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Farms are dangerous places, and while carelessness can and does contribute to many incidents, accidents also take place during routine, seemingly safe activities.



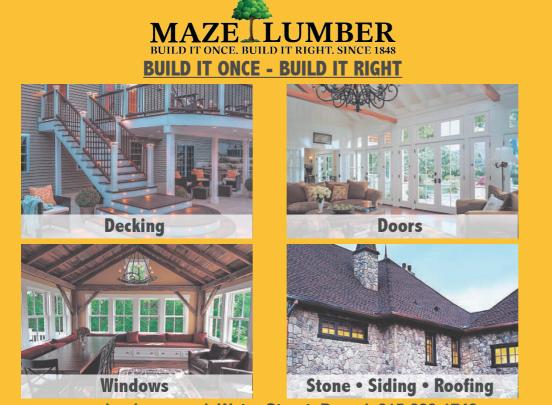
Tractor accidents, grain entrapment and injuries from ornery livestock are just some of the dangers agricultural workers face every day. In fact, the National Institute for Occupational Safety and Health says agriculture is one of the most hazardous industries in the United States.

The agricultural industry averages over 20 deaths per 100,000 workers each year, and each day agricultural workers experienced 100 non-fatal, lost-work-time injuries.

Farms are dangerous places, and while carelessness can and does contribute to many incidents, accidents also take place during routine, seemingly safe activities. These farm safety guidelines can help lower the risk of injuries.

• Know farm equipment.

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Farm safety should be a priority for owners, their families and employees so that agricultural injuries can be reduced.

Read and follow all instructions in the equipment operation manuals. In addition, attend local farm safety workshops to learn more about specific equipment and products.

• Conduct routine safety checks. Look around buildings and grounds for obvious hazards, such as fire hazards and hazardous materials, including farm chemicals that are not stored correctly.

• Practice cleanliness. Maintain clean and neat work areas with tools stored properly and out of the way after use.

• Be mindful of your clothing and hair. Many accidents involve a power take-off system, or PTO, which is a common component of large rotary mowers, tractors and forage choppers. Clothing can easily get caught in an engaged but unguarded PTO stub. It's easy for laces or coveralls to become wrapped around a spinning stub shaft. The PTO driveline and other protrusion points also can be dangerous if people do not pay attention.

• Use rollover protection structures. ROPS can be used on tractors and other equipment to prevent injuries. In addition, wear seat belts and employ other safety equipment as advised.

•Avoid extra passengers. It can be tempting to take the kids for a spin, but do not allow additional passengers to ride on agricultural equipment.

• Exercise caution when handling chemicals. Take extra precautions when handling any chemicals, including pesticides.

• Wear protective gear. Wear appropriate gear and equipment as outlined by NIOSH or the Mine Safety and Health Administration. Make sure the skin, feet, ears, eyes, and hands are protected at all times.

• Employ lock out/tag out control. This is a process where one can work on equipment only after every energy source has been controlled, such as hydraulic, pneumatic, mechanical, and electrical. Turning off equipment and using certain controls or locks on devices can prevent equipment from restarting before it is safe to do so.

Farm safety should be a priority for owners, their families and employees so that agricultural injuries can be reduced.



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Innovations shine at the 2024 Farm Progress Show

BOONE, IOWA — The 2024 Farm Progress Show in Boone, Iowa, was a great success, with thousands of domestic and international visitors traveling to the showgrounds to see the hundreds of exhibitors on site.

"We were excited to see such a fantastic turnout," said Don Tourte, Farm Progress senior vice president of sales and events. "Each year, we unite the global agricultural community to honor innovation and the future of farming."

The event saw the introduction of two large-capacity combines, in addition to new lines of tractors and other combines. Attendees also explored crop shredders, vertical tillage attachments, drones, electric trucks, row cleaners and new side-by-sides.

Over the three-day event, visitors had the opportunity to experience the latest ag tech firsthand, interact with representatives about seed selection, crop inputs, and more, and witness equipment in action during field demonstrations. Highlights included ride-and-drive opportunities, a daily autonomous showcase, and a visit from U.S. Secretary of Agriculture Tom Vilsack, enhancing the event's educational value.

"The Farm Progress Show provides a unique experience for farmers," said Matt Jungmann, Farm Progress national events director. "The chance to explore the latest technology in one place before investing is invaluable. We look forward to continuing to offer these experiences and connections for many years to come."

The 2025 Farm Progress Show will be held in Decatur, Ill., from Aug. 26-28, 2025. For more information and updates on next year's show, visit the official website at www.FarmProgress-Show.com.

Scientists discover diabetes breakthrough in cow's milk

By HANNAH SPANGLER FarmWeek

A brown bovine from southern Brazil has made history as the first transgenic cow capable of producing human insulin in her milk.

