Not Raising a "Bubble Kid": Farm Parents' Attitudes and Practices Regarding the Employment, Training and Supervision of Their Children

Steven Neufeld, Ph.D., Sue Marie Wright, Ph.D., and Jolene Gaut, B.A.

ABSTRACT: *This article explores farm parents' attitudes and practices regarding the employment, training and supervision of their children among a sample of 24 farm couples from southeastern Washington state. The goal was to gain a greater understanding of parental attitudes and practices in order to devise appropriate and meaningful efforts to improve the safety of children and adolescents involved in farm work. Demographic data regarding the farm families and their farm safety practices were collected through a short questionnaire, and parental attitudes and practices regarding the employment, training and supervision of their children were explored through open-ended, semi-structured interviews. The results suggest that farm parents have developed a logical and consistent set of beliefs and attitudes regarding the employment, training, and supervision of their children that is based in part on the belief that farm work is highly beneficial to their children's development. Safety interventions to reduce childhood farm injuries will have to acknowledge farm work as important and beneficial for children in order to maintain legitimacy and credibility. Nevertheless, because farm parents' practices regarding their children's employment reflect cultural beliefs and values regarding children and child-rearing, some recommended safety guidelines will be difficult to implement.*

Interviewer: "I guess if you were to try to limit all risks, then you would have to keep them inside all the time."
Father: "Yeah, in the house in a bubble. They could be bubble kids."

Most recent statistics (National Agricultural Statistics Service, 1999) show that 32,800 agricultural-related injuries occurred to children and adolescents under the age of 20 who lived on, worked on, or visited a farm operation in 1998, 44% of which were classified as work-related. Of the total 32,800 injuries, 23,640 occurred to children and adolescents who were part of the farm household, 43% of which were classified as work-related injuries. Several epidemiological studies (Rivara, 1985; Salmi, et

This research was funded by the National Institute for Occupational Safety and Health Pacific Northwest Agricultural Safety and Health Center Grant U07/CCU012926–02. *For more information, contact: Steven Neufeld, Ph.D., Department of Sociology, 314 Patterson Hall, Eastern Washington University, Cheney, WA 99004; e-mail: sneufeld@ewu.edu.*

al., 1989; Stallones, 1989) have found that most childhood farm fatalities are attributable to farm machinery, especially tractors, although research on nonfatal childhood agricultural injuries is limited (see Cogbill, et al., 1985; Swanson, et al., 1987). Epidemiological research specifically on work-related childhood agricultural injuries is even more limited. One recent study (Schulman, et al., 1997) found that exposure to hazards and types of work-related injuries were related to gender, age and farm work experiences.

Other recent research on work-related childhood agricultural injuries has begun to focus on the underlying behavioral processes affecting the safety of children's farm work, especially the behaviors and decisions of farm parents. Several studies (Hawk, et al., 1991, 1994; Tevis, 1994) have attempted to identify the ages at which parents permit their children to do farm work, especially farm work involving the use of machinery. Despite significant variety in sampling, this has consistently found that most farm parents are permitting their children, especially boys, to perform farm work involving the use of large machinery, such as tractors and combines, by age 12 (Hawk, et al., 1991, 1994; Tevis), with boys frequently operating farm machinery independently by age 14 (Hawk, et al., 1994).

Other behavioral research has examined other aspects of parental decisions and practices regarding their children's farm work. In their study of the chore initiation process, Kidd, et al., (1997) found that parents focused on a variety of criteria in assigning farm work to their children, although the need to maintain productivity had greater influence than the child's physical and cognitive development or gender. They also found that parents engaged in training and discussed safety issues, although children often modified chores to increase efficiency once they began working fairly independently (see also Darragh, et al., 1998, on adolescent safety behaviors). McKnight, et al., (1995) examined parents' views of farm hazards to their children, and they found that most had prohibited their children from engaging in certain work or activities, primarily work or activities involving the use of machinery. In terms of supervision, Hawk, et al., (1991) found that 40% of children who operated machinery did so without supervision and that 30% of children played alone in work areas.

