mix between external factors (e.g., machinery, animals) and internal issues (balance, vision, slower reaction time). The minimum ability set was interesting: the farmers repeatedly stating that "*we will know when to quit*" [specific tasks] and the family members noting that only a few of the farmers have made any significant changes due to physical limitations.

An outside consultant (Mr. Glen Blahey) assisted in the formalization of a job hazard matrix and provided consultation on accessing farm groups, hazard analysis, and communication of proposed interventions for safeguarding senior farmers. Mr. Blahey has over 30 years of administrative and enforcement experience in agricultural and occupational safety and health. He currently serves as the Agricultural Health and Safety Specialist for the Canadian Agricultural Safety Association. Prior to that role, he was an Agriculture Education Officer and Provincial Farm Safety Coordinator at the Manitoba Workplace Safety and Health Division. His involvement in the development of the NAGCAT guidelines, along with his work with aging Canadian farmers to assess their response to guidelines based on the NAGCAT model, provided Mr. Blahey with ample experience, familiarity, and understanding of the process at hand.

The research team met with the consultant twice during the project and communicated via emails and telephone conversations throughout the study. Emerging themes, participants' reaction to guidelines, and developing strategies were discussed with the consultant. His review of data collected from the various focus group discussions provided additional insight and disclosed three categories that influence a farmer's ability and decisions to continue farming as they age:

- External mechanical forces including the environment and equipment;
- The farmer's state of health (the internal issues); and
- The farmer's relationship to the farm operation (i.e., full-time owner/operator, part-time, or seasonal help in critical situations

While no formal job matrix was actually developed, the job hazards identified by the senior farmers in the study were compiled in aggregate and summarized in table 5 (see page 25).

Aim 3: Test the feasibility of developing work guidelines or other injury prevention interventions for these hazards.

Three different templates of safety strategy guidelines were developed during the course of the project. The first template used the design of NAGCAT guidelines, thinking that task specific guides that could be used for self-assessment may be adopted. Focusing on two specific farm hazard areas (climbing and self-propelled equipment), the guides outlined the main hazards associated with the activity, listed responsibilities needed to do the job safely, and posed a series of questions for the farmer to self-assess his/her ability to conduct the activity (see Appendices C-1 and C-2). Each question was accompanied by a "stop" feature if a response indicated a weakness in the farmer's ability that might impact the farmer's risk for injury. Farmers were less

than enthusiastic about this format and were strongly adverse to use of the word "stop". While family members saw potential for some type of guidelines, they too found this template too rigid and less than desirable. This was not surprising as the NAGCAT has been adopted very slowly even for its targeted group (Doty & Marlenga, 2006).

A second guide (appendix C-3) was developed based on self-rating tools used by AAA for senior driving. AAA has long been a leader in recognizing changes associated with aging as they relate to driving and has multiple resources designed to help seniors drive safer and longer. Their website (http://seniordriving.aaa.com) features a self-rating tool for seniors to evaluate their driving ability, explanations about mind and body changes (vision, hearing, reaction time, medications) and their impact on driving, tips for improving driving skills, and resources for family and friends. This template was also perceived by the farmers as a mechanism to make them stop doing things they wanted and needed to do. The farmers conveyed that they didn't need an assessment guide and would recognize when they couldn't do a specific task anymore. As one farmer stated, "*It's really just common sense; not overly enthused with them* [guides]…*don't curtail the older farmer*." A few of the farmers said they *might* consider reading something like this if it could be done privately.

Despite the farmers' unfavorable reaction to this second template, AAA's resources for family and friends offer great tips and instructions for discussing concerns about the safety of a loved one as the aging process begins. Advice on knowing when to be concerned, how to identify warning signs, conversations about concerns, and dealing with negative reactions are not limited to driving and can be mirrored for safety concerns related to various farm tasks (see table 6). Senior farmers and family members voiced similar suggestions during the focus groups – respect the older farmer, calm down following an injury or near miss event before talking with the older farmer, and work together to find alternative tasks. Most importantly, discussions should be about helping the senior farmer continue to do farm work while keeping the farmer as safe as possible.

Table 6. Helpful tips for talking with senior adults about safety concerns from AAA

Conversations about concerns	• Communicate openly and respectfully • Avoid an intervention (don't invite the entire family) • Make privacy a priority • Never make assumptions
Dealing with negative responses	• Do not become defensive • Respond with empathetic phrases (e.g. "I understand this is upsetting." "Let's focus on what we can do to help keep you safe without limiting when and where you want to go." • Do not lecture or demand that an older adult give up the keys • Be objective • Work together on a plan of action

Source: AAA Senior Driving (n.d.)

Stories and humor were the two most common suggestions for getting an older farmer's attention. Reading a story about someone else would allow senior farmers to evaluate a situation from the "outside" and subsequently relate the story to their own life. Stories in farm press publications were also suggested as being beneficial in generating conversations between the farmer and family members. Based on this input, a third template was developed incorporating humor and stories collected from focus group participants (appendix C-4). However, since this model still contained questions designed to somewhat formally conduct a self-assessment, the farmers and their families found it unacceptable. To test the effectiveness of delivering messages through the farm press, a short article was written for *Successful Farming* (a popular farm press periodical) that addressed issues of aging on the farm and briefly described some of the stories shared by study participants (Tevis, 2012). The article was very well received and generated phone calls to the PI from farm commodity groups requesting speaking engagements on the topic and from individual farmers volunteering to be interviewed for the project.

The adoption of a single template was not attained through any of the three prototypes developed so we continued to explore possible alternative methods of interventions. This exploration involved a review of existing literature and resources on aging farmers and compiling a list of strategies that work or don't work as expressed by focus group participants in this study.

Numerous studies support that farmers have the appropriate knowledge to prevent injuries to themselves and others (McLaughlin & Mayhorn, 2011). However, knowledge alone is not effective in reducing the hazard exposure or risk for injury. Cole (2000) stresses that unless knowledge is supported by attitudes that help an individual perceive that the knowledge relates to their daily activities, behavior is unlikely to change. Behavior, therefore, is influenced by a combination of knowledge and attitudes about that knowledge. Based on this premise, to influence the farmers' behavior, we must provide interventions that address the farmers' attitudes toward safety. Farmers perceive the probability of a farm-related injury as a normal part of their occupation just like weather, disease, and other adverse conditions (this study; McLaughlin & Sprufera, 2011). They minimize risk and take actions they consider necessary to reduce the risks as long as those actions do not jeopardize farm production. A common theme heard from our study participants was that the fear of hurting someone else is of greater concern to them than sustaining a personal injury.

According to Cole (2000, p. 246), "...attitudes are learned primarily through internalized stories about human models." Models can be people with whom we interact directly; people we respect, observe, and strive to be like; or people with whom we have no direct contact but whose stories we hear about and identify with. Focus group participants affirmed this concept by stating that the use of stories about real-life events would be more effective in getting the farmers' attention than any assessment guide. Family members perceived that reading about another farmer provided the farmer a chance to ponder the situation over and relate the situation to his/her own actions. Furthermore, it provided worried family members with a mechanism to launch a conversation about their concerns (e.g. "Dad, did you hear about what happened to … ?"). This approach is seen as less threatening to the farmer and reduces defensive barriers that generally arise with propositions containing restrictive implications.

An earlier study on sustained work indicators of older farmers suggested that perhaps the most important intervention is to acknowledge the importance of work to older farmers (Reed, et al., 2012; Maciuba, Westneat, & Reed, 2013). The ability to perform farm work defines who farmers are and is critical to their physical and mental well-being (Reed, et al., 2012; Ingham, 2009). Farming provides a sense of accomplishment, satisfaction, and enjoyment that is therapeutic to farmers. The challenge is to develop strategies that are acceptable to the aging farmer and not perceived as a means of denying the farmer the work he/she desires to do. Focus group participants emphasized that strategies must be individualized. Each farmer is different and what works for one may not necessarily work for everyone. Participants offered the following suggestions that should underlie any intervention strategy:

- Develop relationship/trust with farmer first; go through organizations farmers respect and trust
- Disseminate information through the written press that farmers are familiar with and find trustworthy (e.g. farm publications, commodity group newsletters, Farm Bureau newsletters)
- Use humor, illustrations, and stories
- Be careful with the use of terms – your definition and farmers' definitions may not be the same (i.e., illness, injury)
- Offer suggestions in a non-threatening way that makes them think
- Avoid use of the work "stop" as it will have a negative impact on response to the intervention
- Design the intervention for all farmers. Begin conveying the messages earlier – before farmer reaches 70. Prepare the younger group for what lies ahead and teach them to work smarter
- Stress that you can still farm – you may have to adjust the way you do certain tasks, but you can still farm

Senior farmers in this study had experienced physical changes associated with aging and the impact those changes have on performing farm work. However, these farmers accepted the changes as simply another challenge of farming, adapted quickly, and continued to find ways to get the job done.

> "Common sense is a guiding factor to farmers. Being close to nature, they are more attuned to the rhythms of life and to the practicality of solutions. They take life as it comes and do what is necessary to continue. They are accustomed to adapting and managing what occurs to them and to the farm." (Ingham, 2009, p. 7).

Farmers are resourceful by nature and take pride in becoming "smarter in how they do things." Adaptations reported by focus group participants in this study to accommodate aging influences were grouped within four major classifications: redistribution of work, restructure of the workday, re-evaluation of equipment use, and realignment of farm operation. The specific adaptations within each classification are shown in table 7.

Table 7. Adaptations reported by focus group participants

Classification	Specific adaptations reported
Redistribution of work	Hire other people to perform certain tasks Turn task over to someone else Less walking and more talking/thinking Find tasks for older farmer that aren't as risky Avoid working alone
Restructure of the workday	Ease up on how much you do Pace yourself Take your time Take a vacation Take more breaks during the day Plan ahead to decrease trips and steps
Re-evaluation of equipment use	Buy newer equipment Cab tractors (helps allergies and has air conditioning) Use ATVs and "gators" (utility vehicles) to get around Use familiar equipment – not too technical or high speed Keep equipment in better repair so others can use it (to redistribute work)
Realignment of farm operation (limited)	Change type of farm operation (e.g. from dairy to hay/beef cattle operation) Reduce size of farm operation (e.g. reduce number of livestock, rent out part of land)

Equally important to this study were the strategies and approaches reported by farmer focus group participants they perceived to be ineffective or even detrimental to implementing appropriate changes. Foremost, telling a farmer to "stop" or not do a particular farm job tended to alienate the aging farmer and placed a barrier between the farmer and concerned family members for any meaningful dialogue. Second, reacting in the heat of the moment does little to convince an aging farmer that a problem exists. Several stories were shared about confrontations that occurred immediately following a close call. In hindsight, family members reported that waiting until both parties had calmed down and had time to think would have led to a more productive conversation.

