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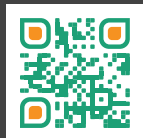


HOLLY SPANGLER

Like a lot of pork producers, Curt Zehr is clear about what California's Proposition 12 means for farmers — and for consumers. "California is trying to dictate to the rest of the country how we raise pigs," says Zehr, who raises pigs near Washington, Ill. Turn to Pages 6-7 for more on Prop 12, the lawsuits farm groups have filed against it, and its path to the Supreme Court this fall.

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BACK IN IOWA: The Farm Progress Show crowd can make the trip back to Boone, Iowa, from Aug. 30 to Sept. 1. From autonomous technology to the first-ever concert on the site, the 2022 show promises to offer plenty for visitors. PHOTO BY CHAD COLBY

What to know about FPS

Here are key details for this year's Farm Progress Show:

- The show runs from Aug. 30 to Sept. 1.
- Gates are open from 8 a.m. to 5 p.m. Tuesday and Wednesday; from 8 a.m. to 4 p.m. Thursday.
- Admission is \$20 for adults (\$15 in advance), \$10 for students 13-17, and free for 12 and under.
- Discount tickets and more information are available at FarmProgressShow.com.
- Search for the 2022 FPS app on Apple or Google.

Farm show returns to Iowa for 2022

BY WILLIE VOGT

THE FARM PROGRESS Show hasn't been in Iowa since 2018. "We're excited to be back, but it's been a while for us," says Matt Jungmann, events manager for Farm Progress. "We've had to scrape the rust off a bit to get ready."

Jungmann and the events team are hard at work, setting up the traffic plan, locking in exhibitor spaces and making sure a range of features will be ready for visitors when the gates open at 8 a.m. Aug. 30.

One change this year is an upgrade to the Varied Industries Tent. The Iowa Soybean Association has partnered with Central Iowa Expo to install a soy-based asphalt surface. The 60-by-600-foot "floor" uses a soy-based polymer, a technology developed by Iowa State University.

Also for the first time, the Iowa site will host a concert, featuring country music singer Lee Brice.

"We're excited about this concert, which will be on the showgrounds," says Don Tourte, senior vice president of sales for Farm Progress. "We did that in Decatur in 2021, and it was a great success."

The stage will be set up on the southeast corner of the grounds, and ticket-holders can enjoy the concert as part of their admission.

Traffic for a major event like this show requires planning, with approaches and

FARM PROGRESS SHOW

contingencies worked out, too. "Highway 17 is being widened to add another lane before the show," Jungmann says.

The wider road will speed entry to the show this year. "We'll have that extra lane and new entry points to the visitor parking area on the north," he says.

Jungmann says an online traffic plan posted a few weeks before the show can be a guide. But paying attention to law enforcement as you enter the show will be your best bet. "If there's a need to alter the route due to the traffic, law enforcement officers know those contingencies," he says. "It's always good to pay attention to them when entering the show site."

Campers who bring their self-contained RVs to stay at the show will have a new location. Overnight parking will move from the northwest to the northeast corner of the site.

DEMOS OF MANY KINDS

This year the show site has had two major rains that each dropped 6 inches of water, but that's not slowing the corn crop, which is on track for harvest during the show.

"It's looked a little rough this year, but it's coming right along," Jungmann says.

Those demo areas will include more than combines and tillage tools. Farmers

will have Ride 'n' Drive opportunities, as well as some "hands off" demonstrations of new autonomy tools.

"We're expanding the autonomy area," Jungmann says. "In 2021 in Decatur, Raven showed its latest tools. For 2022, we have more exhibitors showing this equipment."

In addition, farmers will have a chance to see how drone application technology can be deployed on the farm. Companies that have committed to show their wares in the Ride 'n' Drive area include Chevy Trucks, Case IH and John Deere.

SPECIAL EVENTS, TOO

Beyond the exhibits that will be on hand, there is some fun to be had, too. In 2018, Mitas/Trelleborg floated a tractor on the show site's retaining pond. It demonstrated how tires can help with "flotation."



DEMO CORN: The field demonstration corn is on track to be ready for harvest when the gates open for the 2022 Farm Progress Show.

The company will return with that demonstration this year. Jungmann got to drive the 2018 demo tractor into the pond and expects a little "helm time" this year.

The Dock Dog Competition also will return. This event, which first appeared in 2021 in Decatur, has dogs running at full speed, then leaping off a dock to catch an object. It's a fun event for visitors and offers a break during the busy show day.

Volume 194 | Number 7

Contents

Inside Illinois Ag.....	3
Prairie Views.....	8
Crops.....	10
Technology.....	40
Natural Resources.....	46
Farm Management.....	51
Beef Focus.....	56
Livestock.....	61
Marketplace/Classified.....	62
Prairie Life.....	72
Marketing.....	73

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Pork producers, consumers lose unless Prop 12 repealed

BY MIKE WILSON

BY NOW YOU'VE likely heard plenty about California's Proposition 12. The law says producers from other states can't sell their pork in California unless their hog housing follows the Golden State's standards.

The American Farm Bureau Federation and National Pork Producers Council are suing the state to stop the law from going into practice. The U.S. Supreme Court has decided to hear the case in October, so the issue could be settled early next year.

Four years ago, the Humane Society of the United States (HSUS) used emotional blackmail to persuade a vast majority of California voters to approve the law, because who wants to see farm animals treated badly? No one, including genuine animal scientists who have calmly explained over and over why gestation crates help prevent sows from hurting

COMMENTARY

each other and allow farmers to individually care for each animal.

But neither logic nor science was ever part of this campaign.

BACON BAN

California is the world's fifth-largest supplier of food, cotton and other ag commodities, but that does not include much pork. Prop 12 states if you want to sell pork there, you gotta play by their rules — no matter where you farm. Those rules include hog pens that give a sow 24 square feet of space. Gestation stalls vary across the industry, but the most popular is around 21 square feet.

The NPPC-AFBF case argues that Prop 12 violates the Constitution's Commerce Clause, limiting states' ability to regulate

commerce outside their borders. The clause gives the federal government the right to regulate trade barriers between states. Throughout history, the court has used the Commerce Clause to strike down unfair practices such as price fixing and to regulate monopolies in industries such as meatpacking.

The case was dismissed in lower courts (all based in California), but in March, it was granted certiorari, which means a higher court — in this case SCOTUS — will review a decision of a lower court. The Supreme Court could hear oral arguments in the fall and may render a decision by the end of the year.

WHY IT MATTERS

Shouldn't farmers just do what consumers want? The short answer is yes — unless you have to gut your business in ways that suit one state's nonsensical rules

and not the other 49. Will grain farmers be harmed? It's possible. If enough hog farmers say it's not worth the cash to refurbish hog barns to accommodate one state's market, they could cash out, and there goes grain demand.

If SCOTUS allows the law, there will simply be two sets of supply chains: one to accommodate the United States and the world, and the other to accommodate California. Inefficient? You bet. And it will show up in high food prices already rocked by record inflation. It will achieve the HSUS overarching goal to compel more consumers to go meatless.

People think only celebrities and rich people live in California. In fact, there are millions of regular folks who call California home, surviving the state's insane gas prices, goofy politics and outrageous property taxes. Many live at or below the poverty line. Many are hardworking Hispanic families whose favorite animal protein happens to be pork. And in my experience, if you have never had carnitas (pulled pork) from a Mexican food truck on the streets of California, you haven't lived.

Prop 12 would add sky-high food costs to all the self-inflicted wounds California manages to impose on its residents.

INTERSTATE RULES

It's not just "one state overrules all" that is worrisome. This is about principle, and the laws we live by in the United States.

"California is trying to dictate to the rest of the country how we raise pigs," says Curt Zehr, a pork producer from Washington, Ill. "Prop 12 goes against the Constitution's interstate Commerce Clause, that says one state cannot dictate to others how you're going to do business."

Those arguing the case say this law regulates commerce outside of California. "The lawsuit says there are so many interactions being governed by Prop 12 that are entirely outside of California that they violate this dormant Commerce Clause provision in the Constitution," says Travis Cushman, AFBF's senior counsel for public policy. "We had to stop and draw a line in the sand, and that's why we had to sue California."

The required 24 square feet of space is "not a standard hardly anyone currently complies with," Cushman says. "It was not written by folks who were veterinarians or farmers. So, it makes it very difficult, especially for small farms."

HOGS HARMED, NOT HELPED

Zehr, who has raised pigs for almost five decades, has used both pen gestation and

Prop 12 goes before SCOTUS

BY JACQUI FATKA

In a major win for the ongoing battle to defend pork producers from adhering to California's Proposition 12's space requirements for breeding hogs, the Biden administration's top lawyer filed a brief in support of the National Pork Producers Council and American Farm Bureau Federation's lawsuit. The brief is one of many documents filed in June in support of urging justices to uphold the Constitution's Commerce Clause and limit the ability of states to dictate what other states can and cannot do.

The solicitor general brief comes after nearly a dozen Democrat senators — including Sens. Debbie Stabenow of Michigan and Tammy Duckworth of Illinois — asked for the solicitor general to file a brief in support of California's position to uphold its law.

In addition to the support for pork producers from the Biden administration, international trading partners and business groups filed amicus briefs in support of NPPC ahead of the Supreme Court scheduled oral argu-

ment date set for Oct. 11.

AFBF and NPPC filed a brief June 10 with the U.S. Supreme Court, challenging the constitutionality of California's Proposition 12. The list of other amicus briefs filed includes 26 states (but not Illinois), National Cattlemen's Beef Association, U.S. Chamber of Commerce, North American Meat Institute, Canadian Pork Council and others.

Michael Formica, NPPC general counsel and assistant vice president of domestic affairs, explains: "You have a state that produces zero pork that passed a law with the intent of applying it outside the state, but also in foreign countries. And that is not allowed under the U.S. Constitution."

"Essentially, anyone who has a business in one state that sells a product in another state is frightened of the precedent that California could set."

The solicitor general brief notes, "Petitioners plausibly allege that Proposition 12 has no genuine health and safety justification. And the California Department of Food and Agriculture has stated that Proposition



SPACE: Proposition 12 doesn't legislate space requirements for finishing hogs, but California hasn't released specific rules to the industry yet.

12's confinement standards are not 'accepted as standards within the scientific community to reduce human foodborne illness.'"

The brief filed by the top lawyer for the Biden administration adds, "Proposition 12's sales ban is aimed at 'cruelty' to animals that occurs entirely outside California and has no impact within California. The state may not 'extend [its] police power [over animal welfare] beyond its jurisdictional bounds' by regulating out-of-state activity with no in-state impact based on a philosophical objection."

crate gestation systems on his farm.

“There’s pros and cons to both,” he says. “I think crate gestation is easier on the sows — they don’t fight and hurt each other. In pen gestation, when you mix sows after you wean, they fight, and that’s why we went to crates as an industry — to take away fighting between animals.”

A 2010 study at the University of Minnesota found that converting U.S. sow barns to group pens would cost the pork industry between \$1.87 billion and \$3.24 billion — and that was 12 years ago, so the impact is no doubt even more costly today. It also found there was little, if any, improvement in sow welfare.

If the law stands and there’s enough premium, some farmers will invest and change out buildings. Smithfield Foods has converted some, but not all, production facilities to pen gestation.

“I hesitate to speculate on how much change will occur if this rule is allowed,” Zehr says.

If the law stands, pork farmers from across the country can expect a California

inspector to demand a peek inside their hog houses. That won’t sit well with pig farmers who manage biosecurity.

“We have a very strict biosecurity program on our farm,” Zehr says. “Biosecurity is a really big deal. We don’t let anyone on the farm unless they shower and wear our clothes. To come on my farm, they would have to stay out of a hog farm at least the previous 24 hours.”

“I’m not sure I would let any inspector on the farm, to be honest,” he adds. “The only one we allow on is a vet, and he comes on a Monday so he’s not around pigs all weekend. There’s a lot of people like me with totally enclosed units who are possibly even more stringent than I am.”

PATCHWORK BARRIERS

The law couldn’t be more poorly timed. Food prices have skyrocketed from supply chain disruptions and inflation. Pork is a high-quality protein and one of the most economical meats you can buy. Prop 12 could end that.

“What it really boils down

to is, somebody is making rules to make protein more expensive and limit choices people have — the kind of meat they want to buy, what they can afford to buy, and how it’s raised,” Zehr says. “I’m not against choice. But I do have an issue with people trying to legislate away my choices as a hog farmer and how I think is the best way to do it.”

The possibilities for patchwork state barriers are endless.

“We really believe we have a great case here,” Cushman says. “These issues are wildly important, not just to hog farmers but to any business that does commerce in America, in general. One state shouldn’t be al-

lowed to dictate the processes by which another business does things.

“The ramifications are legion and very dramatic for anyone who has a business.”

While we await the outcome, give big props to NPPC and AFBF for challenging Prop 12. If you ever scoffed at your farm groups, now is the time to say thank you — no matter which way this case concludes later this year.

Wilson is executive editor of Farm Futures, a sister publication.

Slippery slope for U.S. food security

If Proposition 12 is allowed, consider the precedent it will set. California is one of 26 states that allow ballot initiatives, a process that gives residents a way to propose laws and constitutional amendments without the support of the governor or the Legislature.

Activist-driven ballot initiatives can be dangerous to U.S. food security. Driven by emotional pleas and not science, consumers can fall for all kinds of nonsense, unintended consequences be damned. In Oregon, an activist-driven ballot (now postponed to 2024) would have classified livestock slaughter as aggravated abuse and redefined artificial insemination and castration as sexual assault. Last spring a similar proposal was being put forward in Colorado, but the state’s Supreme Court paused the effort in June.

States with big urban populations and limited farm support are most vulnerable. HSUS went to California and Massachusetts to set precedent. There is little commercial pork production in those states, with massive populations who don’t know much about where food comes from or how it is produced.

Consider what a charismatic political leader might say or do to get elected, regardless of sound science or economics. In Sri Lanka last year, the president banned imported fertilizers and ordered the country’s 2 million farmers to immediately adopt organic methods. The result was a dramatic production decrease in all their crops — 18% in tea and 20% in rice alone — resulting in food shortages, power cuts, economic turmoil and riots. That president just resigned.

If Prop 12 stands, activist groups could launch feel-good campaigns detached from science or economics, all to block interstate sales. Your residents should only eat organic? Check. All goods sold in your state should only be made with union labor? Check. No GMOs? Why not?

“I’m not against choice. But I do have an issue with people trying to legislate away my choices as a hog farmer and how I think is the best way to do it.”

— CURT ZEHR



PHOTOS BY HOLLY SPANGLER

Live and farm with purpose

BY HOLLY SPANGLER



DEBBIE GLOVER ONCE told me how she and her husband, Danny, were compelled to farm together. Not just as a farmer and a farmer's wife — but as legitimate, indispensable partners farming the land.

Both in tractors. Both grinding feed. Both turning wrenches at 3 a.m. Both

MY GENERATION

sorting hogs. Both throwing in a load of laundry at night.

"There was just lots to do," she said. "We were partners out of necessity."

I first met Danny and Debbie back home; they were farmers who raised corn, soybeans and hogs near Bone Gap. I noticed they worked together a lot. She did as much as he did in the field and the

hog house. Several years later, I was in college, trying to write a story for a magazine writing class. Debbie agreed to an interview, and I learned how two kids who didn't exactly grow up on farms learned to farm from scratch, together.

"Danny and I always worked together," she told me back then. "When we're working a field, he points a certain way and I know how he wants me to disk that field. We just read each other's thoughts."

Obviously, that's some kind of mind-reading miracle, given the variety of sign languages farmers are known for and the volumes that have been written about how to decipher them. Talk about teamwork.

Danny passed away recently. He had shingles a few years back, then a series of complications, surgeries and a stroke. Debbie was his full-time caregiver. He was just 70, which sure isn't as old as it used to be.

TEAMWORK ON PURPOSE

I think there are some folks you meet and pay attention to over your lifetime, watching how they do life, how they make decisions. What I've noticed about the Glovers during all these years is that they were a team — on the farm, in life, in ministry, in the community.

Danny and Debbie lived with purpose. They farmed with purpose, too, knowing the land they farmed belonged to God, no matter whose name was on the deed. They were caretakers, doing their best.

They retired several years ago, renting their ground to Allen and Chad Broster — a father and son I visited back in 2007. We ran their photo on the cover of *Prairie Farmer*, in a story about building grain storage that could grow with their farm. Kind people and good farmers. By all accounts, these two families have more than just a farming relationship, so it's remarkable to imagine those expanding bins holding these folks' crops.

Our pastor preached on Psalm 90 a few weeks ago. That particular psalm speaks of the everlasting God, present long before the mountains, who reigns over a thousand years as if it's a day. It speaks of a lifetime passing quickly and we fly away. Even 70 or 80 years.

It's encouragement to spend days of purpose with a heart of wisdom, more than just working and running. I'm in the middle of my life, working and writing and running after kids. Loving my husband, trying to show up in my community.

More days than not, I feel the urgent threatening to run over the important. It's too easy to count the years but waste the days.

MAKING A DIFFERENCE

Danny and Debbie have lived lives of cooperation and partnership, service and kindness. They came through the visitation line when my mom died and wanted to meet my in-laws. Debbie bought a quilt that my mom had made in a silent auction and sent it to me, throwing in an Illini mask because she knew we'd love it. She never fails to tell me she's proud of me.

She and Danny are who I thought of when our pastor laid down this line of wisdom: "Make sure the things that matter are the things that matter to you."

We all want our lives to count for something. We get a brief 70, 80, maybe 90 years, if we're lucky. In the span of the world, that's a whisper of time. If you're younger, find folks to watch and learn from. If you're older, be the folks others can watch and learn from.

In the end, we all leave behind a legacy. What will your life say about you?

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

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PARTNERSHIP: Debbie and Danny Glover have lived lives of cooperation and partnership, service and kindness. PHOTO COURTESY OF DEBBIE GLOVER

FROM THE MAILBAG

DISPATCHES FROM MIDDLE GROUND

Just wanted to tell you that your article "Heroes, villains and all the folks in between" (July, Page 10) was very well written. And I would hope that you get more positive comments than negative. I think sometimes we all can tend to have our blinders on, whether on the right or the left. And it's easy to do. I've never seen people so divided, and I must admit I've been guilty myself. And we all complain (some more than others) about a lot of things and want to blame someone. But we still are so much better off than people in other countries. Outside of that, I just want to say again how good a job you do. And I appreciate all your articles.

Pat Benda,
Macomb

My wife and I wish to thank you for your recent Prairie Farmer columns. Finding well-thought-out, objective discussions of our current political situation has been very difficult. However, you have been able to deal with a very charged situation in a very tactful way, and we certainly applaud you for that. We have shared these pieces with several people, and they were very well received. As we see more and more newspapers cease to exist, we really appreciated your comments on how and where we get our news. Since you have a farm audience, hopefully that will reinforce their paper reading and reduce their dependence on what the cable networks send their way.

Roger and Verna Tice,
Sullivan

Greetings from the Wabash Valley. Just a note to thank you for your comments in the July issue "My Generation." Those of us involved in ag advocacy in Illinois understand your thoughts very well. Being rural and farming in Illinois presents many communication challenges. Thank you for what you do for us.

Don Guinnip,
Clark County

Just got my Prairie Farmer and read your article referenced. Good article and agree wholeheartedly and appreciate your points and recommendations that so many of our ag issues are moderate and our legislators need to see both sides of the issue and make decisions based on their constituents and not just their zealous party line. And also to encourage us to contact our legislators ... when we disagree with their actions rather than just shilling a political meme seen or heard on social media. Thank you.

Jeff Koch,
Chatham

I read your articles on a regular basis and enjoy them. I would like to commend you on

this one in particular; too many people are caught up in what they hear on the radio and TV. People need to come to a middle ground if anything is to be accomplished.

