

Southern Illinois University engineering students Curtis Shuman, left, and Cameron Schwartzberg, right, look over the soybean plant-inspecting robot they designed and built for their senior project under the guidance of Chao Lu, center, associate professor of electrical and computer engineering. The prototype robot uses imaging systems and a future AI system that would examine and track the plants, diagnosing any disease issues and ultimately predicting yields. (Photo by Russell Bailey)

SIU-C engineering students create robot for crop inspection

By TIM CROSBY SIU Communications and Marketing

CARBONDALE - The days of a farmer wandering a field and inspecting the crops may be coming to an end, as two engineering students at Southern Illinois University Carbondale have designed a robot to monitor soybean plants as they are growing.

Curtis Shuman and Cameron Schwartzberg built the robot as their senior design project under the guidance of Chao Lu, associate professor of electrical and computer engineering, and Justin Pol, assistant professor of practice in the School of Electrical, Computer, and Biomedical Engineering. The prototype involves both hardware implementation and software programming that would examine and track the plants, diagnosing crop conditions in the future.

"The project highlights the ingenuity and dedication of our students as they tackled real-world challenges facing modern agriculture," Lu said. "We hope this success will inspire more students to enter STEM fields."

Students in SIU's engineering programs are required to complete a senior design project to graduate. The project requires them to identify an existing problem and then design and fabricate an engineering solution to it.

Shuman and Schwartzberg's project, funded by an \$18,000 seed grant from the SIU Soybean Center, took about four months to design and another four months to build, with the students dedicating about 500 hours total to the work over two semesters.

The pair knew the robot needed to meet several requirements to be successful. First, it had to be able to transit a rough soybean field sure-footedly without damaging crops. It also needed to last for five acres on a single charge while also taking pictures. And although their prototype relied on human remote control, the design needed to accommodate plans for a fully autonomous operation in future models. Shuman focused on the

robot's physical and electrical systems, finding one of the biggest conundrums to be size restrictions.

"This is a small format bot, just 10 inches wide so that it can fit between 15-inch rows of plants," Shuman said. "That meant that building space was tight, and bolts and fasteners were hard to get to."

The brains of the robot – its software – fell to Schwartzberg, who knew it would be a challenge even though his early work in a virtual environment seemed to go smoothly. "I ran into the normal

faults you run into when programming," he said. "But when it came time to integrate the software onto the robot, I had a lot of issues with the original operating system we had planned to use."

Ultimately, the pair switched out the hardware's recommended operating system, which helped it host its own Wi-Fi signal for control, employ GPS in the correct format and run all the cameras to take pictures at the same time, reducing the input lag and the amount of system freezes.

Along the way the pair learned a lot about programming languages, planning, limiting project scopes, making adjustments along the way, controlling costs, time management and other factors that go into real-life engineering. The students also will attempt to integrate AI with future models of the prototype.

"Everything you do, every decision you make, has consequences, some good and some bad," Shuman said. "All of them affect what you can and can't do when something needs to change."

Schwartzberg said he plans on securing employment following graduation this spring. He said the project provided valuable experience that will help him greatly as he enters the world of professional engineering.

"My degree and these opportunities have given me the experience I need to distinguish myself among other job candidates," he said, adding that working with the SIU Robotics Club also helped him develop the skills he needed to complete the senior project.

Schuman, who also graduates this spring, has accepted a position with Caterpillar Inc. in its Electrification & Energy Solutions (E&ES) Division. He'll be working on electrifying equipment while making it more efficient and greener.

"I'll be using a lot of the skills I learned on the robot when it comes to power management, power requirements and doing things electrically that have been traditionally done with diesel engines," he said.

Planting decisions underway for Illinois soybean farmers

By RHIANNON BRANCH FarmWeek

With the 2025 planting season around the corner, many hallway conversations at the Illinois Soybean Summit in Champaign this month focused on preparation for a year of tight margins.

