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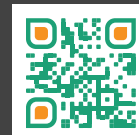
Pennycress for pay

HOLLY SPANGLER

When Western Illinois University plant breeder Win Phippen started collecting pennycress seeds 13 years ago, he bred for an improved plant with high-value oilseed that makes a lower-carbon feedstock for biodiesel and aviation fuel, and a high-protein meal for livestock. Farmers can raise this cover crop and sell the grain — turning pennycress into Illinois' first cash cover crop. Read more on Pages 6-7.

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CHEVROLET



Pennycress: The first

KEY POINTS

- WIU plant breeder Win Phippen turns pennycress into a valuable oilseed.
- CoverCress supercharges commercial process with joint venture money.
- Farmers will plant 10,000 acres of pennycress in 2022.

BY HOLLY SPANGLER

BACK IN 2009, Win Phippen had this idea. If he could just raise a better pennycress, he might have another biofuel cash crop. So Phippen, a plant breeder at Western Illinois University, loaded up his wife and kids in the family minivan and hit the road.

“We’d just drive, and every 50 miles or so, I’d stop. We’d get off the interstate and weave up and down farmers’ fields, looking for a little pennycress,” he says.

They’d find it around a telephone pole, near an old silo, next to a field.

His three young kids learned to collect seed, tag it and take down the information. Then they’d get back in the car and drive another 50 miles. They went all over the Midwest. Over the years, they collected pennycress from Duluth, Minn., down to Alabama and Mississippi. They collected in Ohio, Indiana, Kentucky, Tennessee, and even out to the Dakotas and Montana.

“Just looking for roadside pennycress,” Phippen says, laughing. “That’s my breeding material!”

And, hopefully, somewhere in that material, they’d find an extra-large seed or a thicker stem or one that flowers a little bit earlier. Then he’d cross it into his breeding lines, developing a crop that could be planted in the fall, would grow throughout the winter and spring, and could be harvested in late May to early June. Then a farmer could plant soybeans behind it.

That new discovery is the “wow,” the plant breeder explains.

“No one had actually looked at this

weed before. To find a new trait is exciting,” he says. “That’s why I do it.”

This year, pennycress is being grown commercially on 10,000 acres in Illinois, marketed as a biofuel oilseed cover crop by CoverCress Inc., with plans to increase acreage exponentially in subsequent years as more seed is raised.

DEVELOPING A CROP

As Phippen’s early seed collection efforts might suggest, his program was underfunded in the beginning — until 2019, when he received \$10 million over five years as part of a USDA National Institute of Food and Agriculture grant known as the Integrated Pennycress Research Enabling Farm and Energy Resilience Project, or IPREFER.

WIU is the lead institution and CoverCress is the commercial partner. They work with Illinois State University on education and environmental issues; with the University of Minnesota, University of Wisconsin and Ohio State University on agronomy; and with Southern Illinois University on cyst nematode research.

The next year, they received a USDA Department of Energy grant for \$13 million over five years to look at abiotic stresses on pennycress — or in other words, how can they improve the plant to deal with a changing environment? Illinois State leads that project, known as the Integrated Pennycress Resilience Project, or IPREP, with partners that include federal agencies in Washington state and California, Ohio State University, and the Donald Danforth Plant Science Center in St. Louis.

“Most of those are molecular biologists who are looking at the genetic components of understanding how plants deal with environmental stresses,” Phippen explains. “And, hopefully, once we know those genes, we can adapt pennycress to

those changing environments.”


Phippen started with wild black-seeded pennycress. The oil content of the seeds is over 30%, but the seeds contain high levels of erucic acid, which can limit their use as meal.

From black-seeded pennycress, Phippen, along with CoverCress Inc., developed golden-seeded pennycress. These gene-edited seeds have a high oil content, over 33%, but seeds are slightly smaller and have lower levels of erucic acid, which means they’re better for meal after oil ex-

traction. Golden pennycress also has a lower fiber content compared to black-seeded pennycress. It’s grown as a winter annual, planted from mid-September to mid-October and harvested in late May.

COMMERCIALIZING A CROP

CoverCress Inc. began in 2015 as a group of recently retired Monsanto employees who saw the potential in pennycress. Phippen says they brought a laser focus to the program, and funding thanks to joint venture money. Today, they have a full-time breeder



SOLD: What will it take for Illinois farmers to grow pennycress as a cash cover crop? WIU plant breeder Win Phippen says the tipping point will be for farmers to understand the changing environment in agriculture. “We can’t keep doing what we’ve been doing, which is a lot of conventional tillage. We need to incentivize cover crops. If you start impacting their bottom line with cover crops, they’re going to notice.”

cash cover crop

“I didn’t think large farmers would be interested, but I’ve got farmers with 200 acres and farmers with 5,000 acres. Some have cover crops already, and there are people who’ve never done a cover crop.”

— DALE SORENSON

and agronomist, as part of a staff of more than two dozen — all focused on commercializing the benefits of pennycress.

Dale Sorenson is the chief commercial officer for CoverCress Inc. He has been meeting with farmers across Illinois and Missouri to grow pennycress in 2022. He says one of the biggest pushbacks he’s gotten is from farmers who don’t want to wait until late May to plant soybeans.

“But I always challenge a farmer to ask, ‘Do you really have every acre of soybeans planted in April?’ And most will say, ‘No,

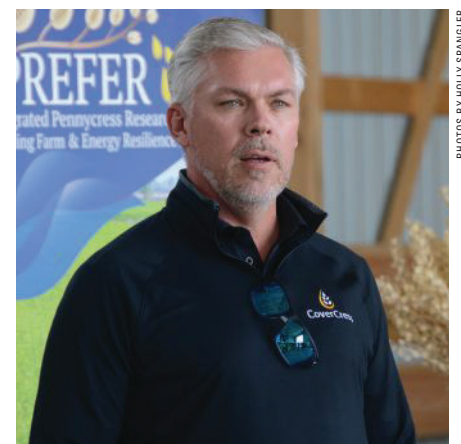
you’re right, I’ve still got 300 acres I’m planting at the end of May.’”

Sorenson says the majority of the 10,000 acres they have contracted for 2022 is south of Interstate 74, from Danville to Beardstown in Illinois, and over to central Missouri. He thinks their current varieties will be most successful south of I-80. He was overwhelmed by how quickly the farmers he spoke with became interested in the crop.

“I didn’t think large farmers would be interested, but I’ve got farmers with 200 acres and farmers with 5,000 acres. Some have cover crops already, and there are people who’ve never done a cover crop,” Sorenson says of his “founding farmers” for this year. “The common thread is that they all tend to be well-connected and have a pretty big network. A lot of this has spread by word of mouth.”

Sorenson says they’ll deliver grain to Bunge and more, in a joint venture with Chevron to crush for biofuel use. He says pennycress has the potential to be blended for biodiesel and for aviation fuel.

“So I have to get farmers to adopt this crop, and gain experience and comfort in raising the crop the next two or three years,” he says. “We’re gonna fan out and



PHOTOS BY HOLLY SPANGLER

FLEXIBLE: Mike DeCamp, president and CEO of CoverCress Inc., says they’ve helped convert field pennycress into a rotational cash crop for the Midwest, allowing farmers to grow three crops in two seasons. The oil from the crushed grain is a lower-carbon-intensity feedstock for renewable fuels including biodiesel and aviation fuel, and its meal is a high-protein animal feed.

touch a lot of people over the next three years.”

For Phippen, it’s a little like a dream come true — albeit, a dream that’s been 13 years in the making, pounding the pavement, ditches, roadsides, fields, farmsteads and more.

Pennycress as a cover crop

Agronomically, Win Phippen says pennycress will do the same thing for soil that most other cover crops will do, including ground coverage that reduces water, soil and wind erosion. It will also scavenge any nitrogen leftover from the previous crop, keeping it out of waterways.

The difference is in the economics. Farmers interested in rye as a cover crop will pay \$50 an acre for a bag of mixed ryegrass.

“All they’re gonna see from their bottom line is the environmental impact. They don’t get to sell it for anything. They’ll burn it down and plant soybeans. So they’ll actually see a loss,” Phippen says.

“What pennycress — or CoverCress — brings to the equation is a harvestable cover crop. They get the seed for free, they’ll get cover crop attributes, and now they’ll get paid for the grain that’s produced.

“That’s what I think will be the tipping point for producers: not much risk, get paid for it. It’s a win-win.”





Soybean farmers to the suburbs

NEW DIGS: Steve Pitstick, Maple Park farmer and chairman of the Illinois Soybean Association, climbed off the sprayer just 20 miles from ISA's new outreach office in Lombard to attend an open house for the space. PHOTO BY HOLLY SPANGLER

BY HOLLY SPANGLER

LIKE A LOT of companies and organizations coming out of the pandemic, the Illinois Soybean Association is pivoting. Specifically, pivoting out into the suburbs.

In addition to its main Bloomington office, ISA has had an outreach office on LaSalle Street in downtown Chicago since 2017 with the goal of building trade. But, says ISA chairman and farmer Steve Pitstick, that office isn't really meeting their needs any longer. So they're shutting it down and have instead opened an office in Lombard, a western suburb of Chicago.

"With the changes in our philosophy and direction as an organization, about a year ago, we made the decision to move out of downtown Chicago and found this location in the western suburbs. Our focus right now is to work with our legislators," says Pitstick, who farms near Maple Park.

Back in 2017, the association chose the LaSalle Street location based on its proximity to the Chicago Mercantile Exchange and the financial district. It was located on the 40th floor, so it brought a certain wow factor to meetings and events. But it was pricey, and everything around it was pricey, including \$60-a-day parking for visitors.

"It was a great place to be, once you got there," Pitstick says, laughing. Plus, the CME is all but vacant as electronic markets replaced open-outcry pits the past few years.

"At the time, it was the right place to be — we had trade teams through there a lot," Pitstick says. "But times change, and in farming you have to be able to pivot. So, we pivoted."

Now ISA is trying to build on its bio-

diesel efforts and successful legislative efforts. Pitstick says 60 of the state's legislators are within 20 miles of the new Lombard office.

And as David Kubik, public policy manager for ISA, points out, the legislative leaders from Chicago have retired (think Mike Madigan), and much of the new legislative leadership is now located in the suburbs.

"So we decided to look for a new direction and consider our goals," Kubik says. "Where are people at and how can we make connections?"

CHANGING DIRECTION

Among those new goals are courting bio-diesel champions, both legislatively and in what ISA calls "B20 clubs" — Illinois-based fleets that use B20 biodiesel blends and continue to support use in their fleet vehicles, such as the Chicago Park District.

Kubik says there are B20 clubs throughout the suburbs and all within 15 minutes of their new office. They meet and take legislators to the B20 clubs and explain how biodiesel benefits the environment and their district.

The new Lombard office offers three times the square footage for about half the cost — \$60,000 a year compared to \$110,000 a year for the downtown location. The new office will house market development and legislative staff.

ISA is also moving its Bloomington office from the south side of town to a new location near the airport, at 1108 Trinity

Turning the ship

Offices aren't the only thing changing at the Illinois Soybean Association, according to Steve Pitstick.

He came onto the ISA board of directors four years ago and is frank about what he saw: "I just didn't like the way things were."

He wasn't alone; other board members agreed. So they got to work making the association work the way they thought it should — effectively turning a massive ship in another direction.

First on the list was a new CEO, John Lumpe, to change the course of the organization.

"Previously, the CEO had minimal staff and brought in a lot of outside contractors to do projects. We found that to be a challenge. As a farmer, there were some expenses we weren't proud of," Pitstick says. "So we made some changes. We're growing the organization to 30 to 40 staff members, and doing projects in-house."

Members also instructed their new CEO to repair relationships.

"All of us in agriculture here are corn and soybean farmers. We're such a small group in agriculture, and we've got to get along — we can't have opposing agendas," Pitstick says, speaking specifically of Illinois Farm Bureau, IL Corn and ISA.

"We go to Washington, and somebody wants an 800-foot lock, somebody wants a 1,200-foot lock — we all need to be on the same page," he explains. They've worked over the past two years to repair relationships, build the organization and set goals.

Today, a farmer council that incorporates six of the top organizations in Illinois agriculture meets on key issues and goals. They've met with the Illinois Department of Agriculture and Ag Director Jerry Costello.

"We're trying to do what's good for Illinois agriculture and work toward a common goal," Pitstick says.

Lane, just off Route 9. The association purchased a property that used to be a gym (undervalued thanks to COVID-19) and is renovating it to include a boardroom and about 35 offices. They hope to move into the space by fall, and the current office building is for sale.

"I'm a farmer and want to save money, but we still need to be effective with our message," Pitstick says.

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Illinois FFA elects new state officers

BY SIERRA DAY

ON JUNE 16, the Bank of Springfield Center filled with Illinois FFA members in blue corduroy jackets ready to elect their 2022-23 state officers.

Elections began with 10 worthy candidates for five offices, and over 350 delegates voted at the convention center or online to elect the following state officers:

- President Rachel Hood, Rushville-Industry FFA
- Vice President Derek Sample, Sesser-Valier FFA
- Reporter Levi Maierhofer, Seneca FFA
- Secretary Haley Bode, Waterloo FFA
- Treasurer Kate Colgan, Princeville FFA

In 2021, the Illinois FFA Convention was hosted in a hybrid format — virtual business sessions and in-person award sessions. But this year, the state convention headed back to a traditional three-day event of business sessions, award recognitions, workshops and a career show.

“This organization means so much to me, and it has gotten me to the place I never thought I would be in my life,” Rachel Hood told FFA members. “I can’t wait to see what it [FFA] will do for all of you.”

Hood is eager to make connections with FFA members across the state and spearhead leadership events as president.

“I hope to be a role model for future students,” she said. “I’m just excited and ambitious to see what this year holds.”

Just as reality began to sink in for Hood, Derek Sample was elected the 2022-23 Illinois FFA vice president.

“I like to say that you get out of the organization what you put in,” he said. “So, I want to show members what they put into this organization, they will get out.”

Coming from a small school district, he understands the value of providing the same opportunities across all chapters in FFA — large and small.

Levi Maierhofer, the new reporter, is excited to meet Illinois FFA members.

“As a freshman, I remember looking at state officers and thinking ‘they are so successful — and on a pedestal,’” he said. “But now I’m here, and I realize they were normal people who took a step in the right direction. I want to show members success isn’t a pedestal, it’s a step forward.”

Haley Bode, 2022-23 secretary, hopes to see an increase in membership next year.

“Five people get elected to be state officers every year, and it’s kind of crazy to think I am one of them now,” she said with a smile. “It’s going to be an amazing year, getting to work with the FFA center staff and be a part of the next chapter that Illinois FFA has to hold.”

Kate Colgan, state treasurer, is ready to dive into making connections with FFA members.

“I definitely believe that the students in ag education are first priority to make this world a better place and make agriculture stand out as best we can,” she said.