The politicians that you mentioned have done so to the benefit of all Illinois residents, and this is what needs to be done in Washington. There is a pending bill that would promote the investment of manufacturing semiconductors in the U.S. that McConnell is threatening to kill.

We unfortunately have become our own worst enemy.

Mike Muellner,
Avon

I must say this was a good article in the Prairie Farmer. The biggest problem we have today is spending most of our time finding fault rather than counting our blessings and working together.

Some would vote for a monkey if it was a Democrat or a Republican.

Jack Tosetti,
Nokomis

INFLATION AND THE '80s

I enjoyed your article on farm crisis in the 80s ("Inflation and agriculture: What does it mean for your farm?" February, Pages 4-5). Your question was what got us through. My answer: a very smart banker. My loan officer was Bill Riegle, and I have thanked him many times. At that time, we were fortunate to have two farms in our name, not paid for. The first one was before the big jump and the second one was at the peak.

A relative gave us first chance at her farm, and it was one that I had been doing some custom work on. I've always had a rule before making big decisions to ask my wife, then my banker. I told Bill about the opportunity and said I thought it was a good deal. His response was, "Lyle, before this is over there will be many more good deals." He was so right, and he was ahead of the game.

You've read the rest of the stories, now that's ours. I'm 83 and starting my 64th year practicing farming, with the help of my four agribusiness sons.

Lyle Warner,
Ashton

We want to hear from you!

Prairie Farmer welcomes opinions and comments on issues that relate to your farm business. Send an email to Holly Spangler at holly.spangler@farmprogress.com, or write to Prairie Farmer Letters, 3369 E. Cucumber Hollow Road, Marietta, IL 61459.

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



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Assess soybean yield potential midseason

SOYBEAN WATCH

BY TOM J. BECHMAN

WHAT WILL ALL your planning and hard work produce? Midseason is a great time to walk fields and get a feel for the yield potential of this year's crop.

"You don't need a problem in the field as a reason to go walk and look," says Steve Gauck, a regional agronomy manager with Beck's, Greensburg, Ind. Beck's sponsors Soybean Watch '22.

"It's fun to walk into soybean fields when you haven't been called out because something is wrong," he says. "When you are out there in the field, you're naturally going to look for diseases and insects, but it's nice just to look and evaluate how well each variety is growing.

"Take time to assess overall plant health and see how well plants are branching and producing pods. High yield depends on a maximum number of nodes and pods per acre."

FOCUS IN THE FIELD

Here are specific areas to evaluate when scouting soybeans midseason:

Check plant health. "Pull back the canopy

and see what's underneath," Gauck says. "By now, rows should be closed, even in 30-inch rows. In drilled or 15-inch-row beans, you will likely find some yellow leaves lower in the canopy. That's normal. Lower leaves are no longer getting sunlight."

Differentiate between normal yellowing and disease. Some fungal and bacterial diseases can also cause yellowing of leaves, Gauck says. However, if a disease is involved, leaves usually aren't uniformly yellow. You likely will see splotches and spots on leaves.

One important disease, frogeye leaf spot, produces small, brownish lesions with a halo effect on green leaves. Frogeye leaf spot lesions form on leaves near the top of the plant first. Expect to see brown spots on lower leaves in the canopy.

Evaluate branching and number of nodes. How many plants have branches with a significant number of pods? More pods usually mean more yield. Expect plants in thinner stands to branch more frequently. Also, note how close together nodes are spaced on the main stem. Typically, a high percentage of yield comes from nodes up and down the center portion of the stem.

Examine upper portion of plants. If weather conditions are conducive to growth, plants should still produce new trifoliolate



HOW HEALTHY? These soybean plants were healthy at the midway point. Some lower leaves are yellow due to shading beneath the canopy. PHOTOS BY TOM J. BECHMAN



POISED FOR MORE: All these plants needed was rain at the right time for these tiny pods near the top of the plant to grow and produce extra beans.

leaves and pods near the top. With adequate rain during the critical reproductive phase, these become bonus bushels. If moisture is scarce, some pods, especially near the top of the plant, will likely abort, Gauck says.

Assess soil moisture conditions. Are plants currently in good condition, or is

moisture short? Dig one or more plants and evaluate roots. Nitrogen-fixing bacteria within nodules usually stay active into the R5 stage. If bacteria are still active, nodules should be pink inside. If nodules are still active and moisture is adequate, there is a better chance plants will fill most pods with large beans.



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Seeding depth affects early growth

BY TOM J. BECHMAN

A SOYBEAN DOESN'T leave a seed behind to mark where it was planted like corn does. Instead, this dicot plant splits into two halves, and the hypocotyl elongates to pull them above ground.

Nevertheless, Steve Gauck says you can still gauge seeding depth in soybeans at any time during the season. Simply dig a plant and determine the distance between where root hairs begin on the stem and the soil line. On larger soybean plants, look for a curve near the bottom of the hypocotyl with a large number of nodules present. Use this point as reference for the original seed location.

"Measure the distance and you have the seeding depth," says Gauck, Greensburg, Ind., a regional agronomy manager for Beck's, sponsor of Soybean Watch '22 (see story at left).

"If you varied seeding depths while planting, consider digging up a few plants from different depths and making comparisons," Gauck says. "Seeding depth can make a difference in how the seedling develops, especially early in the season."

The Soybean Watch '22 field features soybeans planted at 2.5, 2 and 1.5 inches deep. The grower raised the depth in stages until he was satisfied that he wasn't planting too deep. There is no difference in stand counts at any of these depths. All are around 130,000 seeds per acre.

"We might have seen differences in other environments, such as if soils were cooler or it rained a lot after planting," Gauck says. "Neither of those things happened here, so in this case, planting depth

was not a factor in emergence."

Yet when Gauck dug up plants from various depths, he found differences in plant growth stage. "Plants which were planted deeper and took longer to emerge were about half of a growth stage behind when examined at about V2, or second

trifoliolate, for the largest plants," he says.

"However, it doesn't mean those plants which emerged from a deeper depth will still be behind at the end of the season. I contend that since roots are deeper, operating in cooler soil depths as the season progresses, they will be better positioned

to take up nutrients and water efficiently during the drier parts of the summer."

There will also be another difference, Gauck believes. "Nitrogen nodules, which contain bacteria and pull nitrogen out of the air and make it available to the plant, generally perform better at slightly deeper depths. They respond to slightly cooler soil temperatures achieved by deeper planting.

"It's quite possible that deeper-planted plants may produce more beans per plant in the long run."



DIFFERENT DEPTHS: These soybean seedlings emerged from different planting depths. The seedling on the far left was planted about 2.5 inches deep vs. about 1.5 inches for the seedling on the far right.

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 | **BECK'S**

EPA moves ahead on WOTUS rewrite

WOTUS: Agriculture's voice continues to be heard at the U.S. Environmental Protection Agency by Rod Snyder, EPA agricultural adviser. He says farmers deserve certainty on a WOTUS definition and implementation, and EPA is working hard to offer that proper balance. PASSION4NATURE/GETTY IMAGES

BY JACQUI FATKA

THE ENVIRONMENTAL PROTECTION Agency continues to work on updating the definition of "waters of the U.S.," despite a crucial case, *Sackett v. EPA*, to be heard by the U.S. Supreme Court later this year that also could have implications regarding how wetlands are defined and regulated by the government.

"We're still on a path to produce some certainty while we see what plays out with the Supreme Court," said EPA Administrator Michael Reagan while tes-

tifying before a Senate committee in April.

According to Rod Snyder, EPA agricultural adviser, "Our goal continues to be to try to find a durable definition for waters of the U.S. after really a number of years of pingponging back and forth due to federal court decisions," which has led to three different federal rule-makings in the last eight years.

"We really want to try to find a solution here that stands the test of time," he said.

Snyder said the proposal on WOTUS that came out in December received over 120,000 comments. The agency continues

to evaluate those public comments seriously, but it could be this fall before the next concrete step on the rule. He does believe there's interest in trying to get this rule finalized this calendar year.

EPA held regional roundtable discussions this spring and summer on implementation issues, and five of those were hosted by agricultural organizations. Courtney Briggs, American Farm Bureau Federation senior director of congressional relations, says three state Farm Bureaus led panels at their respective regional roundtables.

"Those roundtables are designed to talk about implementation concerns across various regions," Briggs said. The roundtables provide the opportunity to hear different viewpoints, including from agriculture, environmental justice, environment, construction and development, and municipalities.

SCOTUS CASE IMPACT

Snyder recognizes there's interest in the *Sackett* case that will come before the U.S. Supreme Court this fall, which will provide insight on what is a significant nexus and a standard test for wetlands. But there

are many other unresolved issues, with a deeper look at many concerns being expressed by farmers. These include issues farmers face as they meet with the Army Corps of Engineers, real-life examples of what's happening on the ground, and looking at whether there are things the agency can do to help make the implementation process more efficient.

"That extends well beyond the scope of what the Supreme Court is going to be focused on," Snyder said. "We don't need to see a WOTUS rule-making every two years. That's not good for the environment. It's not good for farmers."

A total of 155 House Republicans and 46 senators filed an amicus brief in favor of *Sackett* for the SCOTUS case, saying farmers, ranchers and landowners deserve certainty, and that the Supreme Court will put an end to this "regulatory confusion."

"If allowed to stand, the 9th Circuit's decision will harm each of those interests. It will allow a federal agency to make every puddle, ditch and creek in the U.S. subject to overbearing regulation," the brief states.

The 9th U.S. Circuit Court of Appeals upheld the *Sackett* case.

NRCS needs farmer survey results

IN JUNE, FARMERS across Illinois received a survey from NRCS asking about their conservation practices. The agency's message today: "We're not kidding, we really need to know this stuff."

The survey is a joint effort of the Natural Resources Conservation Service and USDA's National Agricultural Statistics Service. The deadline for responding is Aug. 19, and farmers can do the survey online at agcounts.usda.gov or fill out the form and mail it back.

Not everyone received a survey, but if you did and you haven't responded yet online, you may get a phone call from

NASS to do the survey there.

"Your responses will help us learn why you select certain practices and how we can get you the information and the technical help you need to solve issues you face on the farm," says Illinois State Conservationist Ivan Dozier.

Survey results will help folks like Dozier know what's important to Illinois farmers and how he and other USDA personnel can come up with better conservation solutions.

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Evaluate plant health

CORN WATCH

BY TOM J. BECHMAN

DRONE FLIGHTS OVER cornfields can tip you off to potential trouble spots worth investigating. Yet so far, there is no replacement for walking cornfields. Just do it early in the morning and beat the heat.

Dave Nanda, director of genetics for Seed Genetics Direct, sponsor of Corn Watch '22, looks for potential problems and things that aren't problems when he scouts corn after tasseling and pollination.

"You want to recognize any disease lesions forming on leaves and be alert for potential nutrient deficiencies while you're in the field," Nanda says. "You will also see things that may appear to be a problem, but which really aren't an issue.

"Take a resource guide with you — either a printed manual or an app on a

phone or tablet. If you are not sure what you are looking at, match it to what looks similar in the resource guide."

If you want to be certain about which disease or deficiency you're finding, you can send samples to a university lab. Most offer testing services in-season to identify specimens, typically at low cost with quick turnaround time.

Using the picture above as a guide, here's how Nanda diagnosed what was happening in one field:

Brown lesion. The first thing that caught Nanda's eye was the lesion on the corn leaf he's holding. "It's gray leaf spot, caused by a fungus," he says. "If you find lesions on leaves near, at or above the ear leaf and weather conditions are warm and wet, consider applying a fungicide soon. You want to protect the ear leaf."

Striping. Note the yellowish streak and striping on one side of the leaf. "The best guess is sulfur deficiency," Nanda says.



WHAT CAN YOU SEE? Three potential problems are evident in this picture: a disease lesion, sulfur deficiency and nitrogen deficiency. Pollen on the leaf is normal — it's not a concern. PHOTO BY TOM J. BECHMAN

"If it was a brown rim around the edges of the leaf, it would likely be potassium deficiency. You could confirm if plants were short on sulfur by pulling 25 leaves and sending the sample to a lab for analysis. For corn at this stage, pull ear leaves."

Firing of leaf tips. Note the firing on the leaves of a neighboring plant in the lower right corner of the picture. Yellowing and browning that start at the leaf tip and work inward are indicative of nitrogen deficiency. If it's severe, rescue treatments might still pay. If it's not severe, note where

it occurred and reevaluate your nitrogen program for 2023.

White specks on leaves. Here's one you don't have to worry about, Nanda says. The white dots and specks of material are simply pollen that fell on the leaf. They will decay over time without issue.

"There is nothing to see here," Nanda says. "Sometimes pollen collects at the base of leaf collars on the stem and turns black over time. That is a non-issue as well. Not everything you observe in a cornfield at this time of year is a problem."

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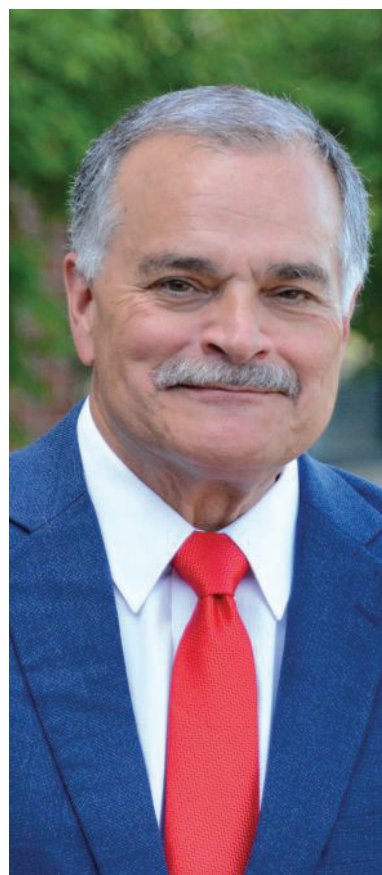
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How cloudy days can drag down corn yields

BY TOM J. BECHMAN

EVERYONE RECOGNIZES THE axiom “April showers bring May flowers.” How about a new saying? “July and August sunshine brings big October corn yields.”

Bob Nielsen, a Purdue Extension corn specialist, contends that in years with more cloudy days than normal, especially in July and August, corn yields will be lower than if there is ample sunshine. Dan Emmert, a Pioneer field agronomist, led a demonstration project recently that seems to back up that claim.

In a field near Montgomery, Ind., researchers devised a movable shade structure that could cover 12 rows of corn at once. The structure reduced solar radiation by about 70%. It was first put in place at the V13 growth stage and left until about 320 growing degree days accumulated. Then it was moved to other plots.

The net result was that corn was shaded beginning at five different times: from V13 to VT, from VT to R2, from R2 to R3, during R4 and during R5. Start dates for the five shade treatments were June 17, July 3, July 15, July 30 and Aug. 14, respectively.

LET THE SUN SHINE

Solar radiation, better known as sunshine, is as essential for crop growth and yield as water and nutrients. If you restrict it, yield will be affected, Emmert says.

Other studies have shown that photosynthetically active radiation can be reduced by as much as 60% on cloudy, rainy days. Even if there’s enough moisture and the temperature is 86 degrees F or less, the missing link is sunshine. Other sources indicate that extended periods of reduced solar radiation during grain fill, like several cloudy days in a row, reduce yield and lead to weaker stalks.

Emmert decided to conduct a demonstration to see if these impacts that others talk about would show up. Here is what he found:

Fewer kernels. When plants were shaded before R3, Emmert found they produced fewer kernels per row.

Pollination failure. A 70% reduction in solar radiation during pollination resulted in near-total pollination failure.

Kernel abortion. Shade during R2 and R3 caused kernels near the tip that were successfully pollinated to abort. With re-

duced solar radiation, plants weren’t able to produce enough photosynthates to fill all the kernels.

Kernel weight. When shade didn’t occur until R4 and R5, number of kernels wasn’t affected. However, kernel weight was reduced.

Pre-pollination shading. Total number of kernels dropped, but maximum kernel weight occurred in these plots. There was no dip in solar radiation during grain fill.

Weaker stalks. Shading during R4 and R5 reduced kernel weights and resulted in stalk cannibalization and weaker stalks.

Yield impact. Yield losses for shading starting at V13, VT, R2, R4 and R5 were 38%, 82%, 54%, 51% and 21%, respectively.

“Stress at different stages affects ear development,” Emmert says. “If yields are off, look at ears at harvest and determine when stress reduced yield.”

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Pollination, grain fill crucial for corn

BY DAVE NANDA



THE 2022 CORN planting season started much later than desirable. Early spring was wet and cold. However, our Corn Watch field was planted in a timely fashion on May 11.

Last year, the Corn Watch field was planted April 25. Then it turned cold and wet for two weeks, which delayed emergence for about 50% of the plants. The field still yielded 205 bushels per acre. This year, most of the plants in the Corn Watch field emerged seven days after planting. Ideal temperature and moisture at planting can work like a miracle! (Read more about Corn Watch '22 on Page 16.)

After good, uniform seedling emergence and stand establishment, the most important periods for corn plants are successful pollination and grain fill. That's

BREEDER'S JOURNAL

when corn plants start making money.

If pollination of some ovules isn't successful due to stress, it could result in incomplete kernel set. Certain insects like Japanese beetles or corn rootworm beetles, which feed on pollen that falls on silks, can interfere in the pollination process and reduce kernel set. Heat and drought stress can delay silk emergence and cause pollination problems. Late-emerging silks may not have any pollen left in the field for fertilization.

The first silks to emerge come from the butt of the ear, and the last silks emerge from the tip of the ear. So, the kernels near the tip of the ear are more prone to be left out of the pollination process. That's why you might consider planting your cornfields with hybrid pairs in alternating strips that are two to three days apart in

their pollen-shed dates.

When pairing hybrids in various fields, try to use two hybrids from the same seed company, if possible, to make sure they differ in days to pollen shed. Sometimes hybrids from different companies with the same relative maturity rating may be similar in days to pollen shed.

For the grain fill period, corn plants need 50 to 60 days after pollination finishes to reach black layer, or physiological maturity, depending on the relative maturity of the hybrid and temperatures prevalent in the area. This is the payoff time for the corn plant, when the primary focus is to fully develop kernels.

Corn likes cooler temperatures and sufficient water and nutrients during this period. Any stresses during grain fill will have a negative effect on yield. It's critical to have no higher-than-average nighttime temperatures during this period. Above-average overnight temps can dock yield.



YIELD RISK: Pollination is critical for top corn yields, but so is grain fill. Stresses like gray leaf spot during grain fill knock off bushels.

If there is severe heat, a lack of moisture or nutrients, or disease stress during grain fill, plants may start to cannibalize their stalks and leaves to fulfill the growing needs of their progeny. Plants start to abort the youngest kernels, causing tip dieback, so the remaining kernels can fully develop. Black layer occurs at 32% to 35% grain moisture, depending on the hybrid. Stress before this period can cause kernel abortion and light test weight. Favorable weather during the grain fill period is essential for maximizing yields.

Nanda is director of genetics for Seed Genetics Direct, Jeffersonville, Ohio. Email dave.nanda@gmail.com or call him at 317-910-9876. Please leave a message.

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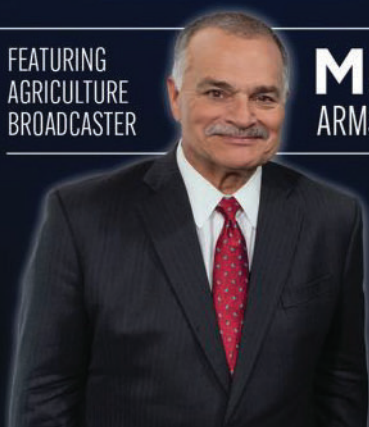
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Give grain system structural checkup

BY TOM J. BECHMAN

IS THERE A rusty spot on an older bin that needs attention? Are you sure all motors on augers and fans will kick on when you flip the switch?