Early planting

Illinois Farm Bureau District 13 Director Brad Daugherty farms in Clark County and said one thing he learned from the summit in recent years and brought back to the farm was the idea of planting soybeans earlier

"We start planting any time after March 25," he told FarmWeek. "We will start planting soybeans and we'll go right into corn, weather permitting.'

Illinois Soybean Association Chairman Ron Kindred, who farms in Logan County, said he is trying to decide just how early to

"Unfortunately, we've come to the reality with the early planting that we're going to have to spray them twice," Kindred said noting that he has lost yield to weed pressure when a single pass is done.

"I think it's a necessary evil from planting early that you have a longer growing season and therefore a longer time to control the weeds."

Acreage split

Meanwhile, growers are monitoring input costs and volatility in the grain markets as they finalize planting intentions.

'We are trying to decide what we're going to plant, corn or soybeans or more of one and not as much as the other," Vermilion County farmer and ISA Soybean Production Committee Chairman Bryan Severs said, noting that non-GMO soybean contracts might keep his farm in the normal rotation.

"But we are thinking if corn is more profitable, maybe we need to be running more acres of corn this year," Severs said.

Kindred is also weighing this decision.

"As we look at the corn side of things where the inputs are much higher, it's going to be very, very tight to make a profit on corn, and soybeans are going to be the same way," Kindred explained. "I don't know long term what we're going to get out of this growing season because we rely on the export market for a lot of the pricing on our soybeans."

Daugherty said his sons are tasked with acreage decisions on their farm, but he expects them to produce more seed corn this season.

"Between seed corn and green beans,



those are our better crops dollar for dollar. The only other one that competes with them would be wheat and double-crop soybeans," said Daugherty, who noted they prioritize those crops on their irrigated land.

Working with tighter margins

In another year with low farm income projections, growers are taking a close look at where they can save money.

Severs said he has been meeting with his crop insurance agents to look at options.

"I have a good APH and I don't want to give that up," Severs said. "So I don't think we'll cut fungicide or the feel-good stuff that we put on the crops, I think we'll just keep pushing the envelope because bushels is how we make money.'

Severs is also brainstorming better ways to use older products with tillage and non-tillage practices.

"We're kind of going towards residuals this year in front of the beans and corn where maybe we haven't used as much of that in the past," Severs said. "We used a little bit of starter on beans last year and we're going to go whole hog on that trying to find that

Generational involvement

But despite the challenges, planting season marks a new beginning for many farms and Severs said he is looking forward to seeing the youngest generation enjoy the growing season. "I'm a proud grandpa now and I love

that part," Severs said. "There is nothing better than teaching them what I taught my sons, what my dad taught me and what my grandpa taught him. That's the cool part Daugherty said while involvement on both

the IFB and ISA boards keeps him busy, he will continue to share what he learns with his sons and guide them through the season.

"I tell them 'You're not always going to be right, just like I was never right 100% of the time," Daugherty said. "Just do the best you can, that's all you can do."

U.S. DOE releases an updated GREET model for biofuel feedstocks

By TAMMIE SLOUP **FarmWeek**

The U.S. Department of Energy released an updated model evaluating lifecycle greenhouse gas (GHG) emissions for biofuel feedstocks under the 45Z Clean Fuel Production Credit.

The release of the 45ZCF-GREET (Greenhouse gases, Regulated Emissions, and Energy use in Technologies) model follows the U.S. Department of the Treasury and Internal Revenue Service guidance on the 45Z released in January.

Under 45Z, tax credits are provided for the production of transportation fuels with life cycle greenhouse gas (GHG) emissions below cer-

Committed to

tain levels. The credit applies to eligible transportation fuel, including sustainable aviation fuel (SAF), produced domestically after Dec. 31, 2024, and sold by Dec. 31, 2027. The 45ZCF-GREET mod-

el includes feedstock-specific fuel production pathways for SAF and non-SAF fuels. The model is designed specifically to evaluate life cycle GHG emissions to meet the requirements of section 45Z.

DOE also released the 45ZCF-GREET user manual, which describes how the 45ZCF-GREET model characterizes life cycle GHG emissions of transportation fuel production pathways and provides guidance for

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using the model to determine emissions rates for clean fuels under section 45Z.