SIERRA DAY

OFFICER TEAM: Illinois FFA members elected these five leaders on June 16 during the 94th Illinois FFA Convention in Springfield. They are (from left) President Rachel Hood, Industry; Vice President Derek Sample, Sesser; Reporter Levi Maierhofer, Seneca; Secretary Haley Bode, Waterloo; and Treasurer Kate Colgan, Princeville.

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Heroes, villains and all the folks in between

BY HOLLY SPANGLER



EVERY SPRING, FARMERS put out a crop. Take a little faith. Plant a seed. Hope for the best. It feels good.

Then it rains. Or it stays cold. Or it doesn't rain. Or the sun scorches. And those little seeds stay underground. Or the fields flood. Then you've gotta decide: replant or no? Will you tear up too much in the process? Is it worth it?

You know your field and how it lays, so you dig in and get some advice and have somebody look at it and do the math and make the decision.

And then you live with it.

And honestly, politics is kinda the same way.

A lot of people will tell you there are easy choices to make: Just vote for my candidate! Vote out those Democrats/Republicans/Liberals/RINOs! They're the enemy. We'll fight for you.

I'm exhausted with candidates who say they'll fight for me.

I'm exhausted with primaries that too often produce one person on the far left and one person on the far right. And then one of these people gets elected and goes off to fight for us, with a lot of other people who've pledged to fight for their people, and then nothing gets accomplished because everyone's fighting. And we wonder why D.C. or Springfield can't get anything done.

Politics and outrage-driven cable news have worked hard to create heroes and villains.

But it's rarely black and white. It's rarely a clear decision.

Take a handful of Illinois legislators. It's low-hanging fruit to bash Tammy Duckworth, Dick Durbin and Cheri Bustos because they're Democrats. They lean far left on social issues. They lean left on economic policies, too. But what if they've done more for agriculture than you think?

CASE IN POINT

Durbin was almost singularly responsible for getting the Army Corps of Engineers to allocate funding for renovations on Lock 25 earlier this year, a provision that was dead in the water — until he made the phone call to the Office of Management and Budget and said they had to fund Lock

MY GENERATION

25. Your ag organizations have been lobbying for lock funding for decades. Finally, Durbin had enough power in his party to do something about it. And he did.

This spring, Duckworth worked in committee to change cost-share percentages on waterway funding in the Water Resources Development Act from 65% general revenue and 35% inland waterways trust fund to 75%-25%, with no sunset, which preserves the changes indefinitely.

More federal money reduces the likelihood that funding will limit lock rehab and construction — which means faster projects, lower costs and quicker economic benefits. It'll head to the Senate floor soon, and ag groups are optimistic the House will take up the same provisions.

These are the behind-the-scenes minutiae that make the difference.

Bustos worked hard last year to fix

stepped-up basis in the tax bill — because she listened to farmers. She also listened to her rural district to craft and introduce the Next Generation Fuel Standard, a piece of legislation that will allow all fuels, including ethanol, to compete if they can meet a new fuel standard that moves the nation toward greener fuel. In terms of ethanol market impact, this bill will be the next "renewable fuel standard."

Friends, these are elected Democrats who've done good work for you. Sure, they don't vote for every issue you hold dear. Duckworth recently signed on in support of Proposition 12 in California, which would mandate sow space requirements that have no scientific justification. It's an outrageous decision given that she represents constituents who rely on pork production.

I'm glad she supports waterways. I wish she supported livestock producers. We should all write to her about that. Start your letter out thanking her for the good

she's done for Illinois ag. Then ask her to reconsider her Prop 12 position.

Likely, she's making decisions based on a complex set of issues among her constituents — or at least, we hope so — and she and many other politicians are not the simple villains they're made out to be.

THE MIDDLE

Republican Adam Kinzinger is in the same boat. Kinzinger was vilified for not repeating former President Donald Trump's false claims of widespread election fraud, and farmers were angry with him for crossing party lines to vote for the infrastructure bill in November 2021. But that bill provided \$2.5 billion for lock and dam rehabilitation.

Illinois agriculture has been asking for better locks and dams for decades. Investing money in locks will increase market value of U.S. corn and soybeans by \$39 billion. Billion, with a B.

Maybe Kinzinger is a guy who was willing to vote for Illinois and Illinois farmers, even if it meant crossing his party line. But as farmers, we're pushing out the guy in the middle. The guy who got stuff done that matters to us.

Ag has tough choices to make at the polls, and none of them is as easy as cable news makes it sound.

We don't get many moderate choices in Illinois, yet a lot of ag issues are moderate. Virtually, every Democrat is far left on social issues and virtually every Republican is far right on social issues, and some of each party have done good things for ag — which makes it hard for many farmers to find someone they can vote for in good conscience.

But just like that replant decision, you have to dig in to get the truth. Read the emails you get from your commodity organizations. Engage with your political leaders. Call them. Understand the process and what they're actually doing.

Don't disengage because your cable news source told you they're the villains.

And remember that in Illinois, if you want to have a voice in the political process and if you want your legislator to understand what you do, your farm organizations will have to work with Republicans and Democrats.

And that's OK.

Comments? Send email to holly.spangler@farmprogress.com.



DECISIONS: Ag has tough choices to make at the polls, and none of them is as easy as cable news makes it sound. PHOTO BY HOLLY SPANGLER

FROM THE MAILBAG

CHECKOFF CHECKUP

First, let me say thanks to Holly and the entire team at Prairie Farmer magazine for the good article, "How Illinois checkoff dollars are spent" (April/May, Pages 6-8).

In my book "Your Food-My Adventure," I tell how consumers and farmers have benefited from checkoff programs. It is hard to mention all the products developed by using farmer dollars: biofuels like ethanol and biodiesel, soy ink, plastics, color crayons, shoes, cloths, lubricants, etc. Just recently, checkoff funds helped develop a biodegradable plastic bag. Hopefully farmer funds will help make all plastic bags biodegradable. This will be of great benefit to the environment worldwide.

In the book I tell a little about how and when checkoff programs got started. It has been my privilege to have supported and worked on commodity programs since they were first started on a large scale in the 1960s and early '70s. Forward-thinking farmers drove this great effort that has helped change the world.

I also point out how food production has changed over the 80-plus years I have been around. Thanks again for the article, and thanks to all those whom I have had the privilege of serving on boards and committees with.

Philip Bradshaw,
Griggsville

Editor's note: Find Bradshaw's book by searching for the title on Amazon or at amzn.to/306MsZC.

ON MEDIA AND OUTRAGE

Deeply appreciated your advice not to be "Divided and Conquered" (June, Page 10). Like your article's closing (I'm a Cardinals' fan); it's humorous, but: I grew up in a small community. The nearby small town is still here, but no longer is there a community. We fight over our schools, we fight at our churches, we would fight at our local coffee shop, except that it is gone, and we certainly can't invite both Uncle Joe and niece Olivia for Thanksgiving, or a terrible fight will erupt during the turkey dinner!

As soon as I tell a neighbor I favor a particular political candidate, the immediate response is one or more of the

opponent's negative talking points. A barrage of negative ads daily fill our mailbox. The same with TV and radio. The supposed newsmen and newswomen are the worst.

America may soon be burning down. Where is Walter Cronkite? Informed citizens see the problem, but we yearn for the leader who sees the solution!

Tom Leeper,
Lima

PROP 12 DISAPPOINTMENT

In a recent article by Jacqui Fatka titled "Democrat senators support Prop 12" (online), I was disappointed to learn that Illinois Sen. Tammy Duckworth endorsed a letter with other Democrats urging Solicitor General Elizabeth Prelogar to support California's Proposition 12 when that case comes before the Supreme Court.

With agriculture being one of the largest

industries in Illinois, I was surprised and disappointed that Sen. Duckworth would support such a position. I have forwarded a letter to Sen. Duckworth expressing my disappointment with her position.

Both the National Pork Producers Council and American Farm Bureau agree that the case should be heard by the Supreme Court.

Lawson Barclay,
Macomb



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All letters must include your name, address and phone number for verification. Please limit comments to 300 words.



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Picture this: Your county fair photos

BY HOLLY SPANGLER

SUMMER IS IN full swing, and here in Illinois, that means one thing: county fairs!

"I just love the fair industry. The people are amazing," says Jill Hardesty, president of the Illinois Association of County Fairs. "There's a lot of these people that I've shown cattle with since I was 10 years old."

Hardesty is not alone in her love of the fair. All across the state, volunteers are

putting in hundreds of hours to pull off a time-honored event that brings their community together around livestock, 4-H, corn dogs and Ferris wheels.

Many fairs are still in recovery following cancellations in 2020, but are fighting their way back in 2022. Hardesty says crowds were out in force in 2021, and she expects the same in 2022.

➔ Go to bit.ly/IL-county-fairs to see more photos from county fairs.



PLEDGE: The Edwards County Fair has a long tradition of opening the fair with a Sunday night vesper service, where the county 4-H'ers raise the flags in front of the barns. This photo was taken in 2021 by longtime 4-H volunteer Debbie Fearn.



FRIENDS: Tara Yoder grabbed this photo of her daughter Abby during the 2021 Rock Island County Fair in East Moline. As a first-year 4-H'er, Abby showed five consecutive days of dairy and beef, and lent a hand in the dairy birthing barn.



SISTERS: Michelle Sargeant took this photo of her daughters Paige, Tessa and Leah helping each other out before a show. "Always loved watching my girls in the show ring!" she says.



SOLD: This little guy just graduated from high school this year, but his mom, Jill Bushue, loves this photo of 8-year-old Ben following the 2014 Moultrie-Douglas County Fair Auction.



WHERE'S KENNY? Erin Featherlin, Ellisville, laughs and says, "Every kid learns to gamble at the county fair!" She captured this game during the Fulton County Fair.



TIRED: Katie and Kelsey Patterson know how the fair wears you out, especially after a long sheep show. Their mom, Melanie, captured this photo of them taking a quick nap under a shade tree.



NEXT GENERATION: Lisa Welker shoots photos for the Fulton County Fair every year and says she loves the legacy of the next generation showing. This image shows Regan Postin, daughter of Curtis and Tara Postin, during the 2021 fair.



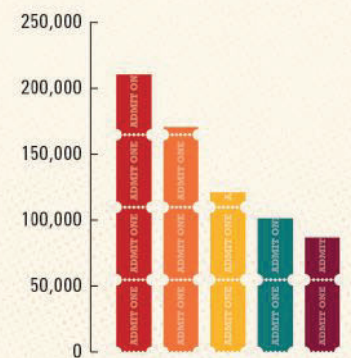
FIRST-TIMER: Young Memphis Spangler got to show a bucket calf for the first time during the 2021 Fulton County Fair, with help from her cousin, Jenna. Memphis' mom, Allyson, shot this photo as they came out of the ring.

ILLINOIS AG FACTS COUNTY FAIRS

2021 TOP 5 COUNTY FAIRS BY ATTENDANCE

- BOONE – 209,439
- DEKALB – 169,590
- WINNEBAGO – 120,000
- MCHENRY – 100,000
- DUPAGE – 85,140

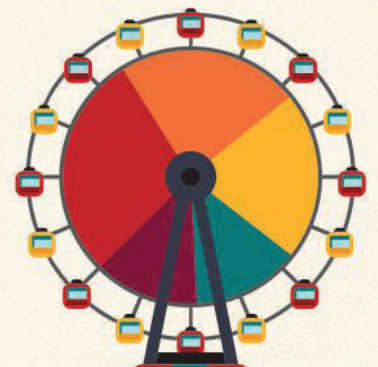
1,756,140
2021 TOTAL COUNTY FAIR ATTENDANCE



92 COUNTY FAIRS +
11 FAIRS AND EXPOSITIONS =
103 FAIRS

LARGEST FAIRGROUNDS BY ACRES

- DEKALB (SANDWICH) 228
- BOONE (BELVIDERE) 183
- KANE (ST. CHARLES) 171
- WINNEBAGO (PECATONICA) 108 AND GRUNDY (MORRIS)
- ADAMS (MENDON) 104



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SOURCE: IDOA, COUNTY FAIR RECAPITULATION REPORTS



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Multiple ear shoots indicate stress

BY TOM J. BECHMAN

YOUR MISSION IS picking three cornstalks for your child's 4-H exhibit. If you find a plant with multiple ear shoots coming off the main ear, keep walking.

"Multiple ear shoots developing at the base of the main ear on the same ear shank are definitely something we don't prefer seeing," says Dave Henderson, district lead for Pioneer within Indiana. "If I was searching for representative plants for the fair, I would leave stalks with multiple shoots off the main ear shank at home."

More importantly, Henderson wouldn't want to see them in commercial cornfields, period. If you see them while scouting, note the location. See if they're occurring in one hybrid or multiple hybrids. The phenomenon has been observed for decades across multiple seed corn brands and multiple hybrids.

Causes are not well understood, Henderson says.

"Though it can occur due to abundant resources related to low plant population, it can also occur due to disruption of hormonal apical dominance of the primary ear," he says. "It may relate back to events happening at the V6 to V8 stage, even though it doesn't show up until later."

In fact, Henderson notes that they typically receive more reports of this phenomenon when a cold spell settles over a widespread area in June. Normally, a hormonal response prevents other ears from attempting to develop on the same shank as the primary ear. Something like cooler-than-normal weather can disrupt normal ear development, allowing other ears to initiate development on the same shank.

While this condition isn't typically widespread, it's not something you want to see.

"Remember that it's a sign something

didn't occur normally," Henderson says.

The most common occurrence of multiple ear shoots per shank are two to three small ears forming at the base of the primary ear. Usually, the main ear develops normally, and there is no noticeable impact on yield.

VARIATIONS

Mark Jeschke, national agronomy manager for Pioneer, penned an article titled "Why do corn plants develop multiple ears on the same shank?" for the 2022 Pioneer Agronomy Research Summary. He noted that less frequently, multiple ears develop in a cluster, creating a condition called "bouquet ears." Most don't pollinate, although one or more may produce kernels.

Several incidences of bouquet ears were reported in Iowa in 2006 and Illinois in 2007. Researchers looked at a variety of possible causes, including drought, herbicide injury and fungicide injury.



JUST ONE, PLEASE: Both of these ears have a second ear shoot coming out of the same ear shank as the main ear. Pioneer's Dave Henderson says this isn't something you want to see.

In Illinois fields, researchers observed that multiple ears seemed to grow faster if the main ear was damaged, freeing up extra sugars. But no common denominator was discovered in either year.

Insect clipping of silks on the main ear can result in multiple ears. That one is easier to prevent because there is a direct cause: insect feeding disturbing pollination. However, that's often not the case.

Jeschke suggests noting which hybrids are affected, although as stated earlier, ties to any one hybrid or brand are elusive.



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A photograph of two men standing in a cornfield. The man on the left is wearing a dark blue polo shirt and a light-colored cap, holding a tablet. The man on the right is wearing a plaid shirt and a dark cap, also looking at the tablet. In the background, there is a large metal grain silo and a white pickup truck with the FS logo on its side. The sky is blue with some clouds.

