Signs of Safety in Agriculture: A Report on National Agricultural Safety Programs

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Signs of Safety in Agriculture: A Report on National Agricultural Safety Programs

Abstract
In this report, we've tried to show how CSREES-supported programs work in people's lives, as well as the diversity of CES programs offered throughout the nation. We've highlighted a few stories to show how many miles we've traveled on the road to safety.

The success of all types of agriculture is tied to the level of safety in the workplace. This good measure of safety is one of the few things that can ensure a sustainable future for American agriculture, and protect the millions of people who enter the agricultural workplace every day

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of safety in agriculture

A Report on National Agricultural Safety Programs
**Reaching many people in many ways**

**A**griculture has always been dangerous. Farmers and ranchers expect to come close to experiencing a serious injury sometime during their lives.

This perception is based on reality. The National Safety Council (NSC) consistently ranks agriculture as one of the three most hazardous occupations in the United States. Although the death rate has declined 28 percent during the last three decades for agricultural-related injuries, it’s also gone down in mining (65 percent), construction (55 percent), and all other industries (59 percent). If this trend continues, agriculture will rank solely as the most hazardous industry.

A recent survey by the USDA’s National Agricultural Statistics Service showed 200,000 work-related injuries occurred on U.S. farms in 1993. Farm family members accounted for 65 percent of those injuries.

Studies also have shown that farmers and farm workers suffer from increased rates of respiratory diseases, noise-induced hearing loss, skin disorders, certain cancers, chemical toxicity, and heat-related illnesses. Based on NSC injury data and cost estimates per injury, the annual loss from disabling farm injuries could be as high as $4.06 billion, which includes lost wages, medical expenses, and production costs.

This high rate of injury, job-related illness, and disability, plus new state and federal regulations that require training about work hazards, increase the demand for farm safety education and research programs.

The USDA has been putting agriculture on the road to safety since the 1940s with support from its farm safety programs. It’s also basic to the mission of the Cooperative Extension System (CES). Since 1975, line item funding for farm safety has been included in the Cooperative State, Research, Education, and Extension Service (CSREES) budget. Although CSREES funds cannot completely support state activities, it is seed money that helps farm safety specialists develop programs in each state and Puerto Rico. Valuable alliances are forged with regional and local organizations. Farm safety specialists agree that CSREES funding is critical to help them maintain emphasis, stability, and continuity in an era of fluctuating or declining budgets.

These programs touch many people’s lives. According to state CES reports from 1994, we know that more than 300,000 farm operators, employees, and family members participated in some type of CSREES-supported farm safety program. Follow-up surveys showed more than 80,000 participants adopted one or more safe farming practices, and more than 23,000 emergency medical and rescue personnel and farm family members learned how to better respond to an agricultural-related injury.

In this report, we’ve tried to show how CSREES-supported programs work in people’s lives, as well as the diversity of CES programs offered throughout the nation. We’ve highlighted a few stories to show how many miles we’ve traveled on the road to safety.

The success of all types of agriculture is tied to the level of safety in the workplace. This good measure of safety is one of the few things that can ensure a sustainable future for American agriculture, and protect the millions of people who enter the agricultural workplace every day.

**B**RAD REIN is national program leader for agricultural health and safety for the Cooperative State Research, Education, and Extension Service (CSREES), an agency of the U.S. Department of Agriculture.
For every serious agricultural injury, the victim will have experienced 10 close calls, 30 cases of personal property damage, and 600 instances when nothing happened at all. It’s like choosing one piece of candy from a bag of 641—40 coated with Ex-Lax™ and one with poison. Would you take a piece? Of course not.

K. EVIN PAAP, Minnesota farmer who teaches other farmers about safety. His management techniques have made his operation one of the nation’s “100 Best Managed Farms.”

Safety will be first in the minds of these young people for a lifetime.

MONICA McGREGOR, Iowa 4-H and youth life skills leader whose Greene County club has used music to increase safety awareness, performing at fairs, in malls and in their own video.