Interestingly, the last two approaches described by the study participants that did not yield positive results involved aspects that were also perceived as effective strategies: 1) assigning the aging farmer an alternative task and, 2) acquiring new equipment for the aging farmer to use. The shortcomings of both of these approaches occurred when the risks for injury of the alternate task or new equipment was overlooked or under-estimated. While concerned family members felt they were protecting the senior farmers by finding them "safer" tasks or having them use newer and "safer" equipment, the senior farmers had a different viewpoint. Using equipment they were not familiar with or being asked to mow embankments and ditches as an alternate "safe" task was perceived by the older farmers as a greater risk for injury. They were concerned

about a tractor overturn, pushing a wrong button on the machine, and not knowing how to turn off a machine in an emergency. Family members had not considered these risks. This situation highlights the need for open communication as aging farmers and family members work together in making adjustments and decisions that are best for everyone involved.

While not specifically an aging issue, two disturbing shifts in the agricultural community were mentioned multiple times during focus group discussions that may have an impact on workloads and work adjustments of the aging farmer. One steadfast characteristic of the agricultural culture has been the willingness of farmers to help each other out in times of need. However, the following quotes illustrate the how the culture has changed:

- *"It's not like it used to be. It used to provide social support; now it's a dog-eat-dog world. No swapping labor – too busy; everybody's ready to sue over a little cut."*

- *"…it isn't a clean game anymore." You don't meet at country stores to talk and you don't share your business with anyone for fear of someone taking your farm away. It's more cut-throat."*

- *"Everything has to be bigger – more land, more money, more livestock, bigger equipment…government mandates [paperwork, testing of cattle, etc.]. Everybody's too busy to help anyone else."*

This culture swing is responsible in part to the second change being experienced in farming. All participants agreed that even though farming is *physically* easier now than it was when started out, the *stress level* is much greater. While aches and pains can be controlled to some extent to let you carry on your work, worry and stress impacts everything you do by preventing you from thinking clearly and paying attention to what you are doing. This, in turn, leads to an increased risk for injury. Other studies have substantiated the relationship between stress and injury (Lizer & Petrea, 2008; Simpson, Sebastian, Arbuckle, Bancej, & Pickett, 2004).

Our literature review also revealed a growing support for the use of stories, narratives, and theater in delivering health and safety messages in various settings, including the agricultural community (Robertson, Murphy, & Davis, 2006; Cole, 2000, 2002; Cullen, 2003, 2008; Elkind, Pitts, & Ybarra, 2002; Allen, 2009; Taylor, 2003; Bell-Ellison, et al., 2009; Joronen, Konu, Rankin, & Astedt-Kurki, 2012). Traditional health and safety training methods that have relied primarily on lecture or instructional handbooks have proven ineffective in the long-term (Allen, 2009). Knowledge alone does not necessarily equate to changed behavior (Robertson, Murphy, & Davis, 2006; Cole, 2000). Through drama, however, participants learn by seeing, experiencing and interacting and become more engaged in the subject matter (Allen, 2009). The use of drama also provides a non-threatening atmosphere through which sensitive safety messages can be more readily addressed. Critical to the effectiveness of the use of theater in agricultural settings is the need for realism and applicability.

Final focus group

Study participants' suggestions for humor and stories combined with a review of literature on the use of theater as a health and safety intervention led us to a fourth venue for approaching the safety of aging farmers. In July, 2013, three short plays were developed from the data and other stories gathered throughout the years by the PI, which portrayed some of the physical/cognitive issues associated with aging on the farm. The plays ranged in length from 2 minutes to 15 minutes. The plays were tested via a final focus group at a County Extension office in central Kentucky. Testing included verification of the authenticity of themes identified through the project, and initial reaction to and short-term effects of the play on safety consideration and behavior.

A subsample of the original participants in the study was invited to the group primarily for verification of authenticity. A second sample of new participants was recruited to test initial reaction to the plays. The second sample had no previous experience with health/safety interventions for farmers and was intentionally somewhat younger than the original sample, to see if the stories would resonate with a younger age group. This idea came from the original participants who stated the messages need to be delivered to younger farmers "so they don't get to the point we are in [declining health due to farming]."

Local farmers who had not previously participated in the focus groups were recruited to serve as the "actors" in the plays. They participated in two brief rehearsals of the scripts. All participants were provided a stipend and a meal for their participation. The setting closely mimicked a usual farm group gathering: it was in a familiar place, participants knew at least some of the other participants, a meal was shared, and the atmosphere was kept casual. Time was spent in informal causal conversation with each other over dinner before the plays. This set the tone for safety in conversation and allowed participants to relax.

A very brief period of discussion was held after each play to allow the participants to express their thoughts about the situations presented. In addition, each audience participant was asked to anonymously rate each play by completing a short evaluation form immediately following that presentation (see appendix B-5). Using a 5-point Likert scale, participants were asked about the realism and applicability of the plays and how likely they were to use or share the information from the play. In addition, we asked participants to identify what they felt was the main point of each play. Four to seven days following the farm theater, all participants (audience and actors) were contacted by phone for a more in-depth evaluation of the impact of the plays.

Demographics of final focus group

There were 33 individuals – four as actors and the remaining 28 as audience participants. Seven of the participants had been part of focus groups earlier in the study (2010); 26 were new to the study. Participants ranged in age from 43 to 81, with an average age of 63.76 years. The breakdown by gender was nearly equal with 17 males and 16 females.

Participants were asked their relationship to the aging farmer. Final counts disclosed 19 senior famers (self), 13 spouses, and 1 "other" family member. However, these numbers are somewhat

misleading as 16 couples participated in the group. Some of the spouses who also farm reported themselves as "self" rather than "spouse" while others reported themselves as "spouse" even though they farmed. In addition, individuals who were family members of a senior farmer reported themselves as "spouse" or "self" if they or their spouse was also involved in farming. Regardless, there was a good representation of older farmers, spouses, and family members. One participant noted that she never had engaged in farming at all.

The largest percentage of participants considered themselves to be part-time farmers (48.5%). However, as reflected in Table 8, some of the part-time farmers worked as many hours as the full-time farmers. Even one of the "retired" farmers reported working 20 hours a week on the farm. The definition of "retirement" is somewhat different for farmers (Winter, Reed, & Westneat, 2009).

Table 8. Farming status and average hours worked of final focus group participants

Farming Status	**Frequency**	**Percent**	**Avg. Hrs. /Week**	**Range of Hours**
Full-time	11	33.3	44.5	25 – 100
Part-time	16	48.5	14.7	.75 – 50
Retired from farming	3	9.1	6.7	0 – 20
Other	3	9.1	4.0	0 – 10
Totals	**33**	**100**		

The number of years in farming ranged from 24 to 81, with an average of 55.33 years. Despite the amount of farm experience these individuals possessed, over half only felt they knew "some" about farming (see table 9). Males were more likely to report greater farm knowledge than females. Participants were quick to point out they knew a lot about the old way of farming but agriculture had changed so much. Statements such as, "*I don't know as much as I used to. Agriculture has changed a lot with all the chemicals and things. I'd probably have to take a refresher course if I got back into it full time*" [farmer with 68 years of experience] and "*That's all I've ever done but it's changed so much in the last 20 years*" [farmer with 68 years of experience] convey the need to address the impact that changes such as technology advancement and chemical applications have on the aging farm population.

Table 9. Self-reported farm knowledge of final focus group participants

Knowledge	Male	Female	**Total**	Percent
A lot	10	4	**14**	42.42
Some	6	11	**17**	51.52
Not much	1	1	**2**	6.06
Total	**17**	**16**	**33**	**100**

Theater Evaluations

Two methods were used to rate the theater's effectiveness – a "quick reaction" form immediately following each play (appendix B-5) and a follow-up telephone survey (appendix B-6) conducted about one week after the event. The brief evaluation form completed during the focus group meeting allowed for rating the plays individually while the telephone survey encompassed all three as a group. The primary issues evaluated were realism, applicability, and impact of information presented.

Realism and applicability

Overall, the plays were perceived by the participants to be highly realistic and applicable to aging on the farm. Initial reaction to the plays at the focus group meeting revealed that over 80% of the participants found the plays to be on target with the issues they were experiencing (see table 10). The third play which portrayed a man and wife discussing the concerns of aging on the farm received the lowest ratings with regard to realism and applicability. Comments made after the play indicated that finding a farmer so amenable to discussion about changes and the calmness/joviality of the conversation were not likely. These two factors may have contributed to the lower ratings.

Information from the telephone surveys garnered even greater ratings with 97% of the participants noting the plays captured the reality of farming as you age and 88% reporting they could apply the messages to their life and family (see table 11). While one individual responded that the plays were not applicable at all, that person qualified the statement to indicate "*but I'm not farming anymore*." No participants reported negative reactions to the plays.

Table 10. Realism and applicability ratings from quick response evaluation forms by percentages

		Main Play	**Play 2**	**Play 3**	**Overall**
Realistically portrayed issues about aging's impact on farming	Strongly agree	96.55	82.76	65.52	81.61
	Somewhat agree	3.45	17.24	34.48	18.39
Issues were applicable to aging while farming	Strongly agree	82.76	96.55	72.41	83.91
	Somewhat agree	17.24	3.45	27.59	16.09

Note: Response choices ranged from *strongly agree* to *strongly disagree* using a 5-point Likert scale. All participants either strongly or somewhat agreed; none of the participants selected the "neither agree or disagree" or "disagree" choices.

Table 11. Realism and applicability ratings from telephone surveys

		Frequency	Percentage
Plays captured reality of farming as you age	Extremely well	18	54.55
	Well	14	42.42
	Somewhat	1	3.03
Could apply messages from plays to life and family	Very much	15	45.46
	Quite a bit	14	42.42
	Some	3	9.09
	Not at all	1*	3.03

* Person reported she was never engaged in farming

The reality of the plays and messages conveyed led the list of what participants liked best about the intervention. The non-threatening, relaxed atmosphere; the use of local people; and the discussion/interaction among participants following the plays rounded out the top 4 features they liked best (see table 12). Other positive aspects included the use of humor/the importance of laughter, the entertaining manner which kept you interested/kept your attention, and the meal itself. One cannot discount the implication of the meal as a contributing feature. Sharing a meal generally allows people to get comfortable with one another, loosen up through laughter and camaraderie, and become united in the task at hand.

