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# Illinois' climate is complex, and risk of drought is on the rise. Learn how to get ahead of the next drought and protect your crop yields.

hen we talk about drought-proofing farm operations in Illinois, we're faced with an interesting and mind-bending conundrum: All four seasons in Illinois are getting wetter, but we're more likely to have longer, drier periods. Say what?

"We're about 5 inches wetter than the turn of the 20th century," says Illinois State Climatologist Trent Ford. "But we have more extreme rainfall events and drier periods in between. Overall, we see shorter agricultural droughts, poorly timed for 30 to 60 days."

As anyone in the ag business knows, if those 30 to 60 days are at the wrong time of the growing season, that's all it takes to significantly impact a crop. Timed differently, a short-term drought may not be completely destructive, but unfortunately, Ford says those scenarios aren't decreasing at all.

Case in point: The last long-term drought we had was in 2012, but in July 2022, Champaign County only had 0.5 inches of rain. That's a yield impact, but not a huge game changer.

#### Climate Change Concerns for Illinois Farmers Across All Seasons

It's why Ford and other climate experts call the situation in Illinois complicated. "We continue to see increases in winter and spring precipitation, with not much change in summer," Ford explains. And on the flip side, "If 12 inches of rain comes in three days and not 12 days, that makes a difference too."

It's very likely that we will see summers getting warmer across Illinois, which translates to more evaporative demands and more water use in crops. "If the temperature increases and evaporation increases, then you have less soil moisture," he says.

Seasonality matters too. If spring is wetter, then you come into summer with more soil moisture. If spring droughts are less frequent, but summer droughts are happening more often, then how impactful is that summer drought? Added to that, says Ford, a great deal of uncertainty surrounds sum-





mer rainfall projections: "You get nothing; your neighbor gets 4 inches."

#### How Illinois Farmers Can Protect Crop Yields from Drought

The difference in protecting your yields against drought starts, literally, from the ground up. "People who implemented soil and water conservation measures like tillage and cover crops are more successful in a drought," says Ford.

• Decrease Tillage

Building that protection begins by increasing organic matter. "The more organic matter you have, the more soil water is available. Soils are more resilient with that higher content," says Duane Friend, climate specialist, University of Illinois Extension.

"To keep organic matter present, you really have to decrease tillage." This creates more soil structure so the soil acts as a sponge, but also creates more spaces for the water to go into.

Friend admits the idea of light brown, untouched soil is hard for farmers to imagine. "Growing up on a farm, there's nothing like the smell of tilled earth, and there's also a sense of accomplishment," he says. There's just something about seeing the dark, almost-black lines of tilled soil against the residue and trash left behind the combine.

Still, research says soybeans in particular can benefit from reduced tillage. A nearly 30-year South Dakota State University study showed that across rotations, soybeans on average yielded 1.8 bushels per acre more under no-till management than under tillage.

"There's a fine line of profitability and risk," comments Friend, who also says you don't have to change the entire operation at once. "Try a small section of acreage and monitor. I have seen situations after three or four years where there's a marked difference in soil structure and resiliency." • Invest in Cover Crops for Long-Term Results

Cover crops are another excellent strategy for drought-proofing, both Ford and Friend advise. The myth is that cover crops don't pay off, when experts say the real truth is that cover crops rarely pay off in the first year or two – it's that third or fourth year where you'll really start seeing a difference.

As North Dakota farmer Justin Zahradka said in the study Cover Crop Economics: Opportunities to Improve Your Bottom Line in Row Crops, "Look at cover crops as an investment rather than a cost."

More applied research is underway, and Friend is optimistic that additional data and metrics will come soon. Crop insurance, options and other tactics can help with financial management.

Technology innovations in the form of soybean genetics are also an avenue for drought proofing, but Friend cautions farmers not to make any of these your entire plan.

Gene stacking and plants with more resilient root systems are great near-term tactics, but Friend advises, "I hope we don't just depend on the technology. We need to be prepared; we need to manage risk."

In the meantime, an intentional drought-proofing strategy can help protect your yield and your bottom line. Many tools are out there to help refine your plan. Friend suggests starting with the Midwest Cover Crops Council selector tool, which walks you through finding the right mix for your Illinois farm. Forward thinking strategies are the key to protecting your farmland and your crops.

"Droughts may be more intense and may come on a bit faster, but maybe we have fewer overall," Ford says. "Drought protecting your farm is still very important. The variability we see in the yields is really telling."