Older farmers may not think there’s anything new to learn, and habits are hard to break, but we did get a lot of the senior farmers who had never worn a dust mask to start wearing them when they clean bins.

ILMA HONIG, 65-year-old farm wife and safety volunteer, Onega, Kansas. She also helped measure reaction time at displays, and older people were amazed at how many seconds it took them to react, often a major cause of accidents among senior farmers.

My 13-year-old son might not be alive if it wasn’t for Rutgers and Sea Grant Extension’s safety training that my first mate had just completed. He saved my son’s life that day at sea.

J. IM HARRIS, captain of the Abracadabra at Cape May, New Jersey. His son was overcome by fumes from a freon leak, fell into a chilled seawater tank, and was submerged in near-freezing water 20 minutes while 70 miles offshore. First mate Bill Peters had just learned how to treat hypothermia at a U.S. Coast Guard-approved extension and trade association safety course that certified him to lead monthly drills with the crew.

I know our farm accident course saves lives in more ways than we can measure. After completing our course several years ago, one of our students decided he would start wearing his tractor seatbelt, which I’m convinced saved him when his own tractor rolled over about a year later.

GARY HUITINK, University of Arkansas agricultural engineer, teaches volunteer firefighters and rescue crews how to respond to farm accidents. One of his former students was driving a tractor equipped with rollover protection. When the tractor overturned, he was able to stop the engine, get out, and call for help because he was also wearing a seatbelt.
Traditional Cotton harvest safety training in California points out specific hazards and allows drivers to become aware of them before they go to the fields.

Many farmers who visit this traveling Tug-of-War with Grain exhibit have stories of close calls or tragic endings to tell. It was developed in Iowa after record numbers of people suffocated in grain following a wet harvest.

North Dakota tractor driving schools are designed for teens but others enroll, too. Farmers often provide scholarships for young people to attend.

Kevin Paap’s innovative and cost-effective farm management techniques have earned him a spot on Farm Futures magazine’s list of “100 Best Managed Farms.” That made his fellow farmers sit up and take notice. But as a farmer concerned with the bottom line, Paap is frustrated that it’s so difficult to convince his colleagues about one of his most cherished management principles—safety.

“It’s hard to show a farmer that not having an injury saves money,” Paap says, “but it’s really true.”

In Minnesota, however, Paap has potential allies in the state’s farm insurers who help him and extension safety specialist John Shutske deliver a safety message more effectively.

“People like Kevin and I can talk ourselves blue in the face but the state is too big, and there are too many farmers in it, for us to reach each one of them,” Shutske says. “It’s vital to use other people as ‘multipliers’ to carry our messages.”

Working with a major farm insurance group, Shutske recently tested whether farmers who got insurance rebates for complying with standard safety recommendations were more likely to make changes than farmers who didn’t. The surprising result? The money didn’t matter—all it took was some on-site advice from a trusted source, like an insurance agent.

“Both the farmers who received a financial reward for making changes and those who didn’t, complied with their agent’s advice,” Shutske explains. “We learned that it helps to choose the right messenger.”

Minnesota’s neighbors in Wisconsin get the message that preventing injuries and illnesses is part of farm management. “Just as farmers manage herds, crops, and employees, the modern farmer needs to build safety management into business planning,” says extension safety specialist, Mark Purschwitz.
“A farmer who is injured on the job loses money and management time every day that he or she is down,” he says. “In my presentations, I tell folks that farmers who provide protective gear, conduct safety inspections, retrofit equipment, and have safety policies and rules in place will avoid those losses.”

Extension specialists like Shutske and Purschwitz realize that to be effective they must collaborate with leaders in farm communities. Robert Aherin has spent the past four years building a strong network of farm safety community coalitions throughout Illinois. Other extension educators join him in bringing farmers, nurses, business leaders, legislators, mothers, reporters, and others together to tackle farm safety problems specific to their communities. The Illinois efforts have the support of the prestigious W.K. Kellogg Foundation. In other states, leadership development efforts are backed by public funds and donations from agribusiness.