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BRINGING YOU WHAT'S NEXT™

In the cornfield: How hot is too hot?

BY TOM J. BECHMAN

WHERE WOULD YOU set a thermostat for maximum daily temperature during corn pollination if you could choose? Corn originated in Mexico. Should you dial it up?

Mark Jeschke, a nationwide agronomy manager with Pioneer, says that heat makes corn grow — to a point. Daily highs during July in Indianapolis, Champaign and Des Moines, Iowa, are higher than where corn originated, and night temperatures are significantly warmer here vs. in Mexico.

“Research indicates that corn yields begin dropping when daily temperatures are above 86 degrees F,” Jeschke says. If it’s hot and corn yields are lower, many people think it’s because of pollination issues.

“That can happen at extremely high temperatures, but it’s rare in the Corn

Belt,” he says. “Water stress made worse by heat stress can really send yields into a nosedive.”

The impact of heat stress on corn can be difficult to unpack, Jeschke says. It’s usually accompanied by drought, too. How quickly temperatures change and the duration of hot weather play roles in how much heat stress hurts corn.

Work by earlier researchers indicates that 85% of yield depends on total number of kernels produced per acre. Stress that negatively impacts number of kernels per ear translates into a yield hit.

The most critical period for determining yields is the four- to five-week window bracketing silking.

“That’s when kernel number is set,” Jeschke says. “Any stress then will reduce the number of kernels a plant fills. Tip kernels fill last, so they’re the first kernels aborted if the plant can’t fill all kernels on the ear.”

You may never have heard the phrase “vapor pressure deficit,” but it’s a key factor in determining if weather stresses impact corn yields. VPD is simply the difference between how much water air can hold when it’s saturated with moisture and how much it holds now, Jeschke explains.

Higher temperatures create a higher VPD between the inside of a saturated leaf and air outside the leaf. The higher the VPD, the faster water is pulled from the leaf, and the faster it evaporates.

Heat stress also contributes to lower net photosynthesis within the plant, Jeschke says. Other biological factors linked to higher temperatures contribute to less-efficient photosynthesis at temperatures above 86 degrees, too.

What’s the bottom line? “The greatest impact of extreme heat stress on corn likely comes through intensification of water stress rather than the direct effect

Excessive heat affects pollination

Too much heat can interfere with corn pollination, but it may take much higher temperatures than you think to trigger hiccups in the process. Mark Jeschke cites these key tripping points:

Above 90 degrees F. There is documented evidence that prolonged exposure to temperatures above 90 degrees can dramatically reduce pollen germination.

Above 95 degrees. At this point, pollen production can drop off and silk desiccation can occur, especially if relative humidity is low.

Above 100 degrees. Purdue University’s Bob Nielsen demonstrated that temperatures this hot can kill pollen.

Saving grace. Pollen shed usually occurs in the morning. On one of the hottest days ever in Des Moines, Iowa, during the drought in 2012, it reached 106 degrees in the afternoon but was only 90 to 95 degrees from 9 to 10 a.m.

of heat,” Jeschke concludes.

➤ **Read about how hot nighttime temperatures affect corn yield on Page 21.**

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Plants gear up for pollination period

BY TOM J. BECHMAN

DAVE NANDA SAYS nothing compares to the miracle that occurs when corn reaches tasseling, silking and pollination. Once a corn plant reaches the 12- to 14-leaf stage, split the stalk carefully, and you will find a tiny tassel forming.

“You can also find an immature ear at the node where the main ear will form,” says Nanda, director of genetics for Seed Genetics Direct. “Eventually, this ear inside a husk separates itself from the stalk, and silks begin emerging.”

Once silks emerge, the corn plant is officially in the R1 reproductive stage. The miracle of pollination is underway, he says.

Here are seven facts about pollination. For more details, refer to the Purdue University Corn & Soybean Field Guide.

1. Silk emergence. This is the first recognized stage of the reproductive process. The stage technically begins when any silks are visible outside the husk.

2. Silk growth. Silks grow an average of 1.5 inches per day during the first few days after emerging from husk leaves.

“Each silk grows until it is fertilized by a pollen grain shed by the anthers in the tassel,” Nanda says.

3. Life of silks. Silks typically remain receptive to pollen for up to 10 days. If pollination doesn’t occur, silks keep growing but eventually deteriorate with age.

4. Pollination. Pollen grains captured by silks germinate and develop pollen tubes. They penetrate silk tissue and elongate to reach ovules within 24 hours.

“It’s a delicate process, and why it’s critical to have favorable weather — not

CORN WATCH

too hot or excessively dry — for successful pollination,” Nanda says.

5. Pollination order. Ovules at the butt of the ear are fertilized first. Pollination pro-

gresses to the tip, which is pollinated last.

6. End of silks. Once an ovule is fertilized, the pollen tube collapses, and the silk falls away.

“It’s the basis for the shake test,” Nanda says. “Carefully remove an ear with silks from the husks, hold it out and shake it. If

silks fall away, those ovules are fertilized, and kernels will form. If silks remain, fertilization hasn’t occurred yet.”

7. Silking issues. If plants are under heat and/or drought stress, the timing between pollen shed and silking may be off. If pollen shed occurs too late, and silks are no longer receptive, kernels won’t form. Sometimes when silks emerge early in aggressive hybrids, kernel set around the butt of the ear may be sporadic until pollen shed occurs.

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GROWTH STAGE PROGRESSION: The small ear on the left was taken from a plant not yet fully at R1 stage. The ear on the right is from an R1 plant. Silking was occurring, but silks are still attached to this ear because ovules are not yet fertilized. PHOTO BY TOM J. BECHMAN



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GROW OVER TIME: Seib Farms LLC added a large bin, grain leg and continuous-flow dryer, replacing an older dryer, during its most recent expansion. The safety cage around the ladder in this free-standing leg makes it safer for someone who must climb the leg.

Fit grain storage facilities to farm

BY TOM J. BECHMAN

MARK SEIB WILL be the first to tell you that they don't have enough storage for their corn. But it's part of their operating strategy, not an oversight. Seib and wife Sheryl farm with his brother Wayne, Wayne's wife, Linda, and Wayne and Linda's sons, Carl and Matthew, as Seib Farms LLC, Poseyville, Ind.

"Our goal is taking advantage of early September prices, which usually offer a premium, to move some corn," Mark says. "We also routinely use forward con-

tracting and hedges as marketing tools.

"As a result, we don't need storage space for all the crops we grow. We try to utilize marketing tools to earn good prices on a portion of our crop without needing storage space for it."

What Mark will also tell you, though, is that until a few years ago, they didn't have enough storage space for grain they wanted to store. Unloading grain at the main farm headquarters also wasn't time effective, and their dryer wasn't energy efficient.

They remedied that situation by in-

stalling their first grain leg and increasing total storage capacity at that location to 110,000 bushels, and by adding an energy-efficient Sukup continuous-flow dryer.

"We used a swing-away auger to fill bins before here," Mark says. "Now, we have a drive-over pit for unloading, which feeds into the grain leg and on to the dryer.

"At the same time, we've stepped up our marketing efforts. We understand that we're in a global market, and we're learning how to factor what's happening outside the U.S. in major crop-growing regions into our marketing decisions."

Safety first when around grain center

One young man told his ag teacher recently that one of his jobs was climbing the grain leg whenever maintenance or adjustment was needed on equipment at the top of the leg.

"Do you have stairs?" the teacher asked.

"No, just a ladder," the student replied.

"That's OK. Heights don't bother me."

"Does the ladder have a safety cage?" the teacher asked.

"No, no cage," the young man answered. "It has landings to rest in a few places."

"So, do you just go up there once a year?" the teacher asked.

"No, about four times per year," the young man replied. "Someone has to do it, and I don't mind."

The teacher walked away cringing. It would

only take one mistake.

That's why Bill Field, Purdue Extension safety specialist, promotes choosing stairs over ladders when it's practical in a grain center project. If stairs aren't feasible, include a safety cage around the ladder.

Field and his staff tabulate farm fatalities and injuries based on newspaper clippings.

"Falls from ladders and the roofs of grain bins happen, and they're often fatal," he says.

"Spending a bit more to have a safer working environment is money well spent."

QUICK TAKE

MILK PROMOTION BOARD SEEKS DAIRY FARMER LEADERS

The Illinois Milk Promotion Board recently announced open director positions on its board of directors. Applications must be postmarked by July 30.

Who's eligible? Candidates must be active dairy farmers from districts 1 or 3. District 1 includes Boone, Cook, DeKalb, DuPage, Kane, Lake, McHenry, Ogle, Stephenson, Will and Winnebago counties. Counties in District 3 are Bond, Calhoun, Christian, Clark, Clinton, Coles, Cumberland, Edgar, Greene, Jersey, Macoupin, Madison, Montgomery, Morgan, Pike, Sangamon, Scott, and Shelby.

Are you a dairy farmer interested in applying? Contact Tasha Bunting, IMPB manager, at tbunting@ilfb.org or 309-557-2993 to obtain a petition.

Candidates should complete and postmark petitions by July 30. Ballot elections will occur in September.

IDOA'S CLEAN SWEEP TO COLLECT AG PESTICIDES

Do you have unwanted agricultural pesticides in need of proper disposal? Consider participating in the Illinois Department of Agriculture's Pesticide Clean Sweep collection program this summer.

Every year, the collection rotates among Illinois counties and is open to farmers, nursery owners, private pesticide applicators, structural pest control applicators and landowners with unwanted agricultural pesticides.

This year, collections are scheduled for residents in the following counties: Fulton, Henderson, Knox, Marshall, Mercer, Peoria, Putnam, Stark, Warren and Woodford.

Brad Beaver, IDOA acting bureau chief of environmental programs, says farmers should take advantage of this opportunity for two reasons — the disposal service is free of charge to farmers, and the state of Illinois, instead of participants, will be liable for proper disposal of products collected.

Individuals who would like to take part in this program must register products for disposal before July 27. To register, obtain a form from IDOA by calling 800-641-3934 or going online to bit.ly/IL-clean-sweep.

After completed forms are mailed or faxed to IDOA, participants will receive a reservation card with date, time and location of their collection.

Since the start of the Clean Sweep collection program in 1990, IDOA has collected 626,669 pounds of material from 2,196 participants.

It pays to pinpoint key growth stages

BY TOM J. BECHMAN

STEVE GAUCK, A regional agronomy manager for Beck's, based near Greensburg, Ind., says if you're making management decisions about pesticide applications, fungicides and tissue testing, you will make better decisions if you know how to determine growth stage of plants correctly. Beck's sponsors Soybean Watch '22.

"The vegetative stages are designated by 'V' numbers for vegetative, and reproductive stages are denoted by 'R' numbers," Gauck says. "If you know the exact growth stage of most plants within a field and monitor growth stages all season, it's easier to make key decisions which could protect or add to the field yield potential.

"Fungicides are a prime example. Most university research and other testing by Beck's and other sources indicates the best return on investment from fungicide application in soybeans usually results from an R3 stage application. Being too early or too late may mean a lower ROI."

To determine growth stages, you will need a resource guide, preferably with pictures. Gauck uses the Purdue University Corn & Soybean Field Guide. There is also an app version available for soybeans.

All V stages. The V stages progress from VC, with cotyledons emerged, to the last V stage before the reproductive phase, which depends upon how many trifoliates are fully exposed.

"The secret to correctly identifying plants in the V stages is to start counting with the trifoliolate where the margins of individual leaflets making up the trifoliolate no longer touch," Gauck says. Often, it's the second trifoliolate from the top of the plant.

R1 stage. This is also known as the beginning bloom stage. "If there is an open flower anywhere on the main stem, it's at the R1 stage," Gauck says. Only flowers on the main stem, not branches, count toward designating the stage of growth.

Some herbicide labels, including those for dicamba herbicides for dicamba-tolerant soybeans, restrict legal application once soybeans reach the R1 stage. In some states, there is also a cutoff date for dicamba herbicides in soybeans. In Indiana, the cutoff is June 20.

If you're pulling routine tissue samples, Betsy Bower with Ceres Solutions, West Lafayette, Ind., says it's important to pull a sample at R1. This will provide a report

SOYBEAN WATCH

card on nutrient use by plants.

R3 stage. The R3 stage is also referred to as beginning pod stage. Soybeans are in this stage when there is a pod at least

one-quarter inch long on one of the four uppermost nodes. You may find tiny pods on lower nodes at R2.

R3 is the ideal stage for applying fungicides. If you're monitoring plant nutrient levels through tissue testing, you may want to take another sample at this stage.



BEGINNING POD: Agronomist Steve Gauck points to small pods just beginning to form on this plant. Since they are about a quarter-inch long, this plant is at the R3 stage. PHOTO BY TOM J. BECHMAN

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Control corn rootworm, disease pressure

BY SIERRA DAY

YOU MADE YOUR seed selection prior to planting, and it may have belowground protection with corn rootworm traits. But control of the insect for the duration of the growing season doesn't stop there, says Randy Niver, Dekalb Asgrow technical agronomist in central Illinois. Sometimes, you will need to apply insecticide to maintain proper corn rootworm control.

How do you determine if you need another control strategy such as insecticides? Get out in the field and scout, Niver says.

In late July, farmers can scout and use the node injury scale, which has a 0 to 3 rating. Look at three nodes on the root structure to determine amount of insect

KEY POINTS

- Use the node injury scale to determine insect pressure.
- Scout corn silks in July for clipping and beetle presence.
- Be ready to make two fungicide applications if pressure is high.

pressure. Then, if any roots are chewed on or pulled back, it indicates the level of initial control from seed selection isn't working.

If beetles are still hatching into July, start scouting corn silks to evaluate any clipping and count how many beetles are active on the plant, he says, adding that scouting helps farmers decide if insecticide needs to be applied to help control the corn rootworm population for next year, particularly in fields in a corn-on-corn rotation.

"If we're dealing with rotated ground, an insecticide application may not be necessary unless there's a significant amount of clipping," Niver says.

An application can help control beetles this year and prevent them from causing pollination issues. If farmers choose to apply insecticide, the product can be mixed in with fungicide for one application.

DON'T FORGET FUNGICIDE

If you're considering mixing insecticide with your fungicide application, then scout for foliar diseases at the same time to prepare for a timely application.

"When we're scouting for silk clippings, that's a great time to start scouting for disease pressure," Niver says. Why? If weather patterns are like 2021, then

ON THE SILKS: If corn rootworm beetles continue to hatch in July, scout corn silks for signs of clipping and count active beetles on the plant. This will help guide whether or not you should make an insecticide application.

PHOTO BY ADAM SISSON, IOWA STATE UNIVERSITY, BUGWOOD.ORG

a cool, cloudy and high-moisture June could set up a prime opportunity for tar spot, gray leaf spot and northern corn leaf blight.

Still, Niver recommends fungicide at tassel time, no matter what. From his experience, a tassel application, or an R1 application, of fungicide is almost a no-brainer because of the return on investment.

But it doesn't hurt to scout before that application, he adds. Start looking for disease pressure around the V10 growth stage.