The advancement, led by researchers from the University of Illinois and the Universidade de São Paulo in Brazil, could eventually eliminate drug scarcity and high costs for people with diabetes. The project, which began in 1992, is now the longest-ongoing genetically modified livestock project for agriculture.

Matt Wheeler, professor in the Department of Animal Sciences at the University of Illinois Urbana-Champaign, said an efficient system to collect and purify insulin products — and Food and Drug Administration approval — are still needed before transgenic cows could supply insulin for the world's diabetics.

But Wheeler is confident that day is coming. "I could see a future where a 100head herd, equivalent to a small Illinois or Wisconsin dairy, could produce all the insulin needed for the country," he said.

In Brazil, Wheeler's colleagues inserted a segment of human DNA coding for proinsulin, the protein precursor of the active form of insulin, into the cell nuclei of 10 cow embryos. The embryos were implanted in normal cow uteruses. One transgenic calf was born. When the calf matured, lactation was induced and the team found the calf had the ability to produce human proinsulin, which could be processed into bioactive human insulin.

Wheeler said the team was also able to target mammary gland tissue to harness the power of protein and contain insulin in the milk alone.

"Mother Nature designed the mammary gland as a factory to make protein really, really efficiently," he said. "We can take advantage of that system to produce a protein that can help hundreds of millions of people worldwide."

Researchers can't confidently say how much insulin could be made during a typical lactation. However, Wheeler said that if a cow could produce one gram of insulin per liter of milk, the average Holstein produces 40 to 50 liters per day. That's a significant amount of insulin, he said, especially if just 0.0347 milligrams is a typical unit of insulin.

"That means each gram is equivalent to 28,818 units of insulin," Wheeler said. "And that's just one liter. Holsteins can produce 50 liters per day. You can do



the math."

The next step is to reclone the cow and carry out full lactation cycles as well as biological safety testing. Wheeler said the goal is to produce a herd of transgenic cows for insulin production.

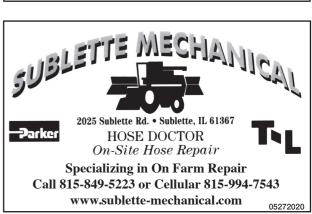
"With regard to mass producing insulin in milk, you'd need specialized, high-health-status facilities for the cattle, but it's nothing too out of the ordinary for our well-established dairy industry," he said. "We know what we are doing with our cows."

(This story was distributed through a cooperative project between Illinois Farm Bureau and the Illinois Press Association. For more food and farming news, visit FarmWeekNow. com.)



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New online agriculture course grows skills in identifying corn, soybean field insects

URBANA – One thing is for sure, if there is a farm field, insects will visit it. Having the skills to identify insects inhabiting crop fields across the Midwest improves one's ability to identify and effectively manage insect pests while avoiding unnecessary interventions that may negatively affect beneficial insects as well as farmer profitability.

Staff from the Department of Crop Sciences, a part of the University of Illinois College of Agricultural, Consumer and Environmental Sciences, University of Illinois Extension, and GROWMARK have made it possible for anyone to gain these identification skills through a recently released free online course titled the Identification of Agriculturally Important Insects for Corn and Soybean.

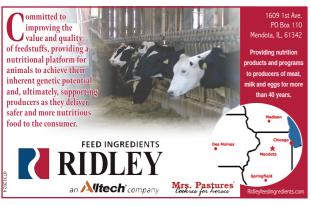
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Participants from all aspects of agriculture and beyond can register for the self-paced course at Learn @ Illinois Extension and look forward to starting at the basics. The course provides participants with an understanding of insect morphology or physical form as well as tips for identifying insect pest species commonly found across Midwest corn and soybean fields. The course also includes a section on identifying look-a-like species.

"Being able to properly identify an insect at various corn and soybean growth stages can increase the crop's chance for survival

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and overall profitability," says Nick Seiter, course co-author, ACES assistant professor, and Extension specialist. "Not all insects found in a field will be quantifiable or become harmful to that crop."

Participants learn through an immersive online experience of 3D model insects that rotate with the hold of a mouse click to explore better angles and specific identifying characteristics. Pop-up annotation cards provide facts and tips, while short quizzes check learning progress along the way. These tools encourage improved understanding and visualization to reflect the experience of seeing the live insect. "We're excited to offer this course to increase awareness and build the skills and confidence needed to increase proper integrated pest management techniques across today's crop fields," says Talon Becker, Extension commercial agriculture specialist.

The course can be accessed directly at go.illinois.

www.earlcoop.com

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edu/FieldInsectID. A Learn (a) Illinois Extension account will be required and can be created by clicking the course name at center screen or the Log In button at the top-right of the page, followed by Create an Account near the middle of the login page. The training is also available in Spanish at go.illinois.edu/IDinsectocampo.

