



Case Studies

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Notes from the Field: Agricultural Injury Prevention: A Farm–Church Partnership

Dawn Tharr, Column Editor

**Report by Deborah B. Reed,
RN, C MSN**

Statement of the Problem

Agriculture employs 12 million workers in America.⁽¹⁾ The image of life on a family farm is one of health, safety, and security. Unfortunately, agricultural production costs the lives and limbs of its workers and their families at a rate unsurpassed by any other industry.⁽²⁾ Farm residents represent only 2 percent of the nation's total population, yet they suffer a disproportionate amount of injuries and death. One of every four farm families will experience a farm-related injury each year.⁽³⁾ Farming is a family industry; thus, efforts to thwart the epidemic of agricultural injury must be targeted to entire family units. Existing health and safety programs focus on age-specific or production-specific farm units. A new community-oriented model for addressing the health and safety challenges of agricultural industry is needed.

Kentucky embraces the largest number of farms of any state east of the Mississippi River.⁽⁴⁾ Boasting 92,000 agricultural sites, the state produces tobacco, beef cattle, and grains. Farming is a family industry; families operate nearly all farms with little outside assistance. Pride in land ownership is evident as farms remain in the same family for multiple generations. Over 50 percent of Kentucky farms are operated by persons who also hold off-the-farm employment, reflecting the pressure to retain farm ownership and operation. Entire family units, including children and grandparents, labor together to produce food and fiber for the nation.

In the past ten years, 431 docu-

mented farm deaths occurred in Kentucky.⁽⁴⁾ Mortality-based time trend analysis demonstrated no change in the tide of unnecessary death in agriculture. Death respected no age on the farm: children died after being run over by tractors, entangled in machinery, or drowned in ponds,^(5,6) senior farmers died frequently in tractor roll-over events, a tragedy preventable by use of protective equipment.

Ninety-five percent of all U.S. farms are exempt from regulations of the Occupational Safety and Health Administration (OSHA), thus the industry of agriculture escapes the enforcement of safety standards mandated for other occupations.⁽⁷⁾ Farm laborers continue work long past mandatory retirement ages of other industries. Children "do chores" as soon as physical strength permits. The coexistence of the home site and workplace means omnipresent exposure to the hazards of agriculture for farm residents. Cultural acceptance of children at the work site and lack of regulatory standards fuel the epidemic of injury and death on the family farm.

The U.S. Department of Agriculture and other agricultural agencies address injury prevention with limited success. Diversity of work sites poses a major barrier to delivery of safety education programs. Farm machinery manufacturers are reluctant to add safety features to equipment, fearing additional cost would hinder already sagging sales. Agriculturists are slow to adopt risk-reducing behaviors, citing costs in dollars and time lost from work.

Innovative techniques can bridge barriers to injury prevention in agriculture. Information offered in agricultural classrooms or through safety manuals has not led to a significant re-

duction in morbidity or mortality. Solutions to the epidemic of agricultural injury must come from farmers. Farm family safety has not been addressed by existing occupational injury prevention programs. Since work site and home are synonymous on most farms, there is a need for family-oriented injury prevention education. A community partnership, sensitive to cultural norms and values, may be the vaccine for the plague of agricultural injury. The proposed model for agricultural health and safety education was tested with positive results in one farming community in rural Kentucky.

Literature Summary

Morbidity and mortality remain severely underestimated in agriculture. There is no mandatory reporting of occupational injury on farms employing fewer than 11 nonfamily workers. Agriculture is nearly universally exempt from Labor Bureau and OSHA regulations.⁽⁸⁾ Farm accident estimates for 1990 included 2500 deaths and 230,000 disabling injuries.⁽²⁾ Kentucky statistics revealed 35 farm-related deaths in 1992.⁽⁴⁾ A farm injury morbidity study in Kentucky (farm population base 23,250) reported 516 injuries during the first nine months of data collection.⁽⁷⁾

Farm machinery accounts for most injury and death in agriculture. While machinery deaths in all other industries declined 79 percent between 1930 and 1980, farm machinery deaths increased 44 percent. Fifty-one percent of all deaths from industrial machinery in 1988 was attributed to agricultural machinery.⁽⁹⁾ Untold numbers of farmers and family members have been permanently maimed by farm machinery each year. One study⁽⁹⁾ claimed education alone could prevent

44 percent of these tragedies, yet educational efforts thus far have not impacted on the rate of injury and death among farm residents.