Table 12. Top features participants liked best about the farm theater format

Feature	Frequency
Reality	11
Non-threatening, relaxed atmosphere	7
Use of local people/farmers	6
Discussion/interaction after the plays	6
Entertaining format that kept your attention	6
Use of humor/importance of laughter	3
The meal	4

Impact of information

A number of questions posed on the rating sheet form and follow-up telephone surveys were used to measure the impact the plays had on participants' behavior. Participants were asked how likely they were to use or share the information portrayed in the plays, how much more they had thought or talked about safety changes on the farm after watching the plays, and what type of changes, if any, they had made since the focus group meeting.

Nearly 70% of the participants reported the manner in which the messages were delivered (i.e. via plays using local people doing what we do) "made them stop and think" while 33% stated it "influenced them to take some action". Eighteen of the 26 new participants (69.23%) and all 7 of the previously enrolled study participants stated they had thought about farming health and safety more ("some more" or "a lot more") after attending the farm theater.

Four of the 7 participants who had previously been involved in the study reported they had made changes in their safety behavior on the farm after participating in the first focus group. These changes reflected mental changes (thinking ahead), driving slower on ATVS, and watching/being more alert to farm tasks. Within the week following the farm theater focus group, ten of the 26 new participants reported making safety behavior changes. These changes are categorized below:

- Increased communication between farmer and spouse/family
  - Made husband tell her where he was going, what he was going to be doing, and how long it would take him to do it
  - Used information from play to generate a conversation with grandson. No longer was it Grandma telling him what to do, but rather "the other night they talked about …"
  - Made Mr. X carry cell phone
  - Instituted "the cell" [phone call in system] for each other

- Paced themselves on doing farm work
  - Told husband "*we don't need to do this [picking beans] all at one time*"
  - Taking more time to rest

- Intervened during an agricultural field day to prevent injury from an activity deemed unsafe
  - A wagon carrying 50 people started down a steep incline in the field. Thinking about what all he had heard at the farm theater focus group, this study participant stopped the wagon and made the people get off and walk down the hill.

- More careful while mowing
  - Used seatbelt and made sure roll-bar was up
  - Asked myself if it was really safe to mow there

In addition to the changes actually reported, 22 of the participants (67%) also stated they had thought about making safety behavior changes. These changes included getting cell phones, talking with others about safety issues, spending more time with family, not pushing so hard/taking breaks, and getting help from others.

These results indicate that the plays had a significant positive impact on the safety behaviors of those attending the farm theater. Changes were made within a week of being exposed to this type of intervention. Even more changes were being contemplated. The delivery of safety messages by local farmers in an non-threatening, relaxed atmosphere placed the participants in a position to analyze the situation from a third party perspective and then subsequently apply it to their own lives. One participant eloquently expressed it, "*It wasn't your story, but it was. You could*

identify but not be threatened. Messages were delivered in a non-threatening way which allowed you to get involved." This format also opened the doors for discussion among the participants. The interaction following the plays was considered one of the top four things the participants liked about the venue and the need for more time for discussion was one of the main suggestions for improving on the intervention.

The positive response to this venue of delivering health and safety messages related to farming was overwhelming. While everyone found the plays to be entertaining, the key components that were the most important to the participants included the use of local farmers as the "actors", the realism of the situations being acted out, the open discussion among the participants following each play, and the non-threatening, relaxed atmosphere of the meeting, The combined effect of these components led to credibility of the messages and a leeway into conversations about farming and aging issues being experienced by the group. Hearing others admit they had slowed down, were taking rest breaks or even a nap during the day, or taking time off from the farm for an extended amount of time, offered others "permission" to do the same. Telephone interviews with participants one week following the focus group meeting revealed nearly 55% of the participants left with a message that it was "okay" to slow down, ask others for help, or take time off from farming (see table 13). One participant noted that the older farmers need to realize that, "*…we try to do what they do. I just heard my Dad say that he takes a nap in the afternoon. Now, I can do that too!*" During the focus group, the father had explained how he started taking a nap in the afternoons. At first he worried about what others would think of him but he is not as concerned about that now. Farmers, regardless of age, need "permission" to cut back from themselves and from others.

Table 13. Key message themes heard by participants in final focus group

Message	Frequency	Percentage
Realize your limitations. Aging factors have an impact on the safety of performing farm tasks.	16	48.5
It's okay to slow down; don't press so hard.	7	21.2
It's okay to ask others to help you.	6	18.2
It's okay to take time off from farming; spend more time with your family; rest.	5	15.2
Communicate – talk to family about what's going on (physical issues); where you will be and what you will be doing	2	6.1

Moving the social norm of farming from a 24-7 work ethic to a slower-paced activity seemed to occur. As participants realized that several others were taking breaks, they began to realign what the norm might be. Colemont & Van den Broucke (2006) noted the importance of influencing

the social norm through the exchange of experiences. In their literature review of psychological determinants of behaviors leading to agricultural injuries and diseases, they advocated that farmers may practice unsafe or careless behavior in order to comply with what they perceive to be the norm in farming. The beliefs, intentions, tools, and actions of the local farm community play a significant role in the manner in which farm work is performed (Cole, 2002). Cole purports that attitudes are learned primarily through models of other people's behavior. These models may be real people we interact with on a regular basis and respect and admire, or individuals we do not know but whose stories we identify with. "Collectively, the stories about these models become internalized as social norms that guide our plans, decisions, and actions as well as our understanding of our own and others' conduct (Cole, 2002, p.156)."

In summary, various products and processes were offered to the participants for their evaluation. The adaptation of the NAGCAT guidelines, tailored to senior farmers, was rejected outright. Family members offered that they may consider such a product to evaluate the senior farmer's capacity but the guidelines would not be used directly with the senior farmer. Given the extreme challenges for instituting the NAGCAT guidelines in their original target group, the adaptation of the format for senior farmers is highly unlikely to be successful. The use of other well accepted public products, such as the AAA driving self-assessment that can be done privately, was also met with minimal enthusiasm. Farmers did not see the need or usefulness of such products and declared they did not wish to consider any item that would advise them to stop a particular task. This led the research team to scour the data and devise a format that may be acceptable within the farm culture. Theater had been used minimally in the farm community but its effectiveness had not been explored. The pilot test of the farm dinner theater approach was met with enthusiasm and actual behavior change. This venue holds great promise and should be further explored. Several participants offered suggestions on how to incorporate theater in the local farm meetings. Scripts must be grounded in real experiences, supported by open discussion, and evaluated for their effectiveness.

Aim 4: Establish sustainable work groups to design and test strategies and interventions identified in the consensus statement.

Several methods were used to address this aim.

- Two of the professional group meetings involved members of the International Society for Agricultural Health and Safety (ISASH) organization with a total of twenty-nine individuals participating. ISASH is a multidisciplinary organization officially incorporated in 1962 (at that time known as the National Institute for Farm Safety). Its membership includes agricultural engineers, safety professionals, sociologists, health professionals, anthropologists, agricultural scientists, employees of Cooperative Extension, AgrAbility projects, and farmers. The majority of ISASH members convene each year for an annual conference focused solely on agricultural health and safety. Thirty-eight percent of the individuals attending the first focus group with this cohort returned for the second meeting. Others who were unable to attend due to economic issues and conflicting meetings, requested information through electronic sources. Fourteen additional persons participated in the second focus group at ISASH.

These results indicate the interest in the topic as well as the sustainability of this work group.

During the professional group meetings, the following areas were covered:

1. Reviewed aims of the study
2. Distributed literature to date and discussed it; participants added literature
3. Presented findings from farmer/family focus groups
4. Encouraged programmatic sharing, shared "success" and "failure experiences
5. Planned future work groups- research and programmatic agenda setting for work with aging farmers and their families

- Short articles in farm publications were instrumental in getting the word out and generating interest in the topic of aging farmers. Articles were published in *Successful Farming, Bluegrass Equine Digest,* and the *Southeast Farm Press*. These publications resulted in several phone calls to the PI requesting speaking engagements with commodity groups and volunteering to be interviewed for the project. One call from the president of the Kentucky Cattlemen's Association made it possible for the PI to address a group of 111 cattlemen and gain their insight on aging and farming (not included in this report as IRB approval had not been obtained for this).

- Links were established with state AgrAbility Projects and the Ohio Valley Appalachia Geriatric Education Consortium (OVAR/GEC). OVAR/GEC reaches many allied health professions, students, and works with the Area Health Education Centers. Interest in aging farmers was established through a series of webinars and podcasts on aging farmers produced by the PI during the course of the project. Dr. Reed's webinar related to aging farmers and behavioral health is archived on the OVAR/GEC website (http://www.mc.uky.edu/aging/gec.html). The reach of the project was fortified through these dissemination efforts.

- The PI also presented a 90-minute seminar at the interdisciplinary University of Kentucky Summer Series of Aging in June 2012 on the preliminary findings from the study. In July 2013, a teaching seminar on aging and farming was presented by the PI at the State Kentucky AgrAbility training program. AgrAbility is targeted as a participating partner for future programs focused on aging and health/safety. This partnership is a direct outcome of the research.

- Farm organizations have also expressed a growing interest in the project, the most notable being the American Farm Bureau (the largest farm organization in the nation). The PI was invited to present information on aging farmers to the organization's state safety specialists in May 2012 and its National Women's Leadership Conference in April 2013. Both venues were used to gain additional perspectives on aging farm health and safety and proved to be a rich entry into translation of the findings to practice. As a result of the latter (April 2013), the PI will be repeating that successful presentation in the fall of 2013 to the State Farm Bureau meetings in West Virginia and Pennsylvania, and in the spring of 2014 at the Kentucky Women in Agriculture Conference.

Development of Consensus Statement

The overriding goal of this project was to develop a consensus statement based on input from aging farmers, family members of aging farmers, and interdisciplinary agricultural safety and health professionals that outlines the next steps in injury prevention strategies for older farmers. Data collected from these groups provided insight into strategies that were perceived to be positive and some that were rejected in principle. Themes from the **senior farmers** included couching messages in terms of potential harm to others, using humor and real stories, and avoiding any guidelines that implied a farmer needed to stop farming. **Family members** noted the extreme duress associated with starting work adjustment discussions with older farmers, the need to respect the older farmers' right to work, and their concerns that the work behavior of the older farmer also placed others at risk for injury. Since farmers do not like being told what they cannot do, perhaps strategies should start with the recognition of what they can do. Asking a person if they feel comfortable doing a task instead of telling them they cannot do that work may set the tone for a more open and receptive response. A combination of physical, mental, and functional ability needs to be assessed as opposed to chronological age. Strategies should look at the capabilities and limitations of all, not just those who have reached a specific age. In this regard, the use of the words "aged" or "older" may not be necessary. Analyses of the data collected and perceptions expressed by all participants led to the development of the following consensus statement.