This article reports the results of a one-year pilot study designed to explore parental attitudes toward children working on the farm and how those attitudes shape parents' practices regarding the employment, training and supervision of children on the farm. The goal was to use qualitative interviews to gain a greater understanding of the beliefs and attitudes that these parents have developed regarding the employment of their children on the farm. The premise is that understanding these beliefs and attitudes is essential before meaningful efforts can be made toward improving parents' practices regarding the employment, training, and supervision of children on the farm. After the findings are presented, the policy implications of these findings regarding and feasibility of safety interventions for making children's farm work safer will be discussed.

Table 1. 1997 Agricultural Characteristics of Spokane and Whitman Counties.

Characteristic	Spokane County	Whitman County
Number of farms	1,643	1,003
Average acres	359	1,297
Percent of Farms With Wheat	20.5	75.5
Percent of Farms With Barley	15.0	56.4
Percent of Farms With Hay	49.5	25.3
Percent of Farms With Vegetables	2.3	3.3
Percent of Farms With Orchards	2.9	0.9
Percent of Farms Selling Cattle/Calves	41.6	28.4

Data and Methodology

In order to study the attitudes and practices of farm parents regarding their children, data were collected from 24 farm families in eastern Washington, all of which had at least one child between the ages of 4 and 18 still living with them at home. Respondents were selected primarily from Spokane County in eastern Washington, with several respondents coming from nearby neighboring counties, primarily Whitman County. Spokane County is relatively urbanized, with smaller farms and more farms selling cattle and calves and producing hay. Whitman County, in contrast, is predominantly agricultural, with larger farms involved more exclusively in the production of crops such as wheat and barley that are more typical of the southeastern Washington region. Table 1 provides descriptive information about the nature of agriculture in the Spokane and Whitman counties in 1997.

Farm families who participated in the research pro-

ject were identified by a variety of means. For Spokane County, farm families were initially chosen through random selection from a list of 347 farms compiled by the local office of the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture. This list tended to contain farms producing wheat and barley. Respondents selected from the NRCS list were sent cover letters briefly explaining the nature of the research project, followed shortly after by a telephone call to identify whether the farm family had children between the ages of 4 and 18 living at home and whether the parents were willing to participate in the research project.

Because of limited success in identifying farm families with children between 4 and 18, a snowball sampling procedure was also adopted (i.e., families initially identified through the NRCS list were used as informants to identify other farm families who qualified for the study). Referred families were then contacted by telephone to see if they were willing to participate in the research project. In order to expand the number of farm family networks tapped in this way, no more than two referrals were taken from any individual source, with usually only one referral being used from any one source.

Overall, approximately half of the respondents from Spokane County who participated in the research project were identified randomly from the NRCS list, whereas the other half were identified from referrals. Although finding eligible respondents through the random sampling process was difficult, the response rate once eligible families were identified through either the random or snowball process was approximately 50%. For Whitman County, most of the names of farm families with younger children were provided by a local Grange master who had contacted the families about participating in the research project.

Data were collected from the farm parents through two means. First, parents were asked to jointly complete a close-ended questionnaire containing questions about their demographic characteristics, their farm characteristics such as farm type and farm size, and their farm safety practices. These 12 questions regarding farm safety practices were modeled after items that appear frequently on guidelines that have been developed by various farm safety organizations, and they were included to assess farm parents' relative safety. This questionnaire typically took approximately 15 minutes to complete.

Second, farm parents participated in a semistructured, open-ended interview that explored issues pertaining to farm safety and parents' farm safety attitudes and practices regarding their children. Questions in the interview focused on various aspects regarding the employment, training, and supervision of their children. These interviews were conducted by one of the principal investigators, primarily in the respondents' homes at a time at their convenience. The interviews were tape-recorded and lasted from between 50 minutes to 2 hours and 15 minutes, with the typical interview lasting between approximately 1 hour and 15 minutes to 1 hour and 30 minutes. Families were compensated $20 for participating in the research project, although the couples were only informed of this after they had agreed to participate.

Table 2. Mean Characteristics of Fathers and Mothers.