The updated GREET model allows certain foreign feedstocks to be used to make U.S. biofuels, including Canadian canola oil and Brazilian sugarcane ethanol for SAF. Under the 45Z guidance previously published, foreign unused cooking oil is currently not

For more information, visit bit.ly/3E7UPuw.

(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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The U.S. House Ag Committee had a hearing on the farm economy to gauge current conditions as well as educate new committee members. (Photo by Catrina Rawson of FarmWeek)

'Uncertainty' is the theme of ag economy after federal hearing

"My focus remains the same. We

must move quickly to pass a five-

year bipartisan farm bill that sup-

By TAMMIE SLOUP **FarmWeek**

During the past two decades, Illinois corn and soybean farmer Rodney Weinzierl's conservation practices led to fewer crop insurance payments to his family and lower loss ratios.

The third-generation farmer from Stanford said he believes practices such as no-till and cover crops have reduced risk on farms, specifically by making soil more resilient to drought and excess rainfall.

The federal crop insurance program, Weinzierl said, is designed to operate at a loss ratio of 1.0, meaning for every dollar premium paid in, \$1 is paid out as an indemnity payment.

"Over the past 26 years, my farm has only received 20% of what I should have received at a loss ratio of 1.0, and most farms in Illinois are in similar predicaments," said Weinzierl, who testified during the U.S. House Ag Committee's hearing on the farm economy Feb. 11.

Weinzierl, who is executive director of the IL Corn Growers Association and IL Corn Marketing Board, added if crop insurance rates were re-evaluated, particularly in the Midwest, "we could generate hundreds of millions of dollars in savings. I would encourage those savings to be used to improve crop insurance and support other farm bill titles.

Many of the hearing's themes — trade, timely reauthorization of a farm bill, tariffs, labor and market access — were similar to the previous week's Senate Ag Committee ag economy hearing.

With a witness panel comprised of Weinzierl; Ryan Talley, a specialty crop farmer from California; Alisha Schwertner, a cotton and cattle farmer from Texas; and John Newton, executive head of Terrain, the asks from farm country haven't veered much

ports fair premiums for our farmers, prioritizes smart farming practices, protects SNAP, opens up new global markets and expands and boosts our crop insurance." -U.S. Rep. Eric Sorensen from last year, although with

nounced, uncertainty looms for farmers. Access to new markets, labor reform, a Proposition 12 fix and quick reauthorization of a farm bill with Title One enhancements continue to be top priorities

the trade deficit widening

and new tariffs being an-

for farmers. "I think it's important for folks to understand that with crop insurance, farmers have very large deductibles that they take, oftentimes in excess of a 15 or 20% deductible on crop insurance," Newton said. "So, at times, farmers are taking very, very deep losses before crop insurance ever triggers an indemnity to the grower. And so, Title One programs have always laid on top of crop insurance and offered a cushion in the event of a low price or low revenue environment like we find ourselves in today.

"I think it's important for farmers to have options for risk management tools; the more tools in the toolbox, they can customize the risk management strategies that they need."

Committee member Mary Miller, an Illinois Republican from Oakland, asked Weinzierl what Congress can do to ensure the Risk Management Agency is able to balance the calls from producers to make crop insurance cheaper while still maintaining enough premium in the risk pool

to help cover losses from catastrophic events.

"All we're asking is, if we're making these practices, if we're becoming less risky, somehow reflecting that in the rates that we pay,' he answered. Weinzierl also said that he does not utilize any federal funding to implement conservation practices.

Committee member Eric Sorensen, an Illinois Democrat from Moline, said he's heard from many farmers who have said the federal crop insurance program needs adjustments.

"My focus remains the same. We must move quickly to pass a five-year bipartisan farm bill that supports fair premiums for our farmers, prioritizes smart farming practices, protects SNAP, opens up new global markets and expands and boosts our crop insurance," he said.

House Ag Committee members tussled over the impacts of potential retaliatory tariffs and a pause in some Inflation Reduction Act funding, including for climate-smart and energy programs through USDA.