"As we start getting later into the season, around R2, we want to scout again and see if we have late incidents of diseases that could start causing yield loss," Niver says. "We want to be able to be ready to pull the trigger on a second application at R3, if we need to."

A second application? That's right. He says an R1 application won't last for the remainder of the season. It lasts about 21 days.

In 2021, Niver and others saw a double-digit response to a second fungicide application — in many cases, yields were up 20 bushels or more. That wasn't widespread across the state, but there were some instances where a second application was vital to standability, harvest stability and yields as well.

Niver says here's the bottom line: Manage your crop all the way to the finish line. Be ready to make another fungicide application if disease pressure rises again late season, and throw in insecticide if corn rootworm concerns persist.

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Corn performs better with cooler nighttime temps

KEY POINTS

- Above-average nighttime temperatures can reduce corn yields.
- Hot nights mean fewer kernels and lower kernel weights.
- Corn originated in Mexico with warm days and cool nights.

BY TOM J. BECHMAN

“MOST CORN PRODUCERS are aware that high nighttime temperatures can hurt yield,” says Mark Jeschke, a nationwide agronomy manager with Pioneer. “Research has shown that above-average night temperatures during the reproductive stage can reduce corn yield through both reduced total kernel number per ear and reduced kernel weight.”

The first scientific evidence that high nighttime temperatures hurt yield came in 1971 from researchers at the University of Illinois. They discovered that if nighttime temperatures were 85 degrees F from silking through black layer, yields dropped 40% compared to nighttime temperatures of 62 degrees.

Yields for natural air at 65 degrees, cooled air at 62 degrees and heated air at 85 degrees were 168, 162 and 100 bushels per acre, respectively.

Jeschke, Nanticha Lutt and Stephen Strachan looked at yields from a pair of back-to-back seasons in the Corn Belt:

2009 and 2010. In 2009, many farmers in the Midwest produced record corn yields. One year later, despite adequate amounts of rainfall, corn yields were much lower.

What changed? Average minimum night temperatures in the Corn Belt during July and August in 2009 were 5 to 8 degrees lower than the average night temperatures in 2010 during the same period.

At Des Moines, Iowa, for example, in 2009, average minimum night temperatures were running more than 5 degrees below the 30-year average when 50% of the corn in that region was silked in late July.

In 2010, 50% of the corn was silked just after July 15, and night temperatures were running 3 to 4 degrees above normal, at 70 degrees.

WHY WARM NIGHTS MATTER

Even though this phenomenon was first documented over 50 years ago, reasons for it still aren't totally understood. For many years, higher rates of respiration and a bigger use of energy at night at higher temperatures was cited as the cause.

However, Jeschke says research dating to 1999 indicates that higher respiration probably doesn't have a large

impact on yield. Instead, newer research after the 2010 growing season carried out at Iowa State University points toward accelerated phenological development as the primary cause.

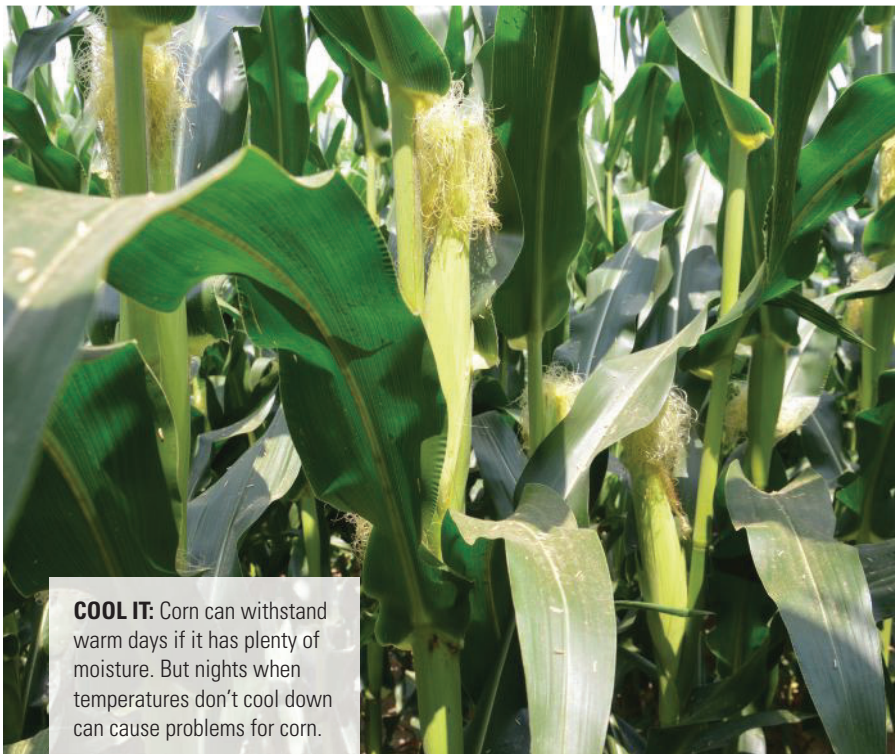
In simpler terms, that means higher night temperatures over time reduce how long it takes plants to reach physiological maturity. The ISU research shows this phenomenon can significantly reduce corn yields, Jeschke says.

Why does speeding up maturity reduce yield potential? If there's less time

between silking and maturity, there is less time for photosynthesis during grain fill. As a result, less energy is converted into corn grain, Jeschke says.






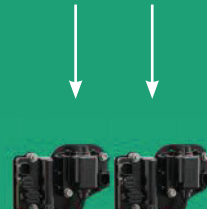
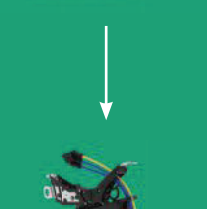

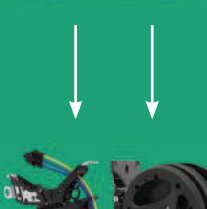
Computer modeling by ISU researchers showed that lower night temperatures in 2010 could have extended the month-long period following silking by a week. That's a significant amount of lost time for grain fill. They concluded that higher-than-average nighttime temps both shortened grain fill and reduced yield.

TOM J. BECHMAN




COOL IT: Corn can withstand warm days if it has plenty of moisture. But nights when temperatures don't cool down can cause problems for corn.

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What to look for during every stage

BY DAVE NANDA



FROM EMERGENCE TO V10 leaf stage, which is about waist-high corn, it takes 85 to 90 growing degree days for each leaf to develop. After V10, plants pick up speed and add new leaves every 50 to 60 GDD. At this stage, corn grows so fast you can almost see it happening.

Corn needs special attention during these stages to produce higher yields:

Knee-high stage. A corn plant decides how many potential ears it can develop based on its macro- and microenvironment. Even with a great macroenvironment, the destiny of each individual plant will be determined by its microenvironment, including how crowded it is by other corn plants or weeds. If there is competition from neighbors, it may struggle to produce a good ear.

CORN ILLUSTRATED

In previous Corn Watch fields, we've seen corn plants in outer rows with 10 to 12 ears, including the main stalk, tillers and tassel ears. They're trying to make maximum use of their microenvironment, making as large a progeny as possible. In the same field, we saw plants with nubbins because of overcrowding due to double planting. This is an excellent example of the effect of microenvironment.

Waist-high stage. Each corn plant is already deciding how many rows of kernels it can put on at this stage. Kernel row number is always an even number and primarily is controlled by hybrid genetics. However, environmental factors such as plant density, water and nutrient availability, heat, and drought can influence row numbers. Still, they will always be in pairs. Depending on field conditions,

a couple of rows may be added or subtracted from hybrid genetic potential.

Pollination stage. The most critical phase is pollination. Make sure insects like Japanese beetles or rootworm beetles, if you have conventional corn, are not clipping the silks. Check with your chemical dealer and use suitable insecticides to control these pests, if needed.

The pollination period is also crucial because it is when the corn plant determines how many viable kernels it can grow per ear. If it has sufficient water and plenty of nutrients, with temperatures in the mid-80s during the day and mid-60s at night, it may extend the ear length if it is a flex-eared hybrid. In my corn breeding years, I developed a couple of widely grown hybrids that combined the genetic qualities of both flex and girthy-eared hybrids. It is a rare combination and a plant breeder's dream that requires extensive corn breeding, research and testing.



TOM J. BECHMAN

DECISION TIME: This cornfield is near the stage when plants will decide how many rows of kernels per ear to produce. Determined largely by genetics, environment still plays a role.

Plants can increase the number of kernels at the ear tips under favorable conditions. If conditions turn unfavorable, the first kernels a plant aborts will be at the tip. But it's not unusual to see a small amount of blank cob at the tip in some hybrids.

Grain fill stage. Kernel size and weight are greatly influenced by conditions during grain fill in late summer after pollination wraps up. It's important to continue scouting and guard against late-season disease pressure sneaking in unannounced. Intense, late-season disease outbreaks can end grain fill prematurely.

Nanda is director of genetics for Seed Genetics Direct, Jeffersonville, Ohio. Email dave.nanda@gmail.com.

ADVERTORIAL

FUNGICIDE APPLICATION AT R3 IS A GOOD INVESTMENT FOR SOYBEANS

Many years, applying a soybean fungicide at R3 can be a good investment. Not every situation warrants a fungicide; however, productive fields at an increased risk for yield-limiting diseases may benefit from added disease protection.

Numerous factors contribute to an elevated risk of disease including: above normal rainfall, dew and humidity up to early bloom, non-rotated crop production systems, minimal or no-till production systems, early maturing varieties, warm germination scores of less than 85%, and the lack of a weed canopy in a field.

To prevent yield loss from foliar diseases, it is also important to scout often and continually assess disease risks. If signs of disease are present or the risk of disease is high, a fungicide application may be necessary. The greater the disease risk, the more likely fungicide applications will pay for themselves.

For cost efficiency, it can be beneficial to pair fungicide applications with foliar nutrient and insecticide applications.

In 2021, FS MiField Applied Research tested soybean response to fungicide and foliar nutrient applications at R3. In 32 trials, the treated acres yielded an average of 4.1 bu/A higher than the growers' standard practices. Six-year trends align with the 2021 results. In 126 trials between 2016 and 2021, the data indicated that a fungicide and foliar nutrient application at R3 provided an average yield advantage of 5.8 bu/A and an average ROI of \$23.49 compared to the untreated check.

FS MiField Applied Research also tested soybean response to fungicide, insecticide and foliar nutrient applications at R3 in 2021. In nine trials, the treated acres yielded an average of 6.2 bu/A more than the growers' standard practices with an average ROI of \$42.35 per acre. This response was slightly higher than the 5.3 bu/A observed in 60 trials from 2018 to 2021.

To learn more about fungicide response in your area, contact your FS crop specialist or visit: <https://www.fssystem.com>.

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Dig into agronomy all summer with U of I events

BY SIERRA DAY

HAVE YOU ATTENDED the University of Illinois Agronomy Day in the past and are looking for information to attend this year? Times have changed, and so has the dynamic of the traditional U of I

Agronomy Day. In 2022, the U of I Crop Sciences Department and Illinois Extension are transitioning the one-day event to a series of field days all growing season long.

“We wanted to make use of our research farms as a living classroom,” says

Adam Davis, head of crop sciences.

Like in the past, the program will consist of field days, research demonstration plots and the latest research findings, Davis says. But this year, participants can also take part in shade tree talks — a less formal traditional outreach talk.

And Davis says if you want to see work on the research farms in action, then pull up a seat for on-farm tailgates.

Eight field days are scheduled from July 8 to Aug. 11. Check agronomyday.cropsciences.illinois.edu for the complete list and to register.

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We Have Our Winners

While it was difficult to pick from all the impressive and inspiring nominations, some farmers' stories just stood out. These men and women are truly leading new legacies in Illinois agriculture, inspiring this generation and the next with their on-farm success, community leadership and tremendous potential.

Visit IL20Under40.com to learn more about the program.

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Leading New Legacies

From a corn farmer in Clinton to a dairy farmer in Decatur, there was no shortage of variety among our 2022 winners. They're upholding traditions, starting their own and helping their neighbors out along the way. Young farmers of all specialties are our future, and no state's future in agriculture is brighter than that of Illinois. We're proud to champion our own.



Andrew Bowman

ONEIDA, IL
CORN, SOYBEANS AND POPCORN

Andy Lenkaitis

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DAIRY, FEED CROPS AND COVER CROPS

Sarah Lenkaitis

ST. CHARLES, IL
DAIRY, FEED CROPS AND COVER CROPS

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MOWEAQUA, IL
CORN, SOYBEANS, HAY AND ANGUS CATTLE

Blake Luckett

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CORN AND SOYBEANS

Blane Olson

ELKHART, IL
CORN, SOYBEANS, PUREBRED SHOW PIGS
AND COMMERCIAL PIGS

Brandon Walter

HARVARD, IL
CORN, SOYBEANS, STEERS, DAIRY, ALFALFA,
WHEAT AND RYE

Cameron McClure

LAWRENCEVILLE, IL
CORN, SOYBEANS, HOGS, CATTLE AND WHEAT

Chad Bell

VIOLA, IL
CORN, SOYBEANS, WHEAT AND PIGS

Dallas Glazik

PAXTON, IL
CORN, SOYBEANS, WHEAT, OATS AND
OTHER VARIOUS SMALL GRAINS

David Murphy

TISKILWA, IL
CORN AND SOYBEANS

Drew DeSutter

NEW WINDSOR, IL
CORN, SOYBEANS, COW/CALF, GRASS HAY
AND COVER CROPS

Kenneth Mentzer

ASSUMPTION, IL
CORN, SOYBEANS AND WHEAT

Kathryn Mentzer

ASSUMPTION, IL
CORN, SOYBEANS AND WHEAT

Matt Rush

FAIRFIELD, IL
CORN, SOYBEANS, WHEAT AND
FEEDER CATTLE

Matthew Hulsizer

GALESBURG, IL
CORN, SOYBEANS AND POPCORN

Michael D. Nelson

PAXTON, IL
CORN AND SOYBEANS

Michael Ganschow

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CORN, SOYBEANS AND BEEF CATTLE

Tyler Schleich

MONMOUTH, IL
CATTLE

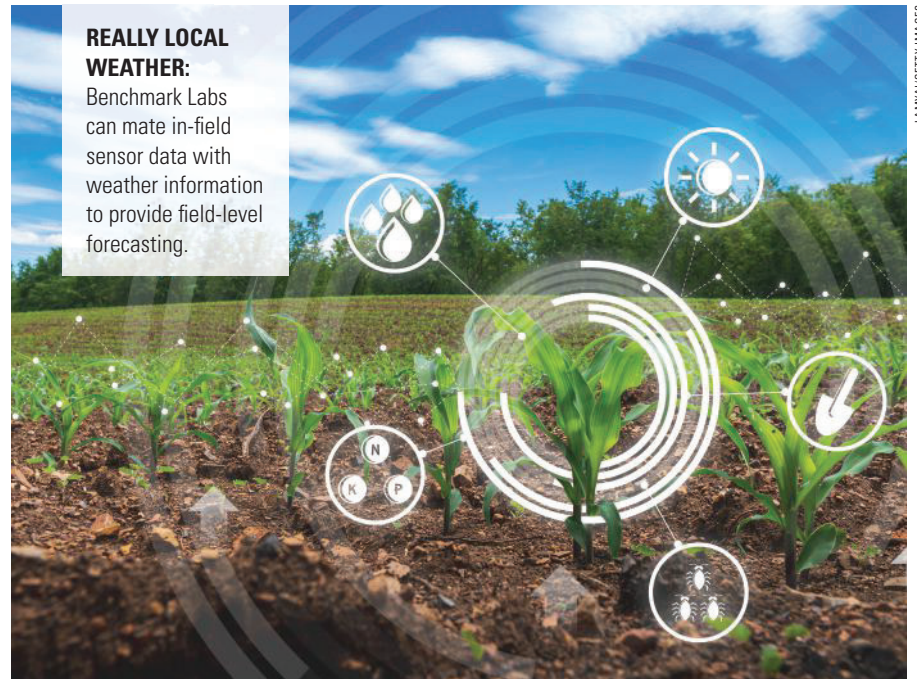
Startup uses local data to fine-tune forecasts

BY WILLIE VOGT

FARMERS ARE CAPTURING information in new ways every day, and turning that pile of information into a decision-making tool has proven to be an even bigger lift. By using sensors in individual fields, one California startup is aiming to take on the challenge of precision weather forecasting.