Characteristics	Fathers	Mothers
Age	40.4	38.8
Years of Education	14.1	13.8
Childhood Years on Farm	16.6	7.0
Farm Work Hours per Week	52.5	17.7
Farm Work Weeks per Year	48.9	20.8
Off-Farm Work Hours/Week	13.8	23.6
Off-Farm Work Weeks/Year	14.0	35.1

In terms of sample characteristics, the 24 farm families were in many ways involved in agriculture typical of the region more generally. In terms of their predominant sources of income, 18 produced field crops such as wheat, barley, legumes, or hay, two raised cattle, two had both field crops and cattle, and two were dairy farms. With the exception of two larger farms in Whitman County farming 12,200 acres and 19,350 acres, the number of acres used in agricultural production ranged from 220 to 3,960 and averaged 1,513 acres. Overall, the 24 families contained 63 children under the age of 20 (33 boys and 30 girls), with a mean age of 10.7 years and a mean of 2.7 children per family. Table 2 provides mean characteristics for mothers and fathers in the sample.

Interview data from this project were analyzed through a grounded theory approach (Glaser & Strauss, 1967; Strauss & Corbin, 1990) in which hypotheses were developed inductively and interactively with the data. Interviews were transcribed verbatim and then coded by members of the research team, which included three undergraduate sociology majors and the two principal investigators. Interviews were

coded using concepts developed jointly by the research team through an initial reading of selected interviews. Two members of the research team independently coded each interview; any discrepancies in coding were resolved through discussion. Coded interviews were analyzed using Ethnograph 4.0, a qualitative data management program.

Results

Parental Attitudes Toward Children's Farm Work. Farm parents in our sample virtually unanimously agreed on the benefits of farm work for children. Farm parents talked repeatedly in particular about the benefits of farm work in terms of developing a work ethic and a sense of responsibility. Parents also mentioned other important benefits for children, such as teaching useful knowledge and skills, teaching about cooperation and teamwork, keeping children busy and "out of trouble," and even teaching them about the life cycle from working with animals. In addition to being beneficial for their children's emotional and intellectual growth and development, some parents also mentioned how children's farm work brings the family closer together. Overall, many parents believed that children raised on farms were superior to children raised in urban settings in these respects.

Although parents believed that farm work is beneficial for their children, they also often saw it as beneficial for the farm. Smaller chores performed by children at earlier ages were generally not rewarded financially, but most parents were financially rewarding older children for the farm work, usually with money but if not at least in-kind. A few parents, especially those who were more likely to reward their children in-kind, talked about the direct financial benefits of using children's labor. As one father explained:

> To be brutally honest, for this farm to survive financially, these kids are gonna have to start farming. They're gonna have to transition in. We can only afford so much hired help. If the economy was kinder to us, they wouldn't have to. . . . But harvest is critical.

Although most parents, especially those who claimed to be rewarding their children's farm work monetarily, did not talk about directly saving money through use of their children's labor, many did nevertheless acknowledge other benefits. As will be discussed more in the section on training, farm children were usually exposed to farm work from very early ages. As a result, virtually all parents felt that their children were or would be much more knowledgeable and competent than hired help would be. They also felt their children generally were or would be more motivated and obedient. As one couple with younger daughters explained in the following exchange:

> Interviewer: So you'd rather it was the girls helping out than hiring somebody?
> Mother: Yes, but just because they will already know how it all works.
> Interviewer: Would they be better employees than hiring somebody?
> Father: Yeah, because they would know what is going on.
> Mother: Well, for example, he hired some kids, and they had no idea what was going on. They had never been on a farm. They didn't respect him at all. . . .

Consequently, many parents felt that in addition to being more productive and requiring less supervision, their children were also safer than hired help would be. Although some parents were satisfied with the competence and performance of their hired help and even trusted them to supervise their children, many also complained about the competence of hired help and accidents and near accidents they had caused. One couple explained:

> Mother: I don't think you can take a child and put him, and not have him exposed to (farming) and teach them as they grow, and put them out there at 16 and expect them to. . . Because we've had hired help that that's what happened. And we just grow up with our kids learning to do so much with our kids beside us, so we don't think about it. This (hired help) had never been taught anything. He didn't know how to do anything, and he was more dangerous to all of us because of that.
> Father: We had our 12-year-old riding with a 16-year-old telling him what to do, where to go, and how to do it. If you've got doubts, we told the kid. . .
> Mother: I'm sure he got tired of hearing "ask [the son]."
> Father: "Ask [the son]."

