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Child Work Safety on the Farms of Local Agricultural Market Producers: Parent and Child Perspectives

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Abstract

Agriculture is a hazardous industry, yet children face few regulations on the ages at which they may engage in farm work. Local agricultural market producers (LAMPs) are a growing subset of farmers within “sustainable agriculture” who engage in direct-to-consumer and direct-to-retailer enterprises. This study explores the occupational health and safety perceptions of parents and children for children who work on their families’ LAMP farms. In-depth interviews were conducted with 12 parent-child dyads from LAMP farms in Illinois and North Carolina. Four themes emerged from these 24 interviews; parents and children perceived that: (1) the nature of small farms makes them safer than industrial agricultural operations; (2) child safety on farms is common sense; (3) avoiding hazardous tasks keeps children safe; and (4) parents know best (compared to regulations) about ways to keep their children safe. Some of these themes echo the results of earlier studies conducted with more conventional farms. Further research is needed to develop programs to improve child occupational safety on LAMP farms.

Keywords

child labor; occupational health and safety; agricultural health and safety; rural health

Introduction

Agriculture is among the most hazardous industries in the United States (US), yet children face few regulations on the ages at which they may engage in farm work or on the tasks that they may perform.^{1–3} Children of any age can work on a family member’s farm; children

hired to work on non-family members' farms can be as young as 10 years old. Major hazards include falls, machinery, sharp tools, chemicals (including pesticides), animals, ergonomics, and drowning. Over half a million children living on farms owned by their families engage in farm work,⁴ and the injury and mortality rates for children working on these farms are particularly striking.⁵⁻⁹ National data on occupational injury and mortality for youth working on farms document that a child dies in an agriculture-related incident every 3 days.¹⁰ The annual agricultural youth fatality rate is 9.3/100,000 youth.⁵

Primary research addressing the occupational health and safety of children working on their families' farms is limited and largely dated. Several projects conducted around 2000¹¹⁻²⁰ addressed a variety of issues related to child agricultural health and safety. Qualitative analyses^{12, 15, 18} indicate that both parents and children are complicit in the occupational risk experienced by children working on farms. Children acknowledge that they break rules and take risks, but also report that they are modeling the unsafe behavior of adult relatives, and that pressing labor needs determine their tasks rather than their maturity.^{12, 15} Neufeld et al.¹⁸ note that parents have a coherent belief system justifying child farm work, and that any efforts to reduce child risk will need to acknowledge the ways parents perceive that their children benefit from farm work.

Several surveys^{14, 16, 17, 19, 20} document that teens working on their parents' farms are engaged in a wide range of hazardous tasks (e.g., equipment operation, animal care), and that boys and girls differ in the hazards to which they are exposed, with boys being more involved in working with machinery and girls more involved in providing animal care. These gender differences in hazards and injury rates are also reported in a more recent survey conducted by McCurdy et al.^{21, 22} The McCurdy et al. study that includes analyses of teens working on their parents' farms, as well as teens hired to work on farms not owned by their family members. A recent Canadian survey conducted by Crouchman et al.²³ found few differences by gender in safety training and the conduct of hazardous work among youth, but that girls were less often required to use personal protective equipment than were boys. Bonauto et al.¹³ report that teens working for family members had more work experience and experienced more injuries than those working for an agricultural business not owned by a family member. McCurdy et al.²¹ report a similar result using recent data. Westaby and Lee²⁰ applied the work safety culture model in a longitudinal analysis of injuries among Future Farmers of America members and found that dangerous risk taking behavior was positively associated with injuries, and that safety consciousness was inversely related to injuries. However, they also found that safety knowledge actually had a positive rather than negative association with injuries, suggesting that this counter intuitive result could result from youth being placed in more dangerous environments for which they are provided greater safety information. The recent survey of California high school students by McCurdy and colleagues^{21, 22, 24} found that injury risk was associated with animal operations, mixing chemicals, welding, and vehicles (not wearing seatbelts, riding in uncovered trucks).