Carlos Gaitan, co-founder and CEO of Benchmark Labs, is working to turn local information gathered by field sensors into precise weather forecasts.

“We understand that weather models from the National Weather Service divide the world into boxes like a huge Rubik’s Cube,” he says. “Everybody inside that cube gets exactly the same forecast. And



for people in agriculture, that’s not sufficient.”

The challenge in farming is the various microclimates impacting production. Every farmer can tell a story about a 1-inch rainfall that fell within 3 miles of the house, missing key fields. Sensors in the field, soil information and weather service data can be combined to create new information, Gaitan says.

He explains that Benchmark Labs can take information from an on-farm Internet of Things-type network, which may include soil sensors, moisture sensors and weather stations. Using that information combined with National Weather Service information and its own proprietary artificial intelligence engine, the company creates a field-level weather forecast.

“We’re not installing the sensors,” Gaitan clarifies. “We understand that there are already 22 million sensors based on a [University of California]-Berkeley study they did for us.” That’s a global number, but it shows there is already an installed base of sensors providing information.

MERGING DATA

Those installed sensors are from different manufacturers, which makes connecting the data more difficult.

“They don’t talk to each other, but we see that as an opportunity to ingest that data and provide a forecast for those locations using those specific sensors,” Gaitan explains. “So far, we have integrated with leading manufacturers, and we keep doing more integrations every week.”

Initially, Gaitan says, the company is focused on specialty crops in California,

where many farmers have installed sensor networks. But more farmers across the country are engaging tools to capture weather data and other information on their farms.

Benchmark Labs can provide field-level weather information based on sensors installed on your farm.

“So when a farmer contacts us and says, ‘Hey, I have a Davis [Instruments] weather station,’ we ask them to give us access to that station’s cloud information,” he says. “We can develop the forecast the same day or the next day.”

The cost for the service is about \$500 per sensor per year, but farmers don’t need to sign up every sensor on their farm to use the system. Gaitan says it’s possible to identify those sensors most representative of field conditions. In some cases, a field may have multiple sensors, but the farmer may sign up only one or two to use the Benchmark Labs service.

MANAGING WATER USE

Benchmark Labs works with avocado growers in South America. The water-intensive crop requires accurate measurements of evapotranspiration.

“Getting that right is key for their water balance and their activities,” Gaitan says. “Unfortunately for them, the Brazilian and Colombian weather services provide accurate information, but it’s a complicated microclimate.”

While the company is starting with specialty crops, Gaitan sees row crops as an opportunity. It would allow farmers to know the weather on a field-by-field basis. Find out more at benchmarklabs.com.

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Scout crops without walking fields

BY TOM J. BECHMAN

INTELINAIR HAS STEPPED up its game.

First, the company announced an agreement with Airbus to use that company's satellite imagery to increase the database for the AgMRI platform. Then Intelinair entered a three-year agreement with Jacobs to provide high-grade, multi-spectral sensor systems and imagery services that will couple with AgMRI to deliver even more unique imagery for farmer-customers.

Intelinair says farmers and crop consultants will get a bird's-eye view of fields. Visit intelinair.com and agmri.com.

IMAGING AIDS FUNGICIDE DECISIONS

Ceres Imaging and Evergreen FS' Agrtrinsic platform offer Field Disease Risk. The technology was tested on 100,000 acres in Illinois in 2021. Agrtrinsic monitors for disease risk through a network. Ceres Imaging provides high-level analysis when a region is flagged as high risk for disease. Ceres then combines satellite data and algorithms to provide advice. Visit agtrinsic.com and ceresimaging.net.

MORE REMOTE SENSING HELP

Growers who irrigate and apply nitrogen through irrigation should know that a new agreement between VariMax and Climate FieldView offers new tools delivering real-time, data-driven N and irrigation management recommendations. Climate FieldView customers can access the N-Check and Water-Check tools. Visit climate.com and varimaxsystems.com.

NEW SEED TREATMENTS COMING

Indigo Ag received registration for the industry's first biofungicide based on the microbe *Kosakonia cowanii*. Indigo Ag calls it a biottrinsic product, designed to suppress plant diseases and address both biotic and abiotic stresses. It's registered for use in cereals, corn, soybeans, cotton and more, and suppresses fusarium, pythium and rhizoctonia. Commercial launch is expected in 2023. Visit indigoag.com.

Syngenta launches Victrato, a novel seed treatment targeting diseases and nematodes in corn, soybeans, cotton, cereals and more. It's safe for pollinators, beneficials and the soil microbiome, and contains Tymirium, a high-performance, low-dose active ingredient. This new

HI-TECH FARMING

product protects crop roots. It's registered in El Salvador, with registration expected across the globe within five years. Visit syngenta.com and goodgrowthplan.com.

STATE-OF-THE-ART PRODUCTS

Frenchman Valley Co-op, which serves farmers in the western and northwestern Corn Belt, added two new fertilizer products to the Platte Peak Crop Performance brand. The company bills V5 and V5+Bio as nutrient-packed starter fertilizers. In ad-

dition, V5+Bio includes a biological agent. Visit fvcoop.com.

PATENT AWARDED

Sentera Inc. received a patent for Spot Scout technology. This innovation uses drone imagery in a multiple-step process. Key analytics used by Spot Scout include Stand Count, Tassel Count and Weed Species ID, which identifies weed species and feeds herbicide decisions. Visit sentera.com.

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TOMORROW'S TECH TODAY

SOIL TESTS START WITH SIMPLE PROBE

For soil testing, automatic probes and even autonomous vehicles are available. But using high-tech equipment isn't what's most important; instead, it's mapping where to test soils, says John McGuire, chief innovative officer for Brookside Labs and the Amplify Network of Crop Consultants.

Accurate results can be achieved by using a simple soil probe and laying out soil sampling zones correctly. McGuire believes the most important component is testing soils with different cation exchange capacities, or CEC values, separately.

He offers a five-step process that can improve crop management:

1. employing basic agronomy
2. collecting high-quality data
3. learning from aggregated data
4. testing possible changes on farm
5. implementing those changes

IMPROVED DISEASE CONTROL

Cruiser Maxx APX from Syngenta is now an approved seed treatment for soybeans. Dale Ireland, technical product lead for Syngenta Seedcare, demonstrated to Farm Progress edi-



SIMPLE TECH TO HIGH TECH: If you don't program it correctly, an autonomous soil probe vehicle won't give you information as good as what you can get with a simple soil probe. PHOTO BY TOM J. BECHMAN

tors how this new treatment improves protection against pythium and phytophthora, two key soybean diseases, compared to existing products.

It also protects against fusarium, rhizoctonia, seed-borne diseases and early-season insects.

Cruiser Maxx APX combines Cruiser Maxx Vibrance with picarbutrazox, representing a novel mode of action in seed treatments.

NEW ADJUVANT WORTH A LOOK

If something sounds too good to be true, it usually is. A skeptical farmer who tested Hydrovant, an adjuvant for fertilizer and pesticide applications, tells Willie Vogt, executive editor at Farm Progress, that this product might be an exception.

It's helped improve control of Palmer

amaranth and kochia, and appears to improve fertilizer utilization. Corbet Scientific makes Hydrovant, described as an activator-sticker that gently binds chemicals to plants. It creates a 3D matrix around the plant, binding the active ingredient in the pesticide to the leaf.

The inventor describes it as a kind of scaffolding that holds products on the plant even as the plant grows.

'OLD' TECH COMBINES WITH NEW TECH

Jonathan Napier of Rothamsted Research in England works with camelina, a plant you've likely never heard of. Yet his work could be groundbreaking.

He couples a naturally occurring genetic trait, EPA, with a genetically modified trait using new

gene-editing technology, and finds that two plus two equals more than four! He's boosting oil and seed production, and harvesting key omega-3 fatty acids important for human health.

What makes his efforts unique is that he's using older, genetically modified trait technology and combining it with state-of-the-art CRISPR gene editing.

AI WEATHER FORECASTING

What would you do differently if you knew the weather forecast three to six months in advance with a higher degree of confidence?

Himanshu Gupta believes he can deliver that accuracy through his startup company, ClimateAi. His goal is forecasting the risk of extreme weather going beyond two weeks using artificial intelligence.

ClimateAi markets to food companies and input suppliers to agriculture. In Australia, a local co-op is using SKIP, a tool that ClimateAi helped develop, and deploying the tool with farmers.



To read more about these technologies, direct your smartphone's camera so the QR code appears in the viewfinder. Tap the notification to open the link.



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7 lessons from cover crop veterans

SYSTEMS APPROACH: Looking to add cover crops to your system? Make sure you have a plan to maximize benefits of the cover crop as well as reduce potential risks.

HOLLY SPANGLER

BY SIERRA DAY

ARE YOU NEW to cover crops or want to build on what you already know? A cover crop panel of folks on the ground proves there's always more to learn.

The panel of cover crop veterans includes Shalamar Armstrong, associate professor at Purdue University; Nick Seiter, crop scientist at University of Illinois; Lowell Gentry, U of I research specialist; John Pike, southern Illinois agronomist; and Eric Miller, Piatt County farmer and cover crop user.

What have they learned? Here's insight from these experts:

1. Reap the benefits. From the beginning, cover crops have helped prevent soil erosion and slowed nutrient loss, Armstrong says. In the last eight years, it's been documented that cereal rye reduces nitrate loss via tile drainage by 39% to 50%. This reduction of nitrate loss still occurred when 60 pounds of nitrogen was added to the offset nitrogen uptake of cereal rye.

Armstrong says it's safe to say grass cover crops are scavengers of nitrogen and reduce nitrate loss via tile drainage.

2. Overwintering legumes are an option. Over the years, Armstrong has learned that the high carbon-to-nitrogen ratio of cereal rye residue ahead of corn causes nitrogen immobilization. Nitrogen immobilization simply means microbes begin to break down and decompose the residue, and if they can't find N in the residue, then they start taking N from

the soil, creating a deficit of available nitrogen to the incoming corn crop.

So, Armstrong is researching the benefits of an overwintering legume called balansa clover as an alternative to cereal rye ahead of corn. Through this project, researchers saw 1,000 to 3,500 pounds per acre of balansa clover biomass, resulting in 70 to 250 pounds per acre of N. No nitrogen was added to the corn crop following balansa clover and still, those corn yields were significantly higher than that of corn following cereal rye.

3. Not all cover crops are the same. One of Armstrong's graduate students also found all cover crop species are not equal in relation to phosphorus interactions and carbon storage. Any cover crop species that doesn't overwinter intensifies the phosphorus loss problem as far as surface runoff. In turn, cereal rye and annual rye significantly reduce phosphorus loss.

4. Consider seeding and termination. Ever wondered how much cereal rye is needed to reduce tile nitrate? Gentry says 0.5 ton per acre of aboveground biomass is sufficient ahead of soybeans and contains 20 to 30 pounds of N per acre. This creates a carbon-to-nitrogen ratio of 25-to-1.

Plus, a study on Miller's Piatt County farm showed up to 2.5 tons per acre of aboveground biomass added ahead of soybeans doesn't negatively affect soybean yields. This biomass contained 50 to 60 pounds of N per acre with a carbon-to-nitrogen ratio of 60-to-1, and tile nitrate

was less than 1 part per million. For reference, 5 to 10 ppm of tile nitrate comes out of a conventional system.

On the other hand, if you use cereal rye ahead of corn, Gentry suggests terminating the cover crop two weeks before planting corn to reduce risk of nitrogen immobilization. Miller followed these suggestions and strip-tilled through the cereal rye in the fall. At the point of termination, cereal rye biomass was still sufficient at 0.5 ton per acre. The result of aboveground biomass between 0.5 and 2.5 tons per acre means more carbon in the system and an opportunity to lessen the tile nitrate problem.

5. Early-planted beans help. Across Illinois, more farmers have adopted early planting of soybeans. Pike says that gives farmers more time in the fall to establish a better cover crop mix for corn. Early-planted soybeans also create an early harvest and a wider window for a diverse cover crop establishment in the fall.

While cereal rye has a wide planting window and can be planted later in the fall with success, other species such as clovers need to be planted earlier, around late September or early October, to reach a stage of growth that allows for winter survival.

Pike also recommends seeding a mixed-species cover crop ahead of corn to better manage the carbon-to-nitrogen ratio, and the winter survival of clovers and other legumes improves when they are planted in a mix rather than as a

single-species cover crop.

6. Manage as part of a system. Success with cover crops is the result of proper management of the system, not just treating the cover crop as an additional input, Pike says. This doesn't mean everything in the cropping system needs to be changed, but the addition of a cover crop requires a plan to ensure the benefits of the cover crop are maximized, and potential risks are minimized.

Miller uses the total systems approach as a cover crop user with a rotation of corn, wheat and double-crop soybeans. He also uses an air seeder on the corn head to broadcast cover crops while harvesting the corn crop.

7. Watch for potential pest damage. And don't forget about potential risk of pest damage. Seiter says recent research has looked at insect damage in a cereal-rye-ahead-of-soybean system. The result? No significant increase in insect damage to the crop.

However, more insect pressure tends to occur when corn is planted shortly after cereal rye termination. Overall, the most problematic pests following cover crops are slugs due to residue and moisture, and true armyworms due to dense grass.

Bottom line, Seiter suggests you manage cover crops for nutrient loss reduction first and worry about pest management as you scout and see problems arise. Sure, pest damage may happen, but it won't be impossible to handle.