Overall, many parents believed that their children were typically more competent and safe than hired help, even sometimes regardless of the hired help's

age and that they were often even more competent than some of the mothers who engaged in farm work.

Parental Practices Toward Children's Farm Work. To the extent that children under 12 were participating in farm work, they were typically involved in tasks and chores that did not involve the use of farm machinery. One type of task or chore that several parents talked about as appropriate for younger children around the age of 8 or 9 was feeding animals by hand, although this type of task or chore was not that frequent because few farms in the sample had animals. Still, many children aged 10 or 11 were involved in or expected to be involved in more common types of chores that did not involve the use of farm machinery, such as picking rocks, pulling weeds, stomping grass or spraying thistles, while some younger children under the age of 8 participated by providing tools during repair work being done in the shop or the field or helping to clean the shop.

In general, children did not begin or were not expected to begin doing farm work involving the use of machinery until about the age of 12, although virtually all respondents either had their children doing or expected that their children would be doing farm work involving the use of machinery by age 14, especially boys. Many of the boys had started driving combines during harvest with some degree of supervision at age 11, and especially by age 12, with many driving a combine fairly independently by age 14. However, in several families, children had started operating machinery, such as driving a tractor or baling hay, by the age of 9 or 10 and had started learning to drive well before then. These results seem to be consistent with previous studies (Hawk, et al., 1991, 1994; Tevis, 1994) about the age at which children are allowed to use farm machinery.

In terms of the impact of gender, many parents claimed that gender differences were or would be important only insofar as they affect the factors on which they base their decisions about what is appropriate for their child, especially physical ability and interest in farm work. Although positive attitudes toward farm work as beneficial for children, as well as the economic benefits of using children's labor, may encourage farm parents to be more egalitarian in their employment of children, some important caveats seem in order. First, one father seemed to assume his 5-year-old daughter would be less interested and able, although the mother disagreed. Second, interest may be more important for girls than boys. That is, boys may still be expected to participate more even if they are not as interested. Finally, attitudes about farm duties seem to be gender-based, at least to some extent. Even parents who expect their daughters to participate in farm work talk more about driving grain trucks rather than driving combines, which is what many of the mothers who participate in farm work during harvest do.

Although there was a reasonable degree of consensus regarding the types of farm work appropriate for children of different ages, parents rarely claimed to rely on age per se in deciding when their children were ready to perform different types of farm work. Instead, parents claimed to focus on factors such as size, physical ability, emotional maturity and personality, which determine the child's ability to perform farm chores and farm work safely, although some parents also mentioned the child's interest in or willingness to perform farm chores and work. Parents talked in particular about the importance of temperament and personality characteristics such as patience, confidence and cautiousness. Indeed, parents often made distinctions between their own children in terms of when they were ready for different types of farm work based on differences in these factors. One farm couple, for example, explained why their 10-year-old would not begin doing farm work as soon as their 13-year-old had:

> Father: He (the 10-year-old) is of smaller stature (the father and mother laugh). Believe it or not, the limiting factor is not the mechanics. Physically, he could do it right now, but he isn't. . . he isn't emotionally. . . . He's a different kid than the older one. The other one's a big kid, he's the biggest kid in his class. Big kid, real strong, big. Yet [the 10-year-old] is a little smaller stature, a little more frail, and a little, real sensitive. He isn't ready.
> Mother: A lot more cautious.

Or another, explaining the difference between their 13-year-old and 11-year-old sons:

> Mother: [The 11-year-old] has moved a pickup like a little ways in the field. [He] doesn't have as much common sense as [the 13-year-old] does. [The 13-year-old] is much more responsible and we can see that. And so we try to make [the 11-year-old] feel good about himself. But he definitely is not as ready as [the 13-year-old] was.
> Father: He's not as ready as the other one is.
> Mother: [The 11-year-old] lives for the moment more. [The 13-year-old] is much more a thinker.