Local Agricultural Market Producers (LAMPs) are a growing subset of farmers within "sustainable agriculture" who engage in direct-to-consumer and direct-to-retailer enterprises.²⁵⁻²⁸ These farmers face a unique set of occupational health and safety risks. They tend to differ from their conventional counterparts in several ways, including less farming

experience, less capitalization and a consequent lack of resources necessary to purchase newer equipment with greater safety features, and greater reliance on personal and family labor with greater pressure on themselves and their families.^{25,28} Children often work on LAMP farms. Specific training resources have not addressed the occupational health and safety needs of LAMPs. This is especially true for children^{14,26,27} Chapman and colleagues¹⁴ conducted a survey of 81 children aged 5 to 18 years who worked on “fresh market vegetable operations,” and found that these children worked substantial hours and were involved in such activities as tractor operation, weeding, and produce hand harvesting, washing, and loading. Half experienced back discomfort, with a quarter reporting disabling discomfort.

The objectives of this analysis are to explore the occupational health and safety perceptions of parents and children for children who work on their family’s LAMP farm. By exploring the experiences, perceived risks, and particular needs regarding occupational health and safety among these children, this study provides guidance to future research, and insight for those who are concerned about child farm health and safety.

Methods

This study used a qualitative design in which parents and children working on LAMP farms completed individual in-depth interviews. The research protocol was approved by the Wake Forest School of Medicine Institutional Review Board.

Participants

Participants were recruited in Illinois and North Carolina, states with diverse agriculture and LAMPs. Participants included parent-child dyads in which the parent was a LAMP farmer and the child worked on the family’s LAMP farm. Farms had to have been engaged in production for local markets for at least two years. Either mother or father could participate, with the parents making the choice on who would be interviewed. The child had to be aged 12–17 years and have worked on the farm for at least one year; both boys and girls were recruited.

Participants were primarily associated with farms that focused on crop production; as the majority of LAMPs are engaged in growing produce.^{26,27} Participants were recruited from farms of different sizes that engaged in farmers’ markets, community supported agriculture (CSA) programs, food-to-school programs, and you-pick farms. Community representatives with ties to LAMPs (e.g., the Carolina Farm Stewardship Association) were asked to facilitate participant recruitment by referring the researchers to potential participants and giving them contact information. Some individual LAMPs were approached and recruited directly at farmers’ markets or road-side stands. Others were introduced to project team members by acquaintances of LAMPs families.

A total of 63 LAMP farms were contacted regarding participation in the study. Parents and children were told that the study was being conducted “to understand the occupational hazards encountered by young people who work on their parents’ farms that produce for local agricultural markets.” Forty-four farms did not qualify due to not having children aged

12–17 years. Of the 19 farms that did qualify, 12 were recruited and 7 refused (63% participation rate). Reasons for refusals were lack of time, sensitivity of topic, and desire to remain independent of anything that looked like government interference.

Data Collection

Interviewers described the study and the nature of adult and child participants' involvement, any risks and benefits, and the incentive that the participants would receive. Participants' questions were addressed. Parents provided written informed consent, and permission for children; children provided written assent. Participants completed an in-depth, semi-structured interview. Parent and child interviews were conducted separately and privately. Interviews were audio-recorded and took 1–2 hours to complete. Parents received an incentive of \$45, and children received an incentive of \$25 for completing the interviews.

Analysis

Interview audio-recordings were transcribed and edited for accuracy. A coding dictionary was developed for analysis. This dictionary included individual codes with mutually exclusive definitions related to farm characteristics, experiences and perceptions of occupational safety and risk, and perceived health and safety education needs and interests. Examples of codes include: "Instructions - applied to text that discusses how the child was taught to farm," "Non-Hazardous Tasks - applied to text that discusses farm activities that do not seem to be of safety concern," and "Injury Experience - applied to text that discusses experiences of injury or illness related to farm work." Some of these codes were developed a priori based on the study aims; others were developed to reflect important issues arising from the interview content. All code definitions were reviewed and discussed by the research team members to ensure that the definitions were clear and comprehensive. Each transcript was coded by two investigators, and the coded transcripts were entered into ATLAS.ti Scientific Software Development (GmbH) for analysis.

Segments (narrative portions of the interviews) representing themes were subjected to saliency analysis.^{29,30} Saliency analysis explores thematic patterns among multiple texts by evaluating themes based on their frequency of recurrence, participants' emphasis, or the explanatory capacity of the theme. Within a group of interview transcripts, salient themes may not necessarily have been discussed by every individual, but they were discussed in detail and with emphasis throughout the sample, or provided some insight or explanation of the associated topic. Variations in theme salience among parents and children were also explored. Interview quotations are included to support interpretations of theme saliency. The role (mother, father, daughter, son) and identification number of the participants are included for each quotation.