# Amish barn raising preserves history from 1879

By DANIEL GRANT FarmWeek

The sight of a barn going up in the heart of Amish country in Douglas County is an exciting step for the future of the Illinois Amish Heritage Center (IAHC).

But the recent raising of the nearly 150-year-old structure also serves as a trip back in time for those involved in the project and anyone who visits the site.

"There's a lot of educational opportunities. Yes, this is for the Illinois Amish Heritage Center but, for central Illinois, a lot of this is about agriculture, how it's evolved and how it will continue to evolve," said Cassie Yoder, of Cass Concepts Marketing in Decatur.

"We're right in the heart of the prairie," she said. "The barn just ties into all that."

The Herschberger-Miller barn, originally constructed three miles west of Arthur in 1879, was donated to IAHC. The nonprofit organization then took on the task of moving the barn to be part of its campus, located between Arthur and Arcola on Illinois Route 133.

The campus features historic Amish homes and a schoolhouse from the area. The addition of a working livestock barn will allow the site to host various types of farm animals and activities. It also brings the IAHC campus one step closer to the vision of becoming an Amish living history farm.

The large, five-bay Pennsylvania-style barn has a forebay overhang on the east side and a drive-in threshing floor on the west side. It will also be used as a horse hotel on the IAHC campus where owners can drop off their equine to be sized and fitted with shoes.

"We've had really exciting growth at the Heritage Center the last few years," Yoder said. "The campus is between Arcola and Arthur, in the heart of and gateway to Amish country in Illinois. It's a perfect location."

The Arthur Area Association of Commerce reports Arthur is home of the state's largest and oldest Old Order Amish Settlement of 4,500 Amish living in the surrounding area. More than 200,000 visitors from all 50 states and an average of 50 countries visit the area each year.

IAHC's mission is to enhance the preservation, understanding and appreciation of all aspects of the culture and heritage of the Amish people in Illinois from 1865 to the present.

The addition of the historic barn to the IAHC campus was a natural fit. The challenge was getting it there. Some of the other donated buildings on the campus were relocated there with the use of draft horses.

"It was starting to get in shambles but, at the same time, it's one of the oldest barns in Douglas County," Yoder said. "So, there's a lot of history."

IAHC contacted Trillium Dell Timber Works, now Firmatas, in Galesburg. The firm specializes in barn preservation and restorations.

"They came and tagged each and every piece of wood, then dismantled the barn piece by piece," Yoder said. "It's like a Lego system. They took it all down and relocated the wood to the Amish center."

Firmatas staff also restored and replaced some of the



An aerial view shows the scope of the effort to relocate a nearly 150-year-old barn from a Douglas County farm to the Illinois Amish Heritage Center campus in the heart of Amish country, between Arcola and Arthur. (Photos courtesy of Cass Concepts Marketing)

pieces as needed.

IAHC then hosted a traditional Amish barn raising event Oct. 28-29 with all work done by the crew and volunteers working side by side. The framework went up first, followed by the roof rafters, roof and siding. The interior of the restored barn will include the original grain bins, stalls and other original features.

"One volunteer, O.J. Miller, is a descendant (of the Herschberger family member) who originally built the barn," Yoder said. "It's incredible to see how it comes full circle."

Daily work on the structure continues. A large, final work day was scheduled for the crew and volunteers Nov. 12.

For more information, look for the Illinois Amish Heritage Center on Facebook or contact Cassie Yoder at 217-254-4012.

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

### Illinois Field & Bean Magazine announces FY23 publication expansion

BLOOMINGTON – Illinois Field & Bean Magazine, flagship publication of Illinois Soybean Association (ISA), has recently announced the addition of two more issues for FY23, which will mean a total of 12 issues for the upcoming fiscal year.

"Illinois Field & Bean tells the stories of our checkoff and membership investments, and we're excited to update farmers on that important work and what's happening in our industry 12 months a year," says Rachel Peabody, Editor for the magazine and ISA Director of Communications. "We have so many farmer-focused stories we want to share, and this expansion gives us the opportunity to dive deeper and provide insights into how Illinois soybeans impact food, feed and fuel while laying the foundation of the future of the industry." "We are thrilled to offer Illinois farmers a monthly issue of Illinois Field & Bean," says District 7 Director Bryan Severs. "Now more than ever it is so important farmers truly know the stories behind their checkoff and membership investments and our board looks forward to keeping Illinois 43,000 soybean farmers more informed."

To view the latest issue of Illinois Field & Bean magazine, visit www.ilsoy.org.