Consensus statement:

> Experienced senior farmers and their families are acutely aware of the risks they face each day in the agricultural environment, safety precautions that can be taken to reduce the risk of injury, and health issues associated with aging. The probability of a farm-related injury is perceived as a normal part of a farmer's occupation. Any successful program or guide must consider a farmer's need to be part of the farming process, recognize the valuable input senior farmers offer to the agricultural community, provide resources that are realistic and allow the senior farmer to make his/her own decisions about adaptations, and utilize venues that are trusted by the farming community. Strategies should avoid the use of the word "aging" or "old" and examine the capabilities and limitations of all, not just those who have reached a specific age. A combination of physical, mental, and functional ability needs to be assessed as opposed to strictly chronological age. The use of humor and stories are considered the best methods for farmers to analyze situations "outside" themselves and then adapt the strategies within their own lives.
>
> Work should go forward to decrease the excessive fatality rates of senior farmers, protect their right to work, and promote the overall health of the family unit. Attention should also be turned to the psychological well-being of the farmer and the family. Stress, both in the occupation and in the home, must be regarded as a leading challenge as age advances. The results underscore the importance of the NIOSH Total Worker Health model and its relationship to the vital agricultural community.

Strengths and Limitations

This study used a wide variety of methods to explore perceptions of aging among agricultural producers and their families. It covered a broad geographic area in the nation, yet was able to yield common themes, despite differences in farming techniques and commodities. The extensive background of the PI in both research with farm populations and farm based experience as a farm family member resulted in the trust of professional and farm groups. This trust and credibility is essential to gaining insightful and accurate data. The inclusivity of a broad spectrum of participants was a major strength. This study reflects the "voice and soul" of the farm community. The findings reflect the collective and verified voice of the participants. It also reflects the reality of the challenges in working with occupational groups that are not "bounded" by a hierarchy of management, place, or time. One can challenge these results by noting that the participants were not randomly selected and they may be more interested in safety and health than nonparticipants. We acknowledge that, but feel it may be a strength, rather than a limitation, in that the purpose of this study was to flesh out the reality and resonance of safety within the farm community. Persons who were more interested in the topic would also be more cognizant of its function in their families and communities.

Perhaps the greatest strength of the study was the coalescence of the data into a meaningful direction for future work. The study inoculated a wide variety of groups to the special health and safety culture of aging farmers. This new insight may result in increased attention and more appropriate actions by health professionals, extension staff, social workers, vocational rehabilitation specialists, and others to farm populations.

We were unable to mobilize the western portion of the nation into this study. Farmers in that area may have different views. This deserves attention. Another study, led by persons in the western states, would add significantly to this study's findings.

Conclusions

The results of this exploratory study of safety strategies for older farmers supported prior evidence that farmers are aware of the risks and hazards of farm work as they age. It also confirmed that farmers are very independent and prefer to be in control of their circumstances. Safety issues confronting older farmers, from both their perspective and that of their family members, were identified. Strategies and adaptations farmers and their families have used to protect the safety of older farmers provided insight about what works and what does not work. It is imperative that strategies be grounded not only in theory but also in the reality of the older farmers and their families who will be the end users of the products. The sense of self-worth of the aging farmer must be protected and fostered. The development of a consensus statement among senior farmers, farm families, and agricultural safety and health professional advocates sets the stage for strategies that may result in injury reduction for these vulnerable workers and serve as a springboard for interdisciplinary translational research in injury prevention. The approach must be pre-planned, focused and implemented with "care" for this cohort. Interventions designed to protect senior farmers can serve a dual purpose by alerting younger

farmers about the same issues they will ultimately face and get them started on a more proactive approach to health and safety.

This is the first study to place the voice of the farm family in the forefront of planning interventions for aging in this high risk occupation. The project created credibility with the farm community for the future, establishing an on-going and growing cadre of multi-disciplinary professionals with a keen interest in future work in aging and farming, and provided a data-based springboard for the immediate translation of research to practice via community and academic settings.

The research team wishes to thank NIOSH for the funding to bring this project to fruition and the farm community and all the interdisciplinary professionals who shared their views and gave of themselves. The support of professional organizations to host meetings, recruit participants, and allow dissemination of the results to various groups is especially gratifying and appreciated. We acknowledge that the findings presented in this report are the responsibility of the investigators and do not indicate endorsement of NIOSH or the organizations that participated in the project in any way.

Program Director/Principal Investigator (Last, First, Middle): Reed, Deborah B.

Inclusion Enrollment Report

Study Title: Strategies for Safety of Older Adult Farmers

Total Enrollment: 175 **Protocol Number:** 10-0487-P3H

Grant Number: R21 OH 009494

PART A. TOTAL ENROLLMENT REPORT: Number of Subjects Enrolled to Date (Cumulative) by Ethnicity and Race

Ethnic Category	Females	Males	Sex/Gender Unknown or Not	Total
Hispanic or Latino				**
Not Hispanic or Latino				
Unknown (individuals not reporting ethnicity)	56	80	39	175
Ethnic Category: Total of All Subjects*	56	80	39	175 *
Racial Categories				
American Indian/Alaska Native				
Asian				
Native Hawaiian or Other Pacific Islander				
Black or African American				
White				
More Than One Race				
Unknown or Not Reported	56	80	39	175
Racial Categories: Total of All Subjects*	56	80	39	175 *

PART B. HISPANIC ENROLLMENT REPORT: Number of Hispanics or Latinos Enrolled to Date (Cumulative)

Racial Categories	Females	Males	Sex/Gender Unknown or Not	Total
American Indian or Alaska Native				
Asian				
Native Hawaiian or Other Pacific Islander				
Black or African American				
White				
More Than One Race				
Unknown or Not Reported	56	80	39	175
Racial Categories: Total of Hispanics or	56	80	39	175 **

* These totals must agree.
** These totals must agree.

Presentations and Publications

Even this exploratory study demonstrates research to practice. The interdisciplinary reach of the project exceeded expectations. Selected findings from this study were presented in multiple venues from small local events to international symposiums. As of the date of this report, three publications (including two farm press articles) and 11 presentations have been made based on the findings of the project. Four additional invited presentations have been accepted for the fall of 2013 and the spring of 2014. A list of the publications and presentations is provided in Appendix E. Topics covered included multiple perspectives on aging and farming, mental health effects of farmwork, assessing risk, working together to develop safety strategies, and providing healthy and safe environments for farm families. Target audiences included farm commodity groups, cooperative extension agents, safety specialists, physicians and other health care workers, farmers, women in farm leadership, and agricultural health and safety research investigators. Work with the American Farm Bureau on aging and farming is in progress with direct interface with farm communities. Aging farmer health content has been added to medical and nursing education, and in a five state region gerontology interdisciplinary training program (new area for these programs).

Materials Available for Other Investigators

An extensive literature review conducted during the course of this project yielded a mass of information related to issues associated with the aging agricultural community. A listing of literature and other resources related to aging farmers was developed (appendix D) and is available for anyone interested.

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APPENDICES

APPENDIX A-1

Farm Participant Consent Form
Regular Focus Group

FOCUS GROUP PARTICIPANT

Consent to Participate in a Research Study

STRATEGIES FOR SAFETY OF OLDER FARMERS

Grant # R21 OH 009494-A1

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the farm work and decisions of farmers to continue or stop doing farm work activities. You are being invited to take part in this research study because you are a farmer age 55 or older, the spouse of such a farmer, or an adult child of a farmer age 55 or older.

WHO IS DOING THE STUDY?

The person in charge of this study is Deborah B. Reed, PhD, RN of University of Kentucky College of Nursing. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of the study is to gain an understanding of the types of farm work performed by farmers age 55 and over, how those farmers and their families make decisions about work risk, and about how the older farmer performs farm work. By doing this study, we hope to learn ways that could help the farmers and their families make safer work decisions.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

The only reasons you should not take part in this study are if you do not feel comfortable in a group discussion about the decisions made by you or your family members in regard to farm work or if you feel the discussion would be too physically or mentally taxing.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted at the Cooperative Extension Service office in your county or another mutually agreeable location. You will need to come only one time during the study. The visit will take no more than 2 hours, including the meal time. The total amount of time you will be asked to volunteer for this study is two hours, one time.

WHAT WILL YOU BE ASKED TO DO?

During the meeting you will be asked to complete a short form that describes your relationship to the older farmer (self, spouse, or adult child), gender, age, type of farm operation, your work on the farm, number of years spent in farming, perceived health status, and perceived risk of injury. You will not be asked to put your name on this form so responses will not be associated with any specific individual. The purpose of the demographic form is to provide the investigators with an understanding of the extent of each participant's farming experience.

You will be asked to participate in a group discussion about health and injury risks in farming. You will be asked to describe how you decide whether to continue or to stop doing farm work and how your family may influence those decisions. If you are a family member you will be asked how you help the older farmer decide on work. We will also ask what types of guidance may help you in making those decisions.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There is a possibility that you may feel uncomfortable discussing your work or family decision-making in a group setting. There is a possibility that family members may disagree about the work of the older farmer, leading to family disagreement. There may be other risks that are not identified.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

You will not get any personal benefit from taking part in this study, although you may learn something during the discussion that may help you or your family make better decisions about farm work.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

You will be responsible for the costs of your own transportation to and from the study site.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

We will make every effort to keep private all research records that identify you to the extent allowed by law. You may know some of the other participants. Because this is a group discussion others participating in the discussion will be aware of the information you provide. Before we begin the group we will ask that all participants treat the discussion as confidential. Your comments will be recorded on a flip chart but no names or other information that can identify you will be associated with the comments.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court or to tell authorities if you report information about an adult being abused or if you pose a danger to yourself or someone else. Officials from the Health and Human Services, the Centers for Disease Control and Prevention, and the University of Kentucky may look at or copy pertinent portions of records that identify you.

IRB

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

The individuals conducting the study may need to withdraw you from the study if there are indications that your participation is upsetting to you or the others in the group.

ARE YOU PARTICIPATING OR CAN YOU PARTICIPATE IN ANOTHER RESEARCH STUDY AT THE SAME TIME AS PARTICIPATING IN THIS ONE?