Results

Participant Characteristics

Interviews were conducted on 12 farms with 5 mother/daughter dyads, 2 mother/son dyads, 2 father/daughter dyads, and 3 father/son dyads, resulting in interviews with 7 mothers, 5 fathers, 7 daughters and 5 sons (Table 1). Seven of the children attended public schools, and

5 were home schooled. One parent had been involved in farming for fewer than 6 years, 2 for 20 to 25 years, and 9 were lifelong farmers. Farms included those below 10 acres, and those of 90 to 150 acres. The farms were organic and conventional, and produced vegetables, fruits or berries, hay, tobacco, and a variety of animals and animal products.

The Nature of Small Farms

LAMP farmers made distinctions between their farms and industrial agricultural operations. Industrial agricultural operations were viewed as being more dangerous. LAMP farmers and children perceived the small scale of their farms as safe compared to industrial operations. A son reflected on how LAMPs are distinct, “Just picking, you know like some big farms, they use the big machines, and we don’t really use that. We just kind of do it old fashioned” (NC Farm 5 Son). A daughter echoed that idea, “We use all smaller things that tend to be less dangerous, in my opinion, than big tractors and whatnot” (IL Farm 1 Daughter).

Living on the farm was seen as both protective and as a risk. Children were at heightened risk because of proximity of farm and home.

Probably there’s accessibility to tools and things that - or exposure to if somebody’s tilling and somebody else is nearby - that would - a proximity to equipment would be a challenge, especially on a farm with family who’s just living life and playing, there’s an intersection there that there’s no clear distinction sometimes between those two (NC Farm 2 Father).

The relatively small size of the LAMPs farms was also seen as a hindrance for purchasing more expensive equipment that had modern safety guards. Parents made adjustments for lack of modern equipment by educating their children about safety behaviors and potential hazards.

Just keep an eye on them. We’ve only got one tractor that’s new enough to even have seatbelts and roll-over bars and stuff like that. So if that’s one of the tractors that’s needed, I try to let them learn to use it. My two youngest neither one weigh heavy enough to keep the seat - it’s got a set switch in it, and there ain’t neither one of them heavy enough yet to keep the switch down, to keep the tractor running on it. So they pretty well don’t get to use it much unless I’m with them (NC Farm 6 Father).

Safety is Common Sense

The safety concept was entwined with the “common sense” manner in which LAMPs farmers approached danger on their farms. Keeping children safe was a common theme. Children and adults spoke about how safety was addressed in various forms and always with a sense of importance; safety was an important value. Safety was demonstrated by a mother who said “just using common sense of - and you watch your children, and you see whether they’re responsible or not” (IL Farm 3 Mother). A father said, “It’s kind of like common sense stuff that if we see something they’re doing that’s maybe dangerous we would correct them and they wouldn’t do it no more” (NC Farm 5 Father).

Instructions were given to children about safety while working, including making them aware of potential hazards, and providing special training for hazardous tasks like driving vehicles. Parents gave different levels of instruction and responsibility specific to child age and gender.

I've made a conscience decision early on that the children would be involved in whatever - again - whatever their age and physical ability and mental ability allow and just kind of always press the edge of that and kind of as the mechanism for them growing and learning and so their generally right there in whatever capacity they're able to and I'll stretch them and just invite them to do what we're doing and it's kind of an interesting dynamic of when and how they get involved and their motivation. There's all sort - we could probably talk a lot about that, but - again I try to give them things that would help them grow in their responsibility (NC Farm 2 Father).

They emphasized to their children how to do farm work safely, and their children felt that the instructions they received kept them safe. A daughter described, "The way I've been taught to be careful, and work around the equipment, and work with the animals, and be careful" (NC Farm 1 Daughter).

Instruction was given on a regular basis and reinforced as the parent supervised the child.

Parents liked to "keep a close eye on things" and reported "nagging" the kids about safety.

So most of the time he's doesn't go into the chicken house by himself, I'm with him. So just watch him I guess, not letting him do something, sometimes he doesn't think things completely through (NC Farm 3 Mother).

LAMPS families took precautions as a strategy to mitigate safety concerns. They spoke of being vigilantly on the lookout for hazards from others, machinery, and the environment. One son reflected " ... farming can be dangerous if you're around people who are very un-cautious (NC Farm 8 Son).