Interviewer: So that affects what your decision about...
Mother: Yeah. And [the 11-year-old] is always "Well [the 13-year-old] got to do that!" And I say "It's different."
Father: "You aren't quite there yet."

Parents also generally believed that they were in the best position to decide when their children possess enough of these characteristics to perform various types of farm tasks and chores. In general, parents argued that they know what their children are capable of, in part because they are often able to observe their children as they grow up playing and working on the farm. Some parents even talked of deliberately testing their children to see when they are ready, which was also in some cases seen as a way of developing appropriate capabilities in their children. One father who had just begun letting his 13-year-old son operate tractors and combines described the process this way:

> We bought a John Deere Gator (a large 4-wheel vehicle) two, three years ago, and that was the first step he really drove. He was to the point that he wanted to drive but there was nothing else around that I felt he could drive because he didn't have any experience. I didn't just want to stick him in a tractor or pickup and just drive around the field. So it only goes 15 miles per hour. It doesn't go very fast. So we got it, and that's what he's broken in. We let him drive that, play around, and made him responsible with it. And when he got to the point where he could do that by, you know, you could tell by how he was handling it and stuff. After he had a few little run-ins with his responsibility with it, he figured out what he can and can't do, and could graduate up to something else.

This latter point that responsibility can be developed through experience also affected parents' views about readiness. Many farm parents argued that because their children are raised exposed to and involved in farm work, their children are generally ready to do farm work earlier than nonfarm children would be who were not brought up this way. Parents suggested that although children do have their own personality characteristics to some extent, a sense of maturity and responsibility can be and often is developed through experience. Parents also suggested that because of their different experiences, farm children are different than nonfarm children. In this way, parents' attitudes towards farm work affects their employment practices.

Parental Attitudes and Practices Toward Training. As previously suggested, probably the most important way in which parents believe their children learn about farm work is by accompanying their parents, starting at very early ages as they perform farm work. Most of these families see child rearing on the farm as a lifelong education, and many parents let their children ride with them on farm machinery starting at very early ages, some even practically from infancy. Children are trained both formally and informally through these experiences. One parent said: "I mean it's been such an educational process it didn't just happen one day. Like I say they've been riding a combine since they were two or three." This helps explain why so many report little time spent in formal training as their children in their view become ready to perform farm work. In the words of one parent: "I usually spend an hour or two hours with him on something like starting to drive the combine or the tractor. Most things I spend an hour, two hours with him." As previously suggested, parents believe that this method of training is more effective than waiting to train children until they are actually ready to perform farm tasks.

Training, which tended to be more the domain of the fathers, did involve safety to a significant extent. Most parents were aware of the various hazards associated with farming (cf. McKnight, et al., 1995) and tried to teach children how to avoid them and about the need to be careful in general, even though they do not always explicitly use the term safety in their training (cf. Kidd, et al., 1997). One way of doing this is to discuss accidents that happen in the community and use this opportunity to educate their children. Another way, mentioned less often, is through visual demonstrations. One father described his use of visual demonstrations to teach his children the dangers of clothing getting caught in tractor power-take-off (PTO) shafts:

> I do live demonstrations on the farm... I will take them, and this represents loose clothing and here's what can happen, and I will throw that thing or just lay it on the shaft while it's running. And wham, it's gone out of your hand! And that will impress them.

Being safe seemed so obvious to most parents that several parents talked about safety as "common sense." As one father explained:

> I impress 'pay attention.' The whole key in safety and anything is being alert and paying attention.

Common sense. I'm a real advocate of that common sense routine. Think. Be alert, and think about what can happen."

Even though safety may seem like common sense to many parents, we found some limitations in training from a safety standpoint. One limitation of training is that it does not always involve training children in all aspects of safe work practices. This makes sense because the parents themselves, although relatively safe in terms of the 12 safety practices asked about in the questionnaire, were not completely safe. Parents in particular often did not insist that their children use seat belts while operating farm machinery. This corresponds with the fact that parents scored relatively low in terms of their own seat belt use and many parents were dubious about the benefits of seat belts during the interviews.