When delivering a safety message, it helps to use a lot of messengers as well as a range of media. The manager who understands the need for safety training may soon be using a high-tech tool like the one developed by Arizona extension specialist Lance Fluegel. Farm employers can now use a system that trains new workers by videotape and uses a computer to test what they know before and after their self-guided instruction. The computer grades the tests in either English or Spanish. The successful trainee receives a certificate; the unsuccessful one is prompted by computer to review areas and try again.

Electronic methods may be useful for basic safety information, but sometimes messages must be delivered in writing or verbally. Then it helps to simplify matters, as Florida’s extension staffers did when they produced streamlined, easily understood summaries of the many laws and regulations that pertain to the state’s fruit and vegetable industry.

In California, where an estimated 66 people a day suffer a farm work-related injury, extension specialist William Steinke mentions specific equipment and risks, and tells stories his audiences can relate to. For example, cotton harvesting uses machinery that is especially dangerous, with a formidable array of spindles and other moving parts. Steinke takes pains to be familiar with all equipment, and to tell about harvesting accidents he’s witnessed. Such attention to detail pays off.

“At a recent Cotton Safety Day, we were reviewing a harvester accident and a fellow in the audience raised his hand and said ‘That was me!’” Steinke recalls. “It was a great way to prove to the rest of the crowd that these ‘scare stories’ aren’t just invented, they happen to real people.”

Real people tell amazing stories and farm safety specialists hear a lot of them—some with happy endings, others that are tragedies. One Iowa farmer heard faint cries as he was filling a grain bin, and didn’t know his wife was inside. He stopped just in time. Another farmer saw his neighbor die in a grain wagon, and remembers every detail 20 years later.

Such stories tend to surface when farmers and family members are given a chance to reflect on the hazards of their work at county fairs and farm shows. Iowa uses a “Tug-of-War with Grain” display to test a fairgoer’s strength against the force needed to pull someone out of a grain bin.

“More than 25,000 people have tried the display, but not one has been able to lift the 625 pounds needed to pull someone out of shoulder-deep grain,” says Iowa farm safety specialist Charles Schwab, adding that one group doesn’t try it at all.

“People who have been in a grain accident often don’t pull on the rope. They’d rather share their story—and they make the best teachers of all.”

“‘It’s hard to show a farmer that not having an injury saves money, but it’s really true.’
ASHLEY Lerch tells young people never to ride on tractors. They see her wheelchair, hear how she fell out of her dad’s tractor cab when she was three, and they believe her.

“I want kids to know they can get hurt on a farm if they’re not careful,” says the 12-year-old Iowa girl who dreams of becoming a scientist, lawyer, or teacher. “Adults listen, too, because sometimes they think kids know more than adults.”

Testimonials make farm hazards real for young people, says Ann Emken. She is an Illinois cooperative extension leader familiar with putting together programs to teach farm youth about safety. She doesn’t have trouble finding injured farmers to talk about their experiences at summer day camps. Demonstrations such as a power take-off tearing a straw dummy to shreds or grain that buries a toy within seconds capture the attention of young learners; however, the most dramatic is hearing from their peers who have been hurt.

“When kids tell their story to other kids, it’s a powerful message,” Emken says. “The whole room gets quiet and you know something is sinking in.”

Ashley’s story, and others like hers, have reached thousands of young people at day camps, school presentations, and safety classes throughout the country. A survey of 20 states with a strong cooperative extension farm safety youth program shows that more than 102,000 students in 1994 and nearly 50,000 in 1995 actively participated in some type of farm safety activity at more than 2,500 locations. The effort represents countless hours from staff and an army of 2,400 trained volunteers.

Research reviewed in 1995 by the National Farm Medicine Center in Wisconsin shows the battle for farm youth safety has just begun.