Spotted lanternfly alert

TREE TALK

BY FREDRIC MILLER

OUR NEWEST INVASIVE PEST is the spotted lanternfly, which has now been detected in many eastern and northeastern states, and more recently, as close as Indiana. The Missouri Department of Ag has asked grape growers in that state to scout and report any findings because of how quickly the spotted lanternfly can decimate a vineyard.

The spotted lanternfly is a unique spotted bug that feeds on grapevines and fruit trees. It was first detected in Pennsylvania in 2014. The insect is native to China and is considered highly invasive, because it can feed on more than 70 plant species and has no natural enemies.

Spotted lanternflies feed on a variety of plants during June and into early July. The nymphs, which are wingless and black initially, develop red patches as they mature, and have white spots on their body and legs. Upon completion of their final molt, adult spotted lanternflies will begin appearing usually in early to mid-July and will be active into early fall.

They are 1 inch long and a half-inch wide with black legs and head, yellow abdomen, and light brown to gray forewings. The hind wings are scarlet red with black spots.

Look for adults on tree trunks and stems, and near leaf litter at the base of trees. Adults are poor flyers but strong jumpers. They favor tree of heaven, black walnut and grapevine as host plants. Adult females lay eggs on smooth-trunked trees or any vertical smooth natural or man-made surface. They lay egg masses on trucks, train cars, RVs, etc., and can easily travel to new locations.

Heavy feeding may lead to plant stress and death. Sooty mold typically develops in association with honeydew, diminishing the plant's ability to produce food. The spotted lanternfly could greatly impact the grape, orchard, logging, tree and wood-products, and green industries.

Spotted lanternfly females will begin laying egg masses in September and continue through November, with 30 to 50 eggs in a mass, which are gray-brown and covered with a shiny, gray, waxy covering that looks like a patch of mud. The eggs overwinter until the following spring, when




they hatch. The young nymphs disperse and begin feeding on a wide range of hosts, producing large amounts of honeydew.

Miller is a horticulture professor at Joliet Junior College and a senior research scientist in entomology at The Morton Arboretum in Lisle. Email him at fmiller@jjc.edu.



NEW PEST: Illinois grape growers and others should watch for the spotted lanternfly, which has been reported in Indiana and can decimate vineyards. PHOTO BY ERICA SMYERS

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How family friction can send farm to court

BY CURT FERGUSON



ONE OBJECTIVE OF estate planning is to control costs and reduce stress on the family. One way to keep costs and stress down is to avoid court.

And the best way to avoid (probate) court is a living trust. The trust is an agreement that can be acted upon by the trustee you name without court involvement. But believe it or not, for some families, it might be better to go to court.

When an estate is administered through probate, disagreements are presented for the court to resolve. When your trust is being administered without probate, the trustee and beneficiaries each assert how the property should be divided, but there is no authority figure in power to make an enforceable decision.

If your trust leaves anything for beneficiaries to argue about, administering the trust can be like a divorce without a judge.

EQUAL DIVISION

One of those phrases that raises red flags for me as a planner is when the client says, "Our four kids get along, so let's just say 'divide it equally' and let them decide who gets what." If your estate was just

ESTATE PLAN EDGE

savings, securities, life insurance and the like, administering the trust is simple. The trustee converts all the assets to cash. The trustee pays your final bills, taxes and expenses. The trustee tells each beneficiary about every dollar and the amount each child will get. The children acknowledge that. The trustee gives each child their equal check.

But a farmer's estate isn't like that. The biggest part of your estate is land. You may also have millions in equipment and livestock. "Divide equally" means equal dollar value. The trustee has a fiduciary duty to assure that everyone gets their full share. So, what could possibly go wrong?

If your estate is not going to be converted to cash by public auction, plenty can go wrong.

AVOIDING DIVISION BY AUCTION

How do you "divide equally" the real estate? The only certain way is for the trustee to deed each child an undivided one-fourth interest in all tracts. But from then on, the four children as co-owners must decide together what to do with the land. One child is the farmer. Is he going to continue farming that land? How much



WHY PROBATE? Sometimes the fairest (and safest) route to take in estate planning is asking a court to decide the division of assets for beneficiaries. ILLUSTRATION BY VISUAL GENERATION/GETTY IMAGES

rent will he pay the other three? How will the four landowners decide?

Instead, could the trustee parcel it out, each child receiving a separate tract of about equal value, and make up any difference in cash? Sure, but how are they going to determine who gets which parcels? Then, who sets the value of the property to make sure each gets equal value? Two different appraisers can come up with quite different values, and disagreeable children will think their tract was overvalued. The trustee can only do this if the children unanimously agree.

How about the equipment? Your farming child wants to keep most of it. He will need to pay the others for their three-fourths of the value, since he only inherited one-fourth. But if the equipment is not sold publicly, what is the value? His used-equipment-dealer friend tells him it's worth \$600,000, but the other children are sure it would bring at least a million in an online auction.

The trustee, to play it safe, will put all the equipment up for public auction, and let the farming son bid against third parties for what he wants.

Next, father and son have been running

livestock together for several years, and the son swears that 80% of the current herd is his, as his father was gradually moving toward retirement. Is it true? Can the trustee prove otherwise? If any cattle are his, the son must either remove them from the property or start paying proper rent.

Similarly, the daughter's horses have been kept on the farm for several years. Of course, her father never charged her. As of his death, she must remove the horses or start paying fair market price for use of the facilities. How much? What if she doesn't pay? Will the trustee evict the horses?

The trustee can't arbitrarily make the subjective decisions about value, asset division and rent. Any beneficiary who doesn't get one-fourth of the estate value can sue the trustee for breach of fiduciary duty. So, the trustee won't act without unanimous consent. If the beneficiaries don't agree, the trustee's only safe route will be ... you guessed it, asking a court to decide.

A living trust is great if you don't leave questions open for disagreement.

Ferguson is an attorney who owns The Estate Planning Center in Salem. Visit thefarmersestateplanningattorneys.com.

Have you nominated a Master Farmer for 2023?

BY SIERRA DAY

IT'S ONCE AGAIN the time of year when Prairie Farmer editors seek nominations for the Master Farmer award. From now until Aug. 26, you can nominate yourself or another Illinois farmer for the 2023 award.

Take a moment to think about potential farmers who deserve recognition for their dedication to agriculture in the field and beyond. The nom-

inee may be a sibling, neighbor, friend, your parents or even yourself.

The 2023 application form is available online at bit.ly/praiemasterfarmer. Download it, fill it out and send it in, complete with letters of support, by Aug. 26. For more information or to have an application sent to you, email holly.spangler@farmprogress.com.

You will need at least eight recommendation letters to support your nomination, and the selection committee focuses on growth of the operation over

time, agriculture productivity and community involvement.

The selection committee will include Illinois agricultural leaders, including experts in agronomy and ag finance, past Master Farmers, ag research or university authorities, and Prairie Farmer editorial staff.

What's it take to be a Master Farmer? Here's a look:

- Candidates must farm in Illinois, deriving the majority of their income from ag production.

- Successful nominees will have proven ag production records, be recognized as leaders, and will have given back to their community in substantive ways.
- Candidates may be individuals, couples or siblings; judging is equally weighted.
- Nominees should be actively engaged in full-time production agriculture.

The Master Farmer award was founded in 1925 to recognize farmers for their achievements within production agriculture and within their communities. Today, the program continues with sponsorship help from Growmark.



Do homework before land auctions

The heirs to 400 acres 3 miles away will sell land at auction after harvest. Buildings were sold earlier. It is 370 tillable acres with 30 acres of woods harvested in 2007. It's good land, and all but 70 acres is pattern-tiled. We have fields a half-mile away. If bids go to \$12,000 per acre or higher, how do we justify buying something that may not cash-flow? How high should we bid?

ERICKSON: Based on this description, I have no idea what the land is worth, nor do I know how much you can reasonably bid. Most farmland purchases don't provide enough operating income to pay for themselves. Look at the ability of that land to produce enough income so the shortfall to meet debt payments can be met with other income. So, can you cash-flow this purchase with your existing income plus income from the purchase property?

EVANS: Discuss this with your lender and determine where your ability lies. Consider your risk tolerance, as well as the value of having land adjacent to your operation. Fully analyze timberland and consider property tax benefits of classified forest programs in your state. Seek advice from a consulting forester.

Bidding is tough because emotion can catch you. You likely won't have the chance to pick up this ground again soon. However, don't back yourself into a corner financially. Given the current environment, with not much downward pressure on land values, you may feel better about such an investment. If interest rates remain low, perhaps you can lock in a good fixed rate.

LUZAR: This may be one of the most significant decisions ever for your farm. Do your homework with purpose. Start with family team members and hold sincere discussions. Buying land may or may not be consistent with the farm's growth strategy. For example, renting more land may be more desirable to some members

PROFIT PLANNERS

while focusing on lessening debt.

If your family is onboard, crunch numbers to determine cash-flow implications, solvency issues and more. Your financial

advisory team should review your financial analysis to ensure it is realistic.

Double-check the timber tract to see if there is anything out of the ordinary regarding value. Does the land have value for development? Potential for wind or solar? These concerns could impact demand.

MYERS: Only you can answer how high should you bid. The dollars per acre number of what a farm is worth is but one piece of the puzzle. Get your team together, meaning banker, accountant and professional farm manager or broker. See the entire picture, as this type of commitment will have long-lasting repercussions that may be either positive or negative. Build your base of knowledge. Market conditions can and will change. When the day arrives, you will be ready to act decisively.

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MEET OUR PANELISTS

David Erickson, farmer, Altona, Ill.

Mark Evans, Purdue Extension educator

Jim Luzar, landowner retired from Purdue Extension, Greencastle, Ind.

Steve Myers, farm manager, Busey Ag Resources, LeRoy, Ill.

Today's landowners look for conservation

BY MIKE DOWNEY

MANY OF YOU have heard the Mark Twain quote: "Buy land, they're not making it anymore." It's true, and it certainly heightens interest in owning and investing in farmland. Two other factors affect scarcity:

Erosion. The Daily Erosion Project of Iowa State University estimates soil erosion in Iowa and surrounding states. Their studies show we're losing the equivalent of four dump-truck loads of soil per acre per decade due to wind erosion and soil runoff. Did you see the pictures of the 100 mph winds western Iowa experienced this past May? These winds produced scenes reminiscent of the 1930s Dust Bowl.

Urban sprawl. Between 1992 and 2012, the Farmland Information Center says the

LAND VALUES

U.S. lost 31 million acres of agricultural land to development. Of this, nearly 12 million acres were productive cropland acres. When you average this loss over a 20-year period, it suggests we're losing 1 acre of productive row crops per minute due to urban sprawl and development.

WHERE CONSERVATION COMES IN

Can we continue to lose productive farmland like this? Or will technological advancements continue to increase the yields from our commodities to supply the food, fuel and fiber needed for our world?

We're seeing more awareness for preserving the productive cropland we cur-



NO-TILL NEGOTIATION: Farm managers are seeing more landowners ask for conservation practices as part of the lease. When that happens, the traditional competitive advantage for renting farmland pivots from highest dollar to best conservation practices. PHOTO BY MIKE DOWNEY

rently own and operate. In fact, one of the first questions farm managers ask a prospective producer is about the conservation practices they engage. Why? Because more and more retiring farmers, landowners, inheriting landowners and even investors are looking for a tenant who is a good steward of the land.

This may go against the sentiment that landowners only care about income. However, I can vouch to this greater focus on conservation based on our experiences in helping match prospective producers to retiring farmers and inheriting landowners who don't have a farm successor.

Conservation may be important to the traditional landowner for reasons including pride and sentiment from owning a multigenerational family farm. For investors and other groups, the reasons may differ and relate to an industrywide focus on conservation. After all, about every farm magazine or online forum you read contains an article related to regenerative farming practices, cover crops and, of course, carbon credits. These are the types of practices landowners are asking about.

FARMLAND LEASING EXAMPLES

Recently I helped a farm operation prepare a proposal for renting 1,000 acres. The landowner required the new tenant to use no-till and cover crops, due to the farm's proximity to a municipality. The landowner's ground isn't regulated, but the adjoining land owned by the municipality is.

This operation had 30 years of no-till experience under its belt. While creating a farm resume, the landowner even went so far as to engage a third-party conservation group to develop a conservation

"scorecard" for the operation. This is a unique example of where the traditional competitive advantage for renting farmland changed from who is willing to submit the highest bid to what conservation and farming practices are used.

Last year, I worked with an out-of-state landowner who specifically asked that I only introduce her to prospective producers with experience in using cover crops. I often suggest a soil test to set a benchmark when working with a new tenant. In this case, she worked with the district conservationist to develop a conservation benchmark to work from.

Instead of putting her farms out to an open bidding process, she set the terms of the lease upfront using a flexible land lease. The base rent was set at \$75 to \$100 per acre under the typical going rate. Receiving fair income was important to her, but the care of her farms was more important.

Could we see more examples like this for renting farmland? More landowners are asking questions related to conservation. I'm also concerned that we operate in an industry where rents are set by auctions or what other neighbors are willing to pay. Rental contracts are typically set one year at a time, but most conservation programs require a much longer commitment.

If conservation is important to you or to the landowner you rent from, consider how the terms of your farm lease complement these types of long-term goals.

Downey owns Next Gen Ag Advocates and is an associate of Farm Financial Strategies. He's a member of the Illinois Society of Professional Farm Managers and Rural Appraisers. Email questions to ispfmra@countryside-marketing.com.



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Beef consumption wanes outside of U.S., China

BEEF OUTLOOK

BY SCOTT BROWN



AMID ALL THE recent market drivers affecting beef and cattle markets — the pandemic, drought, inflation and high feed costs — it's instructive at times

to step back and look at longer-term global trends in meat consumption.

Using the supply-and-demand database from the USDA Foreign Agricultural Service, I considered the 12 largest markets in terms of domestic consumption for each of beef, pork and chicken. These markets comprise about 87% of global beef consumption, 94% of pork consumption and 76% of chicken consumption.

Comparing a 2021-22 time frame (2022 projections made by USDA in April) with

2011-12, the changes over the 10 years point to both major challenges and opportunities for U.S. cattle producers.

WHO'S EATING BEEF?

The U.S. and China are the top two markets in terms of both global beef and chicken consumption — with China being the top pork consumer and the European Union coming in at No. 2, pushing the U.S. down to the third-largest pork consumer.

Total growth in the consumption of beef, pork and chicken in the U.S. and China outpaced the combined growth of the other 10 largest markets.

When looking at how U.S. meat consumption shifted in 10 years, all three meats posted growth, with the increase in chicken consumption accounting for nearly 58% of the total meat consumption increase. The growth in beef consumption made up nearly 17% of the increase.

Beef made up 78% of the increase in

China's meat consumption in the past decade, even though pork is still consumed at five times the rate of beef in the average diet in China.

There is still uncertainty as to how future meat consumption in China will behave as the nation continues to recover from African swine fever. But with pork consumption already approaching pre-ASF levels this year, further ASF recovery is not expected to hamper beef consumption growth to any large extent.