Committee ranking member Angie Craig, D-Minnesota, said additional uncertainty has been injected into the farm economy conversation the past three weeks: "Consider grant dollars to farmers appropriated by Congress and already under contract with USDA have been frozen. Trade wars with our largest trading partners and largest export markets have

been threatened. Food grown in America is rotting at a warehouse in Texas. We all know, just like before that trade wars will inevitably lead to retaliatory tariffs on American farmers. We know that cutting off foreign food assistance programs also cuts off a major market and farm income.

Committee member Mike Bost, an Illinois Republican from Murphysboro, later countered the challenges that exist in agriculture didn't develop during the new administration.

"It's based on the fact that one, we need to get a farm bill passed," Bost said, adding trade policy the past four years has hurt farmers. "And our worst-case scenario, if you really study this issue, has been China, who actually plays games with the industry."

Committee Chairman Glenn "GT" Thompson, R-Pennsylvania, added he'll be keeping a "vigilant watch" over the administration's believes will give President Donald Trump leverage to negotiate with foreign nations on trade.

"And where U.S. agriculture gets caught in a crossfire, I'll be the first to speak up on behalf of our producers,'

(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.)



USDA appoints 27 new members for Task Force on Ag Air Quality Research

CHAMPAIGN — The U.S. Department of Agriculture (USDA) recently announced the selection of 27 new members to its Task Force on Agricultural Air Quality Research. The Task Force examines the intersection of agricultural production and air quality, and advises the secretary on scientifically sound, cost-effective, federally supported agricultural solutions that can help improve air quality. The Task Force members are from diverse backgrounds, including agricultural producers, agricultural industry representatives, researchers, scientists and members of health and regulatory organizations, who have an interest and expertise with agriculture air quality issues. The newly selected members will serve a term of up to two years.

"USDA's Task Force on Agricultural Air Quality Research continues to benefit from the expert guidance of local farmers, ranchers, academia and other environmental professionals to advance air quality and climate-smart agriculture," said USDA Natural Resources Conservation Service (NRCS) Chief Terry Cosby. "Minimizing agriculture's impact on air quality is a collective interest of Task Force members, which enables us to harness the full capacity and resources brought to the table to confront air pollution and produce tangible solutions for emerging and existing air quality challenges."

The Task Force on Agricultural Air Quality Research continues to promote USDA research efforts and identifies cost-effective ways the agriculture industry can improve air quality. Focus areas of the Task Force

 Providing recommendations for needed research related to agricultural air quality issues.

• Ensuring that implementation of USDA practices, programs and research for air quality and climate change promote environmental justice goals and exploring opportunities for improving the environment

• Addressing reactive nitrogen emissions, including ammonia from agricultural sources, especially in relation to nitrogen deposition, greenhouse gas impacts and ammonia's role as a precursor to fine particulate matter formation.

• Discussing agricultural greenhouse gas and carbon sequestration topics, including climate-smart agriculture and forestry options and sustainable solutions.

• Providing guidance and recommendations to the secretary regarding the impact on agriculture from U.S. Environmental Protection Agency rules and research, including the National Ambient Air Quality Standards and emissions estimating methodologies for livestock and poultry operations.

Discussing state and local air quality regulations related to agriculture and the potential impact on agricultural operations in those areas. Created by the 1996 Farm Bill, the Task Force on

Agricultural Air Quality Research works to address agricultural air quality issues. It also helps better coordinate activities and resources among USDA agencies and other federal partners, including the Environmental Protection Agency.

Chaired by USDA's Natural Resources Conservation Service Chief, this is the 12th Task Force since its launch in 1997.

Equal opportunity practices, in line with the USDA policies, were followed in all appointments.

More information about the Task Force is available on the AAQTF webpage.

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Partnership strengthens NRCS **Outreach in Illinois, lifting farmer** access to conservation funding

BLOOMINGTON — Illinois soybean farmers will now have additional education opportunities, agronomic guidance, and assistance with evaluating field data to better implement conservation practices that benefit the environment.