Another limitation is that parents claimed to not always act as role models for the safe work practices that they insisted their children follow. Parents' responses to questions about whether they thought of themselves as role models for safe farming practices and whether they actually practiced safe behavior when their children were present provided some interesting insights. Several fathers did not think about or were not conscious of modeling, even though some were still relatively safe in terms of their farm safety practices. However, even among fathers who saw modeling as important, only about half actually agreed that they are a good role model.

Fathers who did not model safe farming practices usually used two different types of explanations. The first type of explanation was that they had developed "bad habits," sometimes from their own years growing up on the farm, and that these habits were hard to change. The second type of explanation involved financial issues; that is, parents think modeling is important and would like to model safe behavior consistently but feel forced to "take shortcuts" or break rules because of financial considerations. Some parents argued that the problem of maintaining a double standard by failing to properly role model one's proscriptions was mitigated by ensuring that children nevertheless followed the appropriate rules. One father and mother, however, were concerned about the long-term implications of this view:

Father: I'm not a good role model.
Mother [laughing]: He isn't.
Interviewer: Well does that concern you, or do you feel that you are making the kids do the safe thing?
Father: Yeah, it does concern me. I wish I had more money where I had a full-time hired man so I wouldn't have to do that. It's all financially related—that's the reason I'm doing it. I'm pushing to get the stuff in the ground to make more money and it gets back to that stress thing. I'm trying to—and I've gotten way better through the years—I'm trying to bring these kids up a little different.
Mother: And we'll get into fights about stuff like, I mean we'll have discussions where the kids, you know, we'll say "Yeah, you're right, I shouldn't do that."
Father: I guess we're teaching these kids when they get to be 25 they can start to do that stuff—which isn't right. . .
Mother: . . . When we're older we're going to have trouble because they can say, "Well, I'm 6'2" now. I can get out and do this 'cause dad did it.". . . We should be, we need to be more conscious about [modeling].

Parental Attitudes and Practices Toward Supervision. Discussions regarding supervision also provided some interesting insights. As suggested earlier, parents supervise children as they train them to perform farm work, which is also in part how they judge when their children are ready to perform farm work. Once children begin to perform farm work, parents use a variety of ways to ensure that they are able to monitor their status: by being in close enough proximity to observe their children themselves, by trusting other persons (such as hired labor or adult relatives), to be in close proximity to observe the children, and through the use of communication devices such as radios and cell phones. Although parents were generally able to monitor their children through these various means, the actual monitoring of children performing farm work was relatively infrequent. Instead, parents often trusted that their children were performing farm work in the safe and appropriate manner.

Parents justified the use of trust in a variety of ways. Most believed that they could trust their children because they were "good kids who follow the rules." This may have been even truer for parents who believed their nuclear family is a close unit. One father who talked a lot about the closeness of his farm family had this to say about supervision:

You can't be 100% sure. Partly is that I trust him. I mean, he doesn't lie, he doesn't do things. We just trust him; we've always trusted him. He knows that, and my opinion is that he doesn't want to break that trust either.

However, although parents generally believed that their children are responsible and can be trusted, they also felt that there were limits to the extent to which children can be supervised. Many parents believed that children, and especially adolescents, needed to be trusted. Constant supervision was often seen as distrust and doubting the child's abilities: ". . .that is kind of like babysitting your kids and you can't babysit them like that." Some parents also believed that children had to learn on their own to some extent: "It's like teaching in school or anywhere else, they have got to learn on their own at some point." Finally, some parents also mentioned that frequent and direct supervision was impractical in terms of interfering with their own productivity.

Discussion

These findings have several important policy implications regarding the feasibility of safety interventions to make children's farm work safer. First, safety interventions targeted at changing parents' practices will probably have to acknowledge farm work as positive and important for children in order to enhance legitimacy and credibility. This research suggests that farm parents' practices regarding the employment, training, and supervision of their children are rooted in the belief that children's farm work is important and beneficial to children's development. Although parents acknowledge that farming has its hazards, they also believe that these hazards can be managed through proper precautions and behavior, so that overall the benefits of farm work for children outweigh the risks. Persons attempting safety interventions may not agree with this view but they will probably need to acknowledge it in order for their safety interventions to appear legitimate to most farm parents.