Somewhat surprisingly, the combined next 10 largest beef markets after the U.S. and China decreased beef consumption relative to 10 years earlier.

Declines in the European Union, Brazil and Russia overshadowed growth in India. Many of these other top markets have been increasing pork and chicken consumption, while beef has declined or remained stagnant. In fact, the next 10 largest chicken markets have seen a

24% jump in chicken consumption in the 2021-22 average compared to 2011-12.


QUALITY OVER QUANTITY

These calculations show beef still faces stiff competition from other traditional proteins in many important global markets. They also point to dependence upon the U.S. domestic market and China for beef demand increases moving forward.

But they do not capture the difference in demand movement between beef-quality tiers, a phenomenon that has continually shown itself in our domestic market as consumers have consistently switched to upper-Choice and Prime product at the expense of Select-graded beef.

If that trend continues here and in key overseas markets, the U.S. stands to gain from increases in quality beef demand, even if total beef consumption struggles.

Brown is a livestock economist with the University of Missouri.




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7 steps to prepare calves for feedyard and market

BY SIERRA DAY

HAVE YOU EVER gone through the steps to prepare a child for kindergarten? Randall Raymond, director of research and veterinary services at Simplot Livestock, says it's the same philosophy to make sure calves are ready for the feedyard, to maximize margins and increase efficiency: "Always have the next step in mind."

Raymond shares seven steps to help beef producers think ahead and manage calves to top the market:

1. Genetics. Crossbreed to make the most of heterosis. Raymond says Simplot Livestock's herd consists of Angus-based cattle crossed with Hereford genetics. These F1 crosses are then bred to a Charolais-terminal bull. The result is cattle

that in the past 10 years have had 0.75% less of a death loss than completely black or baldie cattle.

2. Maternal nutrition. Ever heard of the term fetal programming? Raymond says what happens to a calf while in the uterus is just as important as what happens after birth. Studies have shown that maternal nutrition can affect the carcass traits, reproduction and health of the calf in the long run. Plus, practices such as a protein supplementation fed to the cow during the last trimester of pregnancy can increase colostrum quality and quantity, helping the calf get off on the right foot.

3. Pre-weaning. Raymond has often seen health concerns in the feedlot that trace back to a mineral intake and profile issue. He adds that most cattle in the U.S.

are deficient in copper, selenium and zinc. Producers should consider a weaning mineral to balance nutrient levels and keep cattle healthy. Preconditioning programs are not a silver bullet and may not work for every producer. So, you also need to handle calves with minimal stress, and time the vaccination schedule appropriately, or this strategy may not be worth your time or money.

4. Post-weaning. Once calves are weaned, make sure clean water is accessible. And provide palatable feed and minerals such as a fortified mineral, hay and starter ration, and feed additives such as ionophores. Raymond says they even use controlled exercise, moving cattle in and outside of their pen, to acclimate them to feed and water in their environment.

5. Illness exposure. To help reduce exposure to illness, limit commingling different groups of calves. Raymond says the key is to refrain from splitting and combining groups of calves, if possible. But if you need to mix pens, then wait until calves are on feed for at least 40 days. Other ways to limit sickness among calves includes water tank sanitization, management of disease sources, infectious disease testing and long-acting antibiotics, if needed.

6. Stress. Stress is the strongest influence of immune compromise, Raymond says, adding that high stress for a short period of time is better than prolonged stress. But still, producers should remember to use low-stress handling techniques — especially in situations such as gathering, branding, sorting, weaning, processing and trucking.

7. Animal health products. Lastly, Raymond reminds producers that not all vaccines perform the same or provide the same level of stress, so use an expert to develop the best vaccination protocol for your operation. Plus, even if you choose the right vaccine at the right time, cattle must be prepared to receive the vaccine. If cattle are deficient in copper or selenium or under high stress, then no form of a vaccine will work correctly. And remember that dewormers, antibiotics and immunostimulants are all animal health products that can help keep cattle healthy in the feedlot.

You can always prepare for new events, and setting up calves for success in the feedyard is no different, Raymond says. Steps taken as early as breeding time can influence the health and performance of cattle throughout every point of the cycle.

AT THE BUNK:

Profitability of cattle at market depends on more than just the feed ration. Genetics, health and stress can also influence calves' time in the feedyard and results at market.



SIERRA DAY

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Pork industry accepts mortality challenge

BY KEVIN SCHULZ



SADLY, LIVESTOCK losses happen on farms and ranches, and producers have developed systems to handle the mortalities — whether it be burial, incineration, composting or transporting the carcasses to landfills. Those systems were challenged when COVID-19's impact was felt in meat processing plants, as hog producers were forced to put down large numbers of healthy hogs.

Putting down one healthy animal goes against every fiber of a hog farmer's being. It is emotionally and financially draining. Now imagine if a foreign animal disease such as African swine fever were to hit; a farmer's entire herd would need to be euthanized to contain the spread of the disease. The disposal of a much larger number of

HOG OUTLOOK

hogs of all sizes would create a Herculean management challenge.

The Pork Checkoff is asking producers and other innovators to enter its Pork Industry Innovation Challenge to present innovative methods of pig mortality disposal. The checkoff will reward those who bring the best ideas to the table.

By July 31, producers or innovators need to submit a 500-word overview of an on-farm mortality disposal method for the pork industry to consider, and a brief explanation of how it would work. Entry ideas must be "novel" or be a "significant" improvement of an existing method that saves time, money, labor and inputs.

The challenge is open to all companies, students, producers and individuals who are at least 18 years old and a U.S. resident



BE PREPARED: The last thing any livestock producer wants to do is handle mortalities, but hog producers would be forced to do just that if African swine fever hits their herd. The Pork Checkoff is asking producers and innovators to step up to create new and improved methods for handling on-farm mortalities. PHOTO BY KEVIN SCHULZ

at the time of entry. Each applicant is allowed two entries, and each one will be judged separately.

Not only is there the satisfaction of creating a better way of doing things for the pork industry, but there are also cash awards available for the best ideas, in a four-tier setup:

Tier 1. \$1,000 for a plausible idea for on-farm mortality disposal that can be designed into a small-scale pilot project

Tier 2. \$5,000 if someone successfully executes a small-scale project from the idea

Tier 3. \$10,000 if someone successfully designs a large-scale pilot from the idea

Tier 4. \$30,000 if someone successfully executes a large-scale pilot from the idea

The National Pork Board, through the Pork Checkoff, will notify applicants who advance beyond Tier 1 of the challenge by Oct. 31. Prize money for moving past Tier 1 will be distributed by Dec. 31.

Maybe you had to dispose of a large number of hogs in the COVID-19 devastation, all the while thinking there has to be a better way. Well, put your ideas to paper and submit them, if you're up to the challenge. Visit porkcheckoff.org/challenge to find out more and to submit your entry before the July 31 deadline.

Schulz, a Farm Progress senior staff writer, grew up on the family hog farm in southern Minnesota, before a career in ag journalism, including National Hog Farmer.

Global milk production sees uptick

DAIRY OUTLOOK

BY FRAN O'LEARY



BEN BUCKNER, CHIEF grains and dairy analyst for AgResource Co., says a lot of milk production has been lost all over the world due to high feed prices, declining dairy cow numbers, weather issues and a shortage of labor.

"But now we are starting to increase milk production," he says. The U.S. cow herd is expanding. Oceania weather has improved, and global milk prices turned down slightly in mid-April and have plateaued in the U.S. between \$24.50 and \$25 per cwt.

"Milk prices will remain high through the end of 2022," Buckner predicts. "We need cow herd expansion to be ongoing for the next 12 months if we really are to rebuild our dairy product inventories."

Buckner says the commodity super-cycle is still intact.

"We need Mother Nature to cooperate so we can rebuild feed inventories, and that is not happening," he says. "This is the year we needed record yields from all grain-exporting countries, and we are probably not going to get those in 2022."

"The market knows old-crop corn and wheat surpluses are gone."

Buckner says the most important factor in long-term price determination is when peace between Russia and Ukraine is reached. He doubts much grain will be exported out of the Black Sea region this year because insurance companies, for the most part, are not insuring vessels going into the region due to the war. As a result, governments are becoming more protective of domestic food supplies.

"As supplies tighten, the unintended consequence is exporters are slowing down shipments, and governments, I think in the long run, will subsidize food consumption. If supplies continue to tighten,

we will see more government subsidies and export bans."

As a result, Buckner predicts grain prices will be high for the next 18 to 24 months, which is not good news for dairy farmers. He says dairy farmers will need to be proactive in managing input costs.

Buckner says U.S. dairy exports will stay record-large throughout 2022.

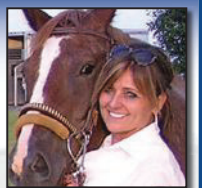
"I suspect the volume of dairy exports will be as high as they were in 2014," he says. "Our butter and cheese prices are lower than world prices, which makes our exports attractive. Add to that record U.S. dairy product consumption, and there's no sign milk checks will be eroding anytime soon."

O'Leary is the editor of Wisconsin Agriculturist, a sister publication.

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Improve link to dealer during supply crunch

ANDY SACKS/BETTY IMAGES

COMMUNICATION MATTERS: The rocky status of today's equipment market could strain relationships if you and your dealer aren't talking before harvest arrives.

FARMER IRON

BY WILLIE VOGT



I'VE BEEN A little slow to write about the supply crisis. How do you write about the upending of an entire industry? Truth is, everyone is working hard to get through this, but the strains along the way could cause longer-term challenges.

I've often written here about the equipment plan, or fleet plan. What you buy, and

when, matters to your equity position and your bottom line. But unless you have a good read with tarot cards, no one knew the late 2021-22 parts-and-equipment crisis would unfold as it has.

I've spent time with manufacturers who admit they've missed deliveries. Companies are figuring out new ways to deliver whole goods, while not overpromising what they can provide. This probably isn't great news for the guy who wanted that new 24-row planter for 2022, and it didn't arrive until June.

I know that if I talked with 20 farmers, I'd get 20 different stories about missed parts, late equipment deliveries and rene-

gotiations of trades. If you miss delivery on a planter for 2022, how does that affect the value of the trade-in you kept to plant your crop? And no iron-based industry has been left unscathed.

Outside of agriculture, I heard recently that BMW even swapped in new chip sets that will keep buyers from having Apple Car Play or Android Auto when they take delivery. That'll come later. Sure, you can laugh about BMW. But folks, have you priced a new tractor lately? Farmers spend more on those workhorses than the one-percenters do on a new ride. And yes, a wait for Car Play is really a First World problem, but it does show how this supply situation is hitting every market in unique ways.

The chip shortage will be with us longer, although manufacturers tell me they're working through it. But I know the truth is far uglier. When something breaks, parts are still scarce.

BEYOND THE LAMENT

I don't want to belabor the obvious. These are new times, and I don't think we'll work through them before the end of 2023. That requires you to consider those future purchases and how you'll handle repairs, too.

Having covered this industry for a while, I know one thing is certain. Farmer-dealer relationships still matter. And if your dealer doesn't value your business in a way where you both profit, frankly, it's time to look for a new dealer.

I often get asked, "What's your favorite tractor?" I've spent cab time in a lot of machines over the years, and they're darn

comfortable and productive. But my response to that question is, "Who's your best local dealer?"

Which business is the one that stands by the farmer? Who works with the customer to solve problems and can talk with you about complaints? Because all equipment eventually needs maintenance, and a well-trained, forward-thinking dealer is valuable.

Some potential proactive tactics to use going forward:

Sit and chat. Consider a sit-down with your dealer before the harvest rush approaches to discuss your situation, explain your parts setup and find out the dealer's plans.

Order early. If you're planning on buying something new, get your order in even if you won't receive it until 2023 (or later). Dealers are being asked to place orders earlier, so make the call if you're ready to spend.

Keep your cool. If something fails, take a beat before calling — and that goes for dealers, too. We're all under new stressors and pressures these days. Civility will matter for long-term support.

Maintain team spirit. Realize that your dealer is a local business just like your farm, and you win when it wins. A failed dealership is a blight on a local community and a service headache for all.

Small steps can make a big difference going forward. Open conversation can keep you informed of challenges and future equipment support issues. Remember, we're all in this together.

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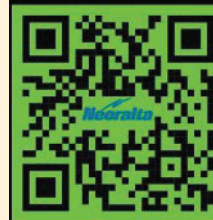
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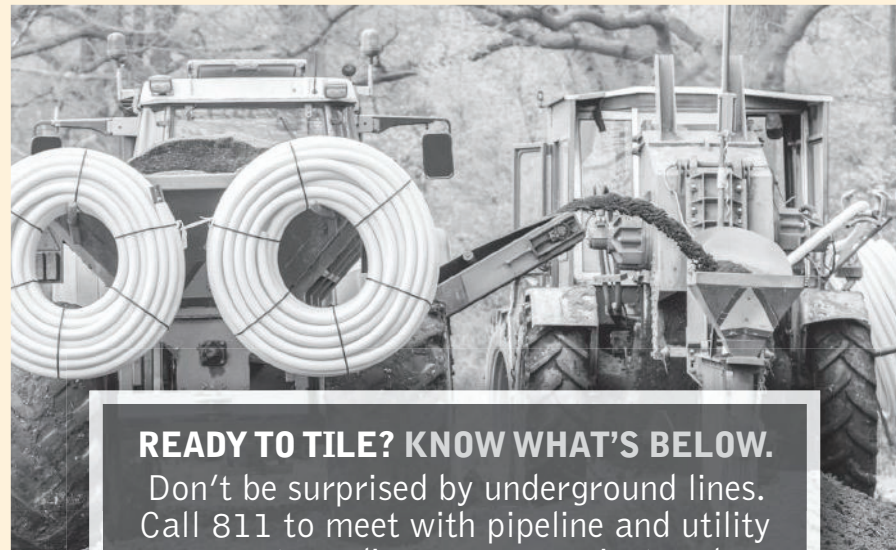


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Thank you for advertising with us!

Cherry tomatoes bring flavor to summer dishes

WHAT'S COOKING IN ILLINOIS

BY CHARLYN FARGO WARE

I ADMIT I'M a bit obsessed with cherry tomatoes these days. I discovered Sunset's Flavor Bombs, a cherry tomato on the vine that is greenhouse grown, with seed sourced from the south of France. But where they come from isn't nearly as important to me as the fact that they taste really good — and sweet. The flavor literally bursts in your mouth.

I have a couple of cherry tomato plants growing in my raised garden. Funny thing is, the local deer filled themselves with my regular Big Boy tomato plants, but so far, they want nothing to do with my cherry tomato plants. Believe me, I'm thankful. It

takes a couple of months for cherry tomatoes to ripen.

I think cherry tomatoes are the perfect snack, especially if you're looking for something that doesn't pack a lot of calories yet is satisfying. A single red beauty has only 3 calories, and a cup of cherry tomatoes has 27.

They are full of antioxidants, including lycopene, which is helpful in decreasing the risk of prostate cancer and heart disease, and protecting our skin from ultraviolet rays. They are also good sources of vitamins A, C, K and all of the B vitamins except B12.