GARY WOODRUFF

If you're not 100% confident, Gary Woodruff says now is the time to address these issues. Get older bins and grain handling equipment in top shape before harvest season arrives. Woodruff, a district sales manager and grain storage specialist with GSI, offers more advice.

What kind of structural checks for safety should you make on an older bin? How often should you make those checks? Who should do them? You can do your own initial inspections and do many of the repairs. A yearly inspection is a good practice. Look for these four things:

1. Rusting. A bin should not have any rust present, as that will eventually damage the bin's integrity. If bad enough, those parts should be replaced by your bin dealer. If the rust is minor, wire-brush the surface to remove the rust. Use a high-zinc-content paint to prevent reoccurrence of the rust.

2. Holes. Holes need to be repaired, and missing bolts should be replaced. Standing in the bin in the daylight is the best way to find holes.

3. Loose or damaged parts. Damaged floor parts should be replaced. Any loose or damaged parts on the door, ladder, cage or stairs need to be properly secured or replaced.

4. Concrete issues. Some minor cracks in the concrete can be expected, but they should be painted or caulked. If after a year or two they widen, or if sections of the concrete start moving, your bin dealer should do a thorough inspection. Have them

make repairs or a replacement, if necessary. Cutting costs by not using the right quality and amount of concrete and steel reinforcement is almost always very expensive if you look 10 years into the future.

What kind of maintenance should be done on in-bin augers, fans and sweeps? It is critical to do any maintenance on in-bin augers and sweeps before you fill the bin. Check and lubricate where needed. Power sweeps, particularly, will have a gearbox or other points that need to be lubed or greased.

Fans on a full bin are more accessible, but again, they must work as the bin fills. So, test and check them a few weeks before the bin is filled. Make sure they are good to go in advance.

Are there standard procedures for testing unloading sump augers, fans and so forth to make sure motors and bearings are in good shape before refilling the bin? Unfortunately, to



SCAN FOR HOLES, LOOSE PARTS: Do you ever stop and look for missing bolts or damaged pieces on your grain bins? Or do you just walk by without even a glance? PHOTO BY TOM J. BECHMAN

be nearly certain, the only way is to take the motors to a shop and have them inspected. But at least check for anything such as wiring or covers that show wear or damage. Run the motors. It's good to make sure voltage is where it should be. If an amperage meter is available, utilize it to make sure the motor isn't running too many amps.

Just thoroughly cleaning all electrical boxes and retightening all wire connections back to the main breaker box is important. It can prevent an untimely failure during the time grain is in storage.

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Prevent grain spoilage before it starts

BY TOM J. BECHMAN

GARY WOODRUFF BELIEVES you can prevent most potential grain storage problems before they start. First, pick the right moisture content as your storage target. Second, bin grain properly, using the coring technique to remove fines and ensure good airflow.

“Too many times, grain spoilage leading to clogged unloading augers happens in the spring or summer because the corn wasn’t dried low enough for the storage interval,” says Woodruff, a district sales manager and grain storage specialist for GSI.

“If there’s a chance you will store grain until next summer, then put it in the bin at lower moisture content,” he says. “Overdrying grain costs money, but not drying it enough and then holding it too long can result in major spoilage issues.”

Woodruff shares more fall binning tips in the following interview:

If you want to store corn for December-January delivery, what moisture level should you seek?

In most areas, you can get grain down to 50 degrees F or below quickly just after harvest. Storing at the moisture level your local elevator will not charge dock, 15% or 15.5%, should be good for that date. I’m assuming the grain was reasonably clean, with no heavy fines in the core, and that grain quality was good going into the bin.

What moisture level should you target for February-March delivery?

You can’t beat the physical laws of storing corn. They say you need 15% moisture if you store until ambient average temperatures reach 50 degrees F in the spring. That often occurs in May. At moisture levels above that, you’re taking a much greater risk of out-of-condition grain.

If you store for June or later delivery, what can you do?

Be at 14% if grain will be stored past May or until next harvest, and 13% to store for a year or longer. At 13% moisture, mold growth is negligible. There is little free water for insects to stay alive. The farther south, the less you can depend on using cool or cold temperatures to make storage more dependable. Typically, going 1% drier than normally recommended can be a very good insurance policy in the south.

How does coring remove fines and prevent grain spoilage? Unless you’re using a long-winged spreader such as GSI’s AgriDry Spreader, you will have more fines in the middle. This prevents aeration air from passing through that portion, leading to hot, out-of-condition grain. Repetitive

coring is the only dependable way to reduce fines in the middle of the bin.

Fines can’t be thrown very far. Most accumulate in a roughly 10-foot-diameter center portion of the bin. If at every 10 feet of increased depth at the sidewall you remove enough corn to create a 10-foot-

diameter cone, roughly 200 to 300 bushels, you remove a large portion of fines. This significantly improves air movement through the center of the bin and reduces chances for mold and heating.

What you remove can be sold or stored separately. Sell it quickly. Larger bins only change how many times you need to pull grain. It’s lots of work, but each time you core, grain becomes safer. A single coring after the bin is full can be helpful, but it’s not nearly as good as repetitive coring.

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TO THE ROW: Notice that weeds, now burned down and dead, flourished in the plot on the left without a cover crop, but not in the plot on the right, with a cereal rye cover crop. PHOTO BY TOM J. BECHMAN

Purdue study looks at no-till, cover crops

BY TOM J. BECHMAN

HOW SHOULD YOU equip your planter to no-till into cover crops? What type of closing wheels should you attach on each row? If you still use rubber press wheels to close, should you replace them?

Various commercial companies are making these comparisons and reporting results, and a wide variety of aftermarket closing wheels is on the market. But there is little university research that addresses these questions. Purdue Extension corn specialist Dan Quinn is trying to change that as he seeks answers to farmers' questions.

"More farmers are seeding cover crops today, and so there are more questions about how to equip planters to no-till into cover crops effectively," Quinn says. "My

goal is to establish practical research to answer some of their questions."

CLOSING WHEEL COMPARISONS

This is the first year for these trials, Quinn says. With the help of Riley Seavers, a Purdue graduate student, they established plots comparing corn no-tilled into cereal rye with corn no-tilled into soybean stubble without cereal rye. The plots were sprayed before planting, to terminate the cereal rye and weeds on the non-cover crop plots.

"We're also looking at different kinds of closing wheels," Quinn says. "We're comparing standard rubber closing wheels to cast-iron wheels with spikes and other aftermarket wheels. They varied in how aggressive they were with the soil."

Because choice of closing wheel could

impact time to emergence, Quinn and company flagged 1/1,000 of an acre in each replicated plot to track plant emergence. He notes there are differences, but he's waiting until he has data throughout the season, including aerial image data from drone flights, to draw conclusions.

Since there are variations in soil type within the field, he hopes to tease out information on how each closing wheel performed in different soils.

These plots are located along the west side of U.S. 231 at the Throckmorton Purdue Agricultural Center north of Romney, Ind. The trial will be taken to yield.

Working with another researcher, Quinn is conducting a similar trial with sweet corn at the Pinney Purdue Ag Center in northern Indiana.

You don't have to wait until next winter to learn one outcome from this trial, and you don't need a yield monitor to pick up the difference.

EARLY RESULT: WEED CONTROL

Proponents of cover crops often talk about help on weed control, especially from cereal rye.

"Weeds were growing in the field this spring because rain delayed planting into late May," Quinn says. "You can see right to the row where plots without cereal rye and the cereal rye plots meet."

"There were a lot more weeds growing on soybean stubble without cereal rye. It was even very evident after weeds and rye died, and corn was up and growing. You could still tell exactly where cereal rye grew, right to the row."

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A photograph of two men standing in a lush green cornfield. The man on the left is wearing a blue polo shirt with "inVISION" on the sleeve and a grey cap, gesturing with his hands. The man on the right is wearing a dark blue polo shirt and a tan and black cap, holding a tablet. The background shows a line of trees under a clear sky.

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Farm shop showcases efficiency, convenience

BY TOM J. BECHMAN

THE SEIBS HAVE worked inside a modern farm shop for over nine years. “We enjoy every minute because we didn’t have one for such a very long time,” Mark Seib says. He and his wife, Sheryl; his brother Wayne and his wife, Linda; and Wayne and Linda’s sons Carl and Matthew comprise Seib Farms LLC, Poseyville, Ind.

The Seibs spent years planning and visiting other shops before pulling the trigger to build their own shop. Mark and Sheryl have a large network of friends who farm through their leadership activities in agriculture, and they always made mental notes about what they liked in other shops as they visited. Many of those ideas were incorporated into their

shop. Here are a few highlights:

Comfortable working conditions. In-floor heat and air conditioning keep the shop comfortable all year long. The Seibs are pleased that energy bills are relatively low year-round. Plenty of insulation in the walls and ceiling help reduce energy costs.

Strong foundation. The 42-by-80-foot building includes a 10-inch-thick concrete floor. Many farm shop floors aren’t that thick. “We wanted to bring an excavator in and work on it, and it is a heavy piece of machinery,” Mark explains.

Plentiful electrical and compressed air outlets. You can be anywhere in the shop and not be far from both 220 and 110 electrical service. Electrical wires are in conduit behind walls to keep walls clear of clutter.



CONVENIENCE ON DISPLAY: Nearly the whole west side of the Seibs’ farm shop is a door. They care about the convenience of moving machinery in and out. A second, smaller door provides quicker access.

The air compressor is tucked away in a corner service room to reduce noise, and air outlets with hoses and reels are plentiful.

Lots of storage. A well-planned loft in one corner provides storage for items that aren’t used every day. It’s easily accessible by stairs with handrails.

Easy access. The main overhead door is 40 feet wide, nearly the entire width of the building. A second door is narrower, but just as tall. There are also service entrance doors when a larger opening isn’t needed to conserve energy.



EASY ACCESS: You won’t see electrical conduit around the Seibs’ shop. It’s behind walls to keep wall space usable. There is easy access to both 220 and 110 electric circuits. Compressed air is also easily accessible in the shop working space.



OPEN SPACE: Ample space exists inside the 42-by-80-foot farm shop when machinery isn’t parked inside. The idea of equipment to clean the air (upper left) came from other farm shops.



ROOM TO WORK: Mark Seib enjoys having this area where he can work on small items on a quality workbench.



AMPING UP STORAGE: An overhead loft increases the amount of storage space for parts and materials that aren’t used every day. The Seibs included an easy-to-climb stairway. PHOTOS BY TOM J. BECHMAN



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COMFORT CONTROL:

In-floor heat keeps the shop comfortable in the winter. Simple, conventional air conditioner units keep the temperature at a comfortable working level during summer.



SMART STORAGE: The railing along the edge of the shop loft provides protection for anyone accessing the loft. A section also removes easily so they can get larger items into and out of the loft.

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JOHN DEERE

Prepare to apply fungicides on corn

BY DAVE NANDA

HOPEFULLY, MOTHER Nature won't favor disease organisms this year. However, there is lots of inoculum of disease organisms on the ground, ready to attack if conditions are favorable for development of pathogens. You should be ready to protect your corn crop.

For the future, if you're not already doing so, rotate crops and avoid planting corn after corn every year.

Secondly, plan on using foliar fungicides, if needed. Some farmers reported last year that fungicides applied on time paid off with yield increases of 15 to 20 bushels per acre as compared to where no fungicides were used. With current grain prices, it is a no-brainer!

Plant breeders try to develop new hybrids with the highest yield potential and select for disease resistance at the same time. However, it is almost impossible to

CORN ILLUSTRATED

develop resistance to all prevalent diseases while developing new hybrids.

Disease organisms are constantly changing. By the time plant breeders develop new hybrids resistant to a certain disease organism, the pathogen might mutate and new races of the disease are born.

To maximize yield, you must protect crops from diseases. Applying fungicides is one way to protect them. How do you decide if you need to spray? When is the best time to apply fungicides?

Different disease organisms become more prevalent in certain growing conditions. Northern corn leaf blight likes cooler temperatures, and gray leaf spot likes high humidity and high temperatures. New diseases like tar spot are becoming more prevalent. Conservation

tillage has also increased the incidence of many diseases.

Some popular corn hybrids on the market have very high yield potential but may be susceptible to certain pathogens, which increases the probability of disease development. These susceptible but otherwise high-yielding hybrids help in creating more disease inoculum for the following year since they're grown on lots of acres.

WHEN TO APPLY FUNGICIDES

Planting date and relative maturity of hybrids can also affect development of certain diseases. Earlier-maturity hybrids can sometimes escape the disease. This happens if they're already past critical stages when the disease hits hardest.

Protect leaves above the ears because most of the yield is contributed by those leaves. My scouting experience during the last few years has shown that you should



SCOUT AND PULL TRIGGER: Protect this type of potential. If you're seeing disease lesions lower in the canopy, be ready to pull the trigger and spray fungicides if conditions continue favoring diseases. PHOTO BY TOM J. BECHMAN

plan on applying foliar fungicides to all hybrids, or even all fields, planted on different dates. It might seem as if some fields will escape the disease, but it is very important to keep scouting.

The ideal time to apply fungicides on corn is after all pollen shed is complete and silks start to turn brown. We want to protect the leaves during the grain fill period.

Fungicides don't increase yield, but they can protect the yield potential of your crops in the presence of fungal diseases. Without prudent applications of the correct fungicide at the right time, your cornfields may not reach their full yield potential.

Nanda is director of genetics for Seed Genetics Direct, Jeffersonville, Ohio. Email dave.nanda@gmail.com or call 317-910-9876. Please leave a message.



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10 steps to nominating a 2023 Master Farmer

BY HOLLY SPANGLER

EVER THOUGHT OF nominating someone you know for Prairie Farmer's Master Farmer award? Now's the time to get cracking!

Maybe it's your parents, a sibling, your neighbors, a friend or a colleague. Maybe it's someone you've served with on a board, or someone you've long looked up to. No matter who that person is, here are 10 steps to a successful Master Farmer nomination:

1. Look around. Think about the farmers you know who raise a good crop and give back to their community. Candidates may be individuals, couples or siblings; judging is equally weighted.

2. Make sure they qualify. There are three basic qualifications for successful nominees:

- Candidates must farm in Illinois, deriving the majority of their income from agricultural production.
- Candidates have proven ag production records, recognized leadership, and have served the community at the local, state or national level.
- Each nominee should be actively engaged in full-time production ag.

3. Get the nomination form. The 2023 application form is available online. Go to 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.

4. Be thorough. In the sections asking about farm history and growth, more information is better than less. Share how the individual(s) got started in farming and show how their operation has progressed. No detailed financial information is required.

5. Don't panic about financials. There's an urban legend (which in this case probably makes it a rural legend) that Master Farmer nominees have to share their balance sheet. But make no mistake, the nomination form does not require that kind of financial information. The judging panel focuses on growth of the operation over time, agricultural productivity and community involvement.

6. Get letters. Ask for at least eight recommendation letters to support your nomination. These letters give insight into character and reputation in the community.



MASTERS: The 2022 Prairie Farmer Master Farmers are Jim Raben (left), Darryl Brinkmann, Doug Schroeder and Curt Zehr.



7. Think small. Don't forget all the things the nominee does in the local community and state and national organizations. These lists are often very detailed! For spouses or sibling nominations, list both individuals' activities, noting who did what. Organize them by year and include offices held.

8. Start early. Nominating a Master Farmer is not a quick process. It's a once-

in-a-lifetime award, and the application reflects an entire career. Now is the time to get started, so you can meet the Aug. 26 deadline.

9. Think well-rounded. Community involvement is weighted highly as judges select winners, but so too is a farmer's agricultural production skills and dedication to family.

10. Check the mirror. You can nominate yourself. Many farmers do every year.



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Ag, ProHarvest Cover 365, Midwest Grass and Forage, and Prairie Seeds Cover Crops. The discounts vary by company but in general offer about 10% off your first \$1,500 to \$2,000 in seed purchases. Check out ilcorn.org/covercrops for more info and to sign up. You'd still be eligible

for the Illinois Department of Agriculture program Fall Covers for Spring Savings.

Cover crop incentive program. Farmers can receive \$7 per acre for existing cover crop acres and \$15 per acre for new cover crop acres in this annual program. They need to provide a W9 and information

such as county, acres, 2022 crop, 2023 crop, years field has been planted with a cover crop and tillage methods. Select fields may be required to share additional information. Enrolled fields cannot participate in other markets like carbon or water quality for the 2023 season (2022 planting). Get more information and enroll at ilcorn.org/covercrops.

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The state fair's story? It's written in the barns

BY HOLLY SPANGLER

THE ILLINOIS STATE Fair kicks off soon, Aug. 11-21, in Springfield, and state fair manager Rebecca Clark is looking forward to a “more normal” event, with more emphasis on agriculture.

“This will be our first fair where we don't have active COVID restrictions,” she says. “There's a lot of excitement and buzz around that from exhibitors, vendors, concert attendees. It's starting to feel like normal again.”

Clark, a former farm kid from Jasper County, was appointed state fair manager by Gov. J.B. Pritzker in January — a few months after planning had already begun — but she brings a fresh set of eyes to a reliably experienced staff and a renewed interest in sharing agriculture with fairgoers. And while she's bringing back ag tours to the barns and making sure folks get a big dose of Illinois ag in the Department of Agriculture tent, she says much of the agriculture story will be told by young livestock exhibitors.

“The true story of Illinois ag lies in the passion and dedication of our youth exhibitors and their families,” Clark says. “That story will be written in the barns, with their hard work and dedication, and triumphs and celebrations — the stories that will be retold in families for generations.”

Those young livestock exhibitors may just be the best ambassadors.

Clark brought her four young children out to a swine show on the fairgrounds in July with the expressed goal of introducing them to livestock. They began walking through the barns, and her daughter was not a fan. “She was deathly afraid of these big pigs,” Clark says.

So Clark walked up to an exhibitor and started asking questions: What's the pig's name? How do you take care of it? What does it like? Before long, her daughter was holding out her hand and letting a pig lick it.

“She was so easy to talk to,” Clark says of the exhibitor. “It's a great way to learn about agriculture.”

Still, Clark says they're actively “trying to weave agriculture into every acre of the fairgrounds.” Fairgoers can learn a lot from the dairy barn and the IDOA tent. Ag tours

will leave from the IDOA tent at 10 a.m. and 2:30 p.m. every day, taking visitors to the barns and more. There will be no tours on the first Sunday or the last Saturday and Sunday of the fair. The state fair app also offers a self-guided tour.

Livestock exhibitors will find newly paved roads along the cattle and swine barns and the Avenue of Flags, thanks to a \$4.1 million road construction project that IDOA kicked off this past spring.

“There's a lot that can be said for a nice, paved road,” Clark says, laughing. She adds that years of deferred maintenance will take time to address, but they're chipping away at it, one road and one building at a time. IDOA recently announced \$58 million in repairs that will be made to buildings and barns across the fairgrounds. (Read more on Page 32.)

CHAMPION EVENTS

Look for the Parade of Champions to be held on Aug. 13 in the Coliseum, following the steer and swine shows. The Sale of Champions will begin at 5 p.m. on Aug. 16. Ag Director Jerry Costello will host the sale event, filling in the gap left following longtime ag broadcaster Orion Samuelson's retirement three years ago.

Clark says they're making a bigger effort to get non-ag fairgoers into the sale, with more promotion and marketing than in the past. Plus, everyone who attends gets a coupon for free ice cream at the dairy barn, compliments of Midwest Dairy.

“This is such a big event, and there's so much excitement in the Coliseum that you can feel when you walk in,” Clark says. “I hope everyone comes out to support our kids.”

They're also trying to make the fair more affordable, given high prices everywhere else. Clark says vendors will offer discounted food prices from 2 to 5 p.m. every day, so people can come out for a late lunch or early supper and save some money. Food vendors in the Village of Cultures will each offer a \$3 item, making it easier to try a lot of different foods for less money.

Adult admission on Sunday through Thursday is \$5, and on Friday and Saturday is \$10. Kids 12 and under are free.



WINNER: The Parade of Champions always produces the best handshakes.