I'd say - well, I'm not really around tractors or anything, so I don't have to worry about that. Just when it's hot, drink a lot, go inside when you get too hot so you don't faint or anything like that. I'd say that's about it. (IL Farm 3 Daughter)

Being cautious often took the form of adults being present and supervising the work of the children. Most children conveyed the idea that their parents at least knew where they were working. A daughter felt that it was a precaution for safety when she said, "They make sure they know where we are, me and my sister, and they make sure they know what we're doing, and they tell us what to do" (NC Farm 4 Daughter). Parents thought that keeping their children nearby would keep them safe. "Well, he doesn't mow unless I'm around where he's at. I'm not sitting and watching his every move, but he doesn't mow unless I'm down there" (NC Farm 3 Mother).

Avoiding Hazardous Tasks

A primary precaution mentioned by parents was having an adult assume responsibility for the hazardous tasks. Parents as a group listed several hazardous tasks that their children were

not allowed to do. These tasks included mixing and applying pesticides, operating tractors, hooking equipment up to power-take-off (PTO) shafts, hauling loaded trailers, working from heights, cleaning augers, operating wood splitters, bailing hay, and using power tools. Typically, children were kept from engaging in hazardous tasks; however, each parent decided which activity they thought was hazardous.

...there are some things I really don't want them to do - I don't want them putting out pesticides...I would not send them out to do a job using a chain saw by themselves or things like that. It depends on what the job is - sometimes I'm more nervous than my husband is, you know, about what they're doing (NC Farm 7 Mother).

Vehicles, including tractors, trucks, and all-terrain vehicles (ATVs) were considered a serious hazard on LAMP farms, yet most families allowed their children access to some form of vehicle. Vehicle use was often described in terms of precautions and instruction for safety. It was understood that they were dangerous, yet parents saw no alternatives to their children using them.

Cause they're kids, and you know, vehicles are dangerous in and of themselves. ... So yeah there's safety concerns - even as an adult, we have those concerns (NC Farm 7 Mother).

Because of the gears and the sprockets. If they catch your hand or anything, they can like swipe your finger clean off. I usually don't mess with any of those, and if you do, you can turn it off so it doesn't really - that's the only reason. If you forget to turn it off, it can be a bad thing. (NC Farm 3 Son)

Children were often limited to riding small vehicles like mowers, golf carts, and four wheelers. They were allowed to use them in certain areas and not allowed to use them in restricted areas, like on the side of a hill. Limited speeds and limited tasks were common precautions for vehicle use.

Parents Know Best

LAMP farmers believed in their discretion or ability to discern what was safe for their individual children. This discretion was used to decide the farm activities in which their children could engage. This could be a moment by moment decision as reflected by this mother, "I think one thing is just the working together, being with each other and watching how people are working and being in touch with people's conditions" (IL Farm 1 Mother). It could also entail parental advice and instruction:

Youth: I guess driving the tractor, but I mean, it's easy, but that's - since you're driving something, I guess you have to be pretty careful, but that and driving the club car, which isn't a part of farming, but we use it a lot during blueberry season. But yeah, that's it.

Interviewer: What do you to stay safe when you're on the tractor?

Youth: I keep it on a low gear, and my dad just keeps it at a very low speed, and I mainly -I don't really have to do much. I just have to keep it straight.

Interviewer: How'd you learn to do that?

Youth: My dad taught me.

Interviewer: How'd you learn to be safe when you were doing it?

Youth: He just tells me to be like careful when I'm going through the rows, because sometimes they have branches that'll come out, so you just like - he just tells me how to keep 'em out there. (NC Farm 4 Daughter)

Parents valued the freedom to make choices for their children and were fearful of the government telling them how things should be done; "Policies have come down in law that are really geared toward for big-ag and large farms and don't necessarily fit the way little farmers have to operate" (NC Farm 2 Father). Parents valued autonomy over regulation and felt they could decide whether their child was responsible enough to do tasks they were assigned. Parents followed a decision process that assessed given farm tasks as they related to the ability and maturity of their individual children. This decision process was based on working knowledge of the children and could be reassessed at any time by the parent.