You may take part in this study if you are currently involved in another research study. It is important to let the investigator know if you are in another research study about farm health and safety.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will receive a meal for taking part in this study. You will receive $30.00 at the completion of the focus group.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Dr. Deborah Reed at 859-257-9636. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

_____ _____

Signature of person agreeing to take part in the study Date

_____

Printed name of person agreeing to take part in the study

_____ _____

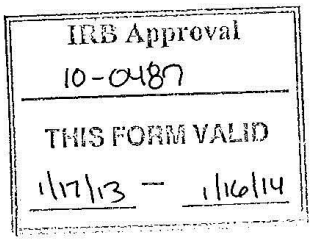
Name of [authorized] person obtaining informed consent Date

_____

Signature of Investigator

APPENDIX A-2

Farm Participant Consent Form
Personal Interview



PERSONAL INTERVIEW PARTICIPANT

Consent to Participate in a Research Study

STRATEGIES FOR SAFETY OF OLDER FARMERS

Grant # R21 OH 009494-A1

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the farm work and decisions of farmers to continue or stop doing farm work activities. You are being invited to take part in this research study because you are a farmer age 55 or older, the spouse of such a farmer, or an adult child of a farmer age 55 or older.

WHO IS DOING THE STUDY?

The person in charge of this study is Deborah B. Reed, PhD, RN of University of Kentucky College of Nursing. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of the study is to gain an understanding of the types of farm work performed by farmers age 55 and over, how those farmers and their families make decisions about work risk, and about how the older farmer performs farm work. By doing this study, we hope to learn ways that could help the farmers and their families make safer work decisions.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

The only reasons you should not take part in this study are if you do not feel comfortable discussing the decisions made by you or your family members in regard to farm work or if you feel the discussion would be too physically or mentally taxing.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The interview will be conducted at your home or another mutually agreeable location. You will need to come only one time during the study. The interview will take no more than 2 hours. The total amount of time you will be asked to volunteer for this study is two hours, one time.

WHAT WILL YOU BE ASKED TO DO?

During the meeting you will be asked to complete a short form that describes your relationship to the older farmer (self, spouse, or adult child), gender, age, type of farm operation, your work on the farm, number of years spent in farming, perceived health status, and perceived risk of injury. You will not be asked to put your name on this form so responses will not be associated with any specific individual. The purpose of the demographic form is to provide the investigators with an understanding of the extent of each participant's farming experience.

You will be asked to discuss health and injury risks in farming. You will be asked to describe how you decide whether to continue or to stop doing farm work and how your family may influence those decisions. If you are a family member you will be asked how you help the older farmer decide on work. We will also ask what types of guidance may help you in making those decisions.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There is a possibility that you may feel uncomfortable discussing your work or family decision-making. There is a possibility that family members may disagree about the work of the older farmer, leading to family disagreement. There may be other risks that are not identified.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

You will not get any personal benefit from taking part in this study, although you may learn something during the discussion that may help you or your family make better decisions about farm work.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

You will be responsible for the costs of your own transportation to and from the interview site.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

We will make every effort to keep private all research records that identify you to the extent allowed by law. You may know some of the other participants. The interview will be audio-recorded to capture full data. No transcriptions will be made and tapes will be destroyed after completion of the project.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court or to tell authorities if you report information about an adult being abused or if you pose a danger to yourself or someone else. Officials from the Health and Human Services, the Centers for Disease Control and Prevention, and the University of Kentucky may look at or copy pertinent portions of records that identify you.

IRB

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

ARE YOU PARTICIPATING OR CAN YOU PARTICIPATE IN ANOTHER RESEARCH STUDY AT THE SAME TIME AS PARTICIPATING IN THIS ONE?

You may take part in this study if you are currently involved in another research study. It is important to let the investigator know if you are in another research study about farm health and safety.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will receive $30.00 at the completion of the interview.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Dr. Deborah Reed at 859-257-9636. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

_____ _____

Signature of person agreeing to take part in the study Date

_____

Printed name of person agreeing to take part in the study

_____ _____

Name of [authorized] person obtaining informed consent Date

_____

Signature of Investigator

APPENDIX A-3a
Farm Participant Consent Form
Final Focus Group - Audience

FOCUS GROUP PARTICIPANT

Consent to Participate in a Research Study

STRATEGIES FOR SAFETY OF OLDER FARMERS

Grant # R21 OH 009494-A1

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study about the farm work and decisions of farmers to continue or stop doing farm work activities. You are being invited to take part in this research study because you are a farmer age 55 or older, the spouse of such a farmer, or an adult child of a farmer age 55 or older.

WHO IS DOING THE STUDY?

The person in charge of this study is Deborah B. Reed, PhD, RN of University of Kentucky College of Nursing. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of the study is to gain an understanding of the types of farm work performed by farmers age 55 and over, how those farmers and their families make decisions about work risk, and about how the older farmer performs farm work. By doing this study, we hope to learn ways that could help the farmers and their families make safer work decisions. This part of the study presents a method of decision-making for farm families through a short play and a discussion.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

The only reasons you should not take part in this study are if you do not feel comfortable in a group discussion about the decisions made by you or your family members in regard to farm work or if you feel the discussion would be too physically or mentally taxing.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted at the Cooperative Extension Service office in your county or another mutually agreeable location. You will need to come only one time during the study. The visit will take no more than 2.5 hours, including the meal time. The total amount of time you will be asked to volunteer for this study is three hours. This includes a short telephone survey one week after the meeting. These are the only two commitments to the project.

WHAT WILL YOU BE ASKED TO DO?

You will be part of a group of farm citizens that will watch a short theater production. You will be asked to participate in a group discussion about your reactions to the play and how what you saw may influence your farmwork or the work of your family members and friends who farm. You will also be asked to complete a 10-15 minute follow-up telephone evaluation of the intervention approximately one week after the focus group. This will help us better understand the effects of the play and how it can be improved.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There is a possibility that you may feel uncomfortable discussing your work or family decision-making in a group setting. There is a possibility that family members may disagree about the work of the older farmer, leading to family disagreement. There may be other risks that are not identified.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

You will not get any personal benefit from taking part in this study, although you may learn something during the discussion that may help you or your family make better decisions about farm work.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

You will be responsible for the costs of your own transportation to and from the study site.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

We will make every effort to keep private all research records that identify you to the extent allowed by law. You may know some of the other participants. Because this is a group discussion others participating in the discussion will be aware of the information you provide. Before we begin the group we will ask that all participants treat the discussion as confidential. Your comments will be recorded on a flip chart but no names or other information that can identify you will be associated with the comments.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court or to tell authorities if you report information about an adult being abused or if you pose a danger to yourself or someone else. Officials from the Health and Human Services, the Centers for Disease Control and Prevention, and the University of Kentucky may look at or copy pertinent portions of records that identify you.

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

The individuals conducting the study may need to withdraw you from the study if there are indications that your participation is upsetting to you or the others in the group.

ARE YOU PARTICIPATING OR CAN YOU PARTICIPATE IN ANOTHER RESEARCH STUDY AT THE SAME TIME AS PARTICIPATING IN THIS ONE?

You may take part in this study if you are currently involved in another research study. It is important to let the investigator know if you are in another research study about farm health and safety.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will receive a meal for taking part in this study. You will receive $30.00 after you complete the telephone interview.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Dr. Deborah Reed at 859-257-9636 or by email at dbreed01@uky.edu. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

_____ _____

Signature of person agreeing to take part in the study Date

_____

Printed name of person agreeing to take part in the study

_____ _____

Name of [authorized] person obtaining informed consent Date

_____

Signature of Investigator

APPENDIX A-3b
Farm Participant Consent Form
Final Focus Group - Actor

FOCUS GROUP **ACTOR** PARTICIPANT

Consent to Participate in a Research Study

STRATEGIES FOR SAFETY OF OLDER FARMERS
Grant # R21 OH 009494-A1

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

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WHO IS DOING THE STUDY?

The person in charge of this study is Deborah B. Reed, PhD, RN of University of Kentucky College of Nursing. There may be other people on the research team assisting at different times during the study.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of the study is to gain an understanding of the types of farm work performed by farmers age 55 and over, how those farmers and their families make decisions about work risk, and about how the older farmer performs farm work. By doing this study, we hope to learn ways that could help the farmers and their families make safer work decisions. This part of the study presents a method of decision-making for farm families through a short play and a discussion.

ARE THERE REASONS WHY YOU SHOULD NOT TAKE PART IN THIS STUDY?

The only reasons you should not take part in this study are if you do not feel comfortable in a group discussion about the decisions made by you or your family members in regard to farm work or if you feel the discussion would be too physically or mentally taxing.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

The research procedures will be conducted at the Cooperative Extension Service office in your county or another mutually agreeable location. You will need to come only two or three times during the study. One or two times are to review the short play that you will be part of and to rehearse for the play. The final time will be the play production before the audience. The entire time commitment to prepare for the play and the production is no more than 7 hours. You will also be asked to participate in a 10 minute telephone interview one week after the play. These are the only commitments to the project.

WHAT WILL YOU BE ASKED TO DO?

You will be part of a group of farm citizens that will act in a short theater production. You will be provided the 15 minute script and asked to familiarize yourself with it. You are NOT expected to memorize the script. You will participate in one to two rehearsals for the play and then participate in the play for one session. You will be asked to participate in a group discussion following the play about your reactions to the play and how what the play may influence your farmwork or the work of your family members and friends who farm. You will also be asked to complete a 10-15 minute follow-up telephone evaluation of the intervention approximately one week after the focus group. This will help us better understand the effects of the play and how it can be improved.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

There is a possibility that you may feel uncomfortable discussing your work or family decision-making in a group setting. There is a possibility that family members may disagree about the work of the older farmer, leading to family disagreement. There may be other risks that are not identified.

WILL YOU BENEFIT FROM TAKING PART IN THIS STUDY?

You will not get any personal benefit from taking part in this study, although you may learn something during the discussion that may help you or your family make better decisions about farm work.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the study and still keep the benefits and rights you had before volunteering.

IF YOU DON'T WANT TO TAKE PART IN THE STUDY, ARE THERE OTHER CHOICES?

If you do not want to be in the study, there are no other choices except not to take part in the study.

WHAT WILL IT COST YOU TO PARTICIPATE?

You will be responsible for the costs of your own transportation to and from the study site.

WHO WILL SEE THE INFORMATION THAT YOU GIVE?

We will make every effort to keep private all research records that identify you to the extent allowed by law. You may know some of the other participants. Because this is a group discussion others participating in the discussion will be aware of the information you provide. Before we begin the group we will ask that all participants treat the discussion as confidential. Your comments will be recorded on a flip chart but no names or other information that can identify you will be associated with the comments.

Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be personally identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is.

You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court or to tell authorities if you report information about an adult being abused or if you pose a danger to yourself or someone else. Officials from the Health and Human Services, the Centers for Disease Control and Prevention, and the University of Kentucky may look at or copy pertinent portions of records that identify you.

IRB

CAN YOUR TAKING PART IN THE STUDY END EARLY?

If you decide to take part in the study you still have the right to decide at any time that you no longer want to continue. You will not be treated differently if you decide to stop taking part in the study.