The Illinois Soybean Association (ISA) has entered into a matching \$750,000 contribution agreement with the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) for a total of \$1.5 million to fund increased education and adoption of climate-smart practices that will help increase carbon sequestration and reduce greenhouse gases. ISA will use part of the funding to hire additional staff, including agronomists, to help manage the efforts. The ISA Agronomy Team is responsible for cross-functional agronomic research and education that creates opportunities for Illinois soybean farmers to increase on-farm profitability and manage crop production risks. Partnering with NRCS will help to increase conservation education for farmers alongside additional agronomic support from trusted ISA advisors.

"We are excited to enter into this formal partnership agreement with the Illinois Soybean Association," said Tammy Willis, Illinois NRCS State Conservationist. "By utilizing special funding through the Inflation Reduction Act, we will be able to enhance our partnership with ISA to bring more conservation opportunities to the farmers in Illinois."

"This new funding will create a unique opportunity for us to help Illinois farmers connect to their available NRCS programs while also strengthening NRCS outreach resources," said Abigail Peterson, CCA and ISADirector of Agronomy. "We want to complement the tools and information growers need to implement conservation practices with an agronomic focus."

Climate-smart practices are on-farm actions that contribute to environmental benefits such as improving soil health, reducing soil erosion, suppressing excessive weed pressure, improving nutrient uptake efficiency and optimizing water management. These practices include:

- * Reducing tillage
- * Planting cover crops
- *Applying precision ag technology
- * Establishing wildlife
- * Enhancing grassed waterways

"Illinois soybean growers can look forward to more educational materials, workshops and assistance from new staff agronomists in the coming months," Peterson added. "We're here to ensure growers take advantage of every opportunity they have to enroll in applicable NRCS programs. We understand it can be complicated, but there is a value to navigating these funding processes for the success of both Illinois farmers and Illinois conservation."

Find more information about upcoming partnership activities or go online at www.fieldadvisor.org.



Planning for planting: Federal crop insurance sign-up deadline approaching on March 15th

By KELSEY WILLARDSON,

policy associate, Center for Rural Affairs

A farmer's work is never done. Even in winter, farmers are planning for the next planting season. For many operations, planning ahead includes signing up for federal crop insurance.

The deadline to sign up for most types of coverage is March 15, 2025. As weather events become more unpredictable and severe and market fluctuations continue, federally-backed crop insurance is an essential risk management tool for many farmers.

A wide range of coverage is available for agriculture operations. Newer programs, such as Whole Farm Revenue Protection (WFRP) and its subprogram Micro Farm, serve small- to medium-sized, diversified, and organic operations particularly well. These programs are available throughout the U.S. regardless of county and fit all of an operation's production under a single policy. The policies provide coverage based on an operation's revenue history and protect against losses from natural causes, such as flooding, hail, and drought, as well as losses from market changes.

Other types of coverage, including

multi-peril yield and revenue protection, also support operations in times of loss. It is important for a farmer to speak with an agent to learn what type of policy best suits their needs and operation. Federal crop insurance is administered by

the U.S. Department of Agriculture's Risk Management Agency and sold by private agents throughout the country. To look for an agent, farmers can visit rma.usda.gov/ tools-reports/agent-locator. This resource now includes specific help for farmers interested in WFRP and Micro Farm. The Center for Rural Affairs has devel-

oped several resources for farmers who are new to or have questions related to crop insurance. These can be found at cfra.org/ crop-insurance-resources. One-on-one support is also available, and producers are encouraged to contact Kelsey Willardson at kelseyw@cfra.org if interested.

Established in 1973, the Center for Rural Affairs is a private, nonprofit organization working to strengthen small businesses, family farms and ranches, and rural communities through action oriented programs addressing social, economic, and environmental issues.



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The legacy of corn nitrogen fertilizer: Study shows lengthy impact in tile drained systems

Midwestern soils are among the most productive in the world, thanks in part to extensive tile drainage systems that remove excess water from crop fields. But water isn't the only thing flowing through tile drains. Nitrogen moves along with soil water into drainage ditches, streams, and ultimately into the Mississippi River Basin, where the nutrient contributes to massive algal blooms and hypoxic conditions that impact aquatic life in the Gulf of Mexico.