The course offers continuing education units for Certified Crop Advisers. Those who complete the course will be provided with a QR code to scan with the Certified Crop Adviser app to obtain 3.0 CEUs in pest management.

If you have questions or need a reasonable accommodation to participate in this program, contact Talon Becker at tbecker2@illinois.edu or by phone at 217-300-0576. Early requests are strongly encouraged to allow sufficient time to meet access needs.

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Pumpkin disease not evolving, could make a difference for management

The pathogen that causes bacterial spot is very good at what it does. Forming small lesions on the rinds of pumpkins, melons, cucumbers, and other cucurbits, it mars the fruits' appearance and ushers in secondary pathogens that lead to rot and severe yield loss. The bacterium, Xanthomonas cucurbitae, is so successful that it has had no reason to evolve through time or space. That's according to new University of Illinois Urbana-Champaign research characterizing the pathogen's genetic diversity across the Midwest.

"Previously, we sequenced the Xanthomonas cucurbitae genome from a sample taken in New York in 1926. In our current study, we sequenced genomes of samples taken by our collaborators across the Midwest in 2012 and 2013. All of the genomes were really quite similar, greater than 99% identical, but one isolate from Michigan was 99.9% identical to that 1926 isolate. Our results show there's been very little pressure on this pathogen to evolve," said Sarah Hind, assistant professor in the Department of Crop Sciences, part of the College of Agricultural, Consumer and Environmental Sciences (ACES) at Illinois.

The surprising result suggests the pathogen is a one-trick pony. It surges reliably under specific conditions — hot and wet — and lurks quietly in the background otherwise. But the genetic uniformity could be good news for breeders looking to develop resistant crops.

"If we were able to deploy a resistant plant population, then it should be pretty effective against what they would likely encounter, at least across the Midwest and probably much of the U.S., because there's not a lot of diversity in pathogen populations," she said.

Hind says there's currently no known resistance in commercially available cucurbit crops, but she and her collaborators found bacterial spot resistance in experimental pumpkin and squash lines in a 2021 study. Still, she says they'd need to screen a lot more varieties before breeding efforts for resistance could begin in earnest.

In addition to opening up potential opportunities for developing disease-resistant cucurbits, the findings could inform current and future management strategies. For example, Hind says bacterial spot isn't particularly responsive to industry-standard copper antimicrobial sprays. Knowing more about the genetic capabilities of the pathogen could forecast whether such management strategies will be effective long-term.

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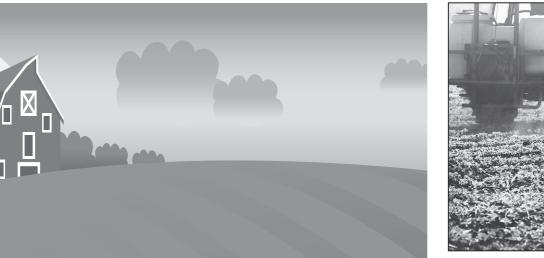


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Pesticide dilemma facing Illinois farmers and EPA's endangered species restrictions

SPRINGFIELD – As restrictions on pesticide use ramp up, Illinois farmers face challenges of navigating the law while still producing a healthy crop.

Last year, proposed regulations threatened to remove the practical use of many of the most effective herbicides commonly used in commercial agriculture, which farm officials said would be disastrous for farmers.

As the U.S. Environment Protection Agency implements pesticide label restrictions to protect endangered species, farming officials say the restrictions are already limiting the practical use of pesticides. Under the Federal Insecticide, Fungicide, and Rodenticide Act, the EPA must consider the potential impact any given pesticide may have on endangered or threatened species within the state where the chemical is registered for use.

During an Illinois Soybean Growers webinar, Stanley Culpepper, a professor in the Georgia College of Agricultural and Environmental Sciences, said it is important for farmers to do their homework before applying pesticides and herbicides.

"Remember, the pesticide that you are applying on the field, does it or does it not potentially harm the species," said Culpepper. "You have to understand where both of those are at and if they overlap."

Culpepper said farmers he comes across want to know why they should endanger the sustainability of their farm.

"The very simplified answer is lawsuits," said Culpepper. "When our pesticides are taken to the court system, we're simply losing because we're not following the requirements of the endangered species act when registering and re-registering those pesticides."

Culpepper believes the restrictions will expand and impact every U.S. farmer and their ability to manage pests effectively. He adds that it is essential that Illinois farmers work with the EPA and other related agencies to find common ground.

Illinois was the number one soybean producer in the U.S. last year and the number two corn producer behind only Iowa.