The individuals conducting the study may need to withdraw you from the study if there are indications that your participation is upsetting to you or the others in the group.

ARE YOU PARTICIPATING OR CAN YOU PARTICIPATE IN ANOTHER RESEARCH STUDY AT THE SAME TIME AS PARTICIPATING IN THIS ONE?

You may take part in this study if you are currently involved in another research study. It is important to let the investigator know if you are in another research study about farm health and safety.

WILL YOU RECEIVE ANY REWARDS FOR TAKING PART IN THIS STUDY?

You will receive a meal for taking part in this study. You will receive $150.00 after you complete the play production and the telephone interview.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS, CONCERNS, OR COMPLAINTS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions, suggestions, concerns, or complaints about the study, you can contact the investigator, Dr. Deborah Reed at 859-257-9636 or by email at dbreed01@uky.edu. If you have any questions about your rights as a volunteer in this research, contact the staff in the Office of Research Integrity at the University of Kentucky at 859-257-9428 or toll free at 1-866-400-9428. We will give you a signed copy of this consent form to take with you.

_____ _____

Signature of person agreeing to take part in the study Date

_____

Printed name of person agreeing to take part in the study

_____ _____

Name of [authorized] person obtaining informed consent Date

_____

Signature of Investigator

APPENDIX A-4

Ag Safety and Health Professional
Participant Letter

Dear Agricultural Professional:

Because of your professional involvement and experience in agricultural safety and health, you are being invited to attend a group meeting related to an R21 research study entitled *Strategies for Safety of Older Farmers*. The purpose of this meeting is to present findings from previously held farmer focus groups conducted under the study and to solicit your insight regarding identification of the leading occupational injury risks for aging farmers and in planning strategies to launch the next steps for interventions. The meeting will be held on (day/date) at (time).

Although you will not get personal benefit from taking part in this research study, your responses may help us understand the best approach in developing safety guidelines for this vulnerable population.

We hope you will be able to join us as your input is very important. Of course, you have a choice about whether or not to attend and you may leave the meeting at any time.

The meeting should take about 1 to 1 ½ hours with refreshments being served during that time. There are no known risks to participating in this professional group meeting. All information collected from discussions within the meeting will be documented in summary form only and no names will be associated with the information.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project. To help us plan for the dinner, please let us know if you will be able to attend the meeting by (date). If you are unable to attend the meeting, we would still welcome your input. We look forward to hearing from you!

Sincerely,

Deborah B. Reed, PhD
College of Nursing, University of Kentucky
PHONE: 859-257-9636
E-MAIL: dbreed01@uky.edu

Pamela B. Teaster
University of Kentucky
PHONE: 859-257-1450
E-MAIL: pteaster@uky.edu

APPENDIX B-1

Strategies for Safety of Older Farmers

PARTICIPANT BACKGROUND INFORMATION – FARMER

(to be completed and turned in prior to focus group or personal interview)

Age _____ Gender M F

Number of years in farming (including childhood) _____

Do you live on a farm now? Yes No

Do you consider yourself: (*mark only one*)

a full time farmer a part time farmer retired from farming not a farmer

How many hours of farm work (including administrative work) do you average in a week?

_____ hours

How much do you know about farming? a lot some not much nothing

How many generations of your immediate family have farmed? _____

Type of farm (grain, livestock – specify type, crops, mixed) _____

Percent of your household income from farm _____

Do you plan to pass your farm to someone in your family? Yes No

If yes, have you done so? Yes No Partially

How would you rate your health? Excellent Very good Good Fair Poor

What is your risk of farm injury? Very high Somewhat high Somewhat low Very low

Comments _____

_____

_____

_____

_____

_____

APPENDIX B-2

Participant Background Information – Family Member

Age _____ Gender (*circle one*) M F

Relationship to farmer _____ If spouse, # of years married to farmer _____

Do you live on a farm now? _____

Do you consider yourself: (*circle only one*)

A full time farmer A part time farmer Retired from farming Not a farmer

Have you ever done any farm work? _____

Do you currently do any farm work? _____

How many hours of farm work (including administrative work) do you average in a week? _____ hours

Number of years in farming (including childhood) _____

How many generations of your immediate family have farmed? _____

Type of Farm (grain, livestock (specify type), crops, mixed) _____

Percent of your household income from farming _____

Do you plan to pass your farm to someone in your family? Yes No

If yes, have you done so? Yes No Partially

How would you rate your health? Excellent Very good Good Fair Poor

What is your risk of farm injury? Very high Somewhat high Somewhat low Very low

What is your farmer's risk of farm injury? Very high Somewhat high Somewhat low Very low
(husband/father/etc)

What is your family's risk of farm injury? Very high Somewhat high Somewhat low Very low

Comments _____

_____

_____

_____

APPENDIX B-3a
Discussion Guide for Senior Farmers
Focus Groups & Personal Interviews

FARMERS FOCUS GROUP
INTERVIEW SCHEDULE

Emphasize that no names will be used in the data collection and that all comments made in the group will be treated as confidential.

Do a general overview of the demographics of the group and have them say a few words of introduction about themselves.

1. Strengths and challenges of older farmers
   - As you have aged in farming, how do you feel farming has helped you (physically, socially, financially)?

2. Think of the older farmers you know:
   - What types of farm work are they doing that you feel really puts them at risk for injury or their health?
   - What would make them change the way they do their farm work?

3. Thinking about yourself and changes in your body as you have aged:
   - How have those changes affected your life?
   - How have the changes affected your farm work?
   - What is the tipping point of when you change your farm work?

4. Top 10 aging changes

5. As people age there is usually some "slow down" of function. For example, farmers have a higher rate of arthritis than most occupations. This can lead to challenges when doing farm work. How do you feel farm work has affected your health over the years?

6. Job hazard matrix

APPENDIX B-3b
Discussion Guide for Family Members

Safety Strategies of Older Farmers
Family Members Focus Group

Below are a few of the questions that will guide our discussion. As you are thinking about these, it might be helpful to jot down a few ideas here and bring this sheet with you to the meeting.

- If you do farm work, what type of farm tasks do you do?

- From your perspective, what are some aging issues you have noticed that impact either yours or your farmer husband/father/etc's ability to do farm tasks the way you used to? (*e.g. arthritis, vision problems, increased medication*)

- How have these aging issues affected your ability to do your own farm work and what adaptations have you made to continue to do the work?

- How has aging affected your farmer husband/father/etc or other older farmer's ability to do farm work and what changes have you noticed about the way they do farm work?

APPENDIX B-3c
Revised Focus Group Discussion Guide
Revised January 2013

OLDER FARMERS FOCUS GROUP DISCUSSION GUIDE

1. What is the best (most satisfying) thing about being a farmer as you get older?

2. What was the best advice anyone ever gave you to make your farm work:

   a. *safer*?

   b. *easier on your body and your mind*?

3. What is the best thing you've done to make your farm work:

   a. *safer*?

   b. *easier on your body and your mind*?

4. What's the funniest story you've ever heard about older farmers? (can be your own experience)

   Remember we're focusing on your health and safety. So it could be a story about a near miss that at the time wasn't funny, but looking back you can laugh at it now.

5. Who do you turn to the most when making decisions about health and safety changes on the farm?

6. What is the biggest change you've made in your farm work (operation) in the last 5 years to make it easier or safer for you?

   a. What prompted you to make that change?

   b. How has that change helped you continue farming?

TRANSITION

Okay, we've talked about the past. Let's switch caps and begin to think about the future. Think about "What do I need now that would help me keep farming in the future?"

7. What would help you the most to make your farm work safer and easier on your body and mind in the future?

Safety Strategies Worksheet

Hazards	Risks	Needed to do Safely	Physical or Mental Requirments
Example: 4-wheeler	*Turning over* *Crashing*	*Pay attention to surroundings* *Go slow* *Be patient*	*Balance* *Good vision* *Grip strength*

APPENDIX B-5
Quick Response Play Evaluation
Rating Sheet

RATE the PLAY

1. The play realistically portrayed issues about aging's impact on farm work.

Strongly Agree	*Somewhat Agree*	*Neither Agree or Disagree*	*Somewhat Disagree*	*Strongly Disagree*

2. The issues addressed in the play were applicable to aging while farming.

Strongly Agree	*Somewhat Agree*	*Neither Agree or Disagree*	*Somewhat Disagree*	*Strongly Disagree*

3. What did you think was the main point in the play?

4. How likely is it you would use the information presented in the play?

Very Likely	*Somewhat Likely*	*Neither Likely or Unlikely*	*Somewhat Unlikely*	*Very Unlikely*

5. How likely is it you will share the information from the play?

Very Likely	*Somewhat Likely*	*Neither Likely or Unlikely*	*Somewhat Unlikely*	*Very Unlikely*

APPENDIX B-6a

Telephone Survey – Final Focus Group
Previous Participants

PHONE QUESTIONAIRE FOR FOLLOWUP ONE WEEK AFTER FOCUS GROUP

For those who have participated in a previous focus group for this project

(*Confirm the person on the phone is the person who attended the group*)

INTRODUCTION: Thank you for participating in our focus group about health and safety issues of aging farmers that was conducted at the Mercer County Extension Office on July 19th. We would like to get your feedback on the effectiveness of the meeting. This will only take about 15 minutes at the most. Your answers will remain confidential. The intent is to understand what effect the short play and the group discussion may have had on you and your family and friends.

1. Before you participated in this project (2010), how much had you thought about health and safety issues of farming? *Rarely* *Occasionally* *Often* *Almost daily*

2. After participating in the first focus group how much did you:

   a. Think about health/safety? *About the same as before* *Somewhat more* *A lot more*

   b. Talk with others about health/safety?
   About the same as before *Somewhat more* *A lot more*

3. Did you make any changes about health/safety for yourself after the first focus group? *Yes*
   No (skip to #4)

3a. If yes, what were those changes and why did you make them?

Change 1: _____

Change 2: _____

Change 3: _____

4. Did others make any changes about health/safety because of what you learned at the first focus group?
   Yes
   No (skip to #5)

4a. If yes, what were those changes?

Change 1: _____

Change 2: _____

Change 3: _____

5. Since last week's group meeting:

   a. How much have you thought about health and safety issues of farming?
      about the same as before *somewhat more* *a lot more*

   b. Have you talked with anyone about last week's meeting? *Yes*
      No (skip to #6)

   c. How much have you talked with others about health/safety issues of farming?
      about the same as before *somewhat more* *a lot more*

6. Did you make any changes about health/safety for yourself after last week's focus group? *Yes* *No*

   a. **If yes,** what were those changes and why did you make them?

      Change 1: _____

      Change 2: _____

      Change 3: _____

   b. **If no,** have you thought about making any changes? *Yes*
      No (skip to #7)

   c. If yes to 6b, what changes have you thought about making?

