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XTENDFLEX[®] SOYBEANS



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LARRY NESSETH

XtendFlex[®] Stewarded Ground Breakers[®]
Field Trial Program Participant



Flexibility is super important because you never know what the weather is going to be. You need to be able to have the flexibility to spray what needs to be sprayed to grow the type of crop you want to have.

RYAN VOS

XtendFlex Stewarded Ground Breakers
Field Trial Program Participant



I just love cutting clean fields. There's just nothing like being in a combine and not seeing any weeds go through the machine.

MITCH SCHROCK

XtendFlex Stewarded Ground Breakers
Field Trial Program Participant



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with VaporGrip[®]
Technology

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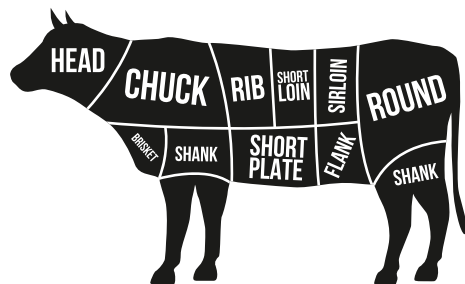
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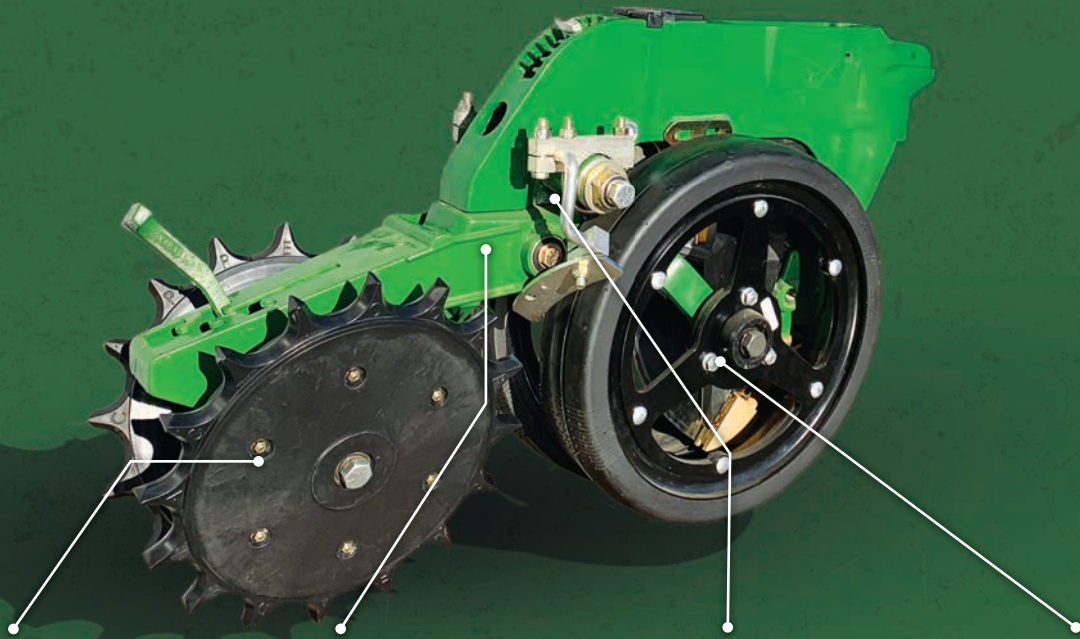
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Data and Dollars Digitize Ag



Gregg Hillyer
Editor In Chief

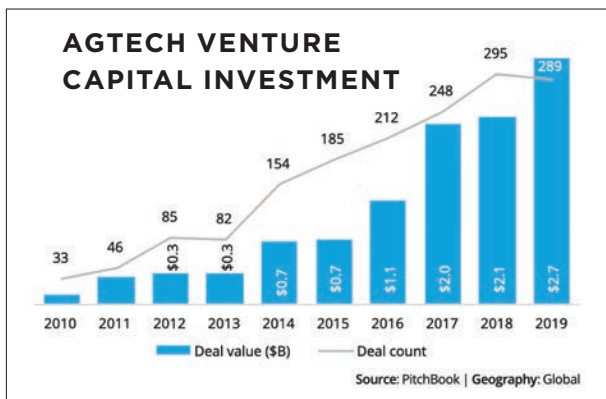
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Step into the cab of any of today's lineup of ag equipment, and you'll marvel at the technology displayed on multiple monitors. Digital screens track myriad functions, recording reams of data that, when deciphered, result in smarter decisions to improve your profits and productivity.

This stream of data not only yields invaluable information for your operation but also your trusted partners. By agreeing to share data, your advisers can plot a road map to steer you through an entire growing season. Data guides the decisions, reducing risk and solidifying the odds of success.

The capture and analysis of data will only improve as new technology emerges. Data will drive the future of agriculture throughout the food chain.

Ranveer Chandra, Microsoft Azure Global chief scientist, says we've barely scratched the surface on how data will transform the



industry. Speaking at last month's DTN Ag Summit, he predicts field management zones will shrink from acres to inches. Combined with advanced technologies that program planters and applicators to deliver crop input prescriptions of the same accuracy, it will drive down cost efficiencies to new levels.

Across the food chain, data has already started to enhance transparency and traceability to satisfy consumers' demands for accountability and assurances for the safety of their food. Data platforms will also verify environmental and sustainability standards being incorporated from farm to fork.

This growing demand for data is one reason investors are betting on agriculture.

They're attracted to ag because it's one of the least digitized industries. McKinsey and Co. reported in 2018 that despite technological advances, the ag sector's productivity gains from digitization lag behind.

According to the 2019 AgriFood Tech Investment Review, compiled by Finistere Ventures, a leading California-based agricultural technology and life sciences investor, total capital globally committed to agtech reached \$2.7 billion across 289 deals. Digital technologies (imagery, precision agriculture, sensors and farm equipment) made up approximately 41% of total activity in 2019. As the chart at left shows, agtech venture capital has seen strong growth over the last 10 years, jumping nearly fourfold since 2014.

"A focus on agtech and foodtech [alternative protein sources, for example] as paths to climate impact mitigation will increasingly become the driver for investment trends that will not only reimagine the future of farming and food, but the future of our planet," says Arama Kukutai, with Finistere Ventures.

Whatever that future eventually becomes, data and related tech will help shape it. Add a lending hand from investors for agriculture to capitalize on the full potential of data.

Over the years, agriculture has witnessed amazing milestones of technological innovation to catapult it to new levels. Norman Borlaug's efforts in Mexico during the 1940s to boost wheat yields, for example, launched the Green Revolution. He laid the groundwork for agricultural technological advances credited for saving a billion people worldwide from starvation and, in the process, earned the Nobel Peace Prize.

The Digital Revolution has the potential to be as significant as Borlaug's work to agriculture and food production. Data-driven farming will make the unpredictable predictable, while connecting you to a data lake of insights to tap into to execute profitable actions on your farm or ranch. ///

EDITOR IN CHIEF

Soybean Seed Selection:

Looking Beyond Only Herbicide Tolerant Traits to Local Agronomics

Most soybean seed decisions are made around the herbicide tolerant trait and the herbicides that best control weed pressure.

While weed control is a key determining factor for trait platform and herbicide selection, there are other challenges to consider when selecting the right seed brand and variety. BASF seed experts recommend evaluating all production challenges and making variety selections based on the complete agronomic characteristics needed for each field.

Consider the Characteristics

Seed variety selection is probably one of the most important decisions a grower will make because of its impact on yield and profitability. That's why agronomists recommend growers consider all potential problems they are likely to encounter in their fields and chose varieties that offer possible solutions.

Agronomists recommend that growers ask themselves: What level of weed pressure do they experience and what are their driver weeds? What type of insect pressure do they anticipate? What diseases are common in the area? What specific soil conditions are at work? What other environmental factors need to be considered?

In other words, it's about selecting the right variety for all the challenges faced in that specific field.

Look at Local Results

Besides selecting seed varieties based on production challenges, evaluating the yield performance of the previous year's crop also can provide some guidance on seed variety selection for the following season.

Take for example Credenz® with LibertyLink® GT27™. LibertyLink GT27 continues to be an outstanding yielding trait platform with proven results the past several years. Credenz offers 35 LibertyLink GT27 precise varieties designed to perform under local conditions, addressing the unique set of challenges growers may see each year, giving growers the opportunity to achieve success on their specific acres. Credenz LibertyLink GT27 varieties are available in relative maturities ranging from a 0.3 to 4.7. These varieties are extensively tested and bred to withstand local yield robbing disease and pest pressure.

Selections Beyond the Seed

In addition to seed selection, another key part of the solutions mindset is considering other inputs to increase production on the entire acre over the season. This includes looking at the best seed treatments, fungicides, insecticides, and herbicides to protect seed variety yield potential. Combine Credenz LibertyLink GT27 varieties with BASF's leading seed treatment and crop protection portfolio for the most yield potential on your acres.

For more information, talk to your local BASF technical services representative and/or agronomist.



BASF
We create chemistry

Involuntary Conversions



Rod Mauszycki

DTN Tax Columnist Rod Mauszycki, J.D., MBT, is a tax principal with CLA (CliftonLarsonAllen) in Minneapolis, Minnesota.

► Read Rod's "Ask the Taxman" column at **ABOUT.DTNPF.COM/TAX**.

► You may email Rod at **taxman@dtm.com**.

Some farmers would call 2020 a disaster. COVID, weather, election: What else could go wrong? Since we are discussing things that have gone wrong, let's talk about involuntary conversions.

Let's start the discussion with Treasury Regulation 1.165-6(c), which states that the loss of a prospective crop through frost, storm, flood or fire does not give rise to a casualty loss deduction. A cash basis farmer would not have basis in the prospective crop to claim a loss. However, a farmer using the inventory method may be able to claim a deduction through a cost of goods sold.

Luckily, most farmers have crop insurance to compensate for the loss of a crop. Most farmers also have liability insurance to compensate for the loss of personal property such as a shed, silo or equipment. An involuntary conversion falls under Internal Revenue Code 1033, which states no gain or loss is recognized when property is involuntarily converted into similar property or property related in service or use. In the case of a crop, the damaged crop is not converted, and insurance proceeds are subject to tax.

In the case of property, the farmer can either recognize the gain or purchase similar or related in service or use property. The farmer also has the option to elect to defer the gain to the extent the amount realized is invested in replacement property. If deferral is elected, the property must be replaced within two years from the end of the tax year in which any part of the gain on conversion is realized. The farmer may extend the replacement period by filing an extension.

SPECIAL RULES

There are special rules for replacement property in regard to involuntary conversions. Replacement property can't be acquired from a related party. If you are an individual, the related party prohibition applies if there is realized gain of more than \$100,000.

If multiple assets were destroyed in the same event, the farmer can defer gain on

some assets and not others. It's an asset-by-asset election.

Replacement property must be similar in use to the property involuntarily converted. This standard is stricter than like-kind replacement property under Section 1031.

Similar in use refers to the farmer's relationship to the property. The physical characteristics and end use of the converted property and replacement property must be closely similar. For example, a dairy farmer likely could not treat the dairy facility as similar in use to a beef cattle feedlot. To expand on the difference, Section 1031 uses a like-kind test. Under like-kind, the dairy facility (1245 asset) and feedlot (1245 asset) would qualify for a tax-free exchange.

Because the rules and terminology can be tricky, consult a tax accountant prior to purchasing replacement property. ///



MATTHEW WILDE

TOOLS FROM THE PAST

QUESTION:


No backpack needed with this handy item. What is it?




ANSWER:


This is a school book/pencil carrier. The adjustable straps kept the books secure and included a handy handle to carry books to and from school.




 Finally got the lights installed just in time for harvest....2021
@jplunk3




 Just not gonna look in my mirrors for 1100 miles to TX.
@mcinnis_braden

 Putting the gas cap on the passenger side of a vehicle is proof that engineers still hate people
@4FAngusBoy

 Just can't with the COVID arguments & what is best or what is conspiracy or if it's right or why it's wrong. Lockdowns, masks, I don't know what works & moreover I simply do not care. Just want to hug my mom again. Whatever I have to do for that to happen, I'll do it.
@ConradNoShow



 Either she missed me today or she's guilty of something...
@MGigger

 Another fantastic West Texas "pre" sunset from last week
@FarmerTomGraham



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Jan. 12, 2021 WASDE Report: How will commodity markets react to the latest estimates for world agricultural supply and demand? DTN lead analyst Todd Hultman will provide analysis.

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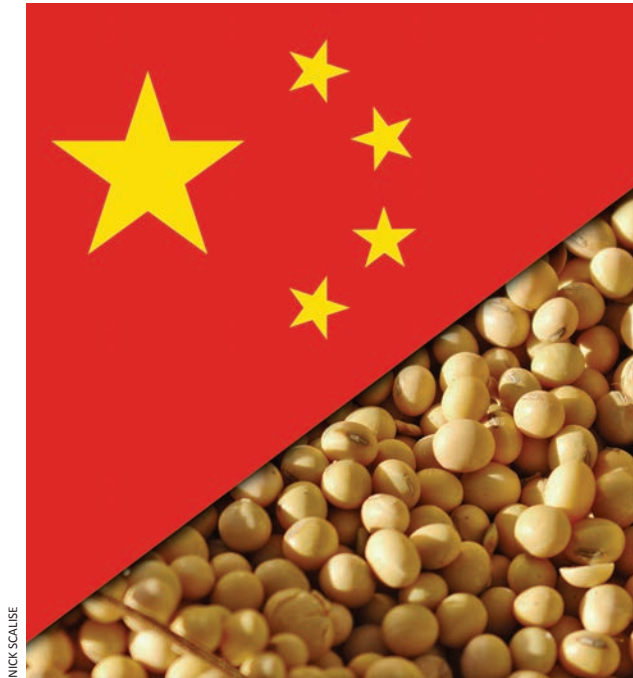
Consequences Of an Unlevel Playing Field



Todd Hultman
DTN Lead
Analyst

► Read Todd's blog at **ABOUT.DTNPF.COM/MARKETS**.

► You may email Todd at **todd.hultman@dtn.com**, or call 402-255-8489.



NICK SCAUSE

The pains of 2020 continue to expose new challenges that deserve greater attention. In the September issue of *Progressive Farmer*, I explained how this year's pandemic revealed serious imbalances in ag markets, as the overwhelming financial burden of food chain disruptions fell on farmers and ranchers, while other segments escaped with a light toll or, in some cases, made even more money.

Late in 2020, another unexpected challenge emerged, as U.S. soybean supplies have gone from a surplus of 909 million bushels in 2018–19 to a legitimate risk running so tight in 2020–21, severe price rationing may be required to shut off demand.

HISTORY LESSON

In many ways, the current scenario is reminiscent of the Soviet Great Grain Robbery of 1972, when Russia quietly bought large quantities of U.S. wheat cheap, eventually sparking a rally that took spot wheat prices from \$1.45 a bushel in June 1972 to more than \$5 a bushel by August 1973.