SO BIG: Colleen Callahan, director of the Illinois Department of Natural Resources, introduces some young friends to a draft horse exercising in a ring near the Coliseum.



THIS FOOT, NOT THAT FOOT: The pressure's on during the Champion Drive, held in the Coliseum, and parents alongside the ring often have advice.



CONSERVATION: Fairgoers love coming out to Conservation World, a staple since the '90s.



GOVERNOR: Gov. J.B. Pritzker came by the 2021 Ag Day events to share a few words.



SERIOUS TOYS: Among the creative 4-H projects on display in the Orr Building are farmsteads like this one.



LOVE: McDonough County 4-H'er Payton McGrew takes a moment with her heifer before they head into the ring.



HEAD UP: What's not to love about a show pig?



CHAMPIONS: Champion steers line up across the Coliseum following their selection at the 2021 Illinois State Fair.



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State fairgrounds to get \$58.1 million in upgrades

THE ILLINOIS DEPARTMENT of Agriculture says the state is investing \$58.1 million to address the crumbling buildings and roads throughout the historic Illinois State Fairgrounds in Springfield.

“In the weeks and months ahead, the Illinois State Fair and the Illinois Department of Agriculture will be working with the Community Foundation for the Land of Lincoln to build a master plan for our fairgrounds that will provide the blueprint needed to ‘grow’ our facility usage to meet the needs of our community and further define our position as an event destination in central Illinois,” says fair manager Rebecca Clark, adding that the upgrades will help them to use the grounds for year-round events.

The projects will be overseen by the Capital Development Board and include:

Multipurpose arena. Built in 2000, the 261,000-square-foot facility is set on 6 acres and will be closed during the 2022 Illinois



RENOVATIONS: Little has happened at the Illinois State Fair’s Coliseum since Phase 1 renovations were completed in 2019 and the Grand Drive moved back to the historic building. Phase 2 will begin following the 2022 state fair, at a cost of \$16.3 million. PHOTO BY HOLLY SPANGLER

State Fair for construction. Renovations include \$8.6 million to repair sidewalks, walls, steps and expansion joints, while also repairing electrical systems, readjusting the tension structure, installing a

new canopy, and rebuilding retaining walls.

Roads. IDOA already invested \$4.1 million in road construction projects, which began in the spring. The roads along the cattle and swine barns and Avenue of Flags were repaired and resurfaced. During fiscal year 2023, \$8 million will be used to repair roads on Eighth Street between the IDOA and Illinois Department of Natural Resources buildings, along the backstretch on the northwest corner of the fairgrounds, and to improve the south pedestrian tunnel leading into the fairgrounds from Gate 6/infield parking.

Coliseum. Phase 1 of the renovation was completed back in 2019, and construction will resume following the 2022 state fair. Phase 2 will focus on an electrical overhaul, underground plumbing, new seating, new restrooms, an elevator, and adding a heating, ventilating and air conditioning system. Phase 2 costs are \$16.3 million.

Roofs. In the 2023 fiscal year, \$1.87 mil-

lion will be used to replace roofs on the Junior Livestock Building, sheep barn, Hobbies Arts and Crafts Building, and at least three barns along the backstretch.

HVAC. Also in 2023, \$11.9 million worth of HVAC replacements will upgrade the Orr Building, Illinois Building, Junior Livestock Building, Artisans Building, Hobbies Arts and Crafts Building, and Grandstand.

Tuckpoint. Nearly \$3 million in tuckpoint will restore brick in the Grandstand, Artisans Building, Hobbies Arts and Crafts Building, Emmerson Building and John Block Building (IDOA headquarters) during fiscal year 2023.

John Block Building. In 2023, \$2.58 million will go to energy improvement repairs.

ISF Administration Building. In 2023, \$1.7 million will repair the roof and replace HVAC systems.

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ADVERTORIAL

COVER CROPS YIELD NUTRIENT AND SOIL QUALITY GAINS

Cover crops are an important management tool to reduce nutrient losses, slow surface erosion and protect local watersheds. While there are many choices in the types of cover crops that can be used, ultimately the choice should take into account the existing weed, disease, nematode and other soil problems on the land, as well as the next cash crop that will be planted.

Cover crops do require intensive management for successful integration into your farming system. However, properly planned and executed, cover crops will protect farmland during the vulnerable period when the land is bare and more susceptible to weather erosion.

Over time, cover crops will increase soil organic matter, improving the structure of the soil and leading to better moisture and nutrient capacity. There are varied choices that can be made based on your goals.

Grasses are generally good at protecting against soil erosion, scavenging nutrients, and improving soil condition. Some winter cereals, like cereal rye, tolerate late seeding and fit well into corn-soybean rotations. Spring cereals, like oats, planted in the fall will self-terminate in the winter, avoiding herbicide burndown costs and

releasing nutrients more quickly the following year.

Legumes are noted for having roots that penetrate deep into the soil. With a lower carbon-nitrogen ratio, the legume residue usually breaks down more quickly and releases nutrients at more optimal timing than grasses.

Brassicas include radishes, turnips, rapeseed and canola. Radishes establish quickly and produce a large taproot that can penetrate through hardpans. They are good companions with grass species and readily release sequestered nutrients as they decompose.

Cover crop blends can offer a wide range of benefits to meet goals for soybeans and corn. Benefits include mitigating weather-related risks and ensuring at least one species survives.

To learn more about the benefits and management considerations of cover crops, contact your FS crop specialist or visit:

<https://www.fssystem.com>.

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THE EARLIER, THE BETTER: Nodules are already present on these V2 stage soybeans, with only the first and second trifoliolate leaves unfurled. Sometimes nodules are slow to develop early.

Good nodulation gets soybeans off, running

BY TOM J. BECHMAN

WHAT DO SOYBEANS have going for them as a crop that corn does not? Even most 4-H'ers in the soybean project can answer this one.

Soybeans host bacteria in nodules on

their roots. This relationship gives them access to the nitrogen they need to produce beans when everything works correctly.

At current nitrogen prices, that's a significant edge for soybeans.

Steve Gauck likes to see nodulation

begin early in soybeans and continue as far into the season as possible.

"Good nodulation is one of the keys to targeting higher soybean yields," says Gauck, Greensburg, Ind., a regional agronomy manager for Beck's, sponsor of Soybean Watch '22.

Gauck is monitoring the Soybean Watch field all year. (Read more about the Soybean Watch project on Page 10.) One of the things he looks for from his very first visit until near harvest is how plentiful nodules are on roots and how well they're performing.

"It's worth digging up a few plants occasionally to check," he says.

Here are some common questions about nodulation. Gauck uses the Soybean Watch '22 field as a backdrop to answer these questions:

How early do soybeans develop nodules on roots? We found them this year in the Soybean Watch field on V2 plants. That's very encouraging. Sometimes it's V3 or later before you find them.

This field was planted on June 3-4 due to rain delays, and soils were warm. That leads to quicker nodulation than if soils are cool.

How can you tell if nodulation is occurring properly? The best way is to dig a few plants and examine roots. Large bumps on the roots should be nodules. Rhizobium bacteria inside the nodules pull nitrogen from the air as they grow. The nitrogen is also available for the plant to use.

It's a symbiotic relationship — the

plant hosts the bacteria, and the bacteria produce nitrogen that also helps the plant.

What clues tell you nodulation isn't occurring as it should? In some years, soybeans tend to hit a wall at V3 or V4 and have a yellowish tint. That often happens more in cooler, wetter growing conditions. One possible cause is slow nodulation. Once nodules form and bacteria are at work, soybeans usually green up.

During the season, check the inside color of nodules. Healthy, functioning nodules should be pinkish on the inside, or at least have a pinkish tinge. That's a sign that nitrogen is forming inside.

What management practices promote better nodulation? I recommend planting about 1.5 inches deep. Slightly deeper than average planting usually helps promote better nodulation over time. The roots stay in slightly cooler soils deeper into the season. Slightly cooler temperatures tend to favor bacteria, which live inside the nodules on roots.

Would adding nitrogen starter help soybeans get off to a better start? Adding nitrogen for soybeans has been tried for decades, but the data I've seen doesn't indicate much, if any, yield advantage. Soybeans whose roots nodulate properly should have all the nitrogen they need. In fact, adding nitrogen could make bacteria "lazy," and nodules could develop more slowly.

I don't recommend adding nitrogen for soybeans, especially not early in the season.

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QUICK TAKE

NO DUES FOR ILLINOIS FFA MEMBERS THIS YEAR

Illinois FFA members will save \$12 each this year, thanks to a \$550,000 appropriation that will cover FFA dues for every member in the state. Eliminating dues will make Illinois an FFA-affiliation membership state, which means every student enrolled in ag education will have their FFA membership dues automatically paid, making them an FFA member.

Illinois Agriculture Director Jerry Costello announced the appropriation during the Illinois FFA Convention, and says it was spearheaded by state Sen. Doris Turner, Springfield.

Gov. J.B. Pritzker supports the initiative, saying he wants students to pursue extracurriculars based on their interests, not on what they can afford.

In 2022, nearly 37,000 students in Illinois took ag classes, and 23,000 were FFA members. Costello believes the funding will open doors to FFA membership.

"This news couldn't come at a better time," says Illinois FFA Executive Director Mindy Bunselmeyer. "Illinois' No. 1 industry touches so many beyond traditional family farms. FFA continues to expand its mission to prepare our ag leaders for tomorrow."

NEW ONLINE OPTION AVAILABLE FOR LABELING MAPS

Producers who have an eAuth account linked to their USDA customer record can now access their Farm Service Agency farm records, maps and common land units by logging into the farmers.gov website.

Farmers can export field boundaries as shapefiles, and import and view other shapefiles, such as precision agriculture boundaries. They'll be able to view, print and label their own maps for acreage reporting purposes.

Learn more about how to use the Farm Records Mapping function at farmers.gov, where you can access a fact sheet and video tutorials.

HOW YOU CAN HELP GROWMARK HELP UKRAINE

Growmark is partnering with the Midwest Food Bank to collect donations for Tender Mercies, a program providing food relief directly in Ukraine. You can donate directly to the Growmark Foundation, and the foundation will match the first \$5,000 donated.

"This is a specific point in history when we have the opportunity to live out our noble purpose 'to help feed and fuel the world,'" says Ann Kafer, Growmark executive vice president. "Partnering with Midwest Food Bank to get high-protein, easy-to-use food into Ukraine through reputable partners is a blessing and squarely in line with who we are as an agricultural cooperative system."

Midwest Food Bank is based in Normal, but partners with groups around the world to provide food relief during disasters through its Tender Mercies program. Tender Mercies are high-

protein, shelf-stable food packets that can be prepared using only boiling water, making them ideal for people who may not have access to normal cooking facilities.

To aid in Ukraine relief, Midwest Food Bank has partnered with Convoy of Hope, which is working on the ground in Ukraine and nearby countries to distribute food and other supplies to those who need them most.

You can donate online or by mailing a check made out to: Growmark Foundation, c/o Karen Jones, 1701 Towanda Ave., Bloomington, IL 61701.



FUNDED: The state of Illinois is appropriating over a half-million dollars to fund FFA memberships during the coming school year. PHOTO BY HOLLY SPANGLER

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How water stress produces sunscald

BY TOM J. BECHMAN

SUNSCALD IN CORN isn't an old wives' tale — it's real. It just doesn't happen very often, especially in the eastern Corn Belt. That doesn't make it any less debilitating.

Mark Jeschke, agronomy manager for Pioneer, says sunscald is the direct result of heat and water stress in corn.

"It occurs when the increase in evaporative demand exceeds the plant's ability to respond," Jeschke explains. "The plant is unable to transpire water rapidly enough to cool heat-stressed leaf tissue. As a result, leaf tissue dies."

The injury this produces is called sunscald. Dead, brown tissue appears on leaves in the canopy. Parts of affected leaves may still be green while the rest of the leaf is brown, Jeschke says.

When you first enter a field with sunscald, you may think "foliar disease." When it first appears, the dead tissue may



HOT AND DRY:
These corn plants couldn't respond fast enough when very hot temperatures and drought produced water stress. This is a case of sunscald.

PHOTO BY TOM J. BECHMAN

resemble severe northern corn leaf blight infection. That disease most commonly appears after stretches of cooler weather, when there's plenty of moisture available. The opposite conditions favor sunscald.

If sunscald is the cause of damage, you should be able to distinguish it from the le-

sions that foliar diseases cause when they first invade leaves, Jeschke says.

Sunscald is more likely to appear first on younger leaves higher in the canopy, Jeschke says. Corn leaves with direct orientation to the sun are also typically most affected.

High winds make it worse

In a year with lots of heat and not enough water, the outside rows of a field may burn up first and be your least-productive rows.

"It's called the field-edge effect, and it results from high winds continually pummeling the field during times of water stress," Mark Jeschke says. "It's typically worse on a southern or western exposure."

Wind increases the vapor pressure deficit between leaves and the air immediately around them. VPD is the difference between how much water air can hold when it's saturated, like inside leaf tissue, and how much water it currently holds. Plants respond by closing their stomata, which are leaf openings. But if water stress is significant, water will still be pulled out of plants.

When winds are low, this produces a layer of saturated air that remains in place around plant leaves, Jeschke explains. But high winds constantly remove the moist air, replacing it with drier air.

The higher the relative humidity, the less wind speed matters. Saturated air is replaced by winds with air that is only slightly less saturated. However, in arid conditions or on very low-humidity days, there's more variation in VPD, and more potential for the field-edge effect to develop.

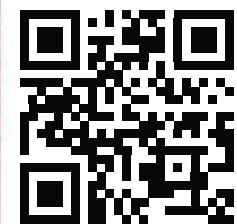
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Prepare to dig into wallet to replace son's labor

My son is going to college. I relied on his help in our farming operation and must replace him. Where is the best place to find part-time help? What should I pay?

ERICKSON: Your local high school ag/FFA program or nearby community college might be good places to start. You may find students directly or through referral. Be willing to train and spend some time developing these new hires. However, you might not need to retrain to replace bad habits developed from other experiences.

Hourly wage will need to be competitive with other local opportunities. Plan on paying more than minimum wage. If you find the right person, negotiate wage.

EVANS: Word-of-mouth and acquaintances would probably be the best initial effort. Consider your FFA and 4-H educators, church, and local service organizations.

Given that fast-food wages are at \$13 to \$16 per hour, one would have to match or better those numbers. Experience should be rewarded with pay, and there should be incentive for continued improvement.

LUZAR: The current tight labor market suggests you may have to reach out to several different contacts to secure a candidate. A local agriculture community college may be one opportunity. Your local high school agriculture program may provide candidates. Leverage your networking with church and community contacts.

Compensation must be competitive for your local area. Areas with fewer work opportunities may need to approach wages paid at fast-food establishments. If you farm in a tight labor market, you may be looking at something around \$15 per hour.

Finding a candidate will not be as challenging as keeping an employee. To enhance retention, think about what you want this employee to accomplish and create a job description. Having a per-

PROFIT PLANNERS

formance evaluation in mind before the person starts can help you set expectations and enhance communication needed to supervise a non-family employee.

MYERS: I suggest seeking creative, individual local talent of all age groups, starting with the local vocational-agriculture/FFA programs or 4-H clubs. Perhaps have your son make suggestions, along with any connections you have within your circle, whether that be church or

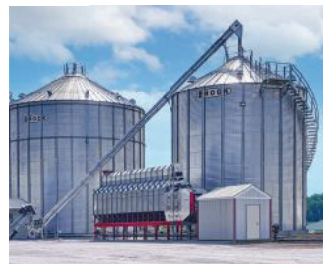
a coffee shop. Certainly, local ads, via newspaper or social media, may identify worthy candidates.

Pay? Be prepared to dig deeper due to a tight labor market and the expected responsibility or job description. Be open and be flexible.

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Mark Evans, Purdue Extension educator

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

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



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ONION STUDY HELPS CORN, SOYBEANS

What do onion samples analyzed in Illinois, a high-tech research lab in Canada, and Midwestern corn and soybeans have in common? Researchers believe this unlikely triangle could lead to answers for shoring up plant cell walls against drought and disease stress.

Onions were chosen because you can peel away a single layer of cells and see changes in cell walls. Graduate students working with Karen Tanino at the University of Saskatchewan also analyzed onion samples at the Advanced Photon Source lab in Illinois.

When calcium mixed with water is added to greenhouse onions, they take up calcium, which is isolated in cell walls. Research with other plants indicates boron is important to cell walls, too. Shoring up cell walls won't be a silver bullet for drought and disease stress, but it could be a first line of defense, Tanino says.

WEED CONTROL BY ROBOT

Pauline Canteneur with FarmWise told Todd Fitchette of Western Farm Press that demand for robotic weed removal services in vegetables has reached unprecedented levels. The startup company recently received \$45 million in new investment funds.

FarmWise machines use machine learning to physically remove weeds cheaper than hand

TOMORROW'S TECH TODAY

crews. The next generation of machines could be PTO-driven or tractor-mounted, and owned by farmers. The company now sets sights on weed detection in corn and soybeans.

CHANGE IN POTASH PRODUCTION

Mike Ferguson, CEO of the Canadian startup Gensource Potash Corp., tells Willie Vogt of Farm Progress they're planning a new potash mine near Tugaske, Saskatchewan. It would be the first new potash mine since the Belle Plaine Mine opened in the 1960s and cost more than \$4.5 billion. It produced 2.8 million metric tons annually, later expanding to 4 million metric tons.

Gensource intends to build a modular plant, producing 250,000 metric tons. Since it's a smaller plant, Gensource partnered with Helm Fertilizer to take all production. The modular plant is scalable up to a million tons.

ELECTRIC FARM TRUCKS?

Western Farm Press Editor Tim Hearden says Ford Pro allowed ag reporters to test-drive the Ford F-150 Lightning fully electric pickup recently. Several winegrowers in California are driving these trucks in a pilot project.

Base models selling for \$39,400 can go 230 miles before charging, while extended-range



LAYER BY LAYER:

You can peel onions one layer at a time. Researchers cashed in on that concept to discover how calcium strengthens cell walls during stress.

TOM J. BECHMAN

pickups selling at up to \$90,000 can go 300 miles. Production began in April. With batteries placed underneath the pickup, more storage can be found in the front trunk, or "frunk."

Skeptics wonder about performance in tough farm environments. If you've got a 240-outlet, charging should be straightforward, but it may mean rearranging lunch to charge your truck. Other electric trucks coming soon include the Chevrolet Silverado EV, GMC Sierra EV, Lordstown Endurance and Toyota Tacoma EV.


TURN SENSOR DATA INTO FORECASTS


Carlos Gaitan, co-founder and CEO of Benchmark Labs, says his company can turn local information

related to microclimate into personalized, field-level weather forecasts. Currently, the company is doing it for specialty growers in California, charging about \$500 for each sensor reporting per year. The company sees the opportunity to create field-level forecasts for row crops. Visit benchmarklabs.com.



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Dixie Chopper's Zee 2 HP is an upgraded version of the company's popular mower. The Zee 2 HP line consists of two models, the 2448KW with a 48-inch mowing deck and the 2454KW with a 54-inch deck. Both feature 24-hp engines. The upgraded HP Series includes a bigger transmission designed to match the engine, plus an operator-controlled discharge chute. Because some lawns are rough, the seat is much plusher too. Contact Dixie Chopper, Gibson City, Ill., or visit dixiechopper.com.



Mower power for tough jobs

The 937 EFI FrontMount mower from Grasshopper is built to work through the toughest jobs with ease. Staff say you won't have to worry about filling up in the middle of the day because the mower has a fuel capacity of 14.4 gallons. A low center of gravity and balanced weight distribution create a lighter print on turf. You can also make the 937 EFI a year-round tool with additions such as turf renovation and snow removal tools. Contact Grasshopper, Moundridge, Kan., at 620-345-8621 or go online to grasshoppermower.com.