The Illinois Soybean Association (ISA) checkoff and membership programs represent more than 43,000 soybean farmers in Illinois. The checkoff funds market development and utilization efforts while the membership program supports the government relations interests of Illinois soybean farmers at the local, state, and national level, through the Illinois Soybean Growers (ISG).

# Ag industry producing more with fewer workers

By TIMOTHY EGGERT FarmWeek

griculture remains a top employer in rural parts of the U.S. but who worked in the industry has changed during the past three years, according to new data released by USDA's Economic Research Service (ERS).

In its annual report, "Rural America at a Glance," ERS found overall population growth in rural or "nonmetro" areas "took a dramatic upswing" between July 2020 and July 2021 when it increased 0.3% to 46.1 million total residents.

It marked the first time since the mid-1990s that nonmetro areas grew at a faster rate than metro areas and was largely because of the coronavirus pandemic, according to the report.

Specifically, as COVID-19 infection rates increased, more people moved into less densely populated areas at a faster rate than those who were leaving them.

But despite those positive shifts, rural America is becoming older, with people 65 years and older making up more than 20% of the nonmetro population in 2021 — the first time in history. The size of the working-age population also declined in 2021, with 58% of rural residents aged 18 to 54.

"Declines in the working-age population may make it harder to meet labor demands in some rural industries and local labor markets," the report's authors noted. "At the same time, many rural areas lack sufficient health care capacity, broadband service, community centers and other services to address the

challenges associated with an aging population."

While data for 2021 wasn't available, the report found that as of 2019, the strongest rural job gains came in the real estate, administrative services, education, professional services, health care/social assistance and finance/insurance industries.

And in 2019, the four industries in rural America with the highest employment were government, manufacturing, retail and health care/ social assistance.

Those industries dovetail with the next highest employed industry — agriculture — as "families on small- to mid-sized farms often depend on nonagricultural jobs in their local economies as off-farm sources of income," the report noted.

Here are three other ways the report found the rural ag industry has changed:

#### Top rural industry

Agriculture remains a primary source of employment for rural America, as 7% of all nonmetro jobs in 2019 were related to the industry, compared to 1.1% of all metro jobs.

The report said that disparity in employment can largely be attributed to comparative advantages, like the availability of resources and land costs.



#### Rural ag becoming more diverse

The rural ag industry continues to feature more white workers than workers of color, but the share of minorities employed in the field has improved, the report found.

As of 2019, Hispanic workers performed 14.4% of rural jobs in agriculture, while 2.4% of the rural ag workers were Black. American Indian and Asian workers each made up less than 2% of rural ag jobs.

> Jobs down, productivity up



While ag still accounts for a higher share of rural jobs compared to other industries, the total number of jobs in agriculture has gone down, according to the report.

Specifically, the total number of rural ag jobs in 2020 was about 89% of the total number that were available in 2001. That longterm decline in industry jobs, however, has aligned with a long-term rise in agricultural

productivity.

Since 2012, the labor productivity, or output per worker, and the total output, or gross domestic product, of the ag industry have both increased by at least 50%. And both measures have nearly doubled since their 2001 levels.

"Due to advances in technology and capital deepening, the rural agricultural industry has thrived," ERS economist and report co-author James Davis said during a webinar about the report. "This industry produces a lot more with the same or fewer workers."

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### Drones are becoming the go-to for crop spraying in Illinois

#### By ZETA CROSS

The Center Square contributor

SPRINGFIELD – Agricultural drones are multiplying in Illinois.

In the past three years, Hylio, the Texas drone manufacturer, has sold hundreds of drones to Illinois farmers for crop spraying, CEO Arthur Erickson said. The precision that drones bring to the process of applying fertilizers and chemicals is winning over more corn and soybean farmers every day, he said.

"This isn't 10 years in the future. This is right now. Farmers really like the success they are seeing and the return on investment that they get with drones," Erickson told The Center Square.

In 2019 and 2020, larger

drones – drones with 10-foot wingspans that can carry heavy payloads – hit the Illinois market. Farmers liked what they saw.

"Since then, it's just been gangbusters," Erickson said.

When it comes to input delivery, drones offer more functionality at a much-reduced cost, he said.

"I won't say that they are a silver bullet for every issue that a farmer or a service provider in the ag industry runs into, but they cover a lot of bases," Erickson said. As for capital costs and

operating costs, drones are impressive.

"It's pretty obvious from the money standpoint, why a farmer might decide to go with drones," Erickson said.