- An estimated 27,000 children under age 20 who live on farms and ranches are injured each year.
- Rural Colorado youth learn about tractors at summer day camps, but also discuss safety during school. In 1994, 45,000 upper elementary students received Ag in the Classroom materials.
- Interactive displays, like this Farm Progress Show exhibit in Indiana, help make farm safety a family affair. More than 175,000 Careful Country coloring books also have been distributed.
- Day campers in Watertown, S.D., learn hands-on about hazards in grain wagons.
- Ashley Lerch, who was crushed by a tractor wheel when she fell out of a cab, has told her story in radio spots, at farm safety day camps, and to safety advocacy groups.
Farm-related injuries lead to the death of an estimated 300 children each year.

Among all 16- and 17-year-olds employed in the United States in the 1980s, machine-related deaths were the second leading cause of job-related deaths. Tractors accounted for 44 percent of these deaths.

The problem touches urban as well as rural lives. Says Emken, who lives four hours from Chicago, “People who don’t live on farms are very interested in our programs because their roots are on a farm. The most dangerous situation is when a city kid visits the farm of a friend or grandparent.”

Every year Vermont’s “Play It Safe” program helps 1,000 fifth and sixth graders who live in rural areas identify farm hazards, while another program prepares urban children for a farm visit. In Delaware, the cooperative extension rural safety program reaches 2,500 middle and high school students with information about poisons, all-terrain vehicles, lawn equipment, as well as general attitudes about safety.

Cooperative extension farm safety youth efforts vary with the landscape, however, day-long summer camps fill up no matter where they are offered. In 1995 alone, cooperative extension staff hosted 33 camps for 2,700 youth in Iowa, 27 camps for 3,100 youth in South Dakota, and 20 camps for 5,000 youth in Wisconsin. All three states had training and some expenses underwritten by grants, insurance companies, and hospitals. Although such programs require a sizable volunteer commitment, the experience can forge valuable alliances for future partnerships.

Other cooperative extension farm safety specialists provide responsive programs for mandated safety training. The Fair Labor Standards Act for Agriculture and Child Labor requires all 14- and 15-year-olds hired off their family farm to be certified before operating hazardous machinery.

“If extension stopped doing this tomorrow, there probably wouldn’t be any tractor driving schools in North Dakota,” says George Maher, who leads 200 students through a packed three-day course each summer. “I know I’m reaching only a small portion who need this, but those who are here learn they’re not invincible and that accidents happen quickly.”

In other states, the safety program responds to specific needs. Maine crops specialist Steve Johnson has presented safety programs at high schools that dismiss classes for four weeks during the potato harvest. Before the programs started, each season saw more than 100 hospital admissions from harvest-related injuries. Hospitalizations have dropped by more than half, and injuries are mostly minor.

Results of other cooperative extension farm safety youth programs are just as impressive. Pre- and post-tests at Illinois farm safety day camps showed a 20 percent average knowledge gain; surveys of people who completed a walkabout presentation indicated 90 percent made one or more safety changes on their farm. Follow-up surveys of Maher’s 1994 tractor school graduates showed that most used a tractor with rollover protection.

Glen Hetzel, who directs Virginia’s cooperative extension farm safety efforts, will never forget the story he heard from a 4-H leader several years ago. “The group had used our slide set about electrical safety,” he explained. “Less than two weeks later, one of the boys was playing outside with friends after a summer thunderstorm. When they came upon a tree that had knocked down a power line, his friends wanted to test the line. He insisted they shouldn’t and they reported it to his mother, who called the sheriff’s office. The line was, indeed, hot but no one was hurt.”

Bill Field, whose coloring books, videos, and other materials developed in Indiana have been used nationwide, would like to think the agricultural environment for children is improving. “When I came here almost 20 years ago, a third of all farm deaths were children. That has changed substantially. We’ve really hit child safety hard over the years. There’s no question that cooperative extension has been a leader in farm youth safety.”