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40% of counterfeit pills can be killers

BY WILLIE VOGT

DRUG ADDICTION IS not an issue isolated to big cities. Rural areas are gaining their fair share of metropolitan-like problems, and the U.S. Drug Enforcement Administration wants to alert small towns and rural areas of the concern. One major worry is counterfeit pills that contain lethal doses of fentanyl.

In talking with Farm Progress, Justin King, special agent in charge of the DEA Omaha, Neb., field division, says the problem is getting worse.

"We've seen a change," he notes. "Back in the day, you had diverted pharmaceuticals from people getting product prescribed by a doctor. With people pill shopping, eventually, drug traffickers found an opportunity to exploit the situation."

He says counterfeit OxyContin pills and copies of other painkillers look very

much like the real thing. But in an analysis of confiscated fakes, the DEA uncovered a surprise.

"We're seeing that 4 out of every 10 pills that we test has a lethal dose of fentanyl," King warns. DEA is calling attention to this with the One Pill Can Kill program.

PILLS AND ADDICTION

Addiction to painkillers has been a growing problem in the last few years. And now counterfeit pills with potentially lethal doses of fentanyl are raising concerns.

Some farmers may question the risks in their community; however, King says drug traffickers are flooding the market. In 2022's first quarter, DEA confiscated more counterfeit pills than it did through all of 2021.

King notes that drug use has evolved, and for many, it's more "acceptable"

to take a pill than inject an opioid like heroin. Drug traffickers have taken note and figured out how to access the market. And once addiction happens, it's difficult to recover.

"If you know somebody is an addicted person, we're always encouraging them to seek treatment," he says. "And you try everything you can, and we know the recidivism rate for people who are addicted to opioids is high. This is a hard drug to get off of."

King says the best results happen when the addicted person has a support system around them, helping them seek treatment.

"[Treatment] has got to be a holistic approach. It's got to be family, with the person also working with their medical provider," he explains.

Growing up in southwest Oklahoma in a town of 350 people, King knows that big-city problems can eventually make



LETHAL DOSE: This is a lethal dose of fentanyl, which is found in 40% of confiscated counterfeit pills captured by the U.S. Drug Enforcement Agency. It's a growing problem in farm country.

their way to the country.

"The world has changed; it's so much more connected," he says.

Drug traffickers may see opportunity in the country because law enforcement is spread across more territory.

"There may not be as many assets that the government, state, local or even federal can put in the country," he adds.

For more information about the One Pill Can Kill program, visit dea.gov/onepill.

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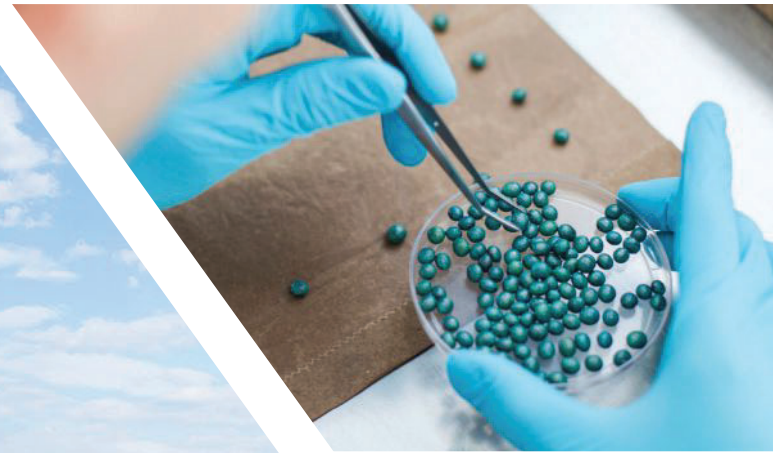
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Combine cleaning shoe gets reboot

BY TOM J. BECHMAN

THE JOHN DEERE 12-A and International 64 combines had one thing in common. Both had a cleaning shoe to help separate grain from chaff. Today's combines have them too. SieveSense, an autonomous louver positioning technology from HCC Inc., adds a 21st century twist to 20th century mechanization.

Using this closed-loop, hyper-accurate louver position sensor system, adjustments happen within the cleaning shoe, much like within your body — without you thinking about it. The result is increased efficiency. The biggest benefit may be a faster harvest, resulting in more acres harvested per day. Visit hccincorporated.com.

CROP DATA INSTANTLY

Nielsen-Kellerman updated KestrelMet 6000 ag weather stations to include readouts on growing degree days and evapo-

HI-TECH FARMING

transpiration. Anticipate flowering and harvest more accurately by tracking GDD. Get a better handle on crop water needs by tracking water loss per day through evapotranspiration, a combination of evaporation and transpiration.

The cellular ag weather station, starting at \$1,299, includes readouts on changes in daily humidity and solar radiation. Visit kestrelmet.com/agriculture-weather-stations.

THEIA FUNGICIDE APPROVED

AgBiome Inc. introduces its second proprietary product from its Genesis platform. EPA-approved Theia, a fungicide delivering broad-spectrum foliar and soil disease control for high-value crops. It relies on fungicidal and bactericidal metabolites to control powdery mildew and fusarium.

AgBiome's first product, Howler, launched in 2019. Visit agbiome.com.

TOWARD BETTER BIOLOGICALS

Verdesian Life Sciences and 3Bar Biologics partner together, looking for solutions in nutrient use efficiency and the biocontrol space. Leaders in both companies are committed to finding biological solutions that help growers improve nutrient use efficiency and pest control. See vlsci.com and 3barbiologics.com.

NUTRIENT-BASED SEED TREATMENTS

Two seed treatments that could improve plant nutrition are now offered by Brandt. EnzUp Grain ST disperses enzymes into the soil to help corn and wheat seedlings emerge faster and stronger.

Meanwhile, SeedZone ZN greatly increases the exposed surface area of zinc, leading to better retention by seeds and faster germination. It's designed for use

with corn, soybeans and large-seeded vegetables. Visit brandt.co.

ANOTHER BIOSTIMULANT

Zaffre from BioConsortia Inc. consistently provides higher yields in fruit and vegetable crops as either a drench or seed treatment, according to company spokespersons. Now, BioConsortia is joining with The Mosaic Co. to distribute this new microbial biostimulant in Asia. It's the third agreement between the two companies. Mosaic is already developing and commercializing BioConsortia's nitrogen-fixing microbial products. Visit bioconsortia.com.

FERTILIZER INSIGHTS

Looking for better value from nitrogen fertilizer? Midwestern BioAg claims TerraNu fertilizers, derived from dairy manure, result in improved nutrient uptake and water efficiency in all conditions, but especially with sandier soils. Contracted research and on-farm testing points to yield increases, and grain testing indicates twice as much nitrogen is captured when TerraNu products are applied. Visit terranu.info or midwesternbioag.com.

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Tips for managing trees damaged by hailstorms

BY CURT ARENS

FARMSTEAD FOREST

EXTREME WEATHER HAS been a part of Midwest and Great Plains summers for centuries. Some summers are worse than others, producing large hail, damaging winds, tornadoes — and destruction to crops, livestock, farmsteads and trees.

Crops, livestock, homes and barns are

probably highest on your priority list after a big hailstorm, but trees around the farm can take a beating as well.

This year, the country has seen its fair share of large and damaging hail, and it has pounded trees, young and old.



MIKE HOLLINGHEAD/BETTY IMAGES

SEVERE DAMAGE: Hailstorms can wreak havoc with farmstead trees and woodlands, but healthy trees are extremely resilient and can survive heavy hail damage.

Farmer reports suggest that young trees — even those heavily damaged, with needles and leaves gone — eventually begin to push out new growth after a hail event.

What happens to a tree after a hail event could depend largely on how healthy the tree was to begin with. Mature, healthy trees are extremely resilient, and can generally survive even severe hail damage over time. They need to be cleaned up if there are broken limbs and torn bark, with much of the larger work best left to certified arborists.

These trees will also need to be monitored closely over the coming months, because storm-damaged trees are perfect harbors for insects and diseases that can cause further harm.

FIGHTING CHANCE

“Hail can damage leaves or completely defoliate a tree, wound the stem and trunk, and break twigs,” says Laurie Stepanek, Nebraska Forest Service forest health specialist. “Small trees may be killed. Hail wounds are typically elliptical in shape and occur on the upper branch surface, or on the side of prevailing winds on trunks and vertical branches.”

She notes that hail wounds also create openings through which pathogenic fungi can enter the tree and cause disease.

“The damaged stems are easily infected, and extensive branch death beyond what the hail alone would have caused often develops weeks or months following the hail,” Stepanek says.

Be patient. “Do not be too hasty to remove hail-damaged trees,” Stepanek says. “Trees defoliated by hail will frequently produce a new set of leaves. Damage to branches cannot be repaired, but the tree will try to produce a new wood that will cover over the hail wounds — a process that may take one or more years.”

A more accurate assessment of damage is probably not made the day after a storm, but a year later.

The focus, Stepanek says, should be on providing a good root environment.

“Check soil moisture and water only when necessary,” she advises. “A general guideline is if it does not rain, provide about 1 inch of water in clay soils or 2 inches in sandy soils per week. Apply water slowly to a large area around the tree, allowing the water to soak in. Water, at most, only once or twice per week. Automatic sprinklers that run every three or four days can kill trees.”

Mulching the tree with wood or bark chips at a depth of 2 to 3 inches also helps.

“Do not pile the chips against the trunk,” Stepanek says. “The chips provide nutrients to the soil, conserve moisture and help limit competition from grass and weeds. Plus, the mulch keeps mowers and string trimmers away from the trunk.”

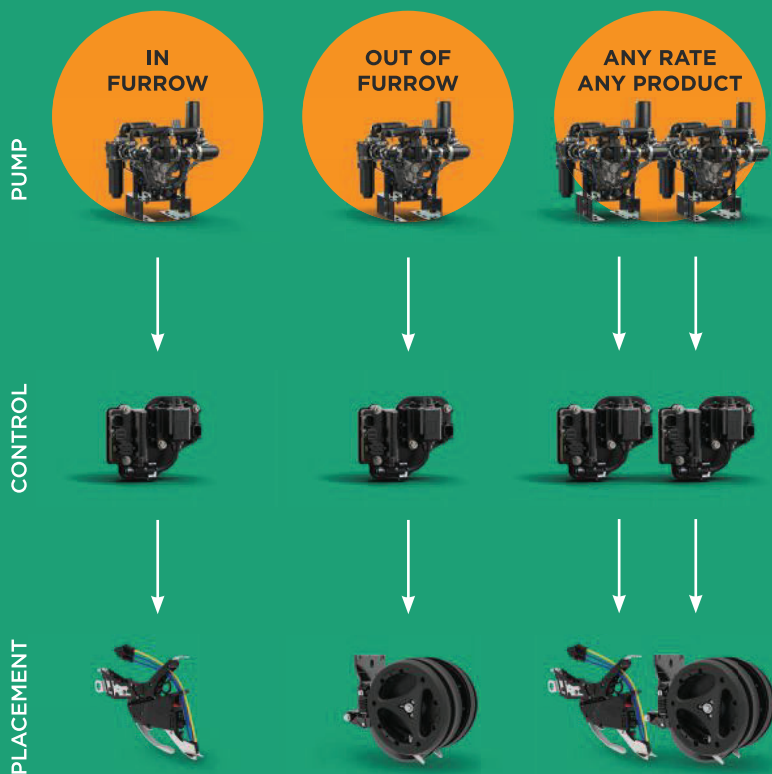
Landowners often want to fertilize the tree, but is that a good idea? “Nitrogen is important, but over-fertilizing can be harmful to trees, especially trees that have been damaged,” Stepanek says. “If the tree is in an area under a fertilizer program, such as many lawns receive, do not apply additional nitrogen. If the area has never been fertilized, a very light application of nitrogen may provide some benefit.”

REMOVE HAZARDS

While the resilience of hail-damaged trees should not be underestimated, broken limbs and unhealthy trees cannot be taken lightly. If the tree causes a serious health hazard or looks like it may cause property damage, it is always best to have the tree evaluated by a certified arborist to see if it can be cleaned up and could recover, or if it needs to be removed altogether.

The bottom line for prevention of tree loss to hail damage is to maintain healthy woodlands and trees around your farm to begin with, because when storms damage these trees, they are much more likely to have the ability to recover and thrive than trees that are already stressed.

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Is your county eligible to receive CREP funding?

USDA AND THE Illinois Department of Natural Resources opened enrollment for the Illinois Conservation Reserve Enhancement Program on June 15.

Efforts are focused on the Illinois and Kaskaskia river watersheds in the following 68 counties: Adams, Bond, Brown,

Bureau, Calhoun, Cass, Champaign, Christian, Clinton, Coles, Cook, DeKalb, DeWitt, Douglas, DuPage, Effingham, Fayette, Ford, Fulton, Greene, Grundy, Hancock, Henderson, Henry, Iroquois, Jefferson, Jersey, Kane, Kankakee, Kendall, Knox, Lake, LaSalle, Lee, Livingston,

Logan, McDonough, McHenry, McLean, Macon, Macoupin, Madison, Marion, Marshall, Mason, Menard, Monroe, Montgomery, Morgan, Moultrie, Peoria, Perry, Piatt, Pike, Putnam, Randolph, St. Clair, Sangamon, Schuyler, Scott, Shelby, Stark, Tazewell, Vermilion, Warren,

Washington, Will and Woodford.

Illinois CREP offers federal and state resources to those who enroll for 14- to 15-year contracts.

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Help your trees fight pesky webs

BY FREDRIC MILLER

BY MIDSUMMER, THOSE in the more southern regions of Illinois may see leaf defoliation and early silk webbing on the leaves of trees. In general, you can blame two types of web-forming caterpillars and two types of mites for this problem.

Fall webworm. This pest is common mid-to late summer. The fall webworm feeds on nearly a hundred different tree species, but prefers walnut, persimmon, hickory, birch, cherry and crabapple. The hairy, straw-colored, half-inch-long larvae begin feeding on new growth at the end of branches, and enclose the foliage with fine silk webbing, engulfing larger and larger areas.

Look for two generations in southern regions and only one generation in more northerly areas. In most cases, defoliation is not detrimental to the tree, but chronic, multiyear defoliation events can lead to tree stress, making trees vulnerable to

TREE TALK

lethal pathogens and wood-boring insects.

Control fall webworm by pruning out webs when they are small and spraying with an insecticide. If you use chemical control, you need to penetrate the web with the spray or rip the web open to make contact with the larvae. Just spraying the outside of the web is not effective.

Since the caterpillars feed later in the growing season, control is usually not warranted, as the tree has generally produced the majority of its food for that season. Mature trees can weather the storm; however, new plantings might warrant better control of fall webworm.

Walnut caterpillar. The second common defoliator feeds on walnut, but also pecan, butternut and hickory. When young, the larvae are black. Then they turn to a dark red with white hairs and thin white lines

running the length of the body. Like the fall webworm, they feed in groups, consuming the entire leaf. They also spin silk, but not as extensive as the fall webworm.

The walnut caterpillar does most of its feeding in late summer and does not have a major impact on nut production. However, in more southern regions, there can be as many as three generations, resulting in earlier feeding and more damage to tree health and fruit production.

Two-spotted spider mite. Mites are very small insect relatives, so you will need a hand lens or some really good “cheaters” to see them. These critters are sap-feeders and cause a bronzing and yellowing of the foliage. They also produce a fine silk webbing, engulfing leaves and stems or plants.

The two-spotted spider mite feeds on hundreds of hosts, including vegetable, flowering and woody plants. They really like roses. The two-spotted spider mite is easily identified by the two dark spots on

either side of a tannish body.

Honeylocust spider mite. While also a yellow to light brown to tan, this mite lacks the black spots and only feeds on honeylocust trees.

Both mites are warm-season pests, showing up in mid- to late summer when it gets hot and dry. Trees growing in parking lots, confined root spaces and other tough conditions will be affected the most. Like the defoliators, these mites won't kill a tree (they may kill herbaceous plants) but are another stressor the tree must deal with.

Control mites with miticides or horticultural oil or soap sprays. To check for mites, hold a sheet of paper under a branch and give it a good shake — the mites will drop onto the paper. Be alert for predaceous or “good” mites, as they feed on the pest mites. The good guys usually have longer legs and move faster than the pest mites. Remember, if you use chemical control, you may kill the beneficial mites and allow the pest mite populations to explode.

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.

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Crop diversity help wanted

BY HOLLY SPANGLER

THE THREE I-STATES in the Midwest long ago settled into a rotation that primarily focuses on corn and soybeans, with a little wheat mixed in and the occasional cover crop. But a group of researchers is looking at what's next for Midwest farmers and rural communities.

“The idea for the Diverse Corn Belt project originated from several discussions with colleagues and the realization

that we aren't going to address all the sustainability concerns — environmental, social, economic — with modern ag by simply promoting cover crops,” says Linda Prokopy, natural resources social science professor at Purdue University.

That's why Prokopy and researchers at Iowa State University, the University of Illinois and an additional 30 partners have launched the Diverse Corn Belt project. Prokopy says the project will explore alternative crops, longer rotations, integrating livestock and perennials, and more — but they need information from farmers.

The study focuses on Indiana, Illinois and Iowa, and they're looking for farmers from those states to serve as a focus group and help with in-field research. The team will also conduct research, extension and modeling in those three states. In addition to Prokopy, team members include Aslihan Spaulding at Illinois State University; Emily Heaton, Andrew Margenot and Shadi Atallah at U of I; and J. Arbuckle and Phil Gassman at Iowa State.

“We are seeking farmer involvement at every stage of the Diverse Corn Belt project, starting with understanding how different producers define diversity, and getting their direction on the questions they want us to explore,” Prokopy says. “We want to know what is working for them in the current system and what the barriers are to diversification.”

She adds that they're looking at more than just production challenges; they're interested in agronomics, economics and animal productivity, plus the social, infrastructure and policy that would need to change to make it all possible.

They need farmers of all backgrounds to serve in focus groups and be willing to have conversations about diversification challenges and opportunities. Farmers can also host in-field research, allowing agronomists, entomologists, hydrologists and soil scientists to study their current management systems — and again, those can be conventional corn-soybean rotations or complex cropping-grazing systems.

“We are developing a vision of a Corn Belt beyond the corn-soybean system and its infrastructure, a future that provides farmers and communities with a more profitable and resilient agriculture,” Arbuckle says.

The five-year, \$10 million project is funded by the USDA National Institute of Food and Agriculture through an Agriculture and Food Research Initiative competitive grant.

For more information, visit diversecornbelt.org or sign up at bit.ly/DiverseCornBelt.

ALTERNATIVE: The Diverse Corn Belt project will explore alternative crops, longer rotations, integration of livestock and perennials, and more — but researchers need information from farmers.



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Estate planning is like a long run

BY CURT FERGUSON



AROUND THE TIME I turned 50, it became clear that my love of good food coupled with a career with little physical labor was creating a problem.

My clothes seemed to be shrinking. My recliner was too comfy. A fatherly client named Bill said I should commit myself to a regular exercise routine. I needed to be a better steward of my body.

So I started running. With a bit of coaching, I've worked my way up to the point where my usual run is 5 miles long, five days a week. For some runners, this is nothing special. For me, it is sheer discipline. Within the first year, I lost most of the extra weight. I am definitely healthier. I know it is the right thing to do and am committed to keep it up for many more years.

But today, about halfway through my

ESTATE PLAN EDGE

run, something happened in my mind. I was tempted to quit, turn off my Garmin, and walk home. Too hot — it'll be better tomorrow. Now, to be honest, this temptation hits me roughly five times a week. Always something different. Allergies acting up. Too early. Too cold. Too rainy. Too windy.

But today, as usual, I pushed on through. Finished the run. Was glad I did.

Estate planning is like this. We come to a point in life where, in good conscience, we know we need to do it. So we start. We have our attorney help prepare a plan. Without rehashing the myriad reasons, you know that I believe we should almost always leave our estate to our heirs in trust. No matter where we are in life when we commit to making an estate plan, this is true.