A traditional ground rig with a high clearance sprayer costs half a million dollars. Drones cost considerably less. They also they give farmers more functionality. For example, a traditional ground rig delivers two or three gallons of chemicals per acre. A farmer uses that machinery to treat 500 to 600 acres in a day. Drones can do the same job at significantly less cost.

"Three of our drones can do a similar job for \$150,000 total – a 60% cost reduction in capital costs," Erickson said.

Traditional machinery also costs more to operate and maintain, he said.

"Operating costs for drones are significantly lower – probably 30% of what a farmer would pay to operate the ground rig on a monthly or yearly basis."



The larger ones have a 10-foot wingspan. People wonder how they can do the work of a huge piece of

machinery.

"These drones are surprisingly efficient. I am proud to say that our drones can regularly treat hundreds of acres per day – each. When there are three or four of them out there in the field together, they can treat close to 1,000 acres per day, on a good day," Erickson said.

Not only are they cheaper, drones allow farmers to do more. When it's raining or muddy, a traditional ground rig sits idle.

"Oftentimes, that is when a farmer needs to get out there the most, to treat for things like fungal diseases or insects that grow in that moisture," Erickson said.

Drones can work when tractors can't.

"They fly over the crop," Erickson said. "They don't care what the terrain is doing."

Illinois farmers have been using drones to scout their crops for years now. Farmers scan the emerging corn or soybeans plants to get a population count. Drones allow farmers to pick up on weed patches and look for blight. Drone scouting allows farmers to see how effectively herbicides and fungicides are working to treat problems.





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### U of I paper spotlights challenges, solutions to ag's role in carbon markets

By TIMOTHY EGGERT FarmWeek

ore Illinois farmers might participate in carbon market opportunities if major reforms were made to improve contracts, stabilize demand for soil carbon sequestration and increase financial incentives, according to a new study published by University of Illinois researchers.

The paper, titled "The Achilles heels of carbon farming: Operational constraints on the next cash crop," spotlights challenges surrounding the adoption of storing carbon in soil on ag land in Illinois and offers some policy-based solutions.

It was written by members of the U of I's Center for the Economics of Sustainability and was supported by the Illinois Farm Bureau Board of Directors. Stakeholders expect the paper to ultimately spur additional research or influence future policy decisions.

"IFB has been very interested in exploring the topic of soil carbon sequestration and carbon markets, and we support market-based solutions to mitigating climate change," said Lauren Lurkins, IFB's director of environmental policy. "But the way those solutions are manifesting themselves in the countryside right now is not attractive or appealing to a majority of our farmer members."

What accounts for "arguably the largest barrier" to the development of carbon farming in Illinois is the dynamic around annual cash rental agreements and non-owner-operated farmland, according to the paper.

Specifically, if a tenant who adopts a conservation practice on a piece of rented ground loses that lease the following year, then the carbon stored in the soil "is put at risk" and depends on the next tenant adopting similar practices to maintain the sequestration.

In addition to high upfront costs, tenant farmers are also hesitant to adopt a conservation practice because the benefits of that practice — better soil health increases the land's value, for example — likely will be accessible by only a future tenant or the landowner, said Amy Ando, a professor in the U of I's College of Agricultural & Consumer Economics who led the study.

"If you're somebody who's just renting the land, you yourself don't have obvious incentives or even capabilities to make long-term commitments to what happens on that land," Ando said.

Further complicating owner-operators' participation in carbon farming programs are multi-year contracts that don't take into account the temporal aspect of storing carbon in the soil on working ag lands.

Contracts are often unclear, for instance, about an owner-operator's obligation to the contract, the "ownership" of the stored soil carbon if the land enrolled in the practice is sold and the duration of sequestration. Potential solutions include developing and implementing standardized, explicit contract terms that do not require long-term commitments but aim for rewarding soil carbon storage on both intermediate and permanent scales, Ando said.

Also underpinning the contract issues is a shared uncertainty by farmers toward "the long-term viability of demand" for soil carbon storage in a voluntary market, according to the paper.



In addition to traditional production costs associated with growing crops each season, farmers who choose to participate in carbon market opportunities incur additional costs. Farmers are paid between \$10 and \$40 per acre for carbon farming practices, amounts that don't come close to outweighing the cost to implement them. (Photo by Illinois Farm Bureau photographer Catrina Rawson)

Because no public policy like a cap-and-trade greenhouse-gas emissions program for industrial emitters exists, demand for carbon sequestration in soil is voluntary and mostly limited to corporations seeking credits to meet environmental performance targets or consumers looking to offset their carbon-intensive activities.