What parents say

Each year, about 700 youth complete tractor and machinery safety classes offered in more than half of the counties in Wisconsin. Here are what parents said a year after the class ended:

- Jason realizes now that safety is more important than getting things done fast.
- She is more knowledgeable and shows safety is number one.
- Our son is more concerned about safety and takes driving a tractor and using machinery more seriously; it’s nothing to fool around with.
- Cory is more safety conscious, and thinks before doing something.
- Now he tells his father and uncle the correct way of doing things!
Twenty years ago, cooperative extension educators in Missouri wanted to reach farm women. Their one-day safety workshop for spouses was an overnight success. Now farm women may be one audience where safety takes the express lane.

“If anyone is going to take farming off the top of the ‘most dangerous occupation’ list, it will probably be a woman,” says David Baker, who developed Missouri’s course for women. “The farm wife is the safety and health leader on the farm. She has a direct impact on safety behaviors of all family members.”

Lifestyle changes and pressure to remain competitive can place farm women in hazardous workplaces. They become part-time tractor drivers, grain haulers, and machinery operators, while keeping tabs on the family.

Six-month follow-up surveys of nearly 100 women who attended a Missouri workshop showed that most felt more prepared for an emergency. Eighty percent would attend another workshop, and half would send their spouse and children to similar programs. One-third had learned safer ways to operate tractors, such as not allowing riders, posting slow-moving vehicle emblems, and using tractors with rollover protection. “I have worked with equipment for years, but you gave new advice I will appreciate for years,” one woman wrote.

Larry Piercy, Kentucky extension farm safety contact, also supports seminars funded by community leadership grants. He’s seen women build coalitions and launch campaigns. In one effort, they told farm wives to place ear plugs, packed in disposable

Oscar Larson learned about farm safety with his granddaughters in the Older Kansans in Agriculture program. Kansas also produced videotapes to get older farmers to talk about their close calls.

Missouri’s farm women safety program has generated farm family workshops, youth safety camps, and similar efforts for women in Nebraska, Illinois, Pennsylvania, Indiana, Kentucky, and South Dakota.

Migrant children, like these pre-teens working in sugar beet fields near Ada, Minn., are exempt from child labor laws. Extension safety specialists throughout the country are trying to reach this audience.

Each year, 150 loggers learn first aid and other safety skills in a New Hampshire program in cooperation with the timber industry.
Community involvement is essential in any project where voluntary behavior change is sought, but it’s particularly important when dealing with diverse communities and interests. Many extension specialists work closely with migrant community advocates to make seasonal farm work less hazardous.

In Idaho, for example, extension produced Spanish-language video tapes dealing with farm machinery and electrical safety. Before distribution, they were tested for clarity and simplicity at a migrant labor camp. Washington state extension works with a local community college to offer free classes in pesticide safety to about 100 Spanish-speaking migrants a year, operating out of churches near migrant labor camps.

There’s more to agricultural diversity than language. New Hampshire extension collaborates closely with the timber industry and timberland owners’ association to train professional loggers. With 400 trainees and nearly 150 graduates during its first two years, the program provides the opportunity for loggers and truckers to become voluntarily certified while gaining valuable safety information. The basics of felling, protective equipment, chainsaw maintenance and more are taught in English (and in French for loggers from northern New Hampshire). Tennessee and Pennsylvania have similar programs.

The program is only two years old and the workers’ compensation rate for loggers has dropped significantly, says extension specialist Sarah Smith. “That didn’t just happen; we’ve made a difference.”

Nursery work is another industry where extension is making a difference. In Connecticut, specialist John Bartok is well aware of the muscle and nerve damage that can result from repetitive potting and pruning work and can disable greenhouse workers. Bartok’s regular columns in greenhouse media cover such industry specifics as low-volume sprayers that allow greater control over pesticide sprays or wrist supports to help maintain proper hand position.