So you plan. Your plan must deal with the immediate future: "If I die tomorrow,

what should happen to my estate and my loved ones?" Maybe your children were young, so your plan says leave them their inheritance in trust, managed by others until the children reach an age of maturity, after which the children take control.

But you didn't die while the children were young. Now the plan says each child will get a trust to use for starting a family, building a home, launching a business. But each trust will protect the assets from a failed marriage or poor business decisions.

But you didn't die while the children were starting their own lives and careers. You update your plan again to make sure each child can fully control his or her trust, invest it and spend as needed, perhaps expand their own operation. The intent at this point is to protect the inherited assets from accidents and lawsuits, and boost the children's financial position during their peak earning years.

But you didn't die while your children

were in their middle years. If you die and leave them an inheritance now, those who have built their own estate might be concerned that adding an inheritance will unnecessarily create estate tax problems for them! For a child who hasn't accumulated so much on his or her own, perhaps the biggest concern after receiving an inheritance will be, "at my age, the nursing home is probably going to get it all!" So it is especially important that your plan give them their shares of your estate in the best way.

The children with large estates? Give them their inheritance in a trust that allows them to manage it, use it if they need it, and then pass it on to their heirs as they deem best. But design the trust so nothing they inherit will be added to their taxable estate. For children with smaller estates, their trust share should be designed so it can be preserved and protected from long-term care expenses, unless they want to spend it that way.

Whatever you do, don't "do an estate plan" and then quit.

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

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Cattle bills await Senate floor action

BY JACQUI FATKA

SEN. CHUCK GRASSLEY, R-Iowa, believes his two bills to increase transparency in the cattle market would be welcomed votes for Midwest senators ahead of elections this fall. Although the bills have bipartisan support, there is regional opposition that could dramatically change how cattle are marketed.

In a business meeting June 22, the Senate Agriculture Committee advanced out of committee and prepared for floor action two cattle market reform bills: S. 4030, the Cattle Price Discovery and Transparency Act of 2022, and S.3870, the Meat and Poultry Special Investigator Act of 2022. The House passed similar versions out of committee and the full House floor earlier this summer.

Grassley says he's heard from one of the leading Democrat co-sponsors, Sen. Jon Tester, D-Mont., that Senate Majority

Leader Chuck Schumer, D-N.Y., "wants to bring these bills up" on the full Senate floor.

"I think most people in the Midwest would very much like to have a vote on this," Grassley says. "It'd be very helpful to senators up for reelection."

Under the Cattle Price Discovery and Transparency Act, USDA would establish five to seven regions covering the continental U.S. based on similar fed cattle purchases. Packing companies controlling 5% or more of fed cattle slaughter in these regions would then be required to participate in the cash market.

The bill would establish minimum levels of purchases through approved pricing mechanisms like negotiated cash, negotiated grid, at stockyards and through trading systems where multiple buyers can make and accept bids. It would limit the ability for some to use alternative marketing arrangements (AMAs), which are used more broadly outside of the Midwest.

The initial established mandatory minimum may not be less than the average of that region's negotiated trade for the two-year period of 2020-21. However, this is just the floor of what USDA can establish — USDA can choose to set minimum purchase levels higher. In fact, the agency is required to consider a number of factors, including the proportion of negotiated purchases in that region relative to the number of AMAs that use negotiated purchases to determine their base price.

The bill also makes changes to Mandatory Price Reporting, including creating a publicly available library of marketing contracts, mandating box-beef reporting to ensure transparency, expediting the reporting of cattle carcass weights and requiring packers to report the number of cattle scheduled to be delivered for slaughter each day for the next 14 days.

Grassley, a lead sponsor of the bill, says this legislation would make sure a certain amount of the daily kill is reserved for the cash market. It also would say producers are able to deliver cattle within 14 days.

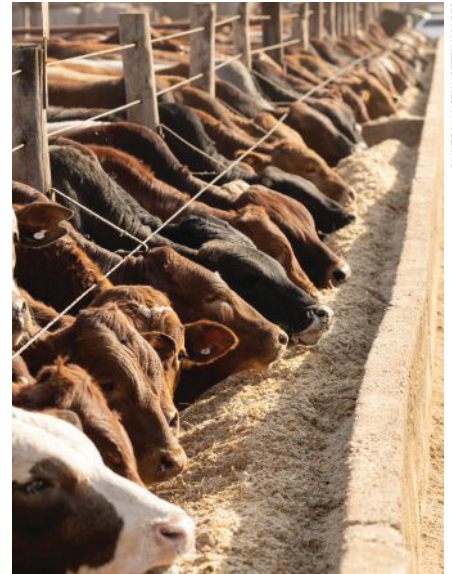
"Four big packers control 85% of the market. And they have cozy relationships with the big feedlots of Texas and Kansas that eat up about 80% to 90% of the daily kill," Grassley says. "So then a producer [who] wants to negotiate on the cash market gets on the phone, and maybe he can get a price. Maybe he can't. If he can't get a price, you can't sell. But if you get a price, you don't know if it's a fair price, because there's not enough price discovery. And then secondly, maybe you can't deliver your cattle for 30 days."

MEAT INVESTIGATOR ACT

The Meat and Poultry Special Investigator Act would create the Office of the Special Investigator for Competition Matters within USDA's Packers and Stockyards Division.

The new USDA special investigator will have a team of investigators, with subpoena power, dedicated to preventing and addressing anticompetitive practices in the meat and poultry industries and enforcing the nation's antitrust laws. They will act in consultation with the Department of Justice and the Federal Trade Commission, and create a new bridge between USDA and the Department of Homeland Security to protect the continuation of the food supply and increase national security.

With dedicated staff, USDA would be



CLINTON AUSTIN/GETTY IMAGES

CATTLE MARKETS: Legislation gaining traction takes aim at the four major meatpackers, which often enter into hidden contracts with large cattle feedlots, making it more difficult for smaller producers to get a fair shake.

able to investigate tough issues facing producers and hold bad actors accountable, says Tester, a lead sponsor of the bill.

This legislation was previously advanced by the full House as part of the Lower Food and Fuel Costs package. Grassley included several technical fixes to conform the Senate version with the House-passed bill.

Senate Agriculture Committee ranking member Jon Boozman, R-Ark., says the legislation would subject nearly 1,000 meat and poultry processing facilities to review by a newly designated special investigator.

Boozman says large packers have legal departments and regulatory compliance experts on staff. "Not so for the smaller processors. Are we creating an additional burden on small businesses?" he asks. "By creating a new office to focus on something USDA can and already does doesn't seem like the best court of action, in my mind."

With the U.S. House and Senate considering legislation to intervene in beef and cattle markets, prices for cattle are at or near record highs, calling into question the need for heavy-handed government interference, according to the North American Meat Institute.

"This is a discussion about how we can place solid ground back under producers' feet by establishing a floor of minimum weekly negotiated purchases. Without these purchases, there would be no way to determine a base price for the majority of AMAs," says Dr. Brooke Miller, president of the U.S. Cattlemen's Association.

➤ Read more about beef pricing on Page 58.

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Start learning about solar

LAND VALUES

BY MICHAEL LAUHER

ONE OF THE more interesting surprises I've had in my career was when we were approached by a solar development company on one of the institutional farms we managed. Solar farms were just taking off. The proposed lease was quite lucrative. The client would make much more from leasing the farm to the solar company than we could ever get from an agricultural lease.

In my mind, it was a slam dunk.

But much to my surprise, they said no. The clients had already invested in solar energy development and had no interest in changing this portion of their portfolio diversification from ag to solar, despite the additional revenue it would bring.

It's moments like these that provide a sobering reality check for those of us in the farm management profession: As much as we want to take care of the farms as though they are our own, they are not ours.

LEARNING CURVE

Recently, the Illinois chapter of the Realtors Land Institute held a meeting and invited solar industry experts to speak, including Zach Lasek, project manager for the east region for Scout Clean Energy. Scout is a renewable energy developer and asset management company headquartered in Boulder, Colo., and operating several solar and wind projects in Illinois.

Companies are focusing on Illinois for a reason, Lasek says, pointing to Illinois' Climate and Equitable Jobs Act. Signed into law by Gov. J.B. Pritzker in September 2021, this comprehensive bill sets out power sector decarbonization by 2045, creates equitable clean energy workforce development pathways and expands state commitments to energy efficiency, renewable energy and electric vehicles.

To learn more, tune into a webinar from the American Society of Farm Managers and Rural Appraisers on Aug. 27. The webinar, Solar's Impacts on Rural Property Values, is free to members and available to non-members for a small fee.

WHAT TO EXPECT

This is a short list compared to everything a landowner should consider regarding solar development, but here's a start:

Expect divisiveness. Like the construction of wind turbines, solar development can prove divisive to a community. Landowners who are sensitive to reputation risk may want to consider this.

Understand how it ends. What happens when the lease term is up? How will the

site be reclaimed? The Bureau of Land and Water Resources within the Illinois Department of Agriculture negotiates an Agricultural Impact Mitigation Agreement with utility companies that specifies how agricultural land is to be restored. Is the agreement adequate?

Agree on land use. Can the ground be farmed during the lease period next to the solar panels? Agrivoltaics is an approach where agricultural production can be done symbiotically with solar electricity

production. Recent research from the U.S. Department of Energy indicates both systems can benefit in some scenarios. Solar panels are more efficient with lower ground temperatures, and certain cropping systems benefit from the increased soil moisture the shading provides.

Lauher owns Rolling Acres Ag Solutions and is a member of the Illinois Society of Professional Farm Managers and Rural Appraisers. Email questions to ispfmra@countryside-marketing.com.



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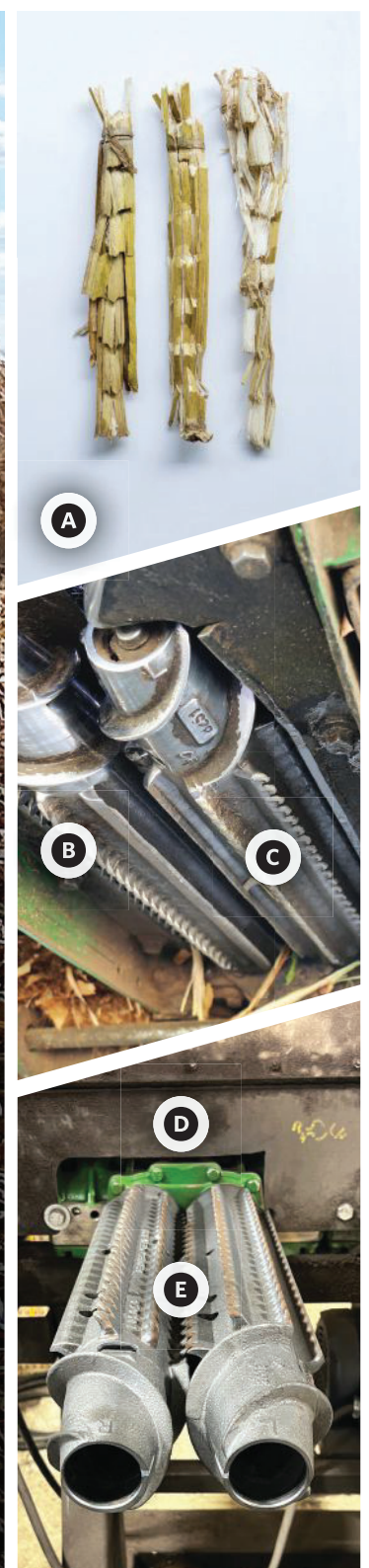
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On land, legacy matters

BY CYNTHIA RYAN



AS A FIFTH-GENERATION Illinois farmer, I recognize aspects of my family's story in the lives of other producers across the state.

But my family's identity reaches beyond Illinois to the counties of Cork and Tipperary in Ireland. My ancestors were Catholic tenant farmers who endured widespread famine that devastated their livelihood and challenged their spirit.

The struggles and hopes they brought to America resonate generations later on our central Illinois farm.

EMIGRATING TO AMERICA

Recently, I traveled to Ireland for a closer look at the conditions my ancestors faced in the 1800s and the continued influence of that period on Irish agriculture. What

FARMING FROM AFAR

I discovered there shed some light on Dad's approach to farming during his lifetime and the principles he passed on to me.

Like many emigrants, my kin settled in concentrated areas in the United States. The Ryans and the Donovans, Dad's maternal ancestors, put down roots in McLean and DeWitt counties.

"I imagine they knew this was a good place for farming," Dad used to say about the first to make the treacherous journey across the Atlantic and settle in Illinois. "The soil was rich, and the landscape was mostly flat."

By the time my ancestors reached the state in the 1860s and 1870s, the availability of public land for purchase was already dwindling. The Graduation Act of 1854, which provided a gradually de-

scending price scale for farmers who were willing to settle and cultivate suboptimal land, resulted in the snatching up of Illinois soil. After President Abraham Lincoln signed the Homestead Act of 1862, only 74 claims were documented in the state, roughly 6,000 acres of remaining unclaimed public land.

For people of Irish descent who fled starvation and persecution, however, Illinois represented a land of plenty. My ancestors gradually purchased tracts of tillable ground alongside less tillable acres for grazing livestock. They grew much of their own food and likely hunted wild game. They had learned from the past.

A confluence of factors exacerbated the toll of the Great Famine, including overreliance on a single crop. Potatoes were a staple of the Irish diet, especially among large farming families that found they could store and stretch the nutrient-rich root vegetable. Seemingly overnight, the fungus *Phytophthora infestans* left potatoes rotting in the fields and the most impoverished citizens without enough to eat.

Disease was just one part of the story. Since most tenant farmers owned no land, their fates were in the hands of wealthy landowners, primarily British, whose interests were shifting from tilling to grazing. Raising livestock required fewer laborers, decreasing reliance on big families.

Simply put, my ancestors lacked the power to shape their own destinies in Ireland. Dad gleaned lessons from their hardships, making him determined to secure a more hopeful future on the farm.

PRIORITIZING LAND OWNERSHIP

For as long as I can remember, my parents placed a high value on acquiring land. They scrimped and saved to make sizable down payments on desired tracts, then scrimped and saved some more to pay off

PIONEER: John Donovan is Cynthia Ryan's great-great-grandfather, shown here on his farm in South Downs in the early 1900s. He was the first of his family to emigrate to America and raised eight children here.



COURTESY OF CYNTHIA RYAN

their loans as quickly as possible.

Dad cared less about how many times their names appeared in the plat book and more about the acreage they owned outright. The way Dad saw it, anything he and Mom were still making payments on wasn't technically theirs.

ASSESSING RISKS AND REWARDS

As much as my father disliked spending money on, well, just about any creature comfort, he was willing to take risks if the payoff was a more competitive, yet stable, operation.

When neighbors were buying up farmland during a period of soaring crop prices in the 1970s, Dad borrowed cautiously. The destitution experienced by his Irish ancestors, as well as memories of his parents struggling to feed four growing boys during the Great Depression, prevented Dad from counting on continued market growth and increased production. As a result, he held on to his hard-earned ground.

Many historians claim that the Great Famine forever changed the Irish psyche and the perspectives of those who left Ireland for a better life. My father, who went by "Taters" at the local elevator, taught me that our pasts have much to teach us. You just have to listen.

Ryan is a farmer's daughter from Clinton and a professor at the University of Alabama at Birmingham. Following her father's death and mother's relocation to her Alabama home, Ryan manages the family farm from afar.



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Insurance expands for double cropping

BY JACQUI FATKA

IN MAY, U.S. Secretary of Agriculture Tom Vilsack joined President Joe Biden at Jeff O'Connor's farm in Kankakee to announce a series of actions to help farmers increase production, with a promise to expand crop insurance for farmers who double-crop.

USDA's Risk Management Agency made those changes official July 12, expanding crop insurance for the planting of soybeans and sorghum behind wheat.

"USDA is making good on one of those commitments, and making it easier to plant double crops and sharing some of the financial risk by making crop insurance more available in over 1,500 counties," Vilsack says.

Coverage will be expanded or streamlined in over 1,500 counties to double-crop soybeans and sorghum behind wheat. RMA is also working with the crop insurance industry and farm organizations to streamline and improve the written agreements for farmers who are outside the areas where coverage has been expanded.

For soybeans, double-crop coverage will be expanded to or streamlined in at least 681 counties, including all that were initially targeted for review. While additional counties were permanently added to be double-crop counties, the majority of expansion removed barriers such as requiring production records and streamlined the process to get personalized coverage through a written agreement.

For grain sorghum, double-crop coverage will be expanded to or streamlined in at least 870 counties that were initially targeted for review. Similar to soybeans, most of these changes include streamlining the administrative burden and requirements to obtain written agreements. Written agreements provide producers with the maximum flexibility by allowing them to obtain crop insurance coverage, but not requiring the coverage of both the spring and winter crops as in permanent double-crop counties.

INDUSTRY FEEDBACK

RMA will also work with the crop insurance industry and farm groups to highlight the availability and improvements in written agreements as an option for any farmer who grows a crop outside the area where a policy is automatically offered.

This expansion of coverage was guided

by extensive outreach to nearly 70 grower groups covering 28 states, RMA says. This includes a wide array of stakeholders such as producers, agents, university Extension and other agricultural experts, commodity associations, state departments of agriculture, and insurance companies.

USDA may add additional counties as it explores these options with farmers this summer, with the final rules being locked in by the fall. Since farmers need to plan ahead for adding a winter crop to a rotation, USDA wanted to make sure they had time to consider this option and consult

with local Extension and agriculture experts and their crop insurance agent.

Industry groups such as the American Soybean Association and National Association of Wheat Growers welcomed the action. ASA has urged RMA to adjust the geographic line northward for producers to be eligible to insure double-cropped soybeans. According to USDA National Agricultural Statistics Service data with ASA calculations, there were 4.4 million acres of double-crop soybeans in 2021.

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Josh, Jayce and Jax Culumber

Cattle producers must catch up on biosecurity

BY MINDY WARD

CATTLE FARMERS LAG behind both poultry and pork producers when it comes to protecting the nation's beef industry from a disease outbreak. Developing a biosecurity plan can help close the gap.

Justin Smith, Kansas Department of Agriculture state veterinarian, estimates that in that state, 2 million hogs are under a biosecurity plan — and just 1 million cattle. That may seem like a lot of cows, but with 6.5 million head of cattle on ranches and in feedyards, he says 1 million is “not even the tip of the iceberg.”

Currently, foot-and-mouth disease is in neither the U.S. nor the Northern Hemisphere. Smith emphasizes it is not a public health or food safety concern. Still, FMD is the most contagious virus for cloven-hooved animals — beef, sheep, pigs and deer — and has economic ramifications for the beef industry.

FMD can be transmitted by air and in urine, semen or manure. It can be active in an animal from two to four days before ever showing clinical signs. Because of this type of movement of the disease, if found in U.S. livestock, the USDA recommends a national shutdown of animal movement for at least 72 hours.

Unlike many poultry and swine operations that are vertically integrated, with controlled movement of feed and animals by typically one person at one company, cattle farms are all different. While some larger feedlots have biosecurity plans in place, Julie Herman, beef cattle specialist veterinarian at the National Cattlemen's Beef Association, says the cow-calf side of the beef business is more segmented and “reaching those producers is a challenge.”

So state veterinarians, NCBA, USDA and others are working together to encourage beef producers to create a biosecurity plan.

CALL TO ACTION

Two years ago, the NCBA Beef Checkoff introduced its Beef Quality Assurance Daily Biosecurity Plan for Disease Prevention, created in collaboration with USDA's Secure Beef Supply plan.

The template is customizable, giving producers flexibility in determining management practices that work best for their cattle operation, and it covers everything from animal movement to worker training to carcass disposal. The Secure Beef Supply plan also offers an enhanced biosecurity template for beef producers.