A recent study from the University of Illinois Urbana-Champaign provides a new look at the sources and processes affecting the nitrogen load in tile drainage water. The study reveals an unexpectedly large and stable "legacy" pool of nitrogen, adding nuance to the common belief that nitrogen pulses rapidly through tile drainage systems as a transient reflection of fertilizer input and microbial activity.

"The legacy effect relates

to the time lag between when nitrogen is made available in the soil environment to its loss to waterways. For example, if you have a nitrogen input via fertilizer this year, it won't be reflected in offloads downstream immediately. This lag has been found in many systems, but previous researchers didn't know what caused it or how large its magnitude was," said lead study author Zhongjie Yu, assistant professor in the Department of Natural Resources and Environmental Sciences (NRES), part of the College of Agricultural, Consumer and Environmental Sciences (ACES) at Illinois.

To understand the origin of nitrogen in drainage water, the research team first had to differentiate nitrate derived from various sources. They collected tile drainage samples from a corn-soybean field on a weekly basis over three years and measured nitrate. They also collected soil, crop residue, and fertilizer samples to analyze nitrogen concentrations as well as naturally occurring, stable isotopes of nitrogen and oxygen, the two elements that make up nitrate molecules. Using sensitive laboratory equipment, previous researchers associated slight variations in heavier nitrogen (15N) and oxygen (18O) isotopes with various nitrogen sources and the microbial nitrogen cycling processes of nitrification and denitrification.

"We can think of nitrogen and oxygen isotopes

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"Our results show that the original isotope ratios of nitrate were similar to those of ammonia fertilizer and soybean biomass nitrogen and did not vary over time when there was no new fertilizer input to the system. This suggests a large legacy pool of nitrate in the soil and a time lag between when nitrogen is added to the system and when it is exported as nitrate in tile drainage."

Zhongjie Yu, University of Illinois

as a fingerprint to identify the sources of nitrate and how it's being recycled by microbial processes," Yu said. "Different sources have different isotope ratios, just like humans have different fingerprints."

Yu added that nitrate derived from inorganic fertilizer has a lower isotope ratio, with fewer heavy nitrogens and oxygens, than bulk soil organic nitrogen sources.

The research team also brought soil samples into the lab and incubated them to learn how microbial nitrogen cycling affects nitrate isotopes. With both the field and lab data, the researchers could trace nitrate sources through time and across cropping systems.

"Our results show that the original isotope ratios of nitrate were similar to those of ammonia fertilizer and soybean biomass nitrogen and did not vary over time when there was no new fertilizer input to the system," Yu said. "This suggests a large legacy pool of nitrate in the soil and a time lag between when nitrogen is added to the system and when it is exported as nitrate in tile drainage.3

He added that when new fertilizer was added as anhydrous ammonia to corn, a large shift in the isotopic signal, reflecting the new nitrogen, was recorded in tile drainage water, especially when rain events followed the application. However, this new nitrogen signal was often short-lived, with the legacy signal reemerging within the following days to weeks.

The pattern lines up with results from study co-author and NRES professor Richard Mulvaney's group. In a series of studies, that group used labeled isotope techniques to trace nitrogen uptake in corn plants, finding that less than half of fertilizer nitrogen is used by the plants; instead, corn took up most of its nitrogen from the soil. The remaining fertilizer nitrogen, according to the new results, is likely lost in tile drainage or converted into a reactive fraction stored in the soil, leading to the release of

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nitrogen long-term.

Yu said the evidence of a legacy effect can inform management and impact how policymakers evaluate the success of nitrogen loss reduction practices.

"Often, we expect to see immediate effects of management changes in nitrogen load. However, even if we stopped applying nitrogen fertilizer for a given year, we might still see significant loss from that system for a few years," he said. "It's not like if we reduce nitrogen input, it can solve everything immediately."