Trouble-shooting solutions don’t have to be expensive, Bartok says. “The other day I was talking with a grower in a greenhouse shipping area. One employee with a large pushbroom was sweeping the floor, creating a cloud of dust from spilled growing medium, which was carried through the building by the ventilation system. No one was wearing a dust mask, but disposable dust masks cost less than $1 a piece, and could be used several times.”

They may be simple observations, but they can lead to life-preserving solutions. Whether it’s with Spanish-speaking farmworkers in Texas, salmon fishers in Alaska, pork producers in Indiana, or potato harvesters in Maine, extension specialists are designing new ways to diversify their messages.
HONDA Shipp was surprised to learn that unintentional injury was the leading cause of death for people under age 45 in her county outside Yellowstone National Park. Motor vehicles caused half of those deaths; the rest were a surprise. “We figured most deaths were from outdoor recreational activities near the park,” said Shipp, a university extension educator and member of a county-wide health care coalition. “But emergency room records showed that many happened on ranches. There were plenty of groups working on other major causes of death, like heart disease, but no one was addressing farm safety.”

Shipp and co-worker Jay Jenkins applied for a Wyoming cooperative extension farm safety grant, hired a local film crew, and staged common scenarios, such as a horse accident, an irrigation ditch drowning, and electrocution from overhead power lines. They mailed a copy of their 28-minute “Play It SAFE” video to each of the 400 ranch families in Park County.

“Curiosity played a hand in watching the video and the kids liked it,” wrote one farmer. Another woman said she had prepared a new first aid kit and posted emergency numbers by all six telephones.

Dennis Murphy’s First on the Scene program in Pennsylvania teaches farm families how they can be most helpful at a farm accident scene, too.

Because of the isolation of farm work, victims might go undiscovered for hours and it may take as long as 20 to 30 minutes for emergency services to get there,” Murphy said. “The decisions made by the person who discovers the accident can mean the difference between life and death.”

Training of rescuers in New York has grown into FARMEDIC, a national training program. Each year, 200 new instructors pass an intense, 24-hour course, then provide their own training to more than 3,000 firefighters, rescue and emergency care providers.

Cooperative extension services that offer statewide training based on FARMEDIC include Florida, Illinois, Indiana, Iowa, Kentucky, New Jersey, North Carolina, Oklahoma, Pennsylvania, South Carolina, Texas, Utah, Virginia, and West Virginia. State cooperative extension leaders introduced FARMEDIC several years ago in Oregon and Washington, which generated interest for a new, not-for-profit organization that now offers the training.

“A farm accident is like nothing else a medic faces, and normal rescue training just cannot prepare you for what you’ll find at a farm accident,” said FARMEDIC director Davis Hill.

“Crews might carry equipment several miles into a field where the farmer could die from trauma of the rescue,” Hill said.

John Pollock, New York cooperative extension safety leader, conducts 25 to 30 programs for farm families each year. Sadly, participants have had to use what he’s taught them.

“Several years ago, a farm wife found her husband entangled in a power take-off unit,” Pollock recalled. “She turned off the machine, made it easier for him to breathe, and called emergency medical services. Although he died, she wrote us later to say there never was a time she doubted she had done everything she could for her husband.”

In drills, California rescue crews try to stabilize a tractor and mower that overturned on a hillside.

Firefighters from Nashville, Tenn., raise an overturned tractor with low-pressure air bags to rescue a practice victim pinned under a tire.

Emergency medical technicians from Idaho and Utah learn how to free someone entangled in a cross-feed auger.
T HIS report was produced by cooperative extension services in Iowa and Minnesota under the direction of Charles V. Schwab, extension safety specialist in the Department of Agricultural and Biosystems Engineering, and Laura Miller, editor, extension communications, Iowa State University; and John Shutske, farm safety specialist, Department of Biosystems and Agricultural Engineering, and Patricia Ohmans, program coordinator, Minnesota Extension Service, University of Minnesota-St. Paul. Design by Lynn Ekblad, Ames, Iowa.

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