VARIETY OF COLOR

Cherry tomatoes, which come in red, orange, yellow and even black, are cousins to the grape tomato. Grape tomatoes are

RECIPE

Tomato and Watermelon Salad

- 2 cups cherry tomatoes, halved
- 2 cups long English cucumbers, diced
- 2 cups watermelon chunks
- ½ cup feta cheese
- 1 tablespoon olive oil
- 1 tablespoon balsamic vinegar
- Fresh basil leaves



CHARLYN FARGO WARE

Wash all vegetables. Cut cherry tomatoes in half, dice the cucumbers and cut watermelon

into bite-size chunks. Place all in a bowl and drizzle with olive oil and balsamic vinegar. Chiffonade the fresh basil leaves into ribbons and garnish over top of salad. Serves four.

oblong, rather than round, and they have thicker skins. Grape tomatoes aren't as sweet but are "meatier."

Most of us enjoy cherry tomatoes raw in salads or on veggie platters, but they can also be used in pasta, pizza and sauces, or can be baked in a chicken ca-prese, in a quick shrimp scampi or over pan-roasted salmon in a warm tomato vinaigrette.

Here is one of my favorite recipes. Adapted from Nature Fresh Farms, it pairs cherry tomatoes with watermelon and feta, a combination you may not have thought about, but it makes a fresh summer salad.

Fargo Ware is a registered dietitian with Southern Illinois University Medical School in Springfield. Email recipe ideas to her at charfarg@aol.com.

Pat people on the back

THE FARM LIFE

BY HOLLY SPANGLER

A FEW YEARS back, we bought a heifer for our oldest daughter. Jenna named her Charlotte, and she was from Jim and Mary Bloomberg. Their farm is just a couple of towns north of us, maybe 30 miles. They've raised national champions, over and over, from that farm in a corner of western Illinois.

The truth is, Jenna got a heifer that year, but she also got a friend. Jim patted her on the back, gave her hugs, wished her luck, gave her advice, gave her another pat on the back. Year after year after year. Never missed a chance to talk to her, anytime, anywhere.

Jim died in May in a farm accident, killed beneath a fertilizer tender trailer. He was 66.

I can't adequately put words to the degree of success and renown Jim had in the U.S. cattle industry as a breeder and a judge. His funeral was a who's who of

cattle producers. He judged everything from national cattle shows in Louisville, Ky., to a local hog show in Avon.

Jim was a humble guy who wore the same dirty jeans and T-shirt and cap to town that he wore on the farm. He knew good cattle and he raised good cattle.

In recent years, Jim was the guy who lined up cattle to go in the ring at the Illinois Beef Expo and at the state fair. We'd stand there waiting our turn and watch him pat every kid on the back. Tell them good luck. When he judged, it was high fives and hugs. It was kneeling down to talk to a kid in the ring.

The world lost a kind man who loved kids and cattle. He leaves behind a wife who loved him, three children and six grandchildren he FaceTimed every night. A niece who thought he hung the moon. Some 3,000 people walked through his visitation.

In the days after his death, photos and tributes surfaced on social media from friends and from the young people he affected. What I've noticed time and again is that people remember the way he made



FRIENDS: Jim Bloomberg knelt down to shake hands and talk with Nolan Lee during pre-peewee showmanship at the 2013 Hereford junior national, and Nolan just kept holding on. Nolan's grandpa Bill Couch and Jim were old friends from back in the day, raising Simmentals. Nolan is 14 today. PHOTO BY CHRISTY LEE, CEE LEE PHOTOGRAPHY

them feel: important.

No matter where they placed.

We've all got our place in this world,

and Jim lived his pretty well. Just live a good life. And maybe pat people on the back more.

Production shortfalls may offer pricing opportunities

BY JACQUELINE HOLLAND

USDA'S FORECAST IN May for U.S. winter wheat production was bleak. While no formal estimate was issued at that time for spring wheat production, persistent planting delays in the Northern Plains due to cold and wet weather do not bode favorably for achieving trend-line spring wheat yields.

Winter wheat harvest is about to wrap up in the Southern Plains and will continue inching north. Yield downgrades are already apparent. The mid-May Kansas wheat tour pegged the country's top wheat-producing state with a winter wheat yield estimate of 39.7 bushels per acre, compared to 52 bushels a year ago.

As of late May, the Kansas Wheat Commission forecasts 2022 production for the state at 261 million bushels, down over 100 million bushels from 2021. USDA's May hard red winter wheat estimates shrunk 21% lower than last year, to a meager 590 million bushels. USDA expects



RUSSIAN WHEAT BOOM: Russia is likely to harvest its largest wheat crop this summer since the fall of the Soviet Union. But if sanctions hold, higher insurance, credit and transport costs for the crop will keep global wheat prices high.

WHEAT OUTLOOK

2022 will see the highest volume of winter wheat acreage abandonment since 2002.

ELSEWHERE IN NORTHERN HEMISPHERE

Global wheat prices weakened in early June as hopes for improved access to Ukrainian grain tempered recent market rallies. But markets remain wary of Russia's willingness to allow Ukrainian shipments to pass through the Black Sea unhindered, creating for more price volatility.

Russia is forecast to harvest its largest wheat crop this summer since the fall of the Soviet Union. The bumper crop could cause bearish price action when it finally reaches the market. If Western countries continue to hold in place economic sanctions against Russia, higher insurance, credit and transportation costs for the Russian crop will likely keep global wheat prices high.

Russian oil tankers have been turning off their GPS and circumnavigating sanctions to continue trading crude oil products with China and India. Expect to see more of these strategies implemented for Russian wheat shipments as the behemoth crop comes to market, especially if sanctions remain in place.

Smaller crops in Ukraine and the U.S. will keep supplies tight this year, but demand is not slowing down anytime soon. USDA estimates 2022-23 global wheat usage rates will rise 0.2% despite high prices — the fourth consecutive year for global wheat consumption growth.

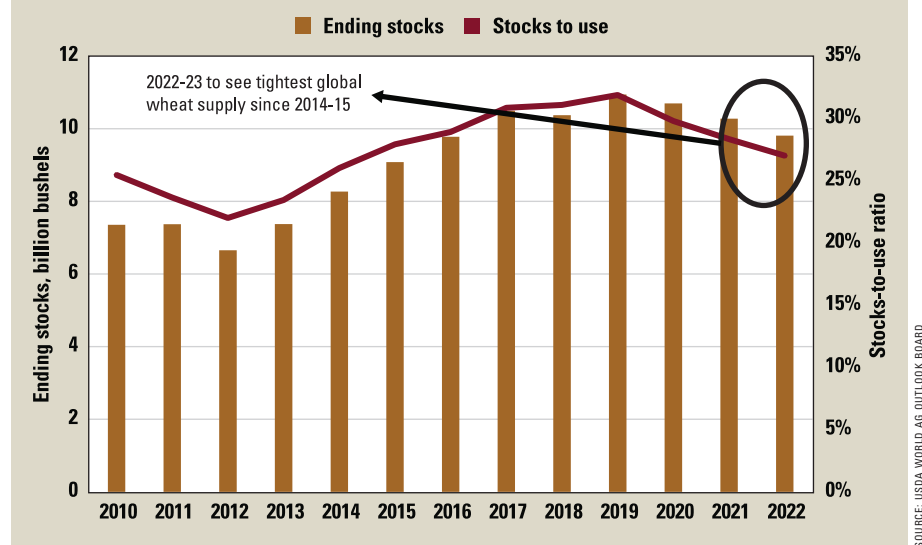
The one-two punch of tight supplies and growing global demand means strong wheat prices are likely here to stay for another growing season.

FUTURE IMPLICATIONS

Global wheat supplies this year are slated to be the tightest since 2014-15. While supplies aren't going to run out, the increased scarcity will create additional time lags for transport, processing and retailing, which translates to higher costs across the board.

Will more acres be bought for winter

Global wheat stocks vs. usage



wheat this fall in the U.S.? The price incentive certainly encourages it, though other economic factors may sway growers' decisions. High input costs and strong profit forecasts for competing crops could once again deter acreage decisions away from wheat.

As harvest wraps up on your farm,

pencil out the costs (don't be surprised if they're higher this year) and potential revenues to determine if the payoff from early sales and input purchases justifies a profitable outlook for more wheat acres in the 2023 season.

Holland is a grain market analyst with sister publication *Farm Futures*.

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Summer prime time for pricing fall energy needs

MARKET OUTLOOK

BY JACQUELINE HOLLAND



MOST OF THE heartland is still several weeks away from the peak pollination period for corn and soybeans, as this column was being written in early

June. That makes it the perfect time to look ahead at future pricing opportunities.

Many growers could experience some hesitancy when prebooking crop sales before yields are known this year, especially with a late start to spring planting and looming potential for further weather issues later in the season.

But even with the exact corn and soybean crop sizes still unknown, growers can start to plan now for fall drying costs. Warmer weather typically creates lulls in propane pricing for growers who may be anticipating a late harvest.

As of late March, propane inventories across the heartland were below the five-

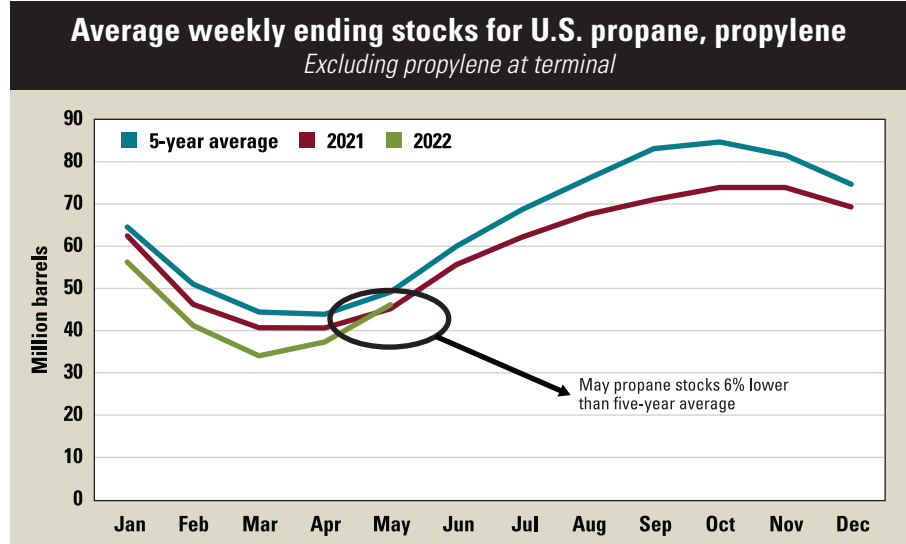
year average, with more tightness in the Upper Midwest than the eastern Corn Belt. Inventories typically replenish over the summer months, which helped shift cash propane prices lower in May.

OPEC+ also issued forecasts for a 62% crude oil production increase in July and August, above previous output upsurges, at its early June meeting.

OPEC countries, namely Saudi Arabia, are likely to increase shipping volumes to the U.S., which could help shift propane, diesel and gasoline prices lower ahead of harvest.

If the lower price trends continue through the summer, it could be an opportune time to lock in fall energy prices. But markets remain skeptical of future dealings with OPEC countries, especially in light of the ongoing Russian military occupation in Ukraine. That price window could be exceptionally narrow this year.

At the same time, without further supply issues from Brazil and the Upper Midwest, corn prices could trend lower as harvest approaches and corn export season wanes. Locking in sales for both new crop (2022) and old ('21) this month



to cover future expenses could help offset some current market volatility.

SELL NOW — OR WAIT?

Even if growers chose to wait and pursue cash sales at harvest, it will likely be a lucrative choice. Strong futures prices driven upward by tight supplies should help offset some of the pain growers could feel due to smaller corn yields expected this year.

In a year with tight global soybean stocks, the fall export season could pay big dividends for U.S. growers.

Barring any potential hurricane damage at the U.S. Gulf Coast this fall, export paces are likely to be hot. As of late May, outstanding new-crop soybean export sales were already 63% higher than the same time a year ago. Top-buyer

China has driven the interest in soybeans, snapping up nearly 2.4 times more new-crop soybean purchase orders from U.S. exporters than last year.

It's not just China interested in U.S. soybeans this fall. Egypt and Algeria have outstanding new-crop orders on the books already. European countries also placed early orders.

Pulling the trigger on sales now could result in handsome rewards, but a premium could also be waiting for those harvest sales. Both strategies could be profitable for growers this year, which should help producers navigate these volatile markets with more confidence.

Holland is a grain market analyst with sister publication *Farm Futures*. For more insights, visit FarmFutures.com.

Health and Safety Tent a smart stop at farm show

BY MATT JUNGSMANN



FARM PROGRESS HAS a proud tradition of providing farmers information about the latest tools they can use for the farm, and that continues in 2022

with the Farm Progress Show and Husker Harvest Days. What many visitors might not know about is our continuing tradition focused on farmer health and safety.

Both shows have long had demos and

MANAGER'S NOTEBOOK

information about farm safety and health. From showing the dangers of grain entrapment to providing health screenings, both shows will continue to work with local providers to offer these services in 2022.

The Farm Progress Show is Aug. 30 to Sept. 1 in Boone, Iowa, and the Health and Safety Tent is being organized as we speak. Marsha Cheyney, Great Plains Center for Agricultural Health outreach specialist, is

helping develop the extensive program.

She explains they're focused on demonstrations, safety education and health screenings for visitors. Demos will include an ATV tilt table showing the challenges of operating those versatile machines. And the folks from AgrAbility will be on hand showing how their service works to make farming accessible to all.

Safety education will include grain bin safety, fall prevention, safety regarding gas containers and a look at worker protection standards. There will also be mental health support services on hand.

And the tent will offer health screenings. Cheyney notes that these types of services may be one of the only times a farmer gets a blood pressure check, for

example. If it's been awhile for you, stop by during your Farm Progress Show visit.

HUSKER HARVEST DAYS HEALTH SERVICES

The Hospitality Tent at Husker Harvest Days also has a long history of providing health support services.

This year, longtime showgoers will find the tent has been rearranged to provide an enhanced experience for visitors. But you'll still find that extensive health and safety support. Husker Harvest Days is Sept. 13-15 in Grand Island, Neb.

Make plans to stop by the health and safety locations at FPS or HHD. It might be just the break you need at either show.

Jungsmann is national events director at *Farm Progress*.

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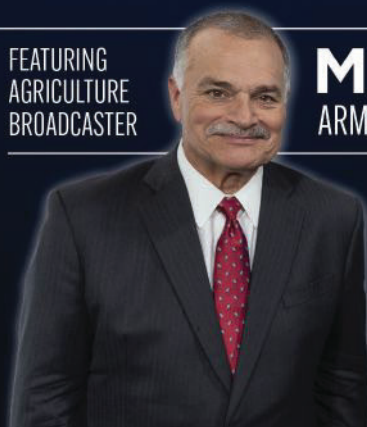

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