This time, China is buying soybeans out from under U.S. noses, and we can't pretend

we didn't see it happening. We all watched soybean export sales climb to higher-than-expected levels in USDA's weekly reports.

Cash soybean prices were slow to catch on and didn't even trade above \$10 a bushel until October. Few seemed concerned, partly because USDA estimated a healthy 610-million-bushel surplus as recently as August and partly because intervening runs counter to free-market instincts.

RARE THREAT

Free trade has served the U.S. well and has been an important source of prosperity. But, food security is also important. A lack of available feed is a threat the U.S. has rarely experienced before now.

The Soviet grain robbery of 1972 and this year's rapid loss of soybeans

to China highlight an issue farmers have mentioned for years, but policymakers have ignored. Here in the U.S., USDA gathers important grain supply information from farmers and commercial firms, and freely publishes the data for the world to see. Grain supply information for China, however, is largely hidden as it was for Russia in 1972. The lack of reliable foreign information leaves the U.S. vulnerable to midnight raids on the refrigerator.

With few exceptions, I remain a fan of free trade and all the blessings it bestows. But, if we don't install doors on the house, China's problems with food insecurity can quickly become U.S. problems.

It's going to be difficult for the U.S. to win this poker game if we continue to show everyone our cards but don't demand the same level of transparency from major grain customers, especially one with 1.4 billion mouths to feed. I realize the incoming administration has a long list of items on its to-do list, but few are as basic as protecting the nation's food and feed supply from sudden and unexpected seizures. ///

Welcome to Data Season



GREG LATZA

Every farm has its seasons. There's planting season, spraying season, harvest season and then, data season. Whether it's preparing the books for the banker or the taxman, evaluating yield outcomes on test plots or tabulating ways to trim expenses, the long, cold days of winter are when the data work gets done.

I hope you joined us for the DTN Ag Summit, where we spent a lot of time discussing the ways farmers can mine their data for useful insights. I particularly enjoyed the first day's focus on the topic. It started with the equipment manufacturers, all winners of the DTN/*Progressive Farmer* Reader Insights Awards, detailing how data is driving the future of tractor technology. Then the chief scientist of Microsoft's agricultural endeavors explained the 35,000-foot view of how data and the internet of things are likely to change farming in profound ways in the not-so-distant future. A panel featuring experts from Indigo, Gro Intelligence and ClearAg followed, where they explained the ways data is already changing what farmers do.

While those sessions were overtly focused on data, I was impressed at how many other times data became a point of conversation. One of the winners of this year's America's Best Young Farmers and Ranchers Award, Iowa farmer Aimee Bissell, shared how field

records helped her figure out why a field was underperforming. Data came up in discussions about COVID's long-term impact on the ag economy, the increasing accuracy of weather forecasting and in our breakfast roundtable discussions.

Farmers generate an incredible amount of data on their farms every year. One thing I've observed in recent years is that successful farms—those that are financially sound, growing and serving as role models for their neighborhoods—embrace the power of their data and use it to build resilience.

Ag Summit

FARM STRONG

Strategies to build resilience

If you're in the midst of data season and missed the DTN Ag Summit, these conversations will be available until Jan. 8. Just visit www.dtn.com/agsummit to register, and you can watch all of the content on demand. And, of course, you can continue to find DTN and the *Progressive Farmer's* award-winning coverage of these topics and more on www.dtnpf.com. ///



Katie Dehlinger
DTN Farm
Business Editor

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- ▶ You may email Katie at katie.dehlinger@dtn.com, or visit @KatieD_DTN on Twitter.

La Niña Moisture Watch



Bryce Anderson
DTN Senior Ag Meteorologist

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PAMELA SMITH

As we move into early 2021, a Pacific Ocean cool-water La Niña event continues to dominate the ag weather scene.

Pacific sea surface temperatures have been recorded at around 1.5°C (about 2.7°F) below normal. The National Oceanic and Atmospheric Administration Climate Prediction Center is calling this La Niña event the eighth-strongest dating back to 1950. Climate forecast agencies now call for a 95% chance of La Niña to continue into the spring season. In addition, there is a high likelihood of La Niña lasting through the 2021 spring season.

WIDE VARIANCE

The likely presence of La Niña during at least the first segment of the upcoming crop season brings a wide variance in the weather pattern forecast indications across the central U.S. That difference includes above-normal precipitation during the first quarter of 2021 over the northwestern U.S. and in the eastern Midwest.

Precipitation fortunes are much different in the western Midwest and most of the Plains, where the precipitation trend is notably less—below normal. That lower precipitation trend means that drought areas in the western Midwest and most of the Plains have a high probability of continuing that way through the spring.

PERPETUATING PROBLEM

There is also the question of how long this drier pattern could affect the 2021 row-crop season.

The potential is worth thinking about. Crop weather scientists note that when conditions are drier than average, the impact of that dryness could feed on itself. In other words, dry areas could get drier.

That tendency could lead to soils warming earlier in the season for fieldwork and early planting, but there is also the concern that the soil-moisture profile will not have enough to sustain crop development. In some drier areas of northwestern Iowa, for example, soil-moisture profile measurements showed only 2 to 3 inches of moisture in the five-foot profile at the end of fall harvest 2020.

POTENTIAL DELAYS

The have and have-not feature of La Niña precipitation also implies that the eastern Midwest could have the potential for heavy precipitation resulting in fieldwork and planting delays as the spring season unfolds. This very thing happened back in the spring of 2011, when a strong La Niña was in effect.

This tendency on the wetter side, coupled with the drier impact historically of La Niña in the western Corn Belt, will be closely eyed, monitored and worried over while the Pacific features evolve. ///

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Sunday Nights Make Memories

BY *Tiffany Dowell Lashmet*

Under quarantine, the days started to run together, and life began to feel mundane. The kids were going stir crazy locked up at home and, if I am honest, so were their parents.

So, in an attempt to find some fun and salvage our sanity, we cooked up the idea of a fancy Sunday dinner.

These days, on Sunday nights, we simply prepare a little fancier meal than normal. In reality, the affair is nothing fancy. But, to my kids (ages 4 and 5), you'd think it was dinner at Tavern on the Green in New York's Central Park.

The menu isn't complicated. It involves a lot of steak (of course).

Dessert is always on the menu.

The kids make paper placemats for each of us. Our son, who is learning to write his letters, often works to write each person's name and decorate each masterpiece with that person's favorite animal.

We let the kids choose their own glassware. A wine glass with a twisty straw (because it's a party!) is nearly always the vehicle of choice. We use the "fancy dishes," which are honestly just our regular Fiestaware plates; but they feel fancy when compared to the paper plates that often get called into service during the week.

I hope when they are older, and they look back on the chaos of the year 2020, my children will not remember too much of the hard.

Instead, I hope they remember steak and macaroni and cheese on turquoise plates and apple juice in a wine glass.

I hope they remember the clanking of crystal glasses at least 57 times per meal and the joyous shouts of "cheers" as we raise our glasses high in salute. I hope they remember the real recipe for making things memorable is the simple ingredient of togetherness.



TIFFANY DOWELL LASHMET



Tiffany Dowell Lashmet balances ranching, children and a career in ag law from the Texas Panhandle. Follow her blog at alwaysafarmkid.com and her on Instagram [alwaysafarmkid](https://www.instagram.com/alwaysafarmkid) and Twitter [@TiffDowell](https://twitter.com/TiffDowell).

Let's Clear the Air

BY *Katie Pratt*

According to my grandma June, the cure for boredom, an upset stomach, or a poor attitude was a bit of fresh air.

We grandkids kept complaining to a minimum around her. One groan got us sent outside, usually with a brown paper grocery sack and the mission to pick up sticks. Grandma used those stick-stuffed sacks as kindling in her massive stone fireplace.

Fresh air was the solution regardless of the season.

In the winter, Grandma, dressed and ready to cross-country ski, would wait for us to get off the school bus. We'd scurry through chores and spend the waning hour of daylight sliding through fresh snow.

Looking back on 2020, a bit of fresh air has saved the day on more than one occasion. Not only did the majority of our family dinners and celebrations move outside, but daily walks around the farm served to clear a foggy mind or raise a drooping attitude.

As winter set in, I resolved to keep our daily dose of fresh air a top priority. Bundled in overalls and winter coats with scarves wrapped tight around our faces and stocking caps pulled low, we've spent extra time in the barn.

With heads bent into winter winds, we do laps around the farmyard. Five laps equal one mile.

One mile in boots and deep snow makes for great exercise. Some days, we give ourselves quite the pep talk to leave the warmth of the hearth and go out to face the elements. But, that bit of fresh air never fails to power us through another day.

Whether it be a pandemic, a life-altering diagnosis, a bad day or an amazing accomplishment, the gift of getting outside seems a fitting solution, whether we are looking for a cure or a celebration. Winter weather is no excuse—just add another layer and let's keep moving forward!



GETTY IMAGES

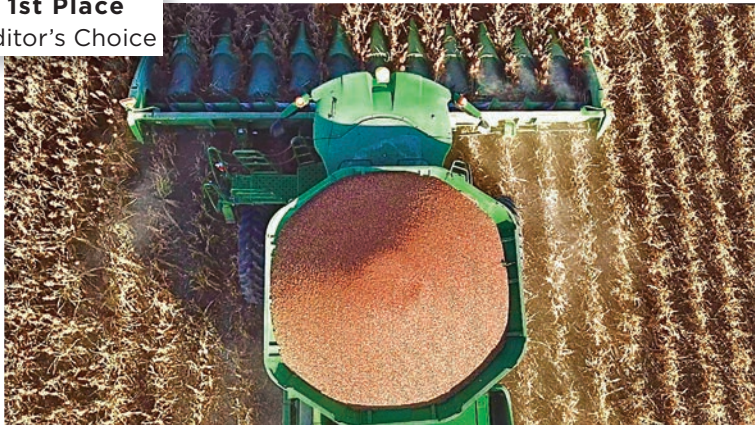


Katie Pratt writes, tweets, farms and cares for critters from north-central Illinois. Find her blog at theillinoisfarmgirl.com, and follow her on Twitter [@KatiePratt4](https://twitter.com/KatiePratt4).

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Milo Harvest 2020

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Phyllis Jacobitz, Juniata, Nebraska

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Making Dust While the Sun Shines

Kelsey Trueblood, Salem, Indiana

2nd Place

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Combine Dust at Dusk

Ashley Skarsgard, Stanley, North Dakota

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Nitrogen Restrictions In Effect



Minnesota implements a regulatory and voluntary approach on agriculture to protect water resources.

Nitrogen fertilizer application restrictions on crop ground went into effect in certain areas of Minnesota on Sept. 1, 2020. The Groundwater Protection Rule bans application of most forms of commercial nitrogen fertilizer in the fall and on frozen ground in areas vulnerable to contamination.

The rule aims to minimize potential sources of nitrate pollution in groundwater to protect public health.

Harold Wolle, who grows corn and soybeans in south-central Minnesota, near Madelia, contends most farmers didn't embrace the law but accept it. The Minnesota Corn Growers Association District 2 director says producers, farm organizations and the state worked together to come up with a workable rule that doesn't curtail food production and protects the environment.

"We are certainly cognizant of the effects nitrogen can have on groundwater," Wolle says. "We are committed to being good stewards of the land."

"From that standpoint, there won't be much pushback to this rule," he adds. "Particularly if people can meet the requirements without substantially changing how they operate."

Some farmers inject anhydrous ammonia, a popular corn nitrogen fertilizer, in the fall for the next year's crop. Wolle and his son,

Matt, who's taking over the 1,700-acre farming operation, do that on their clay-based soil, which is still allowed. However, they have never fall-applied anhydrous in sandier soil, which the law now forbids.

Wolle asserts the chance of nitrogen loss or leaching in the sandy soil is too great. "It's not a good practice agronomically, nor for (protecting) groundwater."

Soil microbes convert organic nitrogen to nitrite and then nitrate. The speed of conversion depends on several factors, such as temperature (microbes are more active when soil temperatures are 50°F and above) and moisture. Nitrates, which are a major source of water pollution, are highly mobile in the soil and vulnerable to leaching.

TARGETED APPROACH

The Groundwater Protection Rule's fall nitrogen restrictions target areas the most prone to leaching, which include coarse-textured soils, shallow bedrock or karst geology. It also affects farms in drinking water supply management areas (DWSMA) with high nitrate concentrations.

The state and federal nitrate health limit in drinking water is 10 milligrams per liter. Higher concentrations are a particular health risk to infants and pregnant women, and potentially adults.

Only about 13% of Minnesota's farmland—mostly in the north-central, southeast and southwest part of the state—is affected by the rule, explains Larry Gunderson, a supervisor in the Minnesota Department of Agriculture (MDA) Pesticide and Fertilizer Management Division. Roughly the northern third of the state is excluded.



The state has 25.5 million acres in farms, U.S. Department of Agriculture data shows.

All of Rod Sommerfield's crop ground, 20 miles north of Rochester, is within the restricted area for fall nitrogen application. The rule won't affect him.

"I tried fall nitrogen once in the 1970s and said, 'This is foolish,'" Sommerfield says. I don't apply fall nitrogen because it's eight months before the plant needs it. We should have done it [rule] 50 years ago."

The rule is also designed to reduce nitrate levels in groundwater before a public well exceeds government health standards. A sliding scale of voluntary and regulatory actions, which includes the use of best-management practices, will be implemented in a DWSMA based on the concentration of nitrate in a well. A local advisory team of farmers, agronomists and community members will make recommendations to the MDA on how best to reduce nitrate levels.

"We've known for quite some time that nitrate levels are high in groundwater in certain parts of the state," Gunderson continues. "Now, we have the blueprint to address it. I would say Minnesota is a leader in this."

FARMER INPUT

Not all fertilizer containing nitrogen is regulated based on farmer input. The rule does not apply to manure. There are exceptions that apply to the spreading of MAP



Harold Wolle, who farms near Madelia, Minnesota, has several required perennial vegetative buffer strips on land he farms.

(monoammonium phosphate) and DAP (diammonium phosphate)—up to a field average of 40 pounds of nitrogen per acre. Exemptions also exist for fertilizing winter grains, wild rice and perennial crops, and to establish pastures.

Gunderson hopes developing the rules with farmers and prior outreach will make implementation easier. Farmers who don't comply with the rule can be fined, but specific penalties weren't available at press time. MDA indicates it will help

farmers comply through education before fines occur, though circumstances may dictate otherwise.

"The restrictions don't affect every farmer, but we do encourage (all producers) to follow best-management practices in areas where they can apply nitrogen in the fall," Gunderson says. "That means waiting until soil temperatures are 50°F or less and using other practices that decrease the loss of nitrogen." ///

FOR MORE INFORMATION

- Minnesota Department of Agriculture Groundwater Protection Rule: www.mda.state.mn.us/nfr
- Follow Matthew Wilde on Twitter [@progressivwilde](https://twitter.com/progressivwilde).

Minnesota Buffer Law

Nitrogen fertilizer restrictions are Minnesota's second regulatory effort to protect the state's water resources. Five years ago, the state's legislature passed a law requiring perennial vegetative buffer strips of up to 50 feet along lakes, rivers and streams, and 16.5 feet along most drainage ditches. Buffers help filter out phosphorus, nitrogen and sediment before it enters waterways. Visit www.mn.gov/buffer-law for more information and a map of the public waters inventory.