Second, even if safety interventions acknowledge the usefulness of children's farm work, parental compliance with age recommendations may still be problematic. For instance, *The North American Guidelines for Children's Agricultural Tasks* recently developed by The National Children's Center for Rural and Agricultural Health and Safety (1999a) include recommendations regarding the age appropriateness of various types of farm work for children as well as tests for assessing a child's cognitive and physical abilities and emotional maturity. These guidelines regarding age-appropriate work typically recommend having children begin tasks at considerably older ages than those at which many parents in this study and in other studies are assigning work to their children and with considerably higher levels of supervision as well. For example, the guidelines recommend that children be 14 to 15 years old before operating tractors over 70 horsepower or using any trailed implements, three-point implements or PTO-powered implements, and that they only be left alone for 15 to 30 minutes, even if they are 16 or older.

Although most parents seem to be permitting their children to perform various types of farm work at an earlier age than is generally being recommended in the guidelines, whether they are overestimating their children's developmental capabilities has not been established. Whereas it may be possible to treat child development as a universal phenomenon to some extent, it also seems necessary to understand children's knowledge and maturity in a culturally bound context. More specifically, farm children, because of their daily involvement in the family farm production, may have the maturity and knowledge to effectively perform certain tasks and chores at an earlier age than nonfarm children. It is not clear to what extent the guidelines take children's farming background and knowledge into account in determining age appropriateness. As a result, even if parents accept the validity of the tests for cognitive and physical ability and emotional maturity proposed in the guidelines, their decisions about the employment of their children on the farm might not change substantially.

Third, safety experts typically state that children should not be accompanying parents as they do farm work, especially in terms of riding along in farm machinery; see, for example, the farm safety checklists developed by the National Safety Council, The Centre for Agricultural Medicine, Pacific Northwest Agricultural Safety and Health Center, and the Newfoundland and Labrador Federation of Agriculture. The findings here, however, suggest that not only do most parents engage in this practice to at least some degree but that they also believe that it provides important training that makes children safer in the long run. As a result, a better approach for safety interventions may be to encourage parents to allow children (but not infants or toddlers) to ride only on machinery with cabs and seats for passengers (something many of the parents we interviewed were already doing) and to use seat belts as well. Safety experts could also pay greater attention to ergonomic considerations regarding the design of farm machinery to more safely accommodate additional passengers such as children.

An alternate approach to reducing childhood agri-

cultural injuries that may be more feasible involves getting parents to improve the work safety practices of children, such as wearing seat belts and other protective equipment. One way to do this would be to encourage parents to pay more attention to role modeling, which appears to be effective at least in terms of tractor safety (DeBarr, et al., 1998). Parental role modeling would probably make parents' safety discussions with children more effective. In addition, this approach might also have the benefit of reducing injuries for all family members, because modeling safer work practices would lower the adults' likelihood of injury.

This need to influence children's work practices in safer directions also suggests the continued importance of educational efforts to improve children's safety practices through avenues other than influencing parents, such as schools, the National Future Farmers of America Organization, and 4-H. In general, educational approaches have been found to be particularly useful when they focus on teaching young children basic safety behaviors and skills (Christoffel & Gallagher, 1999). Training children about safe work practices through these other avenues might even positively influence parents' safety practices. In fact, several parents in our sample commented on how their children's safety training positively influenced them. This approach would also probably meet less political resistance from parents than mandating changes in children's work through laws.

Conclusion

The results of this study suggest that farm families' adoption of currently proposed safety recommendations for children, such as delaying farm work and not riding on farm machinery, is likely to be problematic. The practices of the farm parents in this study regarding the employment, training, and supervision of their children reflect beliefs and values regarding the proper upbringing of children.

In general, care needs to be taken in drawing generalizations from a small qualitative study. Nevertheless, the employment, training and supervision practices of farm parents in this study generally appear consistent with other research findings on children's farm work, especially regarding the age of children employed in this work. As a result, the findings regarding parental beliefs and attitudes may be typical as well. To the extent that they are, they suggest that farm parents' practices regarding the employment, training and supervision of their children are part of a farm "way of life" regarding the proper way to raise children that will be difficult to change.