Here are topics covered by both plans: **Biosecurity manager.** In both, the first



PRESTON/GEORGETTE IMAGES

GET OFF THE FENCE: You can't be half in or out when it comes to protecting your cattle from foot-and-mouth disease. Whether large or small, cow-calf or feedlot producer, you need a detailed plan.

order of business is to select a biosecurity manager for the farm. Smith says this person can be the owner, veterinarian or an employee. The individual is responsible for implementing the plan. “You've given them the authority to be that person in charge during an outbreak, so it's not something to take lightly,” he adds.

Line of separation. “It's the castle and the moat,” Smith says. This is where farmers map a perimeter around their operations to protect from people coming onto the facility and disease leaving the facility. For instance, one farm has a commodity delivery area outside of its line and plans to auger feed across. Others have delivery points outside of the line, where the driver doesn't get out and the farmer meets him or her to unload. Take an aerial map and draw in lines, along with placing a star to designate loading and unloading locations, wash stations, and farm access points.

Premises identification number. Farms and ranches should apply for a premises ID by contacting their state agriculture department. This takes time but helps in tracking during a disease event, Herman says.

Record keeping. Farmers need a system that accurately records movements of animals, vehicles, equipment and people to provide information quickly in an outbreak,

speeding up the response by local officials.

“Biosecurity is a verb,” Herman says, “so we need to keep changing and adapting your biosecurity plan. Yesterday may not be the same as it is tomorrow.”

INCENTIVE TO PLAN

Currently, biosecurity plans are voluntary in the beef industry. What might move the needle toward more cattle producers creating a plan is the issue of indemnity.

Smith says the National Poultry Improvement Program established that if producers don't have a biosecurity plan, they are not eligible for indemnity.

“That all comes back from what happened in 2014 and 2015, when they went through the high-path[ogenic] outbreak that happened,” he explains. “Is that a line in the sand that's been drawn today from USDA in the indemnity process? Not necessarily, but I guarantee you those conversations come up every time we talk about it.”

While FMD has not been in the U.S. since 1929, Smith warns that more than 70% of the world has FMD and is endemic in some realm with the disease. While the beef industry is doing something right, he points out that with statistics and animal movement increasing, “I have to believe it's the old adage: It's not if, it's when.”

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Digital dermatitis causes feedlot performance loss

BY JENNIFER CARRICO

DIGITAL DERMATITIS, ESPECIALLY hairy heel warts, used to be thought of as a problem in dairy cows only, but it seems to be more of a problem with beef cattle. The condition can cause losses in performance and sometimes even death in feedlot cattle.

Terry Engelken, professor of veterinary diagnostic and production animal medicine at Iowa State University, says hairy heel warts are caused by one or more pathogens that cause lesions on the skin of the back side of the foot, and nearly 90% of the time are present on the back feet.

“The lesions are usually circular or oval, with clearly demarcated edges. Without treatment, it will cause major lameness issues,” he says.

Animals suffering from this condition will shift their weight from the front of the toe to keep lesions off the floor. This leads

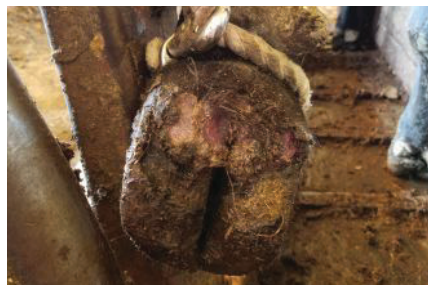
to a decrease in walking and feed intake, and decreased feeding performance.

This type of digital dermatitis is found more in wet environments with mud and manure present, and it seems to be more prevalent in groups that have come from different sources, as more bacteria are present.

“In feedlot cattle, we see more hairy heel warts in the cattle at reimplant time, or 90 to 100 days into the on-feed cycle,” Engelken says. “The lesions will go from acute to chronic over time if not treated.”

Shane Terrell, a Gothenburg, Neb., veterinarian, says lameness has the biggest opportunity for improvement in the modern feedlot industry. Improvement can be made through clean pens and buildings, proper handling, and good nutrition.

“We can measure the amount of lameness first by locomotion scoring and when we see a failure of an animal to keep up with the cattle in the rest of the pen,”



REDUCED PERFORMANCE: Digital dermatitis, or hairy heel warts, have been causing performance losses in feedlots in recent years.

PHOTO BY TERRY ENGELKEN

Terrell says. “It’s a 0 to 3 score, with 0 being a normal walking animal and 3 being an animal reluctant to even move.”

Early detection and intervention are key to stopping a lameness problem. Terrell says there are many causes for lameness, including foot rot, a septic joint, laceration of the foot or hoof wall, laminitis, toe or sole ulcer, and hairy heel

wart. Once the problem is identified, a treatment plan can be developed.

“Prevention is the best way to deal with lameness causes; effectively killing the pathogens and proper hygiene in pens and around water tanks will help,” he says.

Engelken and Terrell agree a routine footbath will help with prevention. This should include copper sulfate or formaldehyde in the water. A footbath should be big enough for each foot to get two dunks in the treated water, and should be dewclaw-deep.

Engelken says to use your best judgment for when the water needs to be changed — but it definitely should be changed after 250 head have used it.

“If 30% of the pen shows any sign of hairy heel wart, that pen should automatically be enrolled into a footbath program, repeating treatment every three to four weeks for maintenance until shipping,” Terrell says.

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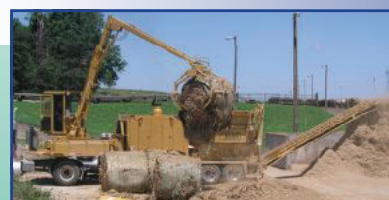
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Consensus builds for beef industry pricing reforms

BY TIM HEARDEN

THE DOMINANCE OF four meatpacking companies when it comes to cattle pricing has divided the beef industry for decades, but a sea change in producer sentiment over the past 10 years has created momentum for significant reforms.

A decade after the federal Grain Inspectors, Packers and Stockyards Administration was forced to dramatically water down the 2010 GIPSA Rule because of a flood of negative comments, wider disparities between boxed-beef and live-cattle prices in recent years have prompted some in the industry to reconsider their opinions.

Industry experts say the fallout from two events — a 2019 packing plant fire in Holcomb, Kan., and supply disruptions from the COVID-19 pandemic — convinced many who had resisted talk of antitrust actions against meatpackers Tyson Foods,

JBS, Cargill and National Beef that some reforms to the beef pricing structure may be needed.

“A lack of profitability the last few years has cattlemen, or a portion of cattlemen, going, ‘Wait a minute, we’re seeing record prices for consumers, yet we can’t seem to make a reasonable return. Somebody in between is doing well,’” says Scott Brown, a University of Missouri livestock economist.

GAMUT OF REFORMS

The shifting sentiment is helping to fuel a flurry of legal, administrative and congressional efforts to address the pricing disparity.

A class-action lawsuit alleges the big four meatpackers conspired to suppress the price of fed cattle and increase the price of beef. JBS announced in February that it had agreed to pay plaintiffs \$52.5 million as part of a partial settlement.

At the National Cattlemen’s Beef

Association’s urging, USDA’s Packers and Stockyards Division has been investigating whether there was evidence of price manipulation, collusion or restrictions of competition by meatpackers amid the supply disruptions in late 2019 and 2020.

USDA in 2021 began work on three proposed rules to support enforcement of the century-old Packers and Stockyards Act (PSA), which was originally designed to protect poultry, hog and cattle producers and address market concentration.

A bipartisan group of lawmakers led by Sen. Chuck Grassley, R-Iowa, has proposed the Cattle Price Discovery and Transparency Act. (See Page 52 for details.)

“Things are worse for producers as a result of a lack of enforcement of competition laws that are on the books, so there’s more momentum” for reforms, says Roger McEowen, an agricultural law professor at Washburn University in Topeka, Kan. “I think this is one issue where there’s a

decent level of bipartisan agreement in Congress, in an era when there is little bipartisan agreement.”

INDUSTRY DIVIDED

Processor price fixing has been alleged in virtually all the proteins, including broiler chickens, turkeys, seafood and pork, but the issue has been perhaps the most contentious in beef, where three national organizations espousing different perspectives have been sniping at each other since the early 2000s.

While NCBA has defended meatpackers, two other groups — the Ranchers-Cattlemen Action Legal Fund, United Stockgrowers of America (R-CALF USA) and the U.S. Cattlemen’s Association — have sought more fairness and transparency in pricing.

Their battles reached a boiling point in 2010, when USDA proposed several PSA provisions — collectively known as the

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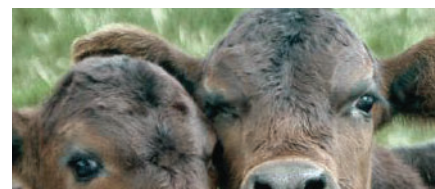
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CONSOLIDATION: The four largest meatpackers control more than 80% of the beef market, and producers' share of the price of beef has dropped while consumer prices have risen.

GIPSA Rule — that Congress mandated in the 2008 Farm Bill. The rule would have broadened the PSA's scope to penalize "unfair, unjustly discriminatory or deceptive practices," even if they didn't harm competition or cause competitive injury, prerequisites for winning PSA cases.

The National Pork Producers Council led a wide swath of livestock organizations in opposing the rule, generating more than 16,000 comments from pork producers against it. There were more than 60,000 comments overall, many of them negative. An Informa Economics study found that

the 2010 GIPSA Rule would have cost the U.S. pork industry more than \$420 million annually — over \$4 per hog — with most of the costs related to lawsuits brought under the "no competitive injury" provision. Two subsequent administrations have scuttled the rule and started over.

Courts have thus far applied the "no competitive injury" concept in antitrust law in turning back producers' legal challenges against packers, McEowen says.

"The courts have interpreted the Packers and Stockyards Act in a way that Congress never intended," McEowen says.

"They treat it as antitrust law. ... It was designed to have greater enforcement power than any anti-trust law at the time. The Sherman and Clayton acts were already in place."

REFORMS GAIN STEAM

The four largest meatpacking companies control over 80% of the beef market and, from 2016-21, farmers' share of the price of beef dropped by more than a quarter — from 51.5% to 37.3% — while the price of beef has risen, according to a White House fact sheet.

The push for congressional action began to gain steam in late 2019, when the Holcomb fire "stressed an already sensitive balance between processing capacity and a growing fed cattle supply," the American Farm Bureau Federation noted in a report.

With about 5% of the nation's processing capacity affected, boxed-beef values rose from \$216.04 per cwt the week of the fire to \$239.87 per cwt two weeks later, while the fed and feeder cattle markets went in the opposite direction.

The disparity worsened during the COVID-19 pandemic, as a jolt in consumer

demand came as processing plant closures stifled production — and demand for live cattle, AFBF observed. Early in the pandemic, the live-to-cutout spread nearly quadrupled, increasing from \$481 to \$1,839 per 1,000 pounds of steer.

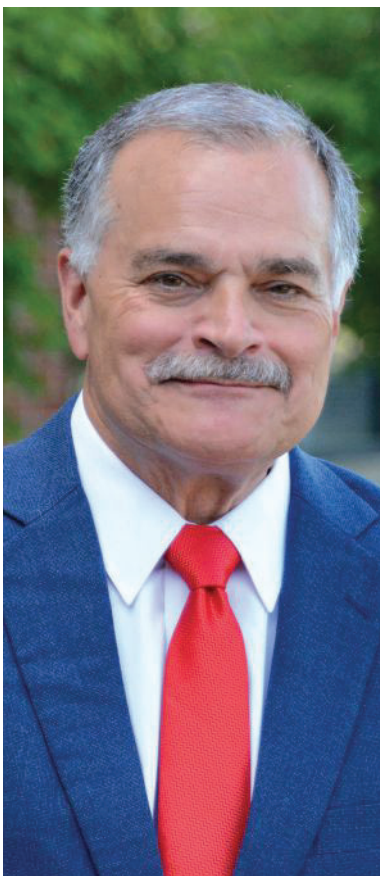
While fed cattle slaughter has settled around 95% of capacity, state cattle producer associations are telling cow-calf operators that changes are likely coming.

Improving price discovery "may be good," Missouri's Brown says, but it won't necessarily equate to higher prices for ranchers. And if the big four were broken up, it would destroy "economies of scale" that benefit the industry, he cautions.

However, the Grassley bill "is the only approach left" to help ranchers, McEowen says. "Farmers face an intensely anticompetitive market. They're buying from highly concentrated markets for inputs, and they're selling into highly concentrated markets. It's worse now than in 2010, and the Department of Justice simply allows consolidations to continue to go through, and the situation worsens. [Producers] are in the middle, and they're getting squeezed."



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4 more years of higher cattle prices

BY SCOTT BROWN



CONSISTENTLY HIGH beef cow slaughter levels for the first half of 2022 ensure that the January U.S. beef cow inventory will decline for the fourth year in a row.

As those in the industry ponder what this may mean for cattle prices in the next few years, it is instructive to examine past price behavior at similar points in the cattle inventory cycle.

Since the mid-1970s, there have been four other instances in which beef cow inventory numbers declined for four or more consecutive years after reaching an inventory peak. Those are 1976-79, 1983-86, 1997-2004 and 2007-14.

Without speculating how many years declines will continue in this current inventory liquidation cycle, comparing four-year-average prices following four

BEEF OUTLOOK

consecutive years of liquidation with the four years just preceding that time frame provides some guidance on potential average prices for 2023-26.

PRICES ON RISE

In every case during the previous four cattle cycles, both national indicator fed steer prices and 600- to 650-pound Oklahoma City feeder steer prices posted higher average levels in the four years following the position in the inventory cycle that we will find ourselves to begin 2023 relative to the previous four years.

The average price increase in these cycles was 24.4% for fed steers and 34.7% for feeder steers.

Using current USDA estimates to project prices for the remainder of 2022, average fed steer prices for 2019-22 cal-

culate to \$121.95, with feeder steers at \$157.79. If we apply the average price change of the previous four cattle inventory cycles, it suggests an average fed steer price of \$151.70 over the 2023-26 period, with feeder steer prices averaging \$212.55.

Taking the smallest and largest percentage changes over the previous four cycles yields a range of \$129.14 to \$181.95 for fed steers and \$188.72 to \$264.14 on feeders.

PLAN FOR UNCERTAINTY

While crunching the numbers is straightforward for this type of exercise, there are many risks and uncertainties that diminish confidence in the fact that past cattle cycle price behavior will be a suitable guide for the years in front of us.

Will beef demand and, therefore, cattle demand remain resilient in the face of the potential stress on consumer finances

from inflationary pressure and the rising interest rates used to combat it? Will feed prices in the next few years cause the fed steer to feeder steer price relationship to look different than what occurred in previous periods? Will there be new major disruptions to either the beef demand or supply side that overshadow historical economic relationships within the market?

Despite all the potential for uncertainty, it is important to understand what can be learned from past cattle cycle price behavior and position your operation to take advantage of what is most likely to be the average market conditions in front of us.

As cattle producers navigate the pressure of sharply higher input costs, realize that higher cattle prices — perhaps even sharply higher prices at times — are the most likely outcome for the next few years.

Make sure your decisions made in today's environment keep your operation positioned well to take advantage of the times to come.

Brown is a livestock economist with the University of Missouri. He grew up on a diversified farm in northwest Missouri.

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Milk supply issues continue around the world

DAIRY OUTLOOK

BY FRAN O'LEARY



MILK SUPPLY ISSUES continue across the U.S. and the world, with no indication that the problem will be solved anytime soon, reported a dairy analyst

during a recent Dairy Signal webinar by the Professional Dairy Producers.

"We're still looking for a price that keeps milk stocks adequate and somehow allows the supply to expand," said Ben Buckner, chief grains and dairy analyst for AgResource Co. "I don't think we have found that price yet."

Buckner noted that many economists believe the world is on the cusp of a global food crisis.

"There just isn't any room for a yield error in any major grain-producing area," he said.

MILK PRICE PLATEAU

Buckner said dairy markets are sustaining a new price plateau. Class III milk prices are trading above \$22 per cwt, while Class I milk prices are above \$27 per cwt.

"Dairy markets are not going to break until the end of the fourth quarter at the earliest," Buckner said.

Milk production continues to falter in Europe, Australia and New Zealand. Meanwhile, U.S. dairy exports are strong.

"In March, we thought New Zealand was on the way to increasing milk production, but that evaporated in April. Butter has become the new bullish leader on widening the milk output deficit in New Zealand, which is by far the world's big-



EXPORTS PEAK: U.S. dairy exports hit record levels, with Class III milk prices expected to stay above \$22 through 2022. PHOTO BY FRAN O'LEARY

gest butter exporter," Buckner said. "The U.S. is stepping in and filling that gap. New Zealand doesn't have the supplies to meet global demand."

Buckner predicts butter will be the leader of the "new dairy complex" through the end of September. And domestic demand for butter is not slipping despite \$3 cash butter prices.

"The economy is still humming along," he said. "Food consumption rates are good, but food demands are pretty inelastic — people have got to eat. Historically, we have not found a price that slows consumption down."

Buckner said he has not seen any signs of a major recession in the U.S. or that food consumption will slow down during the next 12 months.

EXPORTS STRONG

"U.S. dairy exports are incredibly strong and are driving dairy markets," Buckner said. "We assume New Zealand, Australia and the European Union — who are all big

dairy exporters — will eventually come back, but that all comes down to Mother Nature."

Buckner said Oceania's and EU's dairy export losses are positive for U.S. dairy farmers.

"Whatever is lost in the Southern Hemisphere and in the EU turns into a U.S. export. I think U.S. dairy exports in 2022 will exceed last year's record dairy exports by \$300 million to \$350 million," he said.

"It's very impressive," he added. "There are no trade deals supporting this. It's all from U.S. dairy exports being competitively priced and because these dairy products do not exist elsewhere."

WHAT TO WATCH

What to watch in coming months is the war in Ukraine. Buckner said Ukraine is not expected to be a large grain exporter in 2022, and Russian export estimates are also likely very much overestimated.

"The burden of meeting world food use falls on other countries, including the U.S.," he noted. "The war is not getting any better; there seems to be no end in sight. We just have to acknowledge that."

Buckner said there is zero room for error this summer.

"Northern Hemisphere weather is critical," he explained. "Drought expansion in Western Europe further raises the burden on Midwest growing conditions. The grain markets are very volatile right now. We cannot afford to see any sustained adverse weather in the U.S."

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

No poultry shows at state fair

BY HOLLY SPANGLER

THE ILLINOIS DEPARTMENT of Agriculture has canceled junior and open live poultry shows at the 2022 Illinois State Fair to protect birds from avian influenza.

"The department works year-round to promote biosecurity for all livestock producers. With the current situation, it remains important for all of us to be responsible and protect against the spread of avian influenza during the Illinois State Fair and county fairs," says Dr. Mark Ernst, IDOA state veterinarian.

The decision came following a series of emergency rules on April 5 and May 20 that halted poultry shows and sales across the state. The emergency rule prohibits the sale or exhibition of poultry and poultry products at swap meets, exhibitions, flea markets and auction markets in Illinois to prevent the spread of avian influenza.

Lisa Diaz, Illinois 4-H director, says the University of Illinois has partnered with IDOA to help reduce

risk and give young people an opportunity to compete through a virtual poster competition.

Diaz says 4-H and its members have plenty of experience in pivoting competitions, pointing to the more than 400 virtual events across the state 4-H held during the pandemic.

"It is our commitment that 4-H youth will still have an opportunity to exhibit, win premiums and get judged with their 4-H poultry project this year — it will just be in a virtual manner, which has proved successful in the early part of the county fair season," says Dan Jennings, U of I Extension 4-H livestock specialist.

Many county fair 4-H junior poultry shows started the season with a virtual format, and that will continue.

If you're a flock owner, manager or veterinarian and you observe an increase in mortality, decrease in water consumption, decrease in egg production, or respiratory signs including coughing and sneezing, call IDOA at 217-782-4944 or USDA at 866-536-7593.