The deadline for implementation on public waters and ditches was Nov. 1, 2017 and Nov. 1, 2018, respectively. Tom Gile, resource conservation section manager for the Minnesota Board of Water and Soil Resources, says compliance exceeds 99%.

"There was some contention early on," Gile adds, referring to farmland taken out of production. "But, generally speaking, landowners are willing to find ways to make it work."

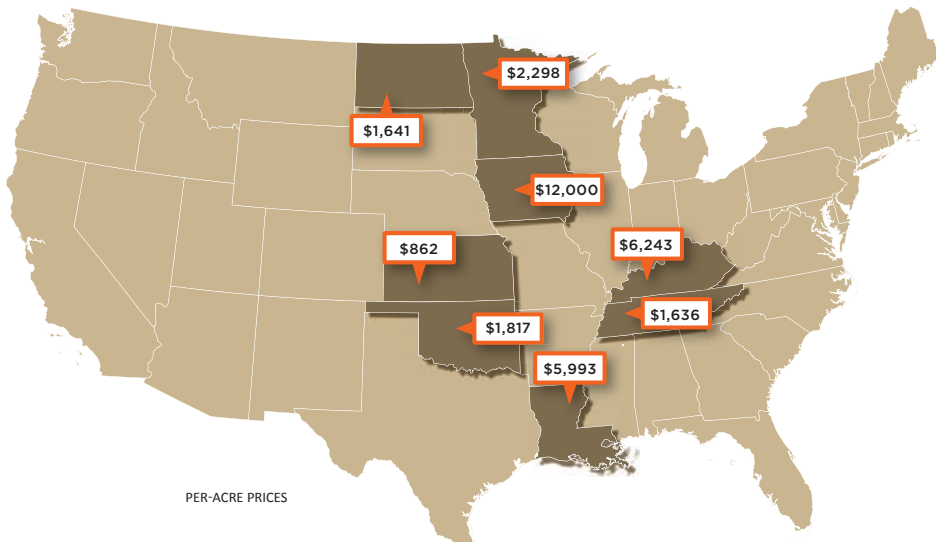
He estimates 110,000 acres of farmland were converted to buffers. However, buffers can be grazed or harvested for hay.

Buffer widths can be reduced in many cases if farmers implement alternative conservation practices, such as cover crops and conservation tillage. Farmers also have the option to comply with the law by enrolling in the Agriculture Water Quality Certification Program (AWQCP). It's a comprehensive review of farming operations and actions to minimize water-quality impacts.

Harold Wolle enrolled his farm, near Madelia, in the program to reduce the loss of farmland to buffers, which total 20 acres along several drainage ditches. Terraces, waterways and field tile inlets that filter out sediment, among other things, helped him become certified.

"The alternative practices gave us options to work with to comply with the law," he says. "Ultimately, farmers accept it due to their desire to be good stewards of the land."

Recent Farmland Sales



IOWA, Dallas County. Three parcels, two farmland and one a home site, sold at auction for \$3.9 million. Total acreage was 308, with land tracts averaging \$12,000 per acre. The 4.5-acre tract with home and outbuildings sold for \$266,000. The farm held bases in corn and soybeans. **Contact:** Matt Vegter, Hertz Real Estate Services; mattv@hertz.ag; **515-382-1500**

KANSAS, Gray County. Irrigated cropland, grass and CRP totaling about 775 acres sold at auction in five tracts for \$668,250. Tract prices ranged from \$575 to \$1,500 per acre, with an average per-acre price across the property of about \$862. The farm included about 128 acres irrigated, 165 acres dryland and 487 CRP acres. It held bases in corn, grain sorghum and wheat. **Contact:** Travis Weaver, Farm and Ranch Realty Inc.; info@frrmail.com; **800-247-7863** www.farmandranchrealty.com

KENTUCKY, McLean County. A farm totaling about 132.5 acres sold at auction for \$827,248, or \$6,243 per acre. The property auctioned in two tracts and is divided by a state highway. The larger tract of 122.5

acres included gently rolling cropland with wooded areas. Improvements included an equipment shed and two tobacco barns. **Contact:** Joseph Mills, Kurtz Auction and Realty; joseph@kurtzauction.com; **800-264-1204** www.kurtzauction.com

LOUISIANA, Madison Parish. Black Bear Farms, totaling 292 acres, sold for \$1.75 million, or \$5,993 per acre. The land was precision-leveled and irrigated, and included three wells. Grain bins on the property had a 66,000-bushel capacity. **Contact:** Jim Rolfe, Brown Realty Co.; info@brownrealtyco.com; **318-728-9544** www.brownrealtyco.com

MINNESOTA, Pennington County. A farm totaling 304 acres sold at auction in two parcels for a total price of \$698,676. Parcel prices ranged from \$2,150 to \$2,450 per acre. Average cost per acre across the total property was \$2,298. **Contact:** Steve Link, Pifer's Land Auctions; stlink@pifers.com; **701-361-9985** www.pifers.com

NORTH DAKOTA, Hettinger County. A farm totaling 790 acres sold at auction in three parcels for \$1.29

million. The tract prices ranged from \$850 to \$1,925 per acre. Average price across the farm was about \$1,641 per acre. The farm included both productive cropland and pasture. Known locally as the Gabriel Greff Farm, the tracts sold to three different buyers. The farm included bases in wheat and canola. Minerals sold separately. **Contact:** Kevin Pifer, Pifer's Land Auctions; kpifer@pifers.com; **701-238-5810** www.pifers.com

OKLAHOMA, Garfield County.

Grasslands and recreational areas totaling 614 acres sold at absolute auction for \$1.12 million, or about \$1,817 per acre. The property was a mix of grazing areas, ponds, cattle shelters and hunting ground. It sold in four tracts, with tract prices ranging from \$1,760 to \$1,937 per acre. A home was included on the property. **Contact:** Troy Lippard, Lippard Auctioneers; troy@lippardauctions.com; **580-747-6747** www.lippardauctions.com

TENNESSEE, Obion County. A 644-acre farm, a mix of wooded and pasture acreage, sold in four total tracts for \$1.05 million. There were 359 acres of woods and timber, and 260 acres of pasture. Cattle-working facilities and barns were included in the offering. Tract prices ranged from \$1,375 to \$2,056, with an average price across the whole property of \$1,636 per acre. **Contact:** Jason Blue, Kurtz Auction and Realty Co.; jason@kurtzauction.com; **812-550-4114** www.kurtzauction.com

These sales figures are provided by the sources and may not be exact because of rounding.

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GROUNDBREAKING TECHNOLOGY

Prescription tillage is growing in popularity to improve agronomic and environmental performance in fields.

Recreational tillage is not Dug Radcliff's idea of a good time. The Circleville, Ohio, farmer prefers to work his ground as little as possible.

However, Radcliff “digs” prescription tillage.

The corn and soybean farmer participated in a 2018 study by Ohio State University (OSU) in conjunction with Case IH, which helped the company perfect its recently released AFS (Advanced Farming Systems) Soil Command prescription tillage technology. It allows farmers to automate and tailor seedbed preparation based on agronomic and environmental conditions.

Radcliff was so pleased with prescriptive tillage results he plans to join a growing trend of farmers who've adopted the practice. The technology is designed to increase productivity and revenue while protecting the environment.

“I wish we had this [prescription tillage] 30 years ago ... it's exciting,” Radcliff exclaims. “I saw a [yield] increase that was enough to say, ‘Wow, this is good.’”

“We need to make money, but I intend to take care of the land we own and rent,” he continues. “Prescription tillage is another important tool in the toolbox [to do that].”

TILLAGE RX

Case IH and John Deere offer automated, prescriptive tillage technology. Other manufacturers such as AGCO, Landoll and Great Plains offer manual, on-the-go tillage tool adjustments.

Tillage prescriptions are written and uploaded to a tractor's computer, which automatically adjusts a tillage tool's settings as it moves across the field. This could include the depth of shanks and disks, the gang angle of



John Deere's TruSet Tillage technology allows farmers to prescriptively till farmland.

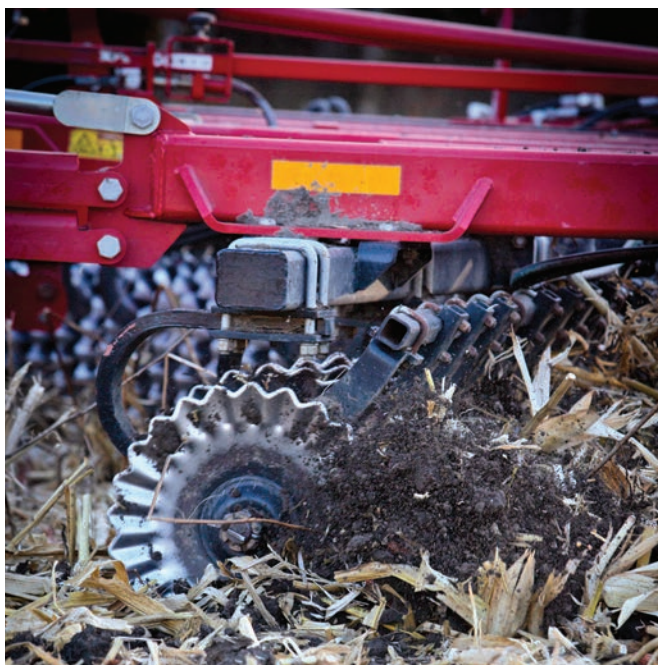
disks and downpressure of wings and rolling baskets.

The prescription could call for aggressive settings in areas of a field to alleviate compaction, slice and dice, and incorporate residue, eradicate weeds and level ruts. In light, highly erodible soil, the prescription could adjust the tillage implement to be less aggressive or not engaged to keep as much residue on the surface and prevent erosion.

“Most farmers today set up a tillage tool and forget it. Every acre gets the same treatment, and they accept the consequences,” says Chris Lursen, Case IH tillage marketing manager. “That could potentially hurt a field environmentally and agronomically.”

He says prescriptions and complete automated control of tillage is a relatively new concept for some companies and not widely used. Some farmers may not have considered it, he adds.

□ *Dug Radcliff, of Circleville, Ohio, tills farmland in preparation for the 2021 growing season.* JODI MILLER



It works on the same principle as other prescriptions farmers do today with fertilizer, chemicals and seed.

“You are doing the right things to the right areas of a field to maximize productivity, agronomics and yield,” Lursen continues.

Prescriptions and technology will open up doors to farmers when it comes to tillage they never had before, he claims.

PRESCRIPTIVE COMPACTION CURE

OSU reached out to Radcliff about participating in the prescription tillage study to learn more about how the technology could help manage variable soils. The university and Radcliff have a long history of partnering in precision agriculture research, such as variable-rate seeding and fertilization.

“We’ve been very successful the last six to eight years believing in technology,” Radcliff says. “Our partnerships with OSU have given us the ability to see that.”

He says he jumped at the chance knowing he had a variable field—nearly 60 acres of highly erodible, light and heavy soils with side hills and buried rocks—with compaction issues that limited yields. He wouldn’t deep-till the parcel to break up compaction because of erosion fears and bringing up rocks, which would cause even more problems. But, he was willing to give prescriptive, variable-depth tillage a try.

Andrew Klopfenstein, a senior research associate engineer in OSU’s Department of Food, Agricultural and Biological Engineering, led the field study. He’s conducted prescriptive tillage research for about five years, roughly the same time manufacturers started offering it as an option.

Even though Case IH was still working on automated, prescriptive tillage at the time of the study, the company wanted to see how it could affect agronomic performance. Klopfenstein, working with OSU Ph.D. student Brittany Schroeder, used yield, soil and topography maps to write a tillage prescription for the field that was previously planted to corn.

The data was used to establish presets in AFS Soil Command, which made adjustments to a Case IH Ecolo-Tiger 875 disk ripper pulled by a Case IH Steiger 580 Quadtrac tractor supplied by the company. Klopfenstein operated the equipment and manually hit presets to mimic automated prescription technology at work based on location within the field using a GPS and mapping technology.

Here’s the prescription:

- ▶ Shank depth was set at 12, 8 or 4 inches. Shanks penetrated deeper in heavier, flatter ground with more residue and shallowed up in lighter, rocky ground with less residue and steeper slopes.
- ▶ Front disk depth was set at 6, 3 or 0 inches. Disks dug in more in relatively flat, heavy soil with high residue, shallowed up in steeper, rocky areas with less residue. Disks didn’t penetrate highly erodible soil with less than 50% residue cover and slopes ranging from 2.5 to more than 5%.
- ▶ Rear leveling disk depth was set at 5, 2.5 and 0 inches. The leveler disks were adjusted for similar reasons as the front disks.
- ▶ Downpressure on the rear crumbling basket was set at 200, 100 and 0 pounds. The most pressure was applied in flat, heavy soils with 50 to more than 75% ▶

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Dr. Robert Mullen

Q *Is there a rethinking by Midwest farmers regarding nitrogen use on corn?*

Robert Mullen: We see a trend toward less fall fertilizer. Not necessarily fewer acres of fall anhydrous, but rather a rate reduction per acre. In areas where this occurs, we see a transition to split nitrogen application, applying the rest of the nitrogen (N) budget in spring—either preplant and/or sidedress. Then there are areas like Ohio with little fall application due to excessive drainage, wet fall and spring weather, and warm winter spells that convert anhydrous to nitrate that can leave the field.

In an idealistic system, the ultimate nitrogen amount is determined by three things—crop demand, dictated by achievable yield; nitrogen availability in the soil; and nitrogen loss, dictated by rainfall and soil drainage. The reality is we don't know achievable yield in the spring. We don't have reliable nitrogen mineralization prediction. And we don't have a reliable method to measure/predict nitrogen lost from the system. Different models exist, but how robust are they? The biggest challenge we have is the inability to predict the weather accurately.

Q *How can the Maximum Return to Nitrogen (MRTN) database help farmers improve N rates?*

Mullen: Numerous universities employ the MRTN approach to N recommendations, which relies on an average response to nitrogen, determined by actual field research. From that response, an economic recommendation is developed. On average, MRTN does a good job of providing nitrogen rate guidelines, but it's not perfect. For example, an Ohio study of over 228 field experiments using MRTN rates found that this database-driven model over-recommended nitrogen 40% of the time and under-recommended N 30% of the time.

I encourage farmers to examine how their average N rate compares to their state's MRTN rate or regular average recommended rate. Suppose you're 20 to 25 pounds per acre higher. In that case, I suggest conducting a simple rate test in an area of various fields by dropping the rate 20 pounds per acre for several years to observe yield trends, given all the variabilities that exist.

Q *What other critical evaluations should be examined to improve N efficiency?*

Mullen: First, using a nitrogen additive (urease inhibitor or nitrification inhibitor) or a polymer-coated product

or an enhanced efficiency fertilizer (EEF) can decrease the overall application rate, if it addresses a specific loss pathway. Secondly, look at slightly altering your timing and/or placement to change the N rate. Theoretically, sidedress is an improvement over preplant applications, as it can be advantageous in certain environments—just as starter fertilizer can add efficiency, too.