The study's first author, doctoral student Yinchao Hu, added that nitrate loss derived from corn fertilizer was strongest during high tile-drainage discharge events, suggesting that a little management foresight could be beneficial when rain is in the forecast.

"If we can control application during periods of high discharge, that may help us to reduce nitrogen pollution," she said. "Or if there are sufficient forecasts for rain events, farmers can take adaptive measures and temporarily close the tile drainage."

The study, "Deciphering the isotopic imprint of nitrate to reveal nitrogen source and transport mechanisms in a tile-drained agroecosystem," is published in JGR Biogeosciences [DOI:10.1029/ 2024JG008027]. The research was supported by the USDA National Institute of Food and Agriculture [project no. ILLU-875-983] and the Illinois Nutrient Research and Education Council [project nos. 2021-4-360649-46 and 2014-5-360847-320].



Highly pathogenic avian influenza (HPAI) and demand are driving up egg prices to historical highs. (Photo by Illinois Farm Bureau)

Demand, HPAI drive record egg prices By RHIANNON BRANCH

FarmWeek

Consumers are experiencing the highest egg prices in history driven by increased demand and highly pathogenic avian influenza (HPAI), which could keep the market elevated for a while.

The latest report from the Bureau of Labor Statistics puts the average retail egg price at \$4.90 per dozen nationwide.

"That's an all-time high and a lot more expensive than what consumers are typically dealing with," Brian Earnest, lead animal protein analyst for CoBank told FarmWeek. "I think back 10 years ago when it was pretty common to see \$1 per dozen or less."

He said HPAI is one of the main causes, noting the current outbreak has had more of a year-round impact than the previous outbreak in 2015.

"Now it has been found in all 50 states and has had an impact to supply every month since February of 2022," Earnest said.

As a result, there are 8% fewer egg laying hens in U.S. production compared to two years ago, and Earnest said consumer demand has also shifted in that time frame.

"We've seen big growth in demand of cage free eggs," he said, using California as example of a state that has elected to go completely cage-free.

"There's roughly 39 million residents in California and there were roughly 9 million table egg laying hens that were depopulated as a result of bird flu in California," he said. "Their ability to feed their residents eggs that were produced within the state was severely impacted."

But Earnest said even without HPAI, a boost in demand would still have prices somewhat elevated, noting that eggs have become a staple item for innovation in quick-service restaurant entrees, and consumers have latched on to emerging trends like all-day

"We moved from consuming roughly 275 eggs per capita annually in the U.S. in the 2015-time frame to nearly 300 by the time we got to 2020, so that's a pretty big increase in consumption," Earnest said.

He said lingering impacts from demand could prolong the higher price environment through Easter and even Mother's Day.

"We may be seeing a peak in terms of shelf prices here in the next 3-4 months, but the summer months typically bring softer demand to the egg case," he said. "That's when I think the

ommitted to

improving the value and quality

of feedstuffs, providing a nutritional platform for

animals to achieve their

inherent genetic poten

and, ultimately, suppor

producers as they deliver

safer and more nutritio food to the consumer.

industry has an opportunity to get caught back up."

The decrease in supply has left shelves temporarily bare in some regions.

"I think the West Coast might be feeling a little bit more of an impact than what the Midwest would be seeing just due to proximity of where major production is," Earnest said.

But eggs are still being produced, he said optimis-

"Overall, the system works pretty well," Earnest said. "If it can work through these market deficiencies, I think we'll start seeing price ration demand a little bit and then work towards inventorying where there are empty shelves." As poultry producers

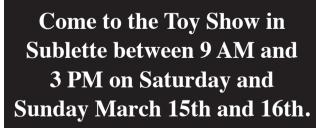
ramp up biosecurity measures and migration season winds down, he is hopeful concerns will ease in the summer months. "But for now, we're

continuing to monitor a very difficult situation for farmers and consumers alike," Earnest said.

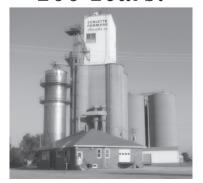
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