References

The Centre for Agricultural Medicine. *The Farm Safety Audit.* Saskatoon, SK: The Centre for Agricultural Medicine.

Christoffel, T., and Gallagher, S. S. (1999). *Injury prevention and public health: Practical knowledge, skills, and strategies.* Aspen: Gaithersburg, M. D.

Cogbill, T. H., Busch Jr, H. M., & Stiers, G. R. (1985). Farm accidents in children. *Pediatrics, 76*(4), 562–566.

Darragh, A. R., Stallones, L., Sample, P. L., & Sweitzer, K. (1998). Perceptions of farm hazards and personal safety behavior among adolescent farmworkers. *Journal of Agricultural Safety and Health,* Special Issue 1, 159–169.

DeBarr, K. A., Ritzel, D. O., Wright, W. R., & Kittleson, M. J. (1998). Friends and family: Implications for youth tractor safety. *Journal of Safety Research, 29,* 87–95.

Glaser, B., & Strauss, A. (1965). Discovery of substantive theory: A basic strategy underlying qualitative research. *The American Behavioral Scientist, 8,* 5–12.

Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory: strategies for qualitative research.* New York: McGraw-Hill.

Hawk, C., Donham, K. J., & Gay, J. (1994) Pediatric exposure to agriculture machinery: Implications for primary prevention. *Journal of Agromedicine, 1*(1), 57–74.

Hawk, C., Gay, J., & Donham, K. J. (1991). Rural youth disability prevention project survey: Results from 169 Iowa farm families. *The Journal of Rural Health, 7,* 170–179.

Kidd, P., Townley, K., Cole, H., McKnight, R., & Piercy, L. (1997). The process of chore teaching: Implications for farm youth injury. *Farm Community Health, 19,* 78–89.

McKnight, R. H., Piercy, L. R., Townley, K. F., Kidd, P. S., & Cole, H. P. (1995). Parents' concern for children's farm safety. *Texas Journal of Rural Health, 14,* 10–19.

National Agricultural Statistics Service. (1999). *1998 childhood agricultural injuries.* Washington, D.C.: U.S. Department of Agriculture.

National Children's Center for Rural and Agricultural Health and Safety. (1999). *The North American Guidelines for Children's Agricultural Tasks.* Marshfield, WI: Marshfield Clinic.

The National Safety Council. *Hazard Checklist for Agriculture.* Chicago, IL: The National Safety Council.

The Newfoundland and Labrador Federation of Agriculture. *The Farm Health and Safety Checklist.* Mount Pearl, Newfoundland: Author.

The Pacific Northwest Agricultural Safety and Health Center. *Farm Safety Checklist.* Seattle, WA: Author.

Rivara, F. P. (1985). Fatal and non-fatal farm injuries to children and adolescents in the United States. *Pediatrics, 76*(4), 567–573.

Salmi, L. R., Weiss, H. B., Peterson, P. L., Spengler, R. F., Sattin, R. W., & Anderson, H. A. (1989). Fatal farm injuries among young children. *Pediatrics, 83*(2), 267–271.

Schulman, M. D., Evensen, C. T., Runyan, C. W., Cohen, L. R., &

Dunn, K. A. (1997). Farm work is dangerous for teens: Agricultural hazards and injuries among North Carolina teens. *Journal of Rural Health, 13*(4), 295–305.

Stallones, L. (1985). Fatal unintentional injuries among Kentucky farm children: 1979 to 1985. *Journal of Rural Health, 5*(3), 246–256.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research: grounded theory procedures and techniques.* Newbury Park, CA: Sage.

Swanson, J. A., Sachs, M. I., Dahlgren, K. A., & Tinguely, S. J. (1987) Accidental farm injuries in children. *American Journal of Diseases of Children, 141*(12), 1276–1279.

Tevis, C. (1994). Downsizing farm chores. *Successful Farming,* 92(2), 48–49.

U.S. Bureau of the Census. (1997). *Census of Agriculture: Geographical Area Series. U.S. Summary and State Data.* Washington, DC: U.S. Government Printing Office.