Q *How important are sensors and other tools to help refine in-season nitrogen use?*

Mullen: I spent research time in my academic career at Ohio State University evaluating sensor performance and algorithm development. For all the promises they offer, there are some real challenges to their adoption and use.

Model-based approaches also offer some promise to improved nitrogen management by predicting crop nitrogen requirement while estimating specific nitrogen loss mechanisms. From my experience, there is typically some degree of regionality to these approaches (especially when it comes to predicting soil loss mechanisms), so accuracy in one area isn't always replicated in other areas. Hopefully, as we capture more data over time with these model-based approaches, they will prove to provide better recommendations than we currently employ.

Q *When will we reach the holy grail of N rate perfection?*

Mullen: In my humble opinion, we're not going to find a magic bullet that's going to solve all our nitrogen challenges in the short-term. The 4Rs of nutrient stewardship is a fairly simplistic concept (right source, right rate, right time and right place), but putting it into practice is not as simple because they are all interrelated. If you change one, it impacts all the others. If I change the rate, do I consider different placement options? It comes down to farmers—and advisors—to capture enough knowledge about the system to recognize where opportunities exist to make improvements.

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crop residue. Pressure lessened in lighter, hillier and rockier ground with less residue. No pressure was applied in highly erodible soil.

“We have extremely variable farms that go from peat moss to black soil to gravel all in one pass,” Radcliff says. “We can be more aggressive where we need to be to manage residue and reduce compaction, and less aggressive where it’s not needed to prevent erosion.”

RESULTS

Prescriptive tillage shattered compaction to promote better root development and water infiltration to reduce ponding in the test field, Radcliff explains. There was no noticeable soil loss or rock concerns.

Soybean yields in 2019 averaged 69 bushels per acre (bpa) for the field that never topped 60 bpa in the past. The field was planted to corn in 2020. It averaged 205 bpa, which Radcliff says is exceptional considering the challenging growing season. If compaction wasn’t remedied, he says yields would have easily been 10 to 15 bpa less.

Klopfenstein says prescriptive tillage uses less fuel than traditional tillage, because the tractor doesn’t work as hard all the time. Past research indicates a 5 to 10% savings per acre, on average, depending on field conditions.

“Once farmers see the benefits and power of this technology, they will adopt it,” Klopfenstein believes. “They will want it for all their tillage tools.”

GROWING TREND

Prescriptive tillage allows farmers to enjoy the perks of conventional tillage, which includes warming and drying the soil, managing crop residue, alleviating compaction, controlling herbicide-resistant weeds and preparing a level seedbed to maximize crop production.

There are numerous benefits to conservation tillage and no-till, as well. Minimizing or eliminating soil disturbance reduces erosion, improving soil health and increasing water infiltration and holding capacity. Equipment, fuel and time savings are also benefits.

“As we go forward, we understand the best of all these worlds are needed,” Case IH’s Lursen says. “That’s why prescriptions are here to vary the amount of tillage. A peanut butter spread approach (set the tillage tool at one depth and forget it) is not the way forward.”

Manufacturers and Klopfenstein expect a steady increase in adoption.

Given the recent release of the Case IH tillage technology, Lursen says it’s hard to know how many of the company’s customers are using prescriptions. However, he says about one-quarter of Case IH tillage implements sold are equipped with AFS Soil Command capable of prescriptive tillage.

Longtime Case IH user Josh Schick is interested in upgrading tillage equipment to prescriptively till. He says no-till isn’t an option where he farms, near Gridley, Illinois. Flat and black soil needs to be worked so it can dry and warm up quicker in the spring to plant in a timely manner, he contends. And, the highly productive ground creates a lot of corn residue that needs to be managed. >

Return on Investment For Prescription Tillage

- ▶ Ability to achieve tillage objectives for fields with high variability
- ▶ Remediation of soil compaction for increased yield
- ▶ Management of high-residue environments for increased yield
- ▶ Avoidance of subsurface obstacles (rock outcroppings, shallow tile drainage, shallow utilities, old foundations, etc.)
- ▶ Preservation of conservation structures and practices (grassed waterways, field drains, filter strips, saturated buffers, etc.)
- ▶ Erosion management on moderate and steep slopes

SOURCE: *Ohio State University*



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In areas prone to erosion, Schick manually lifts the chisel plow or field cultivator to keep soil in place. He likes the idea of automation doing it, being less aggressive with tillage in areas where it's not needed to save time and fuel.

"If you have a prescription, you can help yourself out quite a bit," he says.

TILL LIKE A DEERE

John Deere partnered with Agrian to offer prescriptive tillage to customers in 2016. Deere's fully integrated TruSet Tillage technology allows farmers to execute prescriptions that automatically incorporate residue at different levels across a field or change depth of tillage based on different conditions, such as lighter soils or areas known for compaction. Farmers can also document tillage passes to see how different tillage strategies affect crop emergence, yield or both.

Kevin Juhl, a John Deere tactical marketing specialist for tillage, estimates about 50% of Deere customers have tried some form of variable tillage either through manual adjustments or prescriptions. He expects prescriptive tillage will increase due to benefits and ease of use as more and more producers use and become comfortable making and executing precision agriculture prescriptions.

"I do believe there's a lot of customers trending that way and it [prescriptive tillage] will become the norm," Juhl says.

He adds TruSet is a low-cost tillage technology option, which most customers buy. It's free to make and

send a tillage prescription to a tractor through the John Deere Operations Center.

Juhl says making and executing a tillage prescription shouldn't be a problem for farmers who already make seeding, fertilization and other precision agriculture prescriptions. For those who haven't, he says local John Deere dealers can assist in the learning process. A YouTube video is available, as well (see "For More Information," below).

Prescriptive tillage allows farmers to more easily achieve their agronomic, economic and environmental goals, Juhl says.

"Land is the biggest investment for most farms, and taking care of it is a high priority for farmers," he says. "And, for people who hire out tillage work, prescription tillage gives them peace of mind." ///

- Follow Matthew Wilde on Twitter @progressivwilde.

FOR MORE INFORMATION

- CASE IH: www.caseih.com/northamerica/en-us/products/tillage
 - John Deere: www.deere.com/en/tillage
 - Using Prescription Creator by Agrian: youtu.be/eM8g9sytxLE
 - Great Plains: www.greatplainsag.com
- Landoll: landoll.com/products/farm-equipment

No Prescription Needed

Prescriptive tillage isn't the only way to prepare the

ultimate seedbed and still meet environmental goals. Several manufacturers have tillage equipment the operator can adjust on the fly from the cab.

Jamie Meier, ag division sales manager for Landoll, says customers have asked for more versatile and flexible tillage tools that help minimize passes and build healthy soils. He says the company's all-new 7500 Adjustable Gang VT fits the bill.

The disk gangs on the vertical tillage (VT) tool can be adjusted anywhere between five and 15 degrees based on field conditions as the machine eats up acres. It features 24-inch smooth blades. They can be set to be more aggressive in the fall to bury more residue and less aggressive in the spring to minimize disturbance, run faster and warm and prepare the soil for planting.

"Every field is different, whether soil type or slope," Meier says. "This tool is great meeting the needs of farmers with variable conditions."

Size offerings for 7500 Adjustable Gang VT range from 14 to 45 feet, with a price tag of \$50,000 to \$185,000.

Great Plains introduced Implement Command in 2019. The system gives producers data needed to make tillage decisions in fields to make real-time adjustments to implements to improve yields and soil health.

Implement Command is ISO-compatible, so there's no need for extra monitors in the cab. It works in conjunction with Great Plains Turbo-Max and Terra-Max tillage tools. The technology allows operators to:

- monitor and control implement depth using three programmable presets
- adjust wing downpressure, even outside and inside wings separately on five-section models
- monitor and adjust coulters gang angle
- monitor or control rear finishing attachment
- monitor fore and aft leveling.

The ability to adjust implement settings on the move based on everchanging field conditions is what farmers want and need, explains Doug Jennings, Great Plains eastern sales manager.

"Farmers are always looking for technology that makes them more efficient," he says.



AT THE HEART OF IT.

EVERY FARMER HAS THEIR REASON FOR WHY THEY DO
WHAT THEY DO. **FOR ME, IT'S FAITH, FAMILY, AND FARMING.**
I CARE ABOUT HONORING GOD AND FULFILLING HIS
PURPOSE IN MY LIFE, IN MY FAMILY, AND IN THE
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FARMERS AT HEART™



Tight Bale Problem

I have an older John Deere round baler, Model 430. I have had it for years and had little trouble with it. I needed to change the pump drive belt, and it went on with little problem after I removed the plate in front of it. When I went to the field to bale, the tying arm started moving before the full bale was formed. I checked everything that I did, and it seems that everything is back as it was. Can you help me?

STEVE: A ton of these older John Deere balers are still out there doing a good job in the field. The 430, 435, 530 and 535 were part of the beginning of the “tight bale” contest among baler manufacturers. The hydraulic pump that runs the tying system is run by a belt, and the belt, along with about five other springs, all must be in place and of proper strength and length for the baler to tie correctly. So, many times when the support is removed to replace the belt, the adjustment that allows the hammer latch to be pulled down over its stop is not checked. To check this adjustment, open and close the gate, and look at the latch and make sure it came down over the arm of the support. I bet you will find that the latch is resting on top of the support rather than down and locked over it. All you need to do is loosen the three cap screws (see photo) you removed that hold the support and tap the support forward, which will allow the latch to rest down over the support after the gate is closed and the tying system is reset.

I am in the process of changing my 8N Ford tractor to a 12-volt system. The tractor has a side-mounted distributor. I have asked several people exactly how to install the battery and how the wires go to the coil. I seem to get mixed answers. Can you give me that information?

STEVE: I get many questions about this 6-volt to 12-volt conversion, and it is a little confusing. One reason for the confusion is that many older 6-volt tractors and cars came from the factory as 6-volt and a positive ground. It was believed that when the positive post was grounded to the frame, it caused more corrosion than if it were grounded as negative. So, the change was made. Another



Write Steve Thompson at Ask The Mechanic, 2204 Lakeshore Dr., Suite 415, Birmingham, AL 35209, or email mechanic@progressivefarmer.com.

reason for the change surfaced when the alternator came into play on vehicles. The alternator will charge at much slower engine speeds, but it will not charge if the system is positive ground. The alternator is sort of neat because it will charge no matter which way it is turning, which makes it very flexible. A generator will charge turning only one way. So, here is the way to make the conversion work on your 8N: Change the battery to a 12-volt. You can get one the size of your old 6-volt. Change the polarity of the battery to negative ground. The wires on the coil need to be reversed. The hot wire to the positive (+) and the negative (-) side to the distributor. You can use the 6-volt starter. Which alternator you choose (three-wire or one-wire) will make a difference in alternator wiring. One more thing: You will need to either place a resistor between the switch and the coil to drop the voltage, or replace the 6-volt coil with a 12-volt coil. I recommend replacing the coil with a 12-volt internal resistor coil.

SAFETY TIP OF THE MONTH



I guess we have all experienced the aggravation of running into garbage that people have dumped in the field, but the other day in the field, I got into some electric fence wire that almost equaled the time the reel on my Haybine got tangled up in a set of bedsprings that someone dumped in my alfalfa field. The electric fence wire that my neighbor's cows brought me last winter started wrapping around the gauge wheel hub (see photo) and eventually the complete length of the 24-foot cultivator, and it finally sliced a tire like a sharp knife. When removing the wire, it was very difficult to keep the sharp cuts in the wire from springing back and cutting my fingers. Be careful with tight wire; it moves very quickly when cut. Pappy Thompson always said, “Bad fences make bad neighbors.”



AT THE HEART OF IT.

FOR SOME, IT'S ABOUT COMMUNITY. LIVING THE LIFE YOU WERE MEANT TO LIVE. WHILE WE ALL MAY DO IT FOR DIFFERENT REASONS, **THERE IS ONE THING THAT UNITES US.** ONE THING THAT WILL NEVER CHANGE. AT THE HEART OF IT, WE'RE ALL FARMERS.



FARMERS AT HEART™

A Sit-Down With ...

AGCO's new CEO shoots for the vortex of new technologies and young farmers.



Eric Hansotia

Beginning the first day of the new year, AGCO will have a new chairman, president and chief executive officer: Wisconsin native Eric Hansotia, an eight-year veteran of the world's third-largest agricultural equipment manufacturing company. "I've had farming in my blood for most of my life," he says, recalling years participating in 4-H and the FFA, (formerly known as Future Farmers of America) and working on a local dairy farm. The new chief executive has extensive experience in engineering, quality control, advanced technology, manufacturing, product management and global business leadership. He graduated from the University of Wisconsin-Madison with bachelor's and master's of science degrees in mechanical engineering. Hansotia earned his MBA from the University of Iowa.

AGCO turned 30 years old in June, and Hansotia takes the helm of a manufacturer hunting for dominance in technology. "We want to be a front-runner on the digital highway," he says. "Young farmers are thirsty for digital interaction with smart machines. We're trying to position ourselves at the vortex of those trends."

Hansotia most recently served as AGCO senior vice president and chief operating officer, and has a seat on the board of directors. He has been responsible for all of AGCO's regional commercial operations as well as its global product management, engineering, manufacturing and supply chain functions, and has been the company lead navigating AGCO through the COVID-19 pandemic. Prior to joining AGCO, Hansotia completed a 20-year career with John Deere. Following are selections of an interview with *Progressive Farmer*.

PF: AGCO turned 30 years old this past June, what do the next 30 years look like?

Hansotia: Our mission is to keep farmers at the forefront of everything we do. We've got farmer panels that meet with our senior leadership teams [who work] to understand what is going on in their business. That leads to conversations about smart farming solutions, machines that understand their environment through sensors and onboard analytics, and that optimize themselves on the go.

PF: COVID-19 has obviously presented serious challenges to the farm-equipment industry. What has been AGCO's response?

Hansotia: I remember very clearly we brought our leadership together on Friday, March 13th, and we said, we need to send everybody home and, where possible, work remotely. By Monday morning [that was in place]. On the morning of March 14, we started seven-day-a-week leadership meetings. They were rapid-fire meetings that would ingest what was happening around the world. We quickly changed layouts in our factories and implemented many other precautionary measures to keep our employees safe. Our infection rates globally have been less than half the rate of the populations in which we operate. We set up a task force to understand the situations of every one of our suppliers and understand what we needed to do to keep components flowing into our factories and keep farmers in their fields.

PF: And the result?

Hansotia: What came out of this was an amazing surge of innovation and passion for the farmer, and an attitude of doing whatever was needed to keep them up and running. We saw hundreds of ideas and actions from every area of the company dedicated to that mission: online solutions, remote monitoring, new diagnostic tools, safe ways to deliver parts and products. Really inspiring efforts and out-of-the-box thinking.

PF: Will you give us an example?