The lack of national standards for defining and verifying carbon offsets and the market's constant change also contribute to farmers' doubts about participating in a program that could be replaced by a better system, Ando said.

She added that USDA or another federal agency developing standards or certification rules "could potentially increase confidence in these contracts and increase the value of them."

A final issue and solution to carbon farming involves the financial incentive for farmers who implement a practice.

Farmers are paid between \$10 and \$40 per acre for carbon farming practices, amounts that don't come close to outweighing the cost to implement them.

Increasing those totals and developing a scale where payments are based on storage duration — bigger payments for longer sequestration periods — would result in more participation, the paper suggests.

Ando and the researchers also point to the inability to "stack" payments for multiple environmental services, like both installing buffer strips to reduce runoff and practicing no-till to sequester carbon in soil on the same piece of land.

"If a farmer does one thing and it reduces nutrient runoff in waterways and it also reduces greenhouse gas emissions, why not get paid for both of those services?" Ando said. "And if you only can get paid for one, then really the benefits to society are larger than what the farmer is getting paid. So, figuring out a good way to do stacking could be very helpful."

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### ISA moves to new location

BLOOMINGTON – The Illinois Soybean Association is proud to announce its relocation to 1108 Trinity Lane, Bloomington.

The construction project, which began in December 2021, was part of an effort to reposition the organization with one goal: "to get back to our roots." As an association, ISA has developed a strategic direction that puts Illinois soybean farmers at the center of its work, programs, and messaging, all in the service of staying connected to the growers who pay into the checkoff and membership programs.

The approach inspired ISA to transition to a high-quality, high-touch service model that led the organization to grow its team, ensuring tremendous cost-efficiencies as well as enhanced farmer service. With a current staff of more than 30 employees – and growing – additional office space was needed.

"As we continue to align with our new strategic direction and truly get back to our roots, our organization has experienced tremendous growth in our staff teams," says John Lumpe, ISA CEO. "Our growing staff means that we get to bring fantastic expertise in-house, resulting in more value back to the pockets of checkoff paying farmers."

Areas of the building are generously sponsored by industry partners such as ADM, Bayer Corteva, FMC, IL Corn, the Missouri Soybean Merchandising Council and the Iowa Soybean Association.

"Through this build, ISA is making the most of our checkoff investments," says ISA Chairman Steve Pitstick. "This newly renovated, 20,700 square foot building allows us to do more, together, by offering modern, technologically-equipped meeting areas, enough space to house the growing staff team, and the opportunity to share it not only with staff but to invite members of our Illinois ag family to utilize the meeting spaces as well."

The new build includes soy-based products such as parking lot striping, interior paint, window blinds and entryway mats.

For more information about ISA and its new Bloomington office, send an email at ilsoy@ilsoy.org.



### **ISG** names top policy priorities for FY23

BLOOMINGTON – The Illinois Soybean Growers (ISG) recently met to set state and federal policy priorities for FY23. Among many issues, the most pressing and largely discussed included biofuels, animal agriculture, farm bill, foreign trade, transportation, and climate-smart agriculture.

"The committee unanimously agrees that we must act as one voice in agriculture," says Committee Chairman, Brad Daugherty. "It's time to tell our story, promote policies that will most directly impact Illinois farmers, and be intentional with our policy agenda in an effort to educate and inform legislators. We want leadership in Springfield and Washington D.C. to know we stand ready to work with them around these issues." ISG advocates for Illinois soybean farmers, providing them platforms to be heard firsthand and constantly monitors issues, opportunities and threats, providing farmers with information and resources.

"There is a new sense of healthy urgency when it comes to this committee and our policy work," says ISA Director of Government Relations & Strategy, Andrew Larson. "We are working proactively to be a trusted source on Illinois-specific



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topics, to promote Illinois soy and the issues confronting our farmers. From encouraging new trade deals and supporting the timely passage of a bipartisan farm bill, to advocating for livestock farmers' rights and the transition to higher blends of biodiesel in Illinois, this committee is bringing Illinois farmers to the forefront of policy-related efforts."

Adds Daugherty, "We will continue to grow our legislative reach by fostering

relationships with state and federal legislators. If Illinois farmers stand to be impacted by the outcome of a conversation, we will be at the table, leading that conversation."

The Illinois Soybean Association (ISA) checkoff and membership programs represent more than 43,000 soybean farmers in Illinois. For more information, visit the website www.ilsoy. org and www.ilsoygrowers. com.

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