      Change 1: _____

      Change 2: _____

      Change 3: _____

d. How likely are you to make these changes that you've thought about?

Change 1:	*Very likely*	*somewhat likely*	*unlikely*
Change 2:	*Very likely*	*somewhat likely*	*unlikely*
Change 3:	*Very likely*	*somewhat likely*	*unlikely*

7. Did others make any changes about health/safety because of what you learned at last week's focus group? *Yes*
   No (skip to #8)

   7a. **If yes,** what changes did they make?

   Change 1: _____

   Change 2: _____

   Change 3: _____

8. What were the key messages that you heard during the group session?

   _____

9. How well did the messages capture the reality of farming as you age?

   Extremely well *Well* *Somewhat* *A little* *Not at all*

10. How much could you apply the messages to your life and family?

    Very much *Quite a bit* *Some* *Not at all*

11. How would you rate the manner in which the messages were delivered?

    Made me stop and think *Influenced me to take some action* *Purely entertaining; no impact*

12. How could the session be improved?_____

13. What did you like best about the session?_____

14. What did you like least about the session?_____

15. Just a few demographic questions:

Age _____ Gender: M F

What is your relationship to the farmer? Self Spouse Family Member None

Number of years in farming (including childhood) _____

Do you live on a farm now? Yes No

Do you consider yourself: (*mark only one*)

a full time farmer

a part time farmer

retired from farming

not a farmer

other : _____

How many hours of farm work (including administrative work) do you average in a week?

_____ hours

How much do you know about farming? A lot Some Not much Nothing

How many generations of your immediate family have farmed? _____

APPENDIX B-6b

Telephone Survey – Final Focus Group
New Participants

PHONE QUESTIONAIRE FOR FOLLOWUP ONE WEEK AFTER FOCUS GROUP

For those who have NOT participated previously

(*Confirm the person on the phone is the person who attended the group*)

INTRODUCTION: Thank you for participating in our focus group about health and safety issues of aging farmers that was conducted at the Mercer County Extension Office on July 19th. We would like to get your feedback on the effectiveness of the meeting. This will only take about 15 minutes at the most. Your answers will remain confidential. The intent is to understand what effect the short plays and the group discussion may have had on you and your family and friends.

(INTERVIEWER: READ RESPONSE CATEGORIES WHERE APPROPRIATE)

1. Before you participated in this project, how much had you thought about health and safety issues of farming? *Rarely* *Occasionally* *Often* *Almost daily*

2. Since last week's meeting:

   a. How much have you thought about health and safety issues of farming?
   about the same as before *somewhat more* *a lot more*

   b. Have you talked with anyone about last week's meeting? *Yes*
   No (skip to #3)

   c. How much have you talked with others about health/safety issues of farming since the meeting?
   about the same as before *somewhat more* *a lot more*

3. Did you make any changes about health/safety for yourself after last week's meeting? *Yes* *No*

   a. **If yes,** what were those changes and why did you make them?

   Change 1: _____

   Change 2: _____

   Change 3: _____

   b. **If no,** have you thought about making any changes? *Yes*
   No (skip to #4)

c. If yes to 3b, what changes have you thought about making?

Change 1: _____

Change 2: _____

Change 3: _____

d. How likely are you to make these changes that you've thought about?

Change 1: *Very likely* *somewhat likely* *unlikely*

Change 2: *Very likely* *somewhat likely* *unlikely*

Change 3: *Very likely* *somewhat likely* *unlikely*

4. Did <u>others</u> make any changes about health/safety because of what you learned at last week's focus group? *Yes*
No (skip to #5)

4a. **If yes,** what changes did they make?

Change 1: _____

Change 2: _____

Change 3: _____

5. What were the key messages that you heard during the group session?

_____

_____

_____

6. How well did the messages capture the reality of farming as you age?

Extremely well *Well* *Somewhat* *A little* *Not at all*

7. How much could you apply the messages to your life and family?

Very much *Quite a bit* *Some* *Not at all*

8. How would you rate the manner in which the messages were delivered?

Made me stop and think *Influenced me to take some action* *Purely entertaining; no impact*

9. How could the session be improved?_____

10. What did you like best about the session?_____

11. What did you like least about the session?_____

12. Just a few demographic questions:

Age _____ Gender: M F

What is your relationship to the farmer? Self Spouse Family Member None

Number of years in farming (including childhood) _____

Do you live on a farm now? Yes No

Do you consider yourself: (*mark only one*)

a full time farmer

a part time farmer

retired from farming

not a farmer

other : _____

How many hours of farm work (including administrative work) do you average in a week?

_____ hours

How much do you know about farming? A lot Some Not much Nothing

How many generations of your immediate family have farmed? _____

APPENDIX C-1

Safety Strategy Guide – NAGCAT Model

Climbing

NOTE: Prototype only – NOT for public use or distribution

CLIMBING

Responsibilities

YOU NEED TO MAKE SURE:

- Farmer is free of medical conditions or medications that affect his/her ability to concentrate and maintain balance
- Ladder is ANSI or CSA approved and free of damage
- Ladder is the right size for the job
- Ladder is dry
- Climbing structure is stable and safe
- Work area has no hazards (especially electric wires)

The important steps for safe climbing are followed:

These steps may be modified if the ladder is permanently secured to a structure

1. Check that the ladder is firmly set
2. Grasp alternate rungs and take first step
3. Pause and think about whether or not the ladder feels stable
4. Climb up, keeping feet and hips within sides of ladder frame
5. Always maintain three contact points, for example, two hands and one foot
6. Keep head up and back straight
7. Concentrate on the climbing process
8. Do not climb beyond the third rung from the top
9. Follow the above tips when climbing back down the ladder

REMEMBER:

Non-skid shoes

Leather gloves

Main Hazards

Working up high can lead to falls
Weight of ladder can strain muscles
Contact with wires can cause electric shock

ABILITY TO PERFORM TASK SAFELY:

Are you comfortable with heights?
☐ Yes.
☐ No. STOP! People who are afraid of heights are more likely to be injured.

Can you balance, lift, turn, and stretch on a two-step ladder?
☐ Yes.
☐ No. STOP! Persons with poor balance are likely to fall off the ladder.

Do you get dizzy or lightheaded?
☐ No.
☐ Yes. STOP! People who have these problems are likely to fall off the ladder.

Does the ladder weigh less than 10-15% of your weight?
☐ Yes.
☐ No. CAUTION! Injury hazard. Weight of ladder can strain muscles

Do you have to carry the ladder less than 10-15 yards?
☐ Yes.
☐ No. CAUTION! Muscle strain and tripping could occur.

Can you grip the ladder and maintain the hold?
☐ Yes.
☐ No. STOP! If you cannot grip or hold, you will not be able to stay on the ladder.

Have you fallen or almost fallen within the past month?
☐ No.
☐ Yes. STOP! Falls often repeat themselves

Do you experience numbness or tingling in your feet or hands?
☐ No.
☐ Yes. STOP! There may be problems that will prevent you from holding on or standing on the ladder.

Can you lift your arms above your head easily?
☐ Yes.
☐ No. CAUTION! This may be required for balance.

Do you take any medicine that cautions the use of operating machinery?
☐ No.
☐ Yes. STOP! The medication would also increase your chance of falling off the ladder.

NOTE: Prototype only – NOT for public use or distribution

Self-propelled Equipment

Main Hazards

- *Moving parts can entangle arms, legs, hair and clothing*
- *Collision with obstacles can cause injury to driver or bystanders*

Responsibilities

YOU NEED TO MAKE SURE:

- Equipment is service checked before using it
- All safety features are in place
- You can communicate by cell phone or other method
- Long hair and loose clothing is tied up
- At least one ten-minute break is taken every hour

REMEMBER:

Non-skid shoes

Hearing protection

Respirator as needed

Can you do this job safely?

Can you reach and operate all controls while wearing a seatbelt?
☐ Yes.
☐ No. STOP! People who can't reach the controls are more likely to be injured.

Are your legs strong enough to fully operate the controls without using both feet or straining?
☐ Yes.
☐ No. STOP! People who can't fully operate the controls are more likely to be injured.

Do you take any medicine that cautions the use of operating machinery?
☐ No.
☐ Yes. STOP! The medication would also increase your chance of injury.

Can you react quickly?
☐ Yes.
☐ No. STOP! Farmers need quick reactions to avoid injury.

Do you have good peripheral vision? For example, while looking straight ahead, can you see someone's finger entering your field of vision at shoulder level?
☐ Yes.
☐ No. STOP! If your vision is limited, you may not see people or obstacles in the work area.

Do you experience numbness or tingling in your feet or hands?
☐ No.
☐ Yes. STOP! There may be problems that will prevent you from climbing or operating the controls.

Can you stay focused and fully alert on a job up to 50 minutes?
☐ Yes.
☐ No. STOP! People who are easily distracted are more likely to be injured.

Do you have trouble climbing on and off equipment?
☐ No.
☐ Yes. CAUTION! People who have difficulty climbing are more likely to be injured.

Do you have trouble using your hands and feet at the same time?
☐ Yes.
☐ No. STOP! People who lack coordination may not be able to safely operate the self-propelled equipment.

APPENDIX C-3
Safety Strategy Guide – AAA Model

NOTE: Prototype only – NOT for public use or distribution

A Guide for Safe Farming

Aging is inevitable, but growing older doesn't have to mean giving up farm work or an active life. Farm safety is vital for farmers of all ages, but older farmers experience physical changes that can affect how safely they perform farm tasks – changes in vision, reaction time, and flexibility. Being a safe farmer means being aware of your own changing abilities. Take this self-assessment to see how your abilities may be affecting your safety. With just a few simple adjustments, you can help protect yourself and those around you from serious injuries or fatalities. The central idea is to help you farm as long as possible with safety to yourself and others.

Do you take longer to react to situations than you used to?

While older minds may be just as sharp as younger ones, they react more slowly. Reacting to a situation involves three steps: sensing, deciding, and acting. For older people, each step takes longer – and possibly so long that it becomes dangerous.

Do you have difficulty climbing on and off equipment?

Getting on and off equipment often requires taking large steps high off the ground and gripping handles/bars to pull yourself up. Arthritis, weak muscles, or nerve damage can make it difficult to do this.

Do you have difficulty working pedals and controls?

For example, do you lift your leg to move from the accelerator to the brake, rather than keeping a heel on the floor and pressing only with the toes? Or do you use your hands to lift or push your leg? That may be a sign of waning strength or limited range of motion.

Do you have difficulty seeing objects, people, or other vehicles at night or from the side?