Hansotia: One tool was an app that was rolled out in just a few days. If a farmer subscribed to it, a service technician could access the farmer's phone's camera, microphone and speaker. The farmer might say, "Here's what I hear or see on my machine." The service technician could be there as if he is standing next to the farmer to diagnose that problem. This is a tool we will maintain going forward.

PF: What technologies especially interest AGCO?

Hansotia: We believe autonomy and our smart machines go hand in hand. To create an autonomous piece of equipment and take the operator out of >

MULTIPLE SOAs: THE BEST WEED CONTROL OPTION

The easiest weeds to control are those that never emerge. Cliché? Maybe. But as weeds continue to adapt, mounting resistance to herbicides builds every year. Sustainable control has become increasingly more challenging to achieve.

The over-reliance of a single site of action (SOA) continues to provide new challenges for weed control in soybeans with each growing season. XtendFlex® soybeans will help farmers focus on the basics of a sound weed management system — multiple SOAs and overlapping residuals, all without having to compromise performance and yield.

Sustainable weed control is only possible through the incorporation of a herbicide program that utilizes multiple effective SOAs. Beck's multi-year Practical Farm Research (PFR)® data has demonstrated the impact and importance of utilizing a pre-emerge program with multiple SOAs (Figure 1).

ADVANTAGES OF THE XTENDFLEX® SYSTEM

XtendFlex soybeans feature the benefits of the Roundup Ready® Xtend Crop System with the addition of tolerance to glufosinate. This allows access to multiple effective herbicides to manage each of your fields' unique weed challenges. Beck's PFR studies on the effectiveness of combining glufosinate and glyphosate show they are a powerful tool against tough-to-control waterhemp.

POWER IN THE PRE™: Controlling weeds early with a pre-emergence application not only reduces the likelihood of developing resistance, but it also protects soybean yields. The over-reliance on POST programs

to control early-emerging weeds is unlikely to provide results and could cause yield losses of up to 2.5% for every growth stage you delay your applications. Put the Power in the Pre™ and let your pre-emergence applications do the heavy lifting. Post-emergence applications can then be used as rescue treatments for weed escapes.

POWER OF MULTIPLE SOAs: In-season, Liberty® will provide effective post-emergence control of weeds such as waterhemp, kochia, and giant ragweed. XtendFlex soybeans provide post-emergence tolerance to multiple SOAs to control resistant broadleaf weeds. Now farmers can confidently pursue higher yields by making early-season herbicide applications and maintain the option of spraying Liberty over-the-top once crops have emerged.

POWER OF HIGH-YIELDING GERMPLASM: Backed by uncompromising yield potential and outstanding agronomic performance in all maturities, XtendFlex® soybeans are built on the same proven genetic performance of high-yielding Roundup Ready 2 Xtend® soybeans, now with the power of Liberty herbicide.

RIGHT: Number of SOAs (Pre-Emerge) Influence on Waterhemp Control from Beck's Multi-Year Practical Farm Research (PFR)® data.

While weed control continues to provide new challenges with each growing season, you will have the option to bring the power to your soybean platform in 2021 with XtendFlex soybeans.

FIGURE 1: INFLUENCE OF MULTIPLE SOAs ON WATERHEMP CONTROL
(% VISUAL CONTROL)



No dicamba may be used in-crop with seed in the Roundup Ready® Xtend Crop System unless and until approved by the U.S. EPA and the appropriate state agency for such use. As of 9/30/2020, no dicamba formulations are currently registered by the U.S. EPA for in-crop use with seed in the Roundup Ready® Xtend Crop System in the 2021 season. Current stocks of dicamba herbicides previously approved for in-crop use with seed in the Roundup Ready® Xtend Crop System may not be used for the 2021 growing season. Dicamba may harm crops that are not tolerant to dicamba. Contact the U.S. EPA and your state pesticide regulatory agency with any questions about the approval status of dicamba herbicides products for in-crop use with seed in the Roundup Ready® Xtend Crop System.

NOTICE: DO NOT APPLY ANY HERBICIDE TO SEED IN THE ROUNDUP READY® XTEND CROP SYSTEM UNLESS IT HAS A PRODUCT LABEL SPECIFICALLY AUTHORIZING THAT USE. TO USE A HERBICIDE IN ANY MANNER INCONSISTENT WITH ITS LABELING IS A VIOLATION OF FEDERAL LAW. REFER TO THE BAYER TECHNOLOGY USE GUIDE FOR DETAILS AND RECOMMENDATIONS ON USING APPROVED ROUNDUP® AND LIBERTY® BRANDED HERBICIDES ON SEED IN THE ROUNDUP READY® XTEND CROP SYSTEM. ALWAYS READ AND FOLLOW, IRM, WHERE APPLICABLE, GRAIN MARKETING, STEWARDSHIP PRACTICES AND PESTICIDE LABEL DIRECTIONS. Glyphosate herbicides will kill crops that are not tolerant to glyphosate. Dicamba herbicides will kill crops that are not tolerant to dicamba. XtendFlex®, Roundup Ready 2 Xtend® are trademarks of Bayer Group. Liberty® is a registered trademark of BASF.





With new platforms such as its Fendt Class 10 Ideal combine (above), tractors and planter, AGCO has brought a high-quality line of equipment to the U.S. farm market.

the cab, you have to first automate all the functions in the cab. We are automating feature after feature on our sprayers, combines and planters. In the

short-term, the equipment will be smarter, sensing field-specific information on the go and adjusting on its own. That brings higher value to the farmer today. With each step in the process, you get closer to taking the operator completely out of the cab.

PF: Give us an example of improved machinery productivity.

Hansotia: Consider Precision Planting’s SmartFirmer. It travels in the furrow and senses soil temperature, soil moisture, organic matter and residue. Using it, you can put the planter in autopilot mode. In areas of high organic matter, the planter will plant a higher population. In areas with more limited productivity, it will plant a lower population. The operator won’t have to make those adjustments. [The planter] can also switch hybrids to a racehorse hybrid for a high-fertility area or a more defensive hybrid in lower-fertility areas.

PF: Tell us about AGCO’s swarm robot concept?

Hansotia: We have an automated fleet concept for planting called Project Xaver. It’s a swarm robot approach, where a single row unit can be used for planting or field scouting. Each works in tandem with other robots in the field. They all know where all the others have been, so they can collectively plant the field. Smart machines like SmartFirmer are a value to all farmers. Autonomy such as Xaver will have value for some farmers. [Find out more about Project Xaver at fendt.com/int/xaver.]

PF: AGCO has been introducing a new line of Fendt products. What features in those equipment and technology lines make you think it will be a game-winner?

Hansotia: People are blown away by the Fendt 1000 Series tractor, the fuel efficiency, the comfort and the

quietness because it runs at a low rpm. It’s the largest fixed-frame tractor in the industry. It’s got tremendous pulling power. There are a lot of farmers in North America with high expectations, and we have the tractors for them. We also have the Fendt IDEAL combine, the Fendt Momentum planter, the Fendt tracked tractors. We’re bringing to the marketplace a full set of solutions.

PF: You’ve talked throughout this interview about AGCO investments in the future. Would you be more specific?

Hansotia: We have five main investment areas. One of those is [building] a machine that can communicate, to send information through telemetry. Second is automation, so machines are able to understand their environment and adjust their activity or optimize performance. Third is robotics like Project Xaver, which provides autonomous machines working out in the field to complement functions of larger equipment. A fourth area is electrification to power machine operation and components for new levels of control and efficiency. The last, fifth, is future fuels. Whether it be for the environment or efficiency, we are invested in various options such as synthetic fuels, biomethane fuels, electrification, hydrogen and things like that.

PF: Once 2020 passes into history, what about 2021?

Hansotia: The average age of equipment is getting older. We are seven years past the last [sales] peak. We believe farmers’ confidence is growing. Large ag sales will be down from 2019, but not as bad as we once expected. There is a lot of uncertainty in the market for 2021. We’re just not sure what’s going to happen with the virus. We also don’t know what governments are going to do to support the farm industry. But, if you neutralize those, 2021 may be a year of recovery in many of our markets. We’re seeing an uptick in commodity prices. Higher prices are generally tied pretty closely to demand for machinery. ///

AGCO is positioning itself to be the front-runner in digital technology and smart machines.





Write Dr. Ken McMillan at Ask The Vet, 2204 Lakeshore Dr., Suite 415, Birmingham, AL 35209, or email vet@progressivefarmer.com.

In a past issue of the Progressive Farmer, you wrote in your column about vaccinating cattle at birth versus later in life. From what I understand, the blackleg vaccination should be given around 4 months of age. If I administer this at birth versus 4 months old, will I have a better outcome, or is there no difference?

Dr. McMillan: Let me expand on this a little. Most calves from properly vaccinated dams have good maternal immunity to clostridial diseases, with blackleg being the most significant for animals at 3 to 4 months of age.

In an ideal world, with controlled calving seasons, calves should be vaccinated around that 4-month time period with a clostridial vaccine, as well as for infectious bovine rhinotracheitis (IBR), bovine viral diarrhea (BVD), parainfluenza virus (PI3) and bovine respiratory syncytial virus (BRSV). They also should be given boosters prior to weaning. If you cannot prior to weaning, and you have your hands on that newborn calf, there is nothing wrong with a properly administered clostridial vaccine. At worst, the calf won't respond, but some may.

We have had three sets of twins born this year, and all the cows had retained placentas. We had to pull one set of twins, with one dead. On another set, the cow wouldn't take one of the twins, so it is on a bottle. The third set was a bull and a heifer. Are cows that have twins more likely to have retained placentas? Is one of our herd bulls the reason for this increase in twinning? If so, how do we identify him so we can take him out of the herd?

Dr. McMillan: Any abnormal event around birth can increase the incidence of retained placenta. And, there is good research to show that twinning increases retained placentas. There is also good research showing that shorter gestation periods increase retained placentas, and a twin's gestation length is about a week less on average than that of a single calf. Dystocia, however, has a greater effect than gestation length. What I'm saying is that there are multiple factors at play.

Regarding your herd bulls, they have no effect on twinning. Most twins occur when the cow ovulates two eggs that are then fertilized, producing fraternal twins. When one egg is fertilized and splits, we see identical twins. Multiple ovulation is a slightly heritable trait, so the genetics for twinning is most likely in your cow herd.

Please contact your veterinarian with questions pertaining to the health of your herd. Every operation is unique, and the information in this column does not pertain to all situations. This is not intended as medical advice but is purely for informational purposes.

Curve Benders Becoming More Common

I have been noticing my fall calves seem to have been getting earlier over the years? This year, several calves were two to three weeks early. These are AI (artificially inseminated) and ET (embryo-transfer) calves, as well as natural bred cows, all coming before their due date based on bull turnout times. The calves are small but vigorous. One was 45 pounds, but the rest have been in the upper 50- and 60-pound ranges. Do you have any thoughts on what may be going on?

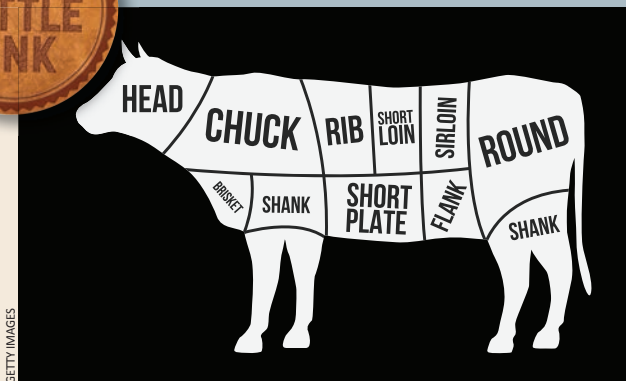
Dr. McMillan: You are not the only one who has noticed this. There are a lot of opinions as to why this is happening, and more research needs to be done. The most common theory I hear, and the one I believe, is that we have, as an industry, put a lot of emphasis on low-birthweight, calving-ease bulls in the last few years.

There is talk about "curve benders" with low birthweights and high weaning and yearling weights. How do you get low birthweight and high growth numbers? The easiest way is shorter gestation periods. When you stack generation after generation of calving-ease genetics, I believe we see calves coming days to weeks earlier than the traditional 283-day gestation period.

This seems to be more common with fall-born calves than spring-born calves. One theory has to do with winter nutrition in the second trimester, but more research needs to be done on both these issues.

While low birthweight and calving ease are extremely important in heifers, I feel we can get birthweights too low in mature cows and, as a result, may lose production. The answer comes back to looking for bulls' optimal expected progeny differences (EPDs), and these can be different for heifers and mature cows.

I would like to hear reader perspectives on these issues. I believe this is an extremely important issue.



GETTY IMAGES

Retail Beef Shifts

Changes in what consumers were looking for at their local meat counters were already well underway before anyone ever heard of COVID-19. But, as the pandemic limited availability of consumers' tried-and-true cuts, many tried something new. Those newer cuts largely come from the four primals: chuck roll, rib section, loin section and round.

Davey Griffin, AgriLife Extension meat specialist in Texas A&M's Department of Animal Science, explains that breaking down a carcass results in about 33% trimmable fat and bone, and 20 to 25% trimmings for things like ground beef and pizza toppings. The middle meats, where higher-value cuts such as steaks come from, make up 10 to 12% of the carcass but account for nearly a full third of the value of the carcass.

"The rest of it is the other muscles, and those are the ones we are trying to utilize more, enhance the value. They are the lower-cost muscles that still provide an excellent quality beef cut for consumers," he explains.

Griffin adds that being able to enhance cuts from the chuck and round not only helps more consumers have great, moderately priced eating experiences, but it boosts overall value of the carcass. And, that, in turn, has the potential to add value to live cattle.

Beef cuts have changed over the years following trends that include smaller families and less time to cook.

"They aren't cooking a great big roast or porterhouse steak anymore," Griffin says. Rather, the chuck is being broken down into cuts targeted at more current styles of cooking and eating.

"The second most-tender muscle in the beef carcass comes from the chuck and is now being merchandized as a mid-priced flat iron steak," he continues. Other newer cuts today include the petite shoulder tender, rib-eye filets, rib-eye caps and sirloin caps.

There was a time when retailers couldn't get much movement on some of the newer cuts, Griffin notes. "Now, with newer customers and those trying new things, they are starting to get movement, and customers are having good experiences and are willing to try them again."

For cattle producers who raise their own beef, Griffin says the shift to new cuts has sometimes left them asking what the meatcutter did with all of their T-bone steaks.

"When I'd ask if they got certain other cuts, they'd say 'yes.' You can't have both out of one side of beef. You have to understand how the cuts are made," he explains.

Cattle have only 13 ribs, and they can be cut into several different retail and food service cuts. Chuck short ribs, for example, are cheaper than the counterpart ribs from the plate, but they contain the same flavorful muscle. Back ribs are less meaty, coming from under the rib-eye roll, so they are less expensive.

"The chuck short ribs are used a lot for export, but they are otherwise cheap on the market because of the barbecue influence," Griffin says. "If you want to receive the plate short ribs, you can't do a tomahawk steak. So you have to pick one or the other out of a side of beef."