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BY WILLIE VOGT



LET'S BE CLEAR: You're reading this column at a Farm Progress brand, a company that runs the two largest outdoor farm shows in the country. Obviously, we get excited about our events.

And I'll be at each day of the Farm Progress Show and Husker Harvest Days this year.

Sure, I get paid for this, but I used to go before I worked here. The fall farm shows, including others like Ohio Farm Science Review and Sunbelt Ag Expo, are where you can kick the tires and talk to exhibitors to get questions answered.

Last year, the big shows returned live for the first time since 2019 — the Farm Progress Show in Decatur and Husker Harvest Days in Grand Island, Neb. It's been four years since we've been in Boone, Iowa, for the Farm Progress Show! Time flies.

Our national events manager, Matt Jungmann, does a great job of telling the story about what you'll find at both shows in his Manager's Notebook column that appears in our magazines.

From the concert to autonomy to new equipment to a spotlight on startups, the



JOIN THE CROWD: Attendees stroll the Farm Progress Show grounds in 2021 in Decatur. With the pandemic cooling down, we could see more people attending this year's farm shows to look at the latest technology and equipment for agriculture.

Farm Progress Show has plenty going on.

When the live show returned in 2021, some questioned if farmers would come back. You all spent a year doing everything remotely — even ordering food, in some cases. We found in Decatur, and in Grand Island, that farmers do want to see equipment up close and personal.

But back then, the specter of the omicron variant was still upon us, and some folks may have skipped the show due to that risk. Today, the U.S. is finding its own

way to manage through the pandemic.

For 2022, we're putting COVID-19 behind us, and moving ahead at a time when supply chain issues are making things difficult. One benefit of a show is that you will get to see that shiny new machine on-site.

MAXIMIZE SHOW VISIT

No matter what farm show you attend, chances are small you're hitting the site blind. Every major farm show has a web-

site with maps and information on golf cart rentals, hotels and campsites, directions to the show site, and how to buy tickets in advance.

Ordering tickets online and having them with you when you arrive — whether on your smartphone or in print form — can speed you through the entrance gates.

Many show websites also have an app you can use to plan your day. Farm Progress Show and Husker Harvest Days each have that capability through Map Your Show. Visit FarmProgressShow.com or HuskerHarvestDays.com to use the free registration at Map Your Show. That lets you plan your time. Then, if you log into the same account on your smartphone's show app, all your information will be waiting for you.

The technology will help simplify your day — from seeing a new tractor to attending a crop demo — in as few steps as possible.

Be sure to attend the Farm Progress Show from Aug. 30 to Sept. 1, and Husker Harvest Days from Sept. 13 to 15. Here are some more tips for making the most of your visit:

- Check your favorite show's website for map and planning tools.
- Drink plenty of liquids at the show. Don't risk dehydration, which includes an expensive ambulance ride.
- Don't forget serendipity — things you discover by simply walking by.

A farm show is a look at the future of agriculture — and perhaps your future. Make the most of it.



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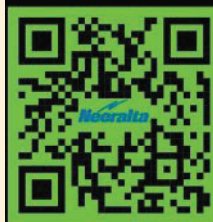
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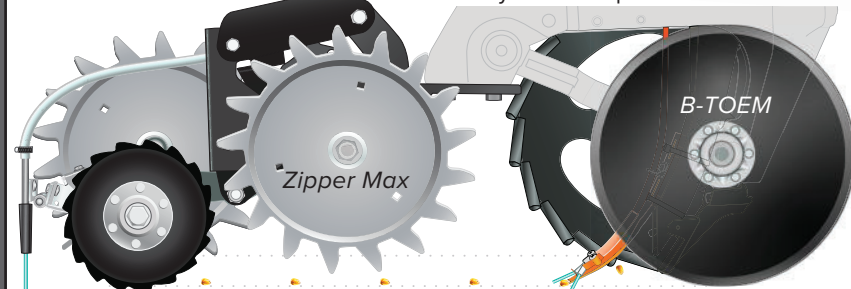
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WHAT'S COOKING IN ILLINOIS

BY CHARLYN FARGO WARE

GROWING UP, I remember spending a fair amount of my summers at the kitchen table snapping green beans. Everyone was required to help because green beans seemed to flourish in our garden every year.

In the vegetable world, green beans are too much like the too-familiar-cousin to get much fanfare — except for that much-loved green bean casserole for the holidays. But they're actually a great vegetable to discover again.

While they may not be the darling that Brussels sprouts are at the moment, green beans are heart healthy, a good source of

vitamins and minerals, and a good source of fiber, especially when cooked. A cup of raw green beans has just 31 calories, virtually no fat, 2 grams of protein and only 3.6 grams of (natural) sugar — good news for those watching their waistline.

The list of vitamins and minerals in green beans includes folate (which helps prevent birth defects), vitamin C (an antioxidant that boosts your immune system), vitamin A (important for your eyes) and minerals including manganese (for metabolism) and calcium (for strong bones).

In addition, they are versatile. You can blanch or steam fresh green beans and toss them with grape tomatoes and balsamic vinegar; toss them in olive oil, fresh ground pepper and freshly grated Parmesan cheese and roast them or cook them in an air fryer; add them to a green

RECIPE

Firecracker Green Beans

- 1 pound fresh green beans
- 1 tablespoon olive oil
- 1 teaspoon garlic chipotle seasoning

In a bowl, mix snapped, washed green beans, olive oil and seasoning. Preheat grill to 375 to 400 degrees F. Place beans on hot grill and grill until marks appear on the beans, five to 10 minutes. Serve warm or cold with a Ranch-type dip. Serves four for an appetizer.



CHARLYN FARGO WARE

salad; saute them in olive oil, garlic and lemon juice; or dip them into hummus or plain low-fat yogurt flavored with fresh herbs.

Green beans go great with grilled meats like steak, chicken, fish or pork chops, and meat loaf.

My husband prefers Firecracker Green Beans and Country Green Beans (cooked so they don't squeak) with bacon, onion and garlic. It doesn't take a lot of bacon — just enough for flavor. The Firecracker

Green Beans are seasoned with a garlic chipotle seasoning. My favorite recipe is Best Grilled Green Beans, similar to doing asparagus on the grill.

Find these recipes, adapted from *allrecipes.com*, at bit.ly/green-bean-recipes. The recipe for Firecracker Green Beans is from our family.

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

From the barn to a protest

THE FARM LIFE

BY HOLLY SPANGLER

IT STARTED OUT as a simple trip. We wanted a little ice cream.

Two of my kids and I were at our junior national cattle show last month in Madison, Wis.

After working in the barns all day, we went out for Mexican one night and then decided a little ice cream would really hit the spot. Caroline, 14, pulled out her phone and found an ice cream shop just a mile away. So we headed that way.

Turns out, it was downtown, so we parked the pickup and walked a couple of blocks to the ice cream shop. It sure seemed like there were a lot of people, but it was Friday night, so I figured it must be a popular area. Then we noticed the signs. Then we rounded a corner and spotted the dome of the Wisconsin Capitol building.

That's when it hit me: Roe v. Wade had been overturned that morning. We'd wan-

dered into a protest.

We got our ice cream and noticed the protestors in line behind us. On the way out, one young woman dropped her cardboard sign at my feet. I helped her pick it up. She was very nice.

We headed back up the street, and I told my very rural, semi-sheltered farm kids that we were gonna check this out, because I knew they had never encountered a protest on this scale, at a state capitol.

ONWARD

We walked on toward the Capitol building, toward the sounds of megaphones and speakers where women gave impassioned, emotional speeches. They cried and cussed, and it was clear they felt the Supreme Court's decision very deeply.

We stopped at the four police officers on horseback, and my youngest asked why there were police, and I answered that anytime you get a lot of people in one place with emotions running high, it's not a bad idea.



PROTEST: Pro-choice activists gather at the Wisconsin Capitol to protest the Supreme Court decision overturning Roe v. Wade. PHOTO BY HOLLY SPANGLER

But everyone there was peaceful. Upset. But peaceful.

The point of our little protest expedition, of course, was to listen to each other. To look into the eyes of people who

believe exactly opposite of you.

And in the end, know why you believe what you believe. And listen well enough to know why someone else believes what they believe.

ASF: Spread the word, not the disease

BY KEVIN SCHULZ



A LOT HAS been written and said about African swine fever and the devastation it has wreaked on the global hog population.

After ASF was first reported in China in 2018, it spread like a viral wildfire across many Chinese provinces — as well as to 15 Asian countries. China lost half of its swine herd to ASF as complete herd depopulation is one way to halt the spread of the disease.

Before long, ASF moved across Europe, and then last year to the Dominican Republic and Haiti, less than 60 nautical miles from the U.S. territory of Puerto Rico. That close is too close for comfort. It's time for U.S. producers to take the ASF threat seriously.

To that end, USDA's Animal and Plant Health Inspection Service (APHIS) recently launched the Protect Our Pigs campaign, providing veterinarians and producers a one-stop shop to locate and share information to help them protect their herds and livelihoods.

TRANSMISSION OF DISEASE

Sometimes the mere fear of ASF infecting the U.S. swine herd can cloud what the disease actually is, how it's transmitted and how it can be stopped.

ASF is a disease of pigs that has a 100% mortality rate. As of yet, there is no vaccine, although development of such a vaccine is showing promise. Humans cannot catch ASF, but they can transmit it to pigs

HOG OUTLOOK

on clothing, shoes and equipment, reinforcing the need for strict and enforced on-farm biosecurity protocols.

ASF can spread three ways: direct contact, indirect transmission and insect-borne transmission. Healthy pigs can become infected if they come in contact with infected domestic or wild swine — or come in contact with infected saliva, urine, feces or aerosolized respiratory secretions via coughing or sneezing.

Indirect transmission can occur when a healthy pig eats virus-contaminated feed, or if it comes into contact with the virus from a person's clothing, shoes, equipment, vehicles or food waste.

WARNING SIGNS IN PIGS

How does a producer or veterinarian know if ASF has infected a herd? Confounding producers and animal health experts is the fact that ASF shares symptoms with other pig diseases. Being attentive to your herd's health is paramount, and it should be standard operating procedure — but even more so with ASF on the horizon. Signs of the deadly virus include:

- high fever
- decreased appetite and weakness
- red, blotchy skin or skin lesions
- diarrhea and vomiting
- coughing and difficulty breathing
- abortions or sudden death

Subscribe to the “better-safe-than-sorry” philosophy. If you see these symptoms in any of your hogs, say something to

your herd veterinarian, or directly to state or federal animal health officials, or call USDA directly at 866-536-7593 to get appropriate testing and start an investigation.

As part of the promotion of the Protect Our Pigs campaign, APHIS hosted a webinar where Anna Forseth, National Pork Producers Council's director of animal health; Jamee Eggers, Iowa Pork Producers Association producer education director; and Pete Thome, swine producer from Thome Family Farms in southeastern Minnesota, joined Jack

Shere, USDA APHIS associate administrator, to discuss work that APHIS is doing — as well as what pork industry organizations, producers and veterinarians can do to keep ASF at bay, and prevent the spread should ASF reach a U.S. herd.

View the entire presentation on the USDA Facebook page at bit.ly/fight-asf.

Protecting pigs is the goal of any hog producer, and with the risk of ASF on the horizon, every American pig farmer has a stake in protecting the country's pork industry. Help spread the word about African swine fever, not the disease.

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.



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RAMP UP PROTECTION:

As the risk of African swine fever continues to threaten the U.S. swine herd, the industry is stepping up to improve biosecurity measures and overall awareness in an effort to keep the country free of ASF.

Do USDA's August yield predictions matter?

MARKET OUTLOOK

BY JACQUELINE HOLLAND



ONE OF THE biggest market highlights in August is USDA's prediction on 2022 yields. There is likely to be as much anticipation as ever for USDA's figures this year, especially as growers battled a cool spring, delayed planting season and persistently dry weather through the early stages of the growing season.

This piece of market information, to be released by USDA's National Agricultural Statistics Service in conjunction with the World Agricultural Supply and Demand Estimates report Aug. 12, is the first time in the growing season that farmer survey data will be used to forecast 2022 corn and soybean yields beyond the available forecasts as of late June.

Those stood at 177 bushels per acre for corn and 51.5 bushels for soybeans.

The farmer-surveyed data in the August WASDE report is likely to provide the most

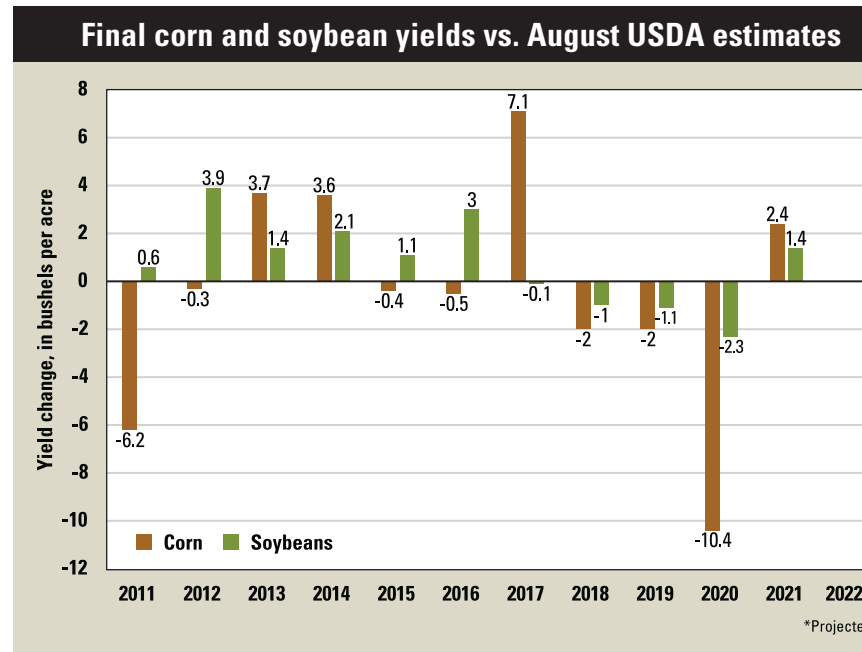
accurate yield estimates to date for the 2022 growing cycle. But the August yield projection is not always reflective of final production totals for corn and soybeans.

VARIABLE CORN YIELDS

USDA's August 2020 corn yield estimates were released just two days after a derecho decimated Iowa's corn crop. The farmer survey showed a higher value than what many market watchers and producers suspected after the storm. USDA adjusted the yield lower in subsequent USDA reports to 171.4 bushels per acre, but the lack of clarity increased market volatility at the time.

It also works the opposite way. Last year, the August corn yield forecast was revised higher to 177 bushels per acre for 2021 after corn conditions proved to be better than producers had previously believed. The additional production was largely a bearish factor for prices this past winter until Russia invaded Ukraine.

Since 2000, the August corn yield has been revised higher 12 out of the past 22 years. This means there is more uncertainty in banking on 2022 corn yields this



far ahead of harvest. So, growers may opt to execute more conservative marketing decisions until 2022 yields are released in January, particularly if they think the August yield will be revised lower.

MORE CERTAINTY FOR SOYBEANS

There can be a little more certainty with soybean projections. In the past 22 years, USDA has only revised final soybean yields higher eight times (36%) following the August yield report. That means there is a higher chance for bullish price action for soybean crops this year, especially if USDA ends up cutting 2022 soybean yield forecasts in January.

That potential scenario may encourage growers to delay executing marketing decisions until later in the 2022 calendar

year, especially if crop conditions deteriorate significantly in the latter half of the growing season.

Every growing season is different, and yields vary from farm to farm. The more market and weather turbulence growers face during a growing season typically increases the variability in predicting USDA's estimates.

Anything that could increase this variability following the August report could increase the degree of difficulty in predicting final yields and executing marketing plans for the 2022-23 marketing season. But it could also keep prices unseasonably high headed into harvest.

Holland is the grain market analyst for our sister publication, *Farm Futures*. For more market insights, go to FarmFutures.com.

Last steps before gates to show open

BY MATT JUNGSMANN



IT'S GETTING TO be whirlwind time for our two big shows. With the Farm Progress Show from Aug. 30 to Sept. 1 and then Husker Harvest Days two weeks later on Sept. 13-15, some days seem to blur.

The four-year gap in returning to Boone, Iowa, for the Farm Progress Show has made things a little interesting as new people come into the picture. We're all

MANAGER'S NOTEBOOK

going through some "retraining" to get ready. And I'm excited with what we'll have on hand — our first-ever concert at the site, an expanded autonomy display, and of course, our wide array of exhibitors showing off their latest and greatest.

I want to give a shoutout to the Iowa Department of Transportation for performing a major upgrade to Highway 17. The project includes adding a lane to give

us three lanes into the show site. While the work isn't completely done, the department has timed its project so the road expansion to the site will be completed in time for the show.

Speaking of traffic, that wider road is going to make your trip to the show even easier than when we first started on this site in 2008. But remember, as you travel to the show, watch for any directions given by local law enforcement. There might be contingencies for crowd control as needed.

SOME HUSKER CHANGES

Visitors to Grand Island, Neb., will see some changes at that site. Perhaps, the most visible will be New Holland moving from its original space to be side by side

with sibling brand Case IH. And moving into New Holland's former space will be Beck's, a seed company new to Nebraska. Beck's will not only display its products and technology, but also have a large plot near Husker Highway.

Also, mark your calendar to visit Husker's livestock area for demonstrations, as well as the beef program including:

- insights from columnist Doug Ferguson
- alternative feed ideas from Mary Drewnoski, University of Nebraska
- strategies for restocking after a drought from Eric Bailey, University of Missouri

The presentations will take place between 11 a.m. and 1 p.m. each day.

To learn more about both shows, visit FarmProgressShow.com and HuskerHarvestDays.com.

Jungsmann is national events director at *Farm Progress*.

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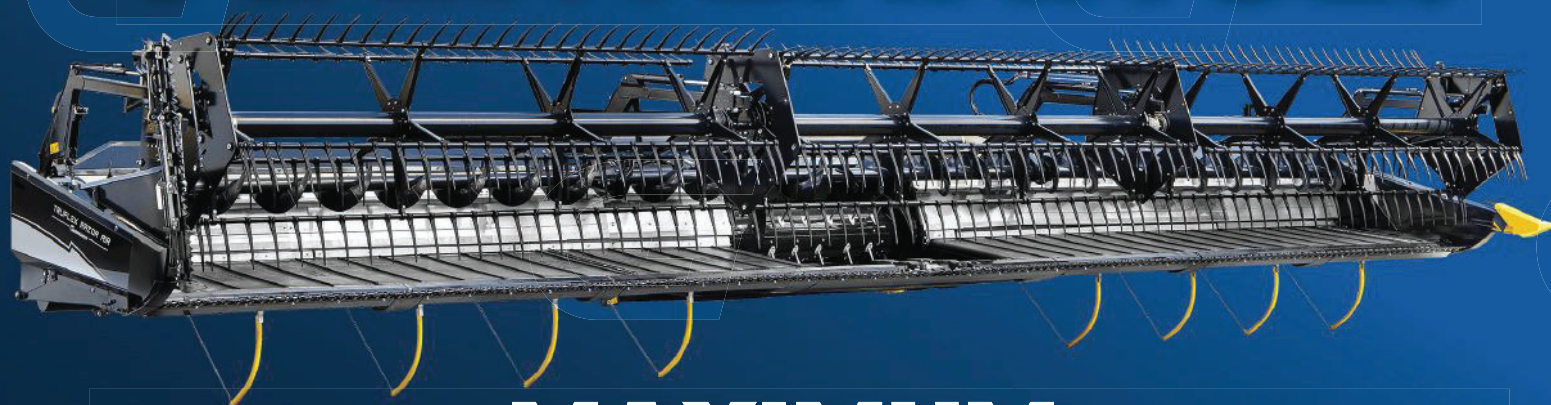
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