Discussion

The themes we found in these interviews with LAMP parents and children are similar to the results of earlier studies conducted with adults and children working on more conventional farms. As in earlier studies,^{12,18} the parents and children whom we interviewed believe children should work on farms and that parents know best about child maturity and safety. Our results are similar to other findings that suggest that children participate in the full range of production tasks that parents felt were age appropriate.^{14,16,17,20}

Parents and children on LAMP farms valued child safety, yet realize they were engaging in a hazardous work. However, parents and children felt that the characteristics of their farms, including being smaller and less mechanized, as well as the close interaction and supervision of children when they were working, reduced child injury risks. LAMP parents also believed that they knew best about the safety of their individual children, and that using a common sense approach was superior to any regulations. Similarly, Bartels and colleagues^{12:200} concluded in their study of musculoskeletal disorders of youth working on farms, based on focus groups with children and adults, that, "Most participants felt that physician-based guidelines for determining age appropriate tasks would be of little value unless they carried the weight of the law. This perception is likely due to a feeling that those who wrote the guidelines would not have appropriate experience or knowledge to write them."

This sense of independence relative to the theme of knowing what is best for their children's safety and not wanting any regulations imposed on their direction of their children is reflected in other ways. Five of the 12 families participating in this study home school their children. The dominant reason expressed by parents for not participating in the study and not allowing their children to participate in the study was a fear that our research would lead to regulations restricting child work on family farms. One community organization leader in

Illinois verbally attacked one investigator about the burden of government regulation and how this project would add to such regulation and interference.

Little research addressing children working on farms owned by their families has been conducted. Earlier research^{11–20} suggested the need for more detailed analyses. Chapman and colleagues,¹⁴ who conducted the only previous research addressing the work safety of youth working on LAMP farms, felt that “further investigation with larger, more representative youth samples” was needed. Unfortunately, with the exception of McCurdy and colleagues^{21,22,24} in California, and of Crouchman and colleagues²³ in Saskatchewan, additional large studies of children working on farms own by their families have not been conducted. McCurdy and colleagues limited their research to children attending high school, so that the work safety of children under age 14 was not addressed.

Neither McCurdy et al.^{21,22,24} or Crouchman et al.²³ specifically addressed children working on LAMP farms. LAMP farmers and their children face occupational health and safety risks that often differ from conventional farmers; they often have less farming experience, less capitalization and a consequent lack of resources needed to purchase newer equipment with greater safety features, and greater reliance on personal and child labor with greater pressure on themselves and their families.^{25,28} Training resources have not addressed the health and safety needs of LAMP farms, including those of the children who work on these farms.^{14,26,27} Without relevant data describing the work of children working on LAMP farms, the development of these safety programs cannot progress. Neufeld and colleagues¹⁸ concluded that because parents’ practices regarding child farm work reflect their beliefs and values regarding child-rearing, recommended safety guidelines, such as delaying farm work and not riding on farm machinery, will be difficult to implement. It is important that the beliefs and values of parents, as well as their perceptions of their children working on their farms, be documented in further research. Involving parents and children in work safety research will improve the potential of safety programs for these children.

Our results should be evaluated in light of their limitations. This study is limited by its small sample and conduct in only two states. The number of potential participants who refused to participate is also a concern. We could not verify the level of child supervision or training parents actually provided.

LAMPs farms vary widely in size, farming methods, and the products sold. This variety of settings makes it difficult to recommend simple occupational safety guidelines. LAMPs **may** have a unique set of occupational challenges. A study of how parents decide the tasks in which their children engage may provide insight into further prevention strategies. Educating parents and children on LAMPs about the hazardous nature of farm work is an important ongoing challenge.

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Table 1.**Participant and Farm Characteristics (N=12)**

Child Characteristics	
Gender	
Female	7
Male	5
Age (Years)	
12	2
13–15	4
15–17	6
Type of School	
Public school	7
Home school	5
Parent Characteristics	
Gender	
Female	7
Male	5
Age (Years)	
31–40	1
41–50	8
51–60	3
Years Farming	
0–5	1
20–25	2
Lifelong	9
Farm Characteristics	
Acres Farmed	
1–10	5
10–20	1
21–40	1
90–150	5
Type of Farm	
Certified organic	1
Non-certified organic	5
Conventional	3
Combined organic and conventional	3
Farm Products	
Vegetables	9
Fruits or berries	6
Tobacco	2
Hay	2
Honey	1

Eggs	5
Beef	4
Pork	6
Chicken	5
Goats or sheep	2

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