With so many new cuts, Griffin advises anyone processing beef for themselves or buyers to talk to the processor about what they would like to have. And, he tells processors, "Be prepared, because that's how the consumer is eating today. The muscles haven't changed, but we are using them in smaller, more utilizable pieces for the consumer." ///

Global Beef Outlook

The months ahead look positive for the beef industry, especially at the cow/calf level, according to a global outlook report from Rabo AgriFinance senior protein analyst Don Close.

Close, well-known market pundit within the beef business, provided his thoughts on the U.S. economy and global beef markets into 2021 at a webinar sponsored by the American Feed Industry Association. He said he expects to see cow liquidation in the U.S. continue into 2021, a number tied closely to how much drought expands. He estimates U.S. beef production for

the year to be up 1 to 1.5%. This is due to both cow liquidation and a backlog of feeder calves, which he puts at around a million outside of feedyards.

"The lion's share of that million head outside of feedyards is still trying to work through," he said. "Because of that, I think we will still see very large placements through the first quarter of 2021 and into the second quarter."

He added average carcass weights are up 26 pounds compared to a year ago and many analysts think the rally in corn prices will quickly normalize carcass weights. Close, however, doesn't believe the result will be quite so stark or fast.

JIM PATRICO

“Given the foundation we have in genetics plus a 2-billion-bushel carryover of corn, we are not in a situation where availability of feed is going to be a problem,” he explains. “It’s our expectation on beef production through 2021 that we’ll see a 1.5% increase the first part of the year, a lot of that increase and the impact from it having been worked through by the time we get to the second half of 2021.

“By then, we think tighter supplies from increased cow slaughter in both 2019 and 2020 will reduce availability of cattle on feed. We’ll likely then see a stronger market in the second half of 2021.”

A key area for the beef industry will continue to be export markets, where Close noted the National

Cattlemen’s Beef Association [NCBA] at its summer meeting set a very aggressive goal of reaching 17% on exports. This year and next, he expects beef exports at the 11 to 12% range.

“Long term, we are on a growth curve. With quality of product, trade agreements and whatever becomes of the U.S.-China Phase One Agreement, we are in a good spot for continued export growth.”

Close noted that as sustainability continues to be emphasized, the U.S. is in the enviable position of representing 20% of global beef production, with just 8 to 10% of global cattle numbers. He said the U.S. is “hands down the most efficient beef producer in the world right now.” ///



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Succession For The New Year

Form new habits and toss out old ones to help with management transition.



Write Lance Woodbury at Family Business Matters, 2204 Lakeshore Dr., Suite 415, Birmingham, AL 35209, or email lance.woodbury@kcoe.com.

Understanding how habits are formed gives

us the power to change our lives for the better. By implementing new behaviors and shedding bad habits, we can improve our health, our relationships and even our family businesses.

In the last few years, several best-selling books have been published about habits and habit formation. Charles Duhigg's "The Power of Habit," James Clear's "Atomic Habits" and BJ Fogg's "Tiny Habits" are some of the most popular.

The authors all suggest there are at least three common elements in habit formation. The first element is a cue or anchor, something that triggers the second element, which is a behavior or routine. The third element is a reward. For example, your phone dings (a cue), you pick it up (a behavior) and your reward is the brief feeling of excitement a new message generates. A bad habit might be alcohol abuse. The cues might be stress or certain social environments, the behavior is drinking and the reward is a short-term feeling of intoxication.

If you hope to develop good habits, you should plug in a new routine or behavior after a current cue, then find a way to reward yourself immediately for the good habit. All of the authors encourage you to start small, as minor habits compound to result in major changes over time.

These books made me wonder if the science of habit formation can be applied to family business succession, a notoriously difficult process to navigate. If you make little changes to how or what you communicate, can those habits compound to make the succession process go more smoothly? Consider the following simple ideas and whether you could adopt some new behaviors to help the family business in transition.

BETTER COMMUNICATION

Every family business struggles with communication. What if each family member in the business, when he or

she pours coffee in the morning (cue), sends a group text message with the top three things on their to-do list that day (behavior).

The reward could be a dollar allocated daily to each person who participates, with the payout at the end of the month. The longer-term benefit will be a sense that everyone has a better feel for what is happening in the business and less guilt that you are not having more meetings.



GETTY IMAGES

FASTER KNOWLEDGE TRANSFER

Another challenge in a family business is helping the younger generation become acquainted with key landowners and advisers. What if every time the senior leader of the business emails, texts or receives a message (the cue) from a landowner, the lender, the accountant or the attorney, the leader simply copies or adds a member of the next

generation on their message (behavior)? The reward could be a tally mark on your list of key business relationships. Multiple tallies will generate and sustain a feeling of accomplishment, and provide a sense that you are making a true handoff.

STRONGER RELATIONSHIPS

Family members working together often take each other for granted and can feel unappreciated. What if every evening at dinner (cue), you say or make note of one thing you appreciate about a family member that day (behavior)? Verbalizing your appreciation for a loved one will generate a good feeling and introduce a positive tone for the rest of the evening. Over time, it will result in more confidence about the pending transition.

Forming new habits is hard, but a benefit of working in a family business is the support you get from family members. Try introducing some small, new behaviors that will advance your succession goals for the coming year. ///

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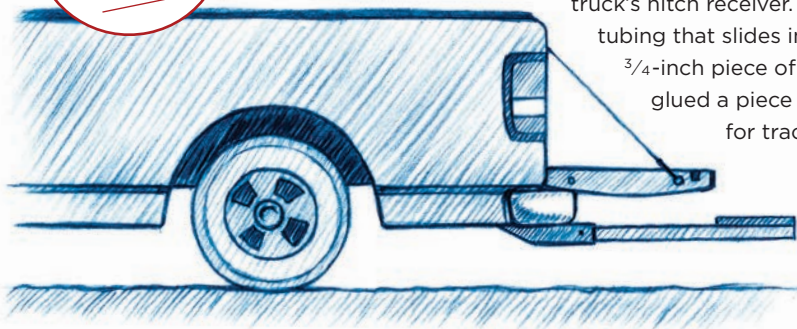
Handy Devices

Easy-to-build ideas make your work easier.



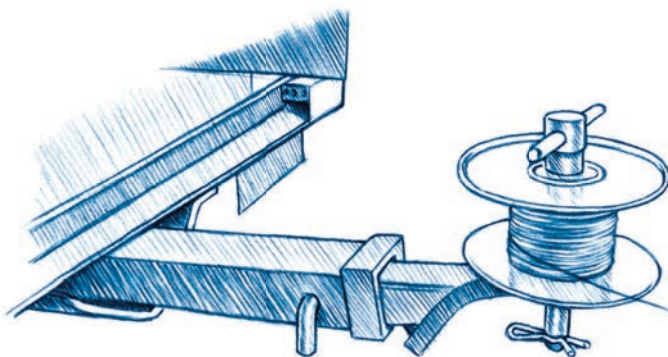
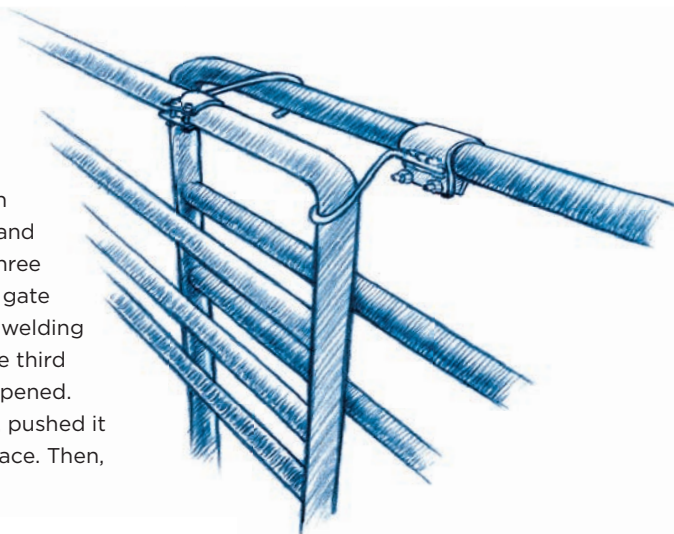
▼ STEP RIGHT UP

Jack Keiser, Fremont, Ohio, found it difficult to climb into the back of the truck bed. To repair that situation, he made a step that fits into the truck's hitch receiver. The step is made from 2-inch square tubing that slides into the receiver. To that, he bolted a $\frac{3}{4}$ -inch piece of plywood to create the step. He also glued a piece of rubber stair tread to the plywood for traction. Another option he suggests would be to weld a piece of plate steel to the tubing, then attach the piece of rubber stair tread. When not in use, Keiser stores the stair in the truck cab.



► FIX SAGGING GATES

After many years of struggling with chains and bungee cords to hold double gates shut, Ben Harman, Frostburg, Maryland, designed a set of gate latches. They both hold the gates closed but also eliminate the need for center support. Harman built the latches with old rake teeth, exhaust pipe and $\frac{1}{4}$ -inch carriage bolts. The rake teeth are bent in three steps. The first bend is meant to engage a vertical gate tube; the second (at a 90-degree angle) creates a welding point so it can be attached to the exhaust pipe; the third allows the latch to clear the gate when it's being opened. Harman also cut a 2-inch piece of pipe lengthwise, pushed it around a horizontal gate tube and bolted it into place. Then, he welded the rake teeth to the pipe.



◀ UPSIDE-DOWN HITCH

Here's another way to unspool wire. David Wade, Hiwassee, Virginia, took a receiver hitch and turned it upside-down to create a flat surface. He set the spool of wire on the upside-down receiver, at the same time pushing a tractor drawbar pin through the wire spool and hitch. He secured the drawbar pin in place with a cotter pin. He drives the assembly along his fencelines, unspooling wire as he goes.

WINNING IDEAS: Win \$400 if your idea is chosen as the month's "Editor's Choice" Handy Device. Win \$200 for other ideas used on this page. To submit a Handy Device, please send clear photographs, detailed drawings and a complete explanation of your idea. With each entry, include your name, address and telephone number. Send Handy Device entries to Progressive Farmer, 2204 Lakeshore Dr., Suite 415, Birmingham, AL 35209. Sorry, but we cannot acknowledge submissions or return photographs, drawings or documentation.



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High Hopes For Short Corn

Short-stature hybrids aim to fit fields of the future.



Picket fence stands of hybrid corn towering skyward could take on a different look in coming years. Suddenly, short is where it's at, at least for Bayer Crop Science.

Hybrids that are about a third to half in height with an ear that sets about knee high are already being planted in Mexico under the brand name Vitala. The company is pushing the concept through

STORY AND PHOTOS BY Pamela Smith



its U.S. pipeline both in traditional breeding and genetic engineering platforms with the first commercialized products expected early to mid-decade.

The idea is to create hybrids that potentially use fewer resources and are easier to spray postemergence.

Shrinking the corn plant is also expected to help the currently lanky corn plant better withstand windy challenges, such as the derecho that cut through Iowa and parts of Illinois in 2020.

These hybrids at Bayer Crop Science research farm, near Jerseyville, Illinois, haven't been given a haircut. They are bred to be shorter and more efficient.

SMALL GROWS UP

Introducing dwarf traits into crops is not new to agriculture. Norman Borlaug used the tactic to make wheat more resilient and efficient. Plant breeders have also shortened rice, barley and other grains to gain efficiencies.

Nor are efforts to reduce corn's size necessarily new. Stine Seed Co., for one, began working on short-stature hybrids in the mid-1990s. "Higher-density planting was really the desired outcome," says David Thompson, Stine Seed director of marketing. "As we continued down the path toward higher density, our best hybrids were tending to get shorter along the way.

"As a result, since 1995, our average hybrid height at Stine has dropped by almost a foot and a half," he says. "We have been passionately promoting this concept for more than a decade. We believe shorter-stature corn is the future of corn farming."

Big Ideas Behind Short Corn

Sustainability is the big word thrown around when seed-company talk turns to short-stature corn. Boiled down, that means doing more with less. Here are five advantages that farmers could see when short corn finds its way to the field:

- Seeds can be planted more closely together, producing more on the same amount of land.
- Under limited water conditions, plants with the native short-stature trait have shown reduced signs of stress.

- Farm equipment can clear the crop much later in the growing season, allowing more precise and efficient application of nutrients and fungicides.

- Short and stout should make the crop less susceptible to in-season crop loss because of standability issues, green snap and lodging, particularly in extreme weather events.

- No special machinery is needed to use the technology.



VIEW FROM THE FIELD

Short-stature varieties are easy to spot at Bayer's research farm, outside of Jerseyville, Illinois. Imagine the field as a basketball court with a 6- to 7-foot-tall point guard standing next to a 10- to 11-foot-tall shooting forward.

Erase images of spindly popcorn or sweet corn, or sickly droughted corn, too. Short-stature corn is simply shorter, says David Mack, Bayer short corn R&D project lead. "There is a shorter space

between the internodes, which

reduces the plant height."

Bayer is using several different approaches to reduce these spaces. The first relies on conventional breeding methods where genes are bred into a plant. A biotechnology version places a gene inside the plant to regulate the internode length. In 2020, the company announced it is also working on a gene-editing approach.

Kelly Gillespie, Bayer crop efficiency portfolio manager, notes that reduction in plant height does not reduce overall biomass or influence ear size. The company is testing short-stature corn for digestibility and other silage characteristics, which are particularly important in the European market.

"One of the advantages of having a global research and development organization is that we have a big testing footprint and can share those insights, which is important in developing the product concept," she says.

Corn height is naturally influenced by stress and many environmental situations, even by planting date. "One thing we are looking carefully at is what happens to short corn in tough environments.

"Likewise, we also know we are compressing the canopy and changing the environment in the canopy. So, just like in our standard pipeline, we want to be sure we are not adversely affecting our disease ratings," Gillespie continues.

She says initially, Bayer is testing short corn at the same densities as standard populations. One key consideration is making sure ears set at least 24 inches from the soil surface and slightly more if the hybrid is being grown in regions with rolling terrain.

"One of the things we are working really hard at is making sure this system does not require special machinery," Gillespie says. University collaborations are currently looking at water-quality improvements and greenhouse gas reduction assessments of short corn. ///

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Venture Capitalists Bet Big on Ag

AgTech brokers fund the future of farming.



DAVE CHARLIN

A biochemist, an electric and computer engineer, and an ag college dean: What do they have in common? They are all now agtech brokers looking to help finance the next big thing for farmers.



Roger Wyse

“It is an exciting time to be investing in the agriculture space,” says Roger Wyse, managing partner with Spruce Capital Partners, a San Francisco-based venture capital management company that invests in foodtech and agtech startup ventures.

Wyse may be one of the few true farm-kids-turned-agtech brokers who has devoted his career to agriculture. He was raised on an Ohio farm and worked as a scientist for USDA, led the New Jersey Ag Experiment Station, served as dean of research at Rutgers University Cook College and dean of the University of Wisconsin College of Agricultural and Life Sciences. He has been an ag venture investor for more than 20 years.

“All venture capitalists in agriculture operate in their own way. Our company’s strength is our insight into the culture of farmers and their conservative nature, paired with deep domain expertise in the technologies converging to enable new farming practices,” he explains.