Community partnerships have been successful in a variety of settings,⁽⁶⁰⁾ but few organized partnerships have addressed farm injury. *Healthy People 2000*⁽⁶¹⁾ emphasizes the need to involve volunteer community efforts to obtain its objectives. Affected populations are more likely to adopt desired health behaviors if they are involved in the planning, implementation, and evaluation of programs to effect such changes.^(62,63) Limited funding is available to address the epidemic of farm injury. Community partnerships draw upon the embedded knowledge of citizens to tap existing resources and minimize cost for program delivery.⁽⁶²⁻⁶⁴⁾ Interagency cooperation enables communities to utilize multidisciplinary resources to address the communities' health concerns.⁽⁶⁴⁾

Parish health ministries are new avenues for reaching community residents at risk for certain health problems. Health education about hypertension has been successfully addressed through the church.⁽⁶⁵⁾ Southern rural African-American churches have used church-based health promotion programs to access persons at risk for cardiovascular disease.^(65,66) Churches serve as social focal points in the lives of many rural families. Natural partnerships exist between churches and their surrounding communities. Parish health ministries address health needs of the community through sponsorship of health education and health promotion programs.⁽⁶⁷⁾ Partnerships between agriculture and faith communities should be natural bonds in rural settings. A Farm-Church Partnership created the mechanism for dissemination of injury prevention education in one rural farm community.

Project Objectives

The Farm-Church Partnership Project sought to increase awareness of the hazards of agricultural work and provide an educational program to reduce injuries on the farm. The project was

piloted in a 500-member faith community in rural Kentucky. The objectives were to:

1. form a community partnership to identify farmer's concerns about farm-related injury,
2. secure active participation and sponsorship in an injury prevention program by at least six community agencies,
3. plan and implement a farm safety project in a church in rural Mercer County, Kentucky,
4. attain program completion by 25 families, and
5. provide inspiration for three additional farm safety projects in the county within 12 months following the pilot.

Methodology

Over 1000 farms operate in Mercer County.⁽⁶⁾ Multiple generations labor together. Children play in the fields while parents perform farm work. Adolescent farmers operate machinery designed for adults. Anecdotal evidence of farm injury abounds in the community. Farm injuries in the last year ranged from simple lacerations to the death of a preschooler from a tractor accident. The nearest trauma center is 1 hour away. The project took place in a rural settlement of the county and was centered and delivered in a community church.

Church members identified farm safety as a priority concern through a needs assessment conducted by the church's parish health ministry. Leaders of the parish health program met with agricultural representatives to discuss ideas for addressing this concern.

Interviews with local farmers revealed concerns for safety of farm workers and family members, but little knowledge of how to decrease risk or access information on injury prevention. Farm families cited time and distance as barriers for attending existing safety programs.

The parish nurse contacted local agricultural agencies and solicited information about injury prevention education offered by each agency. Every

agency provided some type of injury prevention education; however, no central delivery point had been used to disseminate that information. Agencies expressed dismay that programs were severely underutilized and agreed to form a partnership for presenting injury prevention education.

A total of 14 local agricultural and health agencies participated in the Farm-Church Partnership Project. A representative from each agency assisted with planning an injury prevention program. Diversity of interests (farm machinery manufacturers, agriculture agents, teachers, pharmacies, civic organizations, feed stores, insurance companies) ensured broad topic coverage. Inclusion of four farm family members in the planning process focused the project on primary concerns of local farm residents.

Farm residents cited workday scheduling of previous programs as a major barrier for family attendance at such events. Potential participants requested a Sunday afternoon program. Sunday is traditionally a day of rest and a time for family activities in the community. Multi-job-holding farmers would be able to attend a program on Sunday because the time would not interfere with school activities, further encouraging family attendance.

The church provided a readily accessible and acceptable place for presenting the Farm-Church Partnership Pilot Project. An injury prevention health fair format added a festive approach to the afternoon. Exhibits in the church's fellowship hall allowed participants to talk with agency representatives while gathering educational materials. Families completed a scavenger hunt for injury risks at a toy farm display provided by church members. Demonstrations of machinery-related mock injuries graphically portrayed the severity of actual injuries. Church members attended the program prior to evening services.

Age-specific modules targeted injury prevention for each high-risk cohort. This approach enabled adults to engage in educational offerings while

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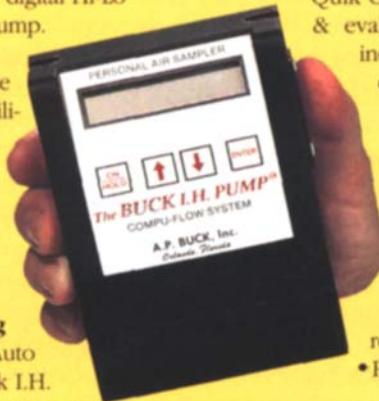
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children attended their own supervised learning experiences. Adults participated in seminars about handling and storage of pesticides, electrical safety, and machinery modifications available to reduce risks of injury. Adolescents completed a 4-H course about all-terrain vehicle safety. The local chapter of the Future Farmers of America led children in an interactive session of games and videos about farm safety. Nursery workers emphasized safety by providing electrical outlet covers and poison control kits to parents. Each family received a farm walk-about survey to complete after returning home. The one-page checklist emphasized safety instructions covered during project sessions and encouraged each family to make the farm a safer place for work and play. Upon return of the completed checklist to a local feedstore, participants received a discount on their next purchase.