The road to safety: Be aware of farm equipment as harvest season approaches

By CARRIE MUEHLING Illinois Farm Bureau Partners

In areas where population growth blurs the lines between urban and rural, sharing the road safely becomes everyone's responsibility. Illinois farmers who live near Chicago, St. Louis and other metro areas know this all too well, but they implore their suburban neighbors to understand it, too.

Former McHenry County Farm Bureau President Dan Ziller operates a dairy, livestock and grain farm near Huntley, a town that has grown from 2,500 people in 1990 to more than 27,000 in 2020.

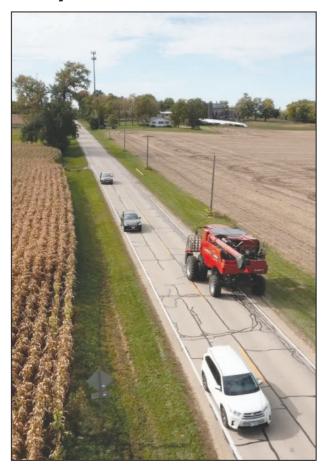
"It's hard to get people to be patient until we can get out of their way or until they can get around us in a safe manner," Ziller says. "When a huge piece of machinery is coming down the road, people don't want to give it any room to get by, but if an ambulance is right behind it, they'll get off the road."

Renee Deterding farms 350 miles south of Ziller, only 35 miles southeast of St. Louis, and deals with similar frustrations.

"Far too many drivers cannot wait to pass or remain behind the farmer until they turn off," says Deterding, who partners with two brothers and their families to operate D&R Huber Farms. "People have passed me on the right side; people have passed me and caused oncoming traffic to slam on their brakes and dodge to the ditch."

Both farmers encourage impatient drivers to consider the size of the equipment and the importance of slowing down when approaching.

"People don't understand this could kill them if they challenge it in a way



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they shouldn't," Ziller says.

Educating drivers Ziller works with local high schools' chapters and driver's education programs to get the attention of new drivers.

"We take machinery to the school and put vehicles behind it," Ziller says. "We let the kids get in the machinery and ask, 'Can you see that car sitting back there?' And they say, 'No, we don't!' We don't know you're back there, so when you come darting around us and we're not prepared for that, and somebody's coming from the other way, that's a problem."

Ziller has helped develop videos for driver's education classrooms, but adding to the existing curriculum has proven difficult. He says FFA chapters are helping and hopes the message resonates even more when students hear it from their peers.

Deterding would also like schools to teach more about safely sharing the road with farm equipment, as farmers have little choice in traversing the now suburban roadways.

"I wish motorists would understand the typical farmer doesn't care to be on the road as much as the motorists don't like us to be on the road," she says.

Ziller echoes this sentiment and emphasizes farmers use main roads only when absolutely necessary.

"We don't want to be there, but because of the development, we no longer have country roads to move machinery on because everyone else is on them, too," he says. "You don't just pack up a farm like a house and move. It's a very serious undertaking, especially with cattle. We're here for the long haul, and we just need to all work together."

Deterding has another concern: who are now learning to drive the farm equipment.

"I want my family to be as safe on the road as anyone else's," she says. "My job is to prepare them for all the things that could happen, just like a parent would when their child goes off in a car. Always check your surroundings and proceed with caution."

She just asks other drivers to do the same.

Share the Road

Follow these tips to help keep you and farmers safe throughout the harvest season and again in spring when planting starts.Most importantly, slow down and be patient.

• Slow down when you see the Slow Moving Vehicle emblem, the orange and red reflective triangle, which warns you a tractor or combine will be on the road traveling at a slow rate of speed.

• Flashing amber lights on the equipment mean caution, so reduce speed when encountering farm equipment on public roads.

• Keep a safe distance from the farm equipment so farmers can see you. Remember, if you can't see their mirrors, they can't see you.

• Pass wide, large farm equipment only if you know conditions are safe and you are sure the farmer will not be making a left-hand turn.

 It is illegal to pass in a no-passing lane or within 100 feet of an intersection, railroad crossing or bridge.

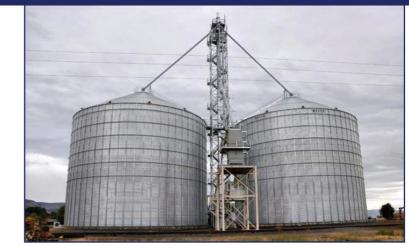
• Be prepared to yield to wide equipment.

• Watch for the farmer's indication of a turn. Newer equipment has one or more amber lights flashing rapidly to indicate a turn. Older equipment is typically not equipped with turn signals so watch for the farmer's hand signals.

Source: Illinois Farm Bureau

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