With decades of experience, Wyse believes COVID-19 is the catalyst that finally shined a bright light on the

vulnerability of the food supply chain and the country’s socioeconomic divide. It may well be the impetus to accelerate technology use in farming.

“How we respond to a new post-COVID normal is critical,” he says. “We can link ag’s role in a low-carbon economy to a more resilient, diversified, traceable and sustainable food supply chain. We must support low-cost, healthy food with more economically viable rural communities while we address environmental impact and climate change. Ag innovation is vital.”

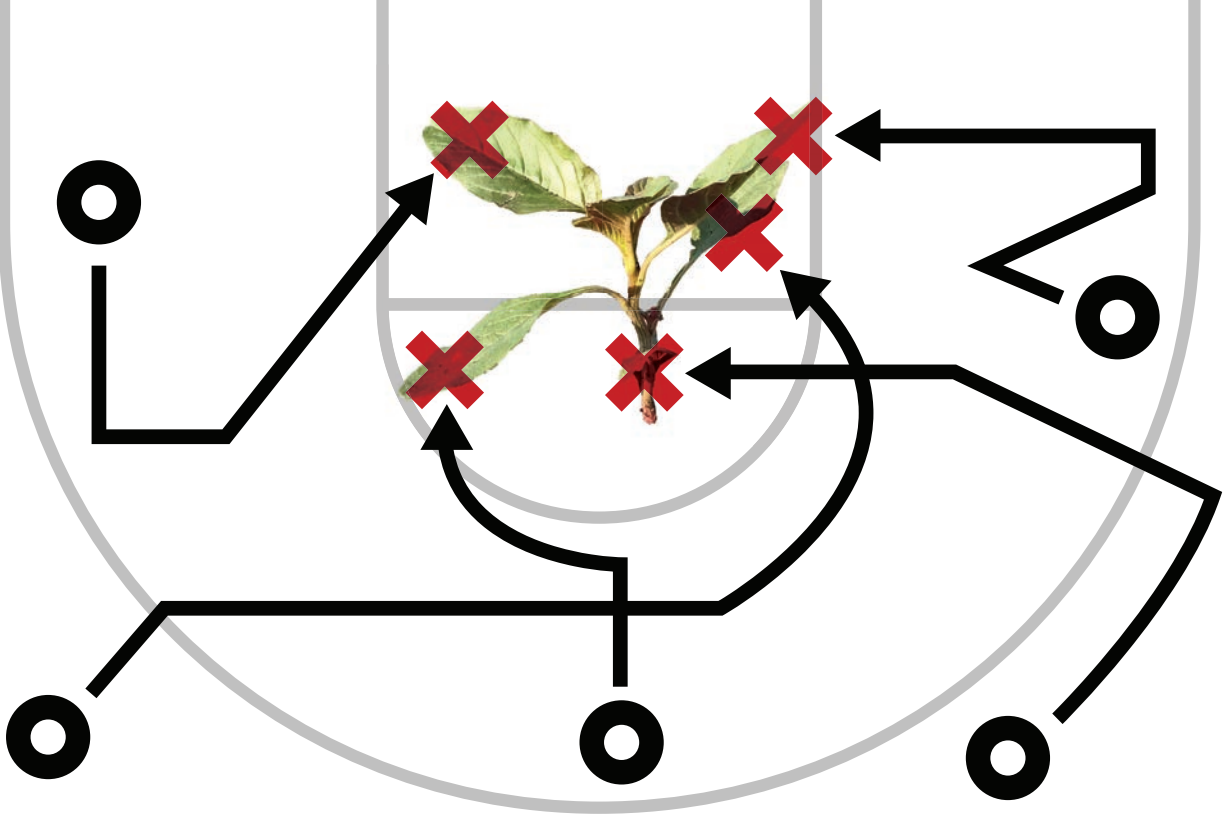
Rick Clark is helping an agtech start-up company evaluate crop management tools and collect data on his Indiana farm.

ATTRACTING VENTURE CAPITALISTS

Venture capitalists have taken note. According to **AgFunder.com**, agtech startups raised \$19.8 billion in venture funding across 1,858 deals in 2019, down a bit from a record-breaking 2018.

Agriculture is viewed as largely undercapitalized, adds Larry Page, principal with Lewis and Clark AgriFood, a St. Louis-based company that invests in expansion-stage companies in agriculture.

For example, Lewis and Clark AgriFood worked with Aker, a company that has developed a probe with a suite of sensors that can be used to scout for pests and diseases below the plant canopy. The company also provided >



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support for Benson Hill, a company that uses gene editing to create healthier crops, including a line of ultrahigh-protein soy and improved lines of barley.

“Feeding the world is a big challenge,” explains Page, who worked in biotech before joining Lewis and Clark in 2016 to manage early stage agtech venture capital. “We have to find creative ways to do it, or there will be starving people. Novel farming practices are of interest to investors. We see high levels of enthusiasm for digital traceability, biological-based products and sustainable crop controls.” He adds ag is also attracting investors because it’s one of the least-digitized industries.

IDENTIFYING AVAILABLE DOLLARS

While it may be more challenging to bring agriculture up to speed, it is not impossible.

Johnny Park grabbed the reins of the ag digital world as CEO for the Wabash Heartland Innovation Network (WHIN) in 2018. The alliance of 10 counties in north-central Indiana has a \$38.9-million investment from the Lilly Endowment to “harness the power of internet-enabled sensors and turn the region into a global epicenter of digital ag and next-gen manufacturing.”

The former electrical and computer engineering professor with Purdue University was the brains behind Spensa Technologies, a digital pest-management startup. (Editor’s note: Spensa was purchased by DTN, the parent company of *Progressive Farmer*, in 2018.)

WHIN vets potential Internet of Things technologies and subsidizes costs for adoption products with the most potential for success that are at or near commercialization.

“While not every new idea goes through venture capital funding to reach commercialization, those that do generally start with an accelerator or seed investor like WHIN to receive initial capital,” Page says. “Grants are another source for early stage seed investment.”

Typically, he says, a concept then moves through Series A and Series B funding to prove it is fit for market and makes business sense. Late-stage or growth equity follow, which fund confirmation of a promising market. The final stage is an exit to sale and commercialization.

Spruce Partners reviews 500 to 700 opportunities per year but only selects three to five for investment. As an example, it’s an active investor in Pivot Bio, which offers a novel approach to replacing synthetic nitrogen fertilizers with biological nitrogen fixation in corn.

“We knew farmers would be interested in Pivot Bio because of its promising environmental benefits,” Wyse says. “To learn how it would fit into a farmer’s system, the company partnered with a small, innovative group of farmers to field-test the product.”

Wyse says most companies do a similar “lean launch” to assure alignment between farming practices and product,



DAVE CHARREIN

and commonly offer farmers reduced product cost or compensation for data access. In return, they get a huge data lake to share with the partner working on a specific digital solution.

Rick Clark's work with WHIN provides him with better decisions through data analysis.

FARMER BUY-IN

Rick Clark is providing data to WHIN and receives compensation for it. The fifth-generation farmer from Williamsport, Indiana, is transitioning to all organic and raises corn, soybeans, wheat, alfalfa, peas and regenerative grazing, with a strong focus on conservation.

“We were contacted by WHIN to evaluate agtech-driven concepts for wider use. The biggest benefit we have gained is the knowledge from testing new ideas.”

Clark is evaluating Intelinair as a crop-management tool and has received specific recommendations from Solinftec about fine-tuning his machinery efficiency. Both systems are data-driven. Intelinair gathers crop intelligence via aerial images to help farmers make informed decisions, while Solinftec connects tools to optimize productivity.

Tom McKinney, contract corn and soybean farmer from Tipton, Indiana, also works with WHIN. He compared data gathered by Intelinair with other mapping tools and found tile lines in a field he didn’t know existed, for example. He also is assessing robotic soil testing and sprayer timing. “You have to monitor emerging technology and stick both feet in the water to see what’s there,” he says.

While McKinney believes big ag companies and dealer networks aren’t going anywhere, he sees the infusion of capital into agtech as a good way to fill farming’s problem niches. Page agrees. “The venture capital model is a disruptive one to change the way agriculture is working,” he says. “Farmers are searching for margin opportunities in a low-price environment.”

“If we do not continue along this pathway, we will be in big trouble,” Wyse adds. “Farmers need to increase productivity, be more resilient and more diversified with less environmental impact.” ///

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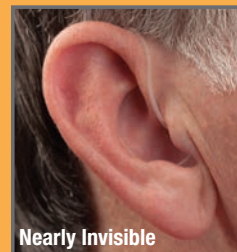
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Wheat Country Knows No Boundaries

PAMELA SMITH

Dale Wehmeyer kneels to check the fall tillering of his winter wheat and wonders aloud why more farmers don't take advantage of this crop. Planted with care and tended with weed control and nutrients, the Mascoutah, Illinois, farmer can push wheat beyond triple digits then follow with double-crop soybeans. Good growing conditions coupled with more favorable market prices made that a winning combination in 2020.

Wheat country has long been associated with a geographic belt that extends from Texas north into the Canadian prairies. However, National Wheat Foundation 2020 National Wheat Yield Contest results show getting wheat to yield knows no boundaries if intensively managed.

Growers from 25 states entered the 2020 contest. Now, in the fifth year, the contest recognizes winners in two primary categories: winter wheat and spring wheat, and two subcategories: dryland and irrigated. In a separate category, winners are also recognized by the percentage increase their yield exceeds the most recent five-year Olympic county average as determined by USDA. Quality components are also measured as part of the contest.

Precise seed placement, intensive scouting and addressing production issues in a timely fashion are all part of Wehmeyer's wheat strategy. "It is an amazing crop that responds so well to management," he says. His 119.4-bushel-per-acre soft red winter wheat entry was enough to secure a fifth national yield ranking in the highly competitive dryland winter wheat category.

DTN/*Progressive farmer* is the official publication for the National Wheat Contest. Watch for detailed coverage of the national winners in the March issue.

Find a complete listing of the 2020 winners and how to enter the 2021 contest at yieldcontest.wheatfoundation.org.

First Place State Winners

WINTER WHEAT - DRYLAND

First Name	Last Name	County	State	Variety	Variety Name	Final Yield*
Elvie	Hunter	Madison	AL	AgriPro	Harrison	114.36
Brett	Arnusch	Weld	CO	WestBred	WB4418	79.67
Doug	Stout	Latah	ID	WestBred	Keldin	179.91
Dale	Wehmeyer	St. Clair	IL	AgriMAXX	AM513	119.40
Tyler	Ediger	Meade	KS	WestBred	WB4792	108.43
Sam	Halcomb	Logan	KY	AgriMAXX	AM438	80.98
Nick	Suwyn	Barry	MI	AgriPro	SY 576	170.24
David	Rohlfing	Gasconade	MO	Pioneer	P25R61	113.05
Todd	Hansen	Hill	MT	WestBred	Keldin	45.99
Matthew	Sanderson	Wayne	NC	USG	3118	109.83
Richard	Keiser	Hitchcock	NE	PlainsGold	Snowmass 2.0	82.72
Eric	Eachus	Mullica Hill	NJ	Dyna-Gro	Shirley	132.77
Matthew	Toussaint	Orleans	NY	Erie	Erie	110.97
Mark	Hoorman	Henry	OH	AgriPro	SY 547	118.27
Levi	Johnson	Alfalfa	OK	WestBred	WB4699	111.32
Bruce	Ruddenklau	Polk	OR	ORSU	Rosalyn	191.17
Darren	Grumbine	Lebanon	PA	Pioneer	25R77	152.86
Nathan	Vander Schaaf	Jones	SD	AgriPro	SY Monument	88.13
Ben	Scholz	Collin	TX	AGS	2055	72.81
Shane	Richman	Shenandoah	VA	Mercer	MBX 17-M-245	96.08
John	Dixon	Garfield	WA	McGregor Seed	M-Press	189.97
R&K	Farms	Laramie	WY	WestBred	WB4462	110.37

WINTER WHEAT - IRRIGATED

First Name	Last Name	County	State	Variety	Variety Name	Final Yield
Nick	Macy	Modoc	CA	WestBred	WB1783	167.59
Marc	Arnusch	Weld	CO	WestBred	WB4418	161.80
Rylee	Reynolds	Twin Falls	ID	AgriPro	SY Ovation	196.85
Kim	Gamble	Kiowa	KS	WestBred	WB4792	135.39
Nick	Suwyn	Barry	MI	AgriPro	SY100	168.74
Kody	Stricker	Box Butte	NE	WestBred	WB4303	100.70
CR	Freeman	Kiowa	OK	OK Genetics Inc.	OK Corral	121.62
Blaise	Wilde	Tom Green	TX	OK Genetics Inc.	Showdown	106.21
Derek	Friehe	Grant	WA	Limagrain	Jet	206.70

SPRING WHEAT - DRYLAND

First Name	Last Name	County	State	Variety	Variety Name	Final Yield
Trevor	Stout	Latah	ID	WestBred	WB9303	139.22
Brian	Lacey	Grant	MN	WestBred	WB9479	96.30
Doug	Manning	Flathead	MT	WestBred	WB9668	107.01
Rick	Albrecht	Griggs	ND	WestBred	WB9590	120.65
Tom	Duyck	Washington	OR	WaState	Diva	123.60
Robert	Holzwarth	Hamlin	SD	Limagrain	Cannon	87.73

SPRING WHEAT - IRRIGATED

First Name	Last Name	County	State	Variety	Variety Name	Final Yield
Terry	Wilcox	Madison	ID	WestBred	WB9668	172.60
Herb	Stahl	Umatilla	OR	WestBred	WB9350/WB9668	154.43
James	Getzinger	Grant	WA	WestBred	WB9662	164.34

The sponsors for the 2020 National Yield Contest are AgriMAXX, Ardent Mills, BASF, Corteva, Croplan/WinField, Grain Craft, John Deere, Miller Milling, Syngenta and WestBred.

*Final yield in bushels/acre

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A Foot In the Door

First-generation farmers look for ways to join the family of agriculture.



Agriculture is a family. It's a common saying. Many of today's farm and ranch operators have generations of agrarians behind them. They learned by just growing up on a farm and watching cattle worked or fields planted. It does something to a person's DNA.

But, what if you are not part of the family of agriculture? What if you don't have those childhood memories or maybe the advantage of land passed down through the generations to give you a start? First-generation farmers are learning to build their own kind of family. Many of them are getting a little help from a group that just hit its 10-year mark, the National Young Farmers Coalition, born in 2010.

The coalition goes back to first-generation farmer Lindsey Lusher Shute, who farms with her husband, Benjamin, in New York's Hudson Valley. They believed young farmers and ranchers needed a coordinated voice in Washington, D.C. Today, the coalition has more than 200,000 supporters across the country, with 46 farmer-led chapters in 27 states.

WESTERN CHALLENGES

Erin Foster West coordinates the coalition's western program. Hers is a region with unique challenges, where knowing how to farm or ranch is equally as important as learning how to advocate for policy. Water issues are especially key to building a future that will meet the

needs of both those producing food and consumers who depend on it.