Deteriorating night vision or sensitivity to glare may be the cause and it could increase your chances of injuring yourself or someone else. Limited field of vision creates additional safety risks.

Do you take any medications that could interfere with your farm work?

Some medications can make you drowsy, distracted, or dizzy. This includes many over-the-counter medications such as decongestants or cold remedies. Restricting all physical farm work until you are certain of medication side effects will keep you safer.

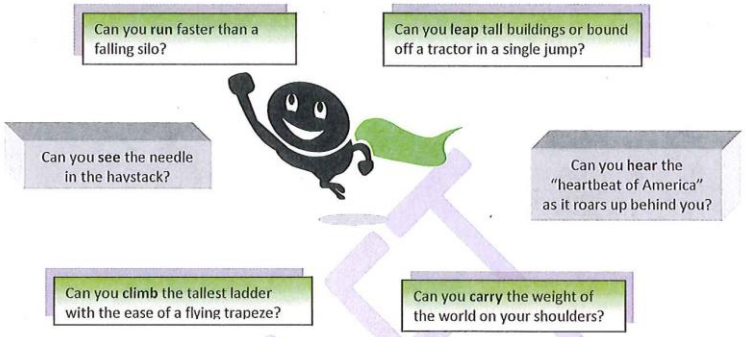
Do you neglect to buckle up?

Safety belts are the single best protection for anyone, in any vehicle, in any crash. Going unbelted might be a bad habit – or it may indicate a poor fit, or trouble fastening the buckles.

Source: Modeled after AAA "How to Help and Older Driver" guide, "The Older and Wiser Driver" brochure

APPENDIX C-4
Safety Strategy Guide
Combined Model with Humor/Stories

NOTE: Prototype only – NOT for public use or distribution



Unless you're Superman with extraordinary powers, chances are you couldn't answer "yes" to any of these questions.

As a mature farmer, you bring a wealth of experience to the farming operation. However, some of the skills required for optimal equipment operation and work performance begin to decline at older ages. Your body is not as resistant to injury as it might have been 30 or 40 years ago. If you are involved in a mishap, you are likely to suffer more serious injuries as compared to a younger person in a similar mishap. This makes it increasingly important for you to do everything you can to keep yourself away from harmful situations and to minimize your chances of being involved in an injury in the first place

A health and safety risk assessment is something to be considered by every older farmer about every three months. Assessment begins with looking for changes in our health that may lead to increased risk for injury. Hearing, vision, arthritis, and increased medications are just a few health issues that affect our ability to perform as quickly and effectively as we once did.

This self-rating form is designed to help you examine your ability to keep working safely on the farm. Through knowledge and self-awareness, you can make better informed decisions about when to get on the tractor, when to operate equipment, when to work around livestock, when to climb the silo, and when to redirect your efforts and seek other forms of help.

Think about the tasks you do every time you climb on the tractor, operate equipment, or handle livestock. You must coordinate the actions of your hands, feet, eyes, ears, and body movements. At the same time, you must decide how to react to what you see, hear, and feel in relation to everything around you, conditions of the fields, and the performance of your equipment. These decisions must be converted quickly into action and these decisions must be made frequently. Be aware of the risk factors and be ready to make changes to keep your farm operation free of injury and fatalities.

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G

"That won't happen to me..."

These scenarios are based on real-life stories from older farmers and family members of older farmers. While humorous at first glance, they actually reflect serious concerns about the safety of older farmers on the farm.

- An older farmer reads in a farm publication how to tear down a silo and decides to try it himself without telling anyone what he's planning to do. The silo blocks came tumbling down just inches from the farmer. He was lucky – it doesn't always turn out this way. His daughter and son-in-law know it's just a matter of time before a serious injury occurs.

- A sixty-seven year-old farmer runs his ATV into the side of the barn and sustains multiple injuries. He said "*That barn had been there for years. It just jumped right out in front of me.*"

- A sixty-year old farmer loses his father and brother/farm partners within the same year. His work load increases three-fold and is now working night and day. His eighty-year old mother is concerned her son is going to get hurt so she comes over daily to do what she can to help out. She uses a chainsaw and cuts her own wood. The farmer's wife knows they are both just "*accidents waiting to happen.*"

- The spouse of an older farmer watches her husband work himself into the ground. With two injuries within two years, she quits her job so she can be on the farm when the next one occurs. She fears the sight of finding him in a pool of blood and doesn't think she will be able to handle it.

If any of this sounds familiar, step back and take a long look at what your actions are doing to your loved ones. Sure, there is work to be done and someone has to do it, but there are better ways than putting yourself or those around you at risk for severe injuries or fatalities. Talk to your family. Consider alternative methods of getting the job done.

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FARMERS' HEALTH and SAFETY RISK ASSESSMENT

1.	Do you take any medication that sometimes makes you dizzy or drowsy?	Yes	No
2.	Have you noticed any problems with turning your neck or body around when backing up the tractor or hitching up equipment?	Yes	No
3.	Can you clearly see the outline of each step (in barn, on equipment, on ladders) as you go both up and down?	Yes	No
4.	Does arthritis make it hard for you to grasp or hold rails, steering wheels, etc?	Yes	No
5.	Have you fallen in the last 6 months?	Yes	No
6.	Do you carry a cell phone with you in case of emergency?	Yes	No
7.	Could you hear the cell phone if it rang?	Yes	No
8.	Do you have trouble climbing onto the tractor?	Yes	No
9.	Is it getting harder or you to push the pedals on the tractor or other farm equipment?	Yes	No
10.	Have you had any close calls lately where you barely avoided an injury?	Yes	No
11.	Has anyone in your family mentioned to you they are concerned about your safety as you do farm work?	Yes	No
12.	Do you take time to regain your balance when you stand up after sitting?	Yes	No

of "no" responses _____

of "yes" responses _____

Check back page to see how you fared →

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How did you fare?

If you answered "no" to all of the questions:

CONGRATULATIONS! You are at no greater risk than normal for farm work. However, keep in mind that farming is ranked in the top 3 most hazardous occupations in the U.S. Remember to keep safety shields in place, don't get in a hurry, and don't take things for granted!

If you answered "yes" to 1 or 2 questions:

CAUTION! You are at increased risk of being injured or injuring someone else. To ensure your safety and the safety of those around you, it might be time to consider redirecting some of the farm tasks you do and letting someone else help you do the riskier tasks.

If you answered "yes", to 3 or more of the questions:

WARNING! You are at extreme risk of being injured or injuring someone else. To ensure your safety and the safety of those around you, it is time to redirect the farm tasks you do and let someone else do the riskier tasks. This may be one of the most important decisions you make on your farm today. Think about the affects an injury would have on your farm operation and on your family – limited or lack of medical insurance, loss of work time, financial impacts, mental and physical stress. Take charge now and let your family know that it's time to make some changes before someone gets hurt!

APPENDIX D

LISTING OF LITERATURE AND OTHER RESOURCES
RELATED TO AGING FARMERS

Compiled by D.B. Reed and D.T. Claunch

As part of the NIOSH-Funded Grant # R21 OH 009494
Safety Strategies for Older Adult Farmers

August 20, 2013

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APPENDIX E

List of Publications and Presentations

Publications

Reed, D.B. & Allen-Bryant, K. (In Press). Worker Demographics and Implications for the OEHN. In Moore, R. & Moore, P.V. *Core Curriculum for Occupational and Environmental Health Nursing.* Pensacola, FL: AAOHN.

Tevis, C. (2012). Work smarter, not harder! *Successful Farming*, Mid-March, 2012. Accessed August 19, 2013, at http://www.agriculture.com/family/health/wk-smarter-not-harder_335-ar23008

Pekarchik, K. (2011). Aging farmers' health and safety. *Bluegrass Equine Digest*, November 2011, 7-8. Accessed August 15, 2013 at http://www.thehorse.com/*enews*/bluegrass-equine-digest/PDF/BED-Nov2011.pdf

Presentations

Reed, D.B., Teaster, P.B., & Claunch, D.T. (2012). *Developing consensus about strategies for safety of older farmers*. International Society for Agricultural Safety and Health, Inc. Conference, Boise, ID, June 26-30, 2011.

Reed, D.B., Teaster, P.B., & Claunch, D.T. (2012). *Working together to develop safety strategies for safety of older farmers*. National Priester Health Education Conference, Washington, DC, April 10-12, 2012.

Reed, D.B. (2012). *Protecting your health and safety as the years go by: What to do and who can help*. Key note address at Kentucky Cattlemen's Association meeting, Mt. Sterling, KY, April 16, 2012.

Teaster, P., Reed, D., & Rayens, M.K. *Mental health effects of farmwork for farmers and farm couples over age 50* [poster] (2012). Presented at the 33rd annual meeting of the Southern Gerontological Society, Nashville, TN, April 19-22, 2012.

Reed, D.B. (2012). *Safety strategies for older farmers*. American Farm Bureau Safety Specialists Conference, Oklahoma City, OK, May 22, 2012.

Reed, D.B. (2012). *The aging farmer and behavioral health*. Webinar presented through the Ohio Valley Appalachia Geriatric Education Consortium. Archived at http://www.mc.uky.edu/aging/gec.html

Reed, D.B. (2012). *Winds of change: Multiple perspectives on aging and farming*. University of Kentucky Summer Series on Aging, Lexington, KY, June 4, 2012.

Reed, D.B. (2013). *Not out to pasture…Work and health of aging farmers*. University of Kentucky Gerontological Grand Rounds, Lexington, KY, March 20, 2013.

Reed, D.B. (2013). *Promoting a healthy and safe work environment for Kentucky farm families*. Poster presentation. Kentucky Public Health 65th Annual Conference, Louisville, KY, March 28,2013.

Reed, D.B. (2013). *Older farmers: Assessing risk.* American Farm Bureau's National Women's Leadership Conference, Las Vegas, NV, April 14, 2013.

Reed. D.B. (2013). *Getting older, getting wiser: Tips on healthy and safe aging in farming.* Kentucky AgrAbility Summer Workshop, Frankfort, KY, July 11, 2013.

Future presentations already scheduled

Reed, D.B. (2013). *Listen, learn, consult, and coach: Steps to changing farmers' work behavior*. Kentucky Lakes Occupational Health Nurse Conference, Bowling Green, KY. September 26, 2013.

Reed, D.B. (2013). *Older farmers: Assessing risk.* American Farm Bureau, Sutton, WV, November 8, 2013.

Reed, D.B. (2014). *Older farmers: Assessing risk.* American Farm Bureau, Hershey, PA, November 18, 2013.

Reed, D.B. (2014). Working title: *Doing "women's work" safely as you age.* Kentucky Women in Agriculture Conference, Lexington, KY, March 11, 2014.