Significance of the Project

High injury rates in agriculture are unnecessary. Efforts to stem the injury epidemic have not addressed the farm family unit, but have targeted only children or adult farm laborers.⁽⁹⁾ As a new model for health and safety, the Farm-Church Partnership Project provided an avenue for families to learn about agricultural injury prevention. Major barriers to attending educational programs identified by community farm residents were addressed by the partnership. Provision of child care, day and time of program presentation, and central location enabled families to enjoy the program together. Agencies involved in the project were able to network effectively with farm families and other participating agencies so future efforts could be planned.

Volunteerism contributed to the community spirit of the project. Every agency involved provided manpower

and materials at no cost to participants. The ability of agencies to reach a large number of people in a single setting greatly enhanced efficiency for promoting injury prevention. Farm families prepared exhibit space and loaned machinery for the sessions. Nonfarm church members registered participants, provided refreshments, and assembled educational packets. Volunteers and participants expressed a sense of ownership in the project.

Awareness of health hazards of farming increased in the county as a result of the project. Participation of the Future Farmers of America fostered that group's interest in farm safety. Subsequently, they designed a farm safety project as a community service project. Emphasis on health and safety became part of the curriculum of agriculture classes in the high school. Agencies in the Farm-Church Partnership were invited to countywide farm tour days to present educational sessions.

Churches across the state inquired about the project, hoping to sponsor the same type of event in their farm communities.

Project Innovativeness

Delivering health education to rural, underserved areas requires innovative approaches. The Farm–Church Partnership provided an opportunity to address a need identified by one rural farm community in a cost-efficient manner. Using existing resources increased public awareness of resources available in the community.

With the parish health ministry serving as liaison between agricultural agencies and other health partners, a rural church served as a model for the delivery of vital information to the community it served. Residents of the community welcomed the opportunity to participate in the planning, implementation, and evaluation of a program specifically designed for a need they had identified.

A health fair format was a new way to present injury prevention education. Targeting family farming enabled families to identify the importance of injury prevention for everyone on the farm. Age-graded instruction enabled adults and children to learn about farm safety in small groups with peers.

A volunteer, church-based, community partnership model to address farm injury prevention is a new idea. Parish health programs, relatively new themselves, have not targeted occupational injury prevention. Injury risk is inherent in agriculture. Farmers work long hours, often in adverse weather. Many have no worker's compensation plans. There are no employee health programs. New approaches to farm workers and their families are needed. A community partnership, sensitive to cultural norms and values, may be the vaccine for the plague of agricultural injury. Centering injury prevention education in an existing community agency, such as the church, allows potential participants to have a voice in the planning and implementation of the program. The community partnership model encourages mobilization

of existing resources to plan and implement programs designed for the community.

Evaluation Methods

Formative evaluation is essential during early phases of a new program.⁽²⁾ Critical analysis of the Farm–Church Partnership Project enabled partnership members to refine the program for future presentations. Participants completed surveys before leaving the project site. Participants rated how well the program fit their needs, if time allotments were adequate, and how presentations could be improved. Open-ended questions encouraged suggestions for future programs. A 95 percent response rate ($n = 33$) yielded valuable comments. All respondents indicated new knowledge about preventing farm-related injuries. Surveys mailed to agency participants after the program solicited identical information and queried whether the agency would participate in future partnership programs. Agencies felt the format was beneficial not only for farm families but because participating agency representatives gained new knowledge about farm safety. Completion of the farm walk-about checklist indicated that over 50 percent of participating families incorporated positive safety changes on their farms.

Data collected during registration provided information about age of program participants, type of agricultural operations represented, and the participant's major farm safety concern. These data will be used to plan future programs in the county.

Informal interviews with participants and nonparticipants after the project allowed verbal evaluation. Some participants hesitated to write comments on evaluation forms, or were in a hurry and failed to complete the form but would discuss their feelings about the program in conversation with evaluators. Nonparticipants provided reasons they felt they could not attend or why attendance was unnecessary. This provided insight for future projects.

Budget Estimation and Justification

A highlight of the Farm–Church Project model is that local agencies donated all pilot expenses. Estimates are provided to illustrate cost savings. Budget is for 100 individual participants (all amounts are in U.S. \$).

Publicity	100
Educational materials (videos, work books, brochures)	750
Photocopying (programs, safety sheets, resource information)	100
Hearing protection (used during machinery demonstrations)	100
Warning decals (for restricted areas identified during walk about)	50
Program coordinator (40 hrs @ \$20/hr)	800
Poison control kits	100
Course completion incentive	250
Farm machinery rental (for demonstration purposes)	50
Total	2300

Summary

Despite federal initiatives to decrease morbidity and mortality among the agricultural industry, farming remains hazardous to workers and their families. To effectively reduce farm injuries, new methods of delivering health and safety education must be developed. Creation of community partnerships centered in rural churches provides an innovative avenue for reaching large numbers of farm residents in a cost-effective manner.

Acknowledgments

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