"At its most basic, we are bringing groups of young farmers and ranchers together so they can support one another as they start a business. They help each other with finding markets and being profitable," Foster West explains. "We've recently expanded our water training program to address those special issues we have here in the West. The challenges you face in agriculture out here are really different from those in what we think of as traditional farming areas."

In Colorado, the coalition offers a Young Farmer Water Fellowship where 10 people go through a six-month program. Through the program, they work in the local community to develop a deep understanding of water issues people who live there face. Leadership training is a key part of this work. At the end of the program, participants often run for a seat on their local water boards, which are critical because they are tasked with developing statewide water plans.

"If you look at water boards, they are not always the most diverse groups," Foster West says. "We are trying to get some new voices on these boards. It's so important to make sure that the next generation of farmers and ranchers truly understand water issues and climate change, and that they are represented. ▶

The National Young Farmers Coalition helps foster connections for those new to agriculture, such as Colorado rancher Andy Breiter.

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Andy Breiter custom-grazes 78 leased acres, helping to keep capital costs down while he looks for land to invest in and grow the operation.

We need to be thinking about where they will be 20, 30, even 40 years down the road. This helps them have a say in that future.”

BUILDING FAMILY

Andy Breiter is one of those coalition leaders in the making. He joined the group in 2017 after he attended his first meeting. He’d had some experience working on ranches but had no farming background—no agrarians in his past, as he says.

A new cattle operator, Breiter started an operation in Boulder County, Colorado, with 78 acres and some custom-grazing work. He’s proud to have both.

“The contract grazing is helping me keep my capital costs down,” he says. “Right now, my biggest challenge is finding land so I can grow the business. The property I’m leasing doesn’t have the acreage I need, but I was lucky because it does have the infrastructure I need. There is office space, a shop for equipment, facilities to handle animals. All of that is really important for me to be able to move forward. I just need more ground.”

Breiter’s land search is one of the most common issues first-generation farmers face, Foster West explains.

She notes having secure land tenure and the ability to borrow money to grow are probably the two biggest issues for those new to agriculture.

“The land piece is especially critical. It’s so expensive and hard to buy land,” she says, adding that student loan debt is increasingly an issue to getting started for many who dream of their own farms.

“A lot of our young, first-generation farmers and ranchers come to us with a high level of student loan debt, and to be honest, that makes it very hard for them to take on additional debt for land, equipment, cattle, whatever it is they need to get started.”

One of the goals of the coalition is to work toward developing workable public programs for student loan forgiveness for farmers and ranchers. Foster West believes this group of new agrarians is equally as important to rural areas as are doctors or veterinarians, who already have access to such programs.

“Farmers have to be jacks-of-all-trades,” she says. “They don’t just have to know agronomy or animal husbandry, but business planning and marketing. They have to be able to fix equipment, tend to sick animals and advocate for farming. We believe student loan forgiveness in rural areas for farmers and ranchers would be in the public good. They grow our food and our fiber, often at very low wages. They aren’t getting rich doing this—they do it for the public good.”

PASTURE-TO-PLATE DREAM

Breiter sees all those issues firsthand. None of them dull his optimism. He believes he’s got a good plan, and the timing for success is better than most people would think in a pandemic-based economy.

Although Breiter is custom-grazing now, what he sees in his future is a grass-fed, consumer-direct business. He’s not looking to start a typical cow/calf operation. In what might be called a nonconformist plan, he wants to buy cull cows, run them from March or April through the fall, then sell them as grass-fed beef direct to local buyers.

“When you consider cull cows, you have animals that have fully depreciated. They make good beef, and you can take them from outside the feedlot market, put some weight on them and then do direct sales. If I can take cull cows and do that, I think I might have a successful business,” Breiter says.

A major challenge to Breiter’s business model today is a lack of slaughter space in his area. It’s a common complaint this year, as more cattle producers are selling product direct. In Breiter’s case, he says access is strained to the point where processing dates are currently one to two years out.

While that might seem like bad timing to some, Breiter sees it as just the opposite. “Yes, there are absolutely some challenges with COVID-19, but if you



can succeed with these challenges, I don't think you can miss. It's because of the pandemic that so many more people are interested in buying local products, and I believe that will only increase as relationships between buyers and sellers build. So, yes, there are challenges, but innovation and opportunities are going to come out of this."

BUY-AND-DRY POLICIES

Water availability to those in agriculture is an issue that won't be going away anytime soon. Through his membership in the coalition, Breiter is part of a group in his area participating in the Young Farmer Water Fellowship program. He says he's learned a lot about the issues in this arid part of the country.

"The quantity of water available to farmers and to cities is a huge concern," he notes. "We've seen a lot of overallocation of water use on what we call the 'front range,' which is cities like Denver, Boulder, Fort Collins. Those cities are increasing the amount of water they own by purchasing water rights from agricultural landowners. We call those 'buy-and-dry' policies."

Breiter says there are a lot of multistakeholder solutions being considered in regions like his, where water is key to the survival of farms. He stresses it's important, however, that any solutions are long-lasting and not just temporary fixes.

"We have to find ways to affect positive changes that will help all farmers in the region, whether they are new to agriculture or not," he explains.

Breiter says part of the reason he is working so hard to be involved and to be part of the solution for the future of agriculture is simply a love of the land and all that comes with it.

"I've been really blessed with the life my parents gave me," the Illinois native says. "I want to give that back to my community here by working with the coalition and helping others succeed, as well. We all have to be that community of support for one another. If you haven't farmed, it's hard to explain what that is really like.

"These cows, you can hear them mooing while we're talking, they have to be fed every day. Other farmers understand this. These cows don't care what the weather is or whether it's a holiday. I am responsible for them. It's a level of commitment you don't get until you've lived it. And, it's really a life worth living. It means something every day I am fortunate enough to be here." ///



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Progressive Agriculture Safety Days

Start off the New Year with all the appropriate PPE and safety gear!



◀ *ATV/UTV Safety remains one of the most frequently offered stations at Progressive Agriculture Safety Days held throughout North America. Participants learn about various safe riding practices, including:*

- ▶ **One size doesn't fit all.** Identify the correct size ATV or UTV for the age of the rider.
- ▶ **Being rider active and understanding the center of gravity.** Understand that the long, narrow seat of an ATV is intended for the operator to shift their body forward and backward, not for carrying additional passengers.

- ▶ **The fragile nature of the human brain** and the life-saving capabilities of a properly fitted helmet.
- ▶ **The need for additional PPE (personal protective equipment) and riding gear**, such as helmets, over-the-ankle boots, eye protection, gloves, long pants and long-sleeved shirts. We also discuss being visible to others by mounting an orange pennant safety flag to your vehicle and adding door netting to keep arms and legs inside the UTV.



"187 youth at our Progressive Agriculture Safety Day were fitted and sent home with an ATV helmet to reinforce the importance of safety while riding at home, on the trail or on the farm or ranch. A mother of a participant told me how much they appreciated receiving the helmet, as her son was wearing it when he was involved in an ATV incident. He was not injured but was very glad to have had the head protection on."

-Kayla Hinrichs, Progressive Agriculture Safety Day Coordinator, Ord, Nebraska

Polaris and Progressive Agriculture Foundation partnership aims to educate youth and promote safe riding practices.

The Progressive Agriculture Foundation has partnered with Polaris Inc. to help educate children on safe riding practices for all-terrain vehicles (ATVs) and utility terrain vehicles (UTVs). In 2020, Polaris donated more than \$40,000, along with a youth Polaris Ranger UTV, to support the Progressive Agriculture Foundation's mission of educating youth through the Progressive Agriculture Safety Day® program.

"We are excited to partner with Polaris on providing important safety messaging around ATVs and UTVs," said Brian Kuhl, president and chief executive officer of the Progressive Agriculture Foundation. "Sadly, we know many ATV and UTV incidents occur due to operator error and can be preventable through education. By delivering programming in a fun, engaging way, we hope to provide more children with strategies to be safer when they ride."

Data released in 2019 by the National Institute for Occupational Safety and Health (NIOSH) showed the most common fatal events for youth working on farms were the result of transportation incidents, with tractors, ATVs and UTVs as the primary vehicle sources.

"Polaris is proud to partner with the Progressive Agriculture Foundation in support of off-road vehicle safety," said Steven Menneto, president of Off-Road Vehicles at Polaris. "This program will educate youth riders about safe and responsible riding practices they will carry with them throughout their lifetime enjoyment of off-road vehicles."

For more information on Polaris, visit www.polaris.com.

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- Never ride under the influence of alcohol or drugs
- Never carry a passenger on a single-rider ATV
- Ride an ATV that's right for your age
- Supervise riders younger than 16; ATVs are not toys
- Ride only on designated trails and at a safe speed

To **LEARN MORE** about The Progressive Agriculture Safety Day program and ATV Safety visit www.ProgressiveAg.org and www.ORVSafety.org

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The Progressive Agriculture Foundation (PAF) is proud to be recognized as a Better Business Bureau Accredited Charity. Additionally, PAF has a 3-star rating with Charity Navigator and was awarded a Platinum Seal of Transparency with GuideStar. All donations are tax-deductible.

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Ring In The New Year

Celebrate 2021 with a festive dinner and cocktail.



JUST-LIKE-TAKEOUT BEEF & BROCCOLI

Enjoy a quick and easy version of the classic Chinese dish.

MAKES: 3-4 SERVINGS

TOTAL TIME: 30 MINUTES

- 1 cup low-sodium soy sauce, divided
- 2 tablespoons lime juice
- 3 tablespoons brown sugar, divided
- 2 tablespoons cornstarch, divided
- 1 pound sirloin steak, sliced thinly against the grain
- 2 tablespoons vegetable oil
- 1 tablespoon minced garlic
- ½ cup chicken stock
- 2 cups broccoli florets
- Sesame seeds for garnish

1. To prepare marinade: In a medium bowl, combine ½ cup soy sauce, lime juice, 1 tablespoon brown sugar and 1 tablespoon cornstarch; whisk well. Add steak; toss to coat. Marinate at least 20 minutes or up to 1 hour.
2. Heat oil in a large skillet over medium-high heat.
3. Drain marinade from steak; cook steak in a single layer, being careful not to overlap. Place steak on a plate; set aside.

4. Add garlic to pan; cook until fragrant (about 30 seconds); add remaining soy sauce, brown sugar and cornstarch. Add chicken stock; bring mixture to a simmer until thickened.
5. Add broccoli; cover and steam until tender (about 5 minutes).
6. Add beef back to skillet; toss to coat.
7. Garnish with sesame seeds; serve with rice.

CRANBERRY-GINGER SPRITZ

Don't know what to do with leftover cranberries? Try this syrup for sodas or cocktails.

MAKES: 1 COCKTAIL

Cranberry-Ginger Syrup:

- ½ cup fresh chopped ginger (peel removed)
- 1 cup fresh or frozen whole cranberries
- 1 cup sugar
- 1½ cups water

1. Place all ingredients in a small saucepan; bring to a boil.
2. Lower heat to a simmer; cook 15 minutes or until berries break down and syrup is thick and glossy.
3. Strain out solids.
4. Store in an airtight container up to a month.

Cocktail:

- 1 tablespoon cranberry-ginger syrup
- 8 ounces ginger beer
- 1 ounce vodka (optional)
- Fresh cranberries for garnish
- Fresh rosemary for garnish

1. Fill a tall glass with ice; pour in Cranberry-Ginger Syrup.
2. Top with ginger beer and vodka (if desired).
3. Garnish with cranberries and rosemary.



Recipes and photos by Rachel Johnson
www.stupidgoodrachel.com



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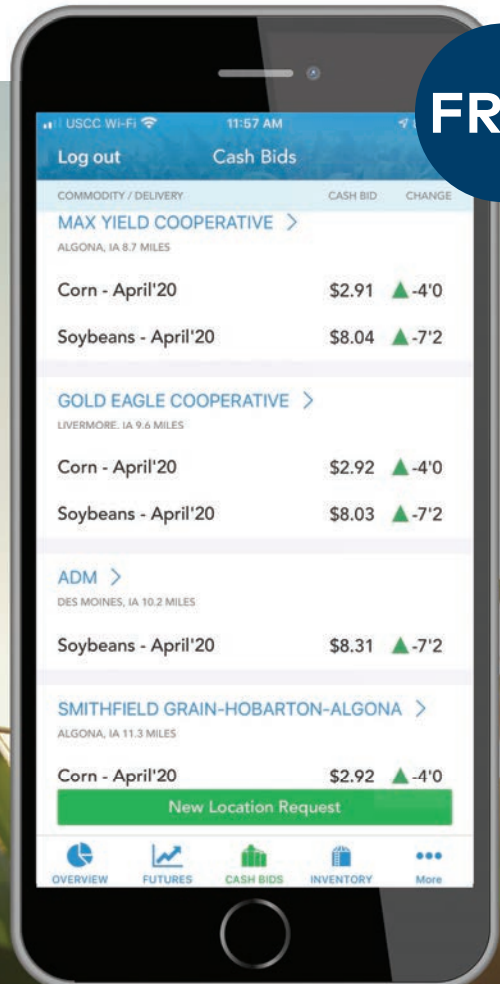


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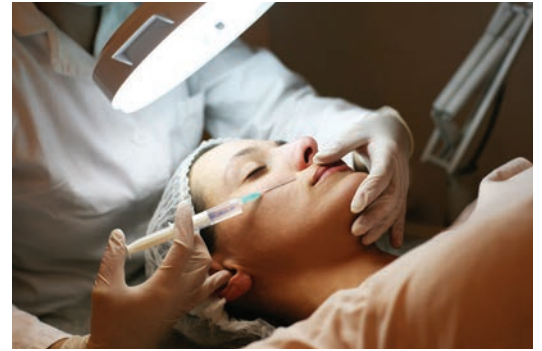
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Scientists Target New Acid Reflux Pill for Anti-Aging Research

Surprisingly, the secret to slow the aging process may reside in a new acid reflux treatment; studies find the pill to help protect users from fatigue, cardiovascular issues, and serious conditions that accompany premature aging.



Seattle, WA – A new study on a leading acid reflux pill shows that its key ingredient relieves digestive symptoms while suppressing the inflammation that contributes to premature aging in men and women.

And, if consumer sales are any indication of a product's effectiveness, this 'acid reflux pill turned anti-aging phenomenon' is nothing short of a miracle.

Sold under the brand name AloeCure®, its ingredient was already backed by research showing its ability to neutralize acid levels and hold them down for long lasting day and night relief from bouts of heartburn and, acid reflux, gas, bloating, and more.

But soon doctors started reporting some incredible results...

"With AloeCure, my patients started reporting, better sleep, more energy, stronger immune systems... even less stress and better skin, hair, and nails" explains Dr. Liza Leal; a leading integrative health specialist and company spokesperson.

AloeCure contains an active ingredient that helps improve digestion by acting as a natural acid-buffer that improves the pH balance of your stomach.

Scientists now believe that this acid imbalance could be a major contributing factor to painful inflammation throughout the rest of the body.

The daily allowance of AloeCure has shown to calm this inflammation through immune system adjustments which is why AloeCure is so effective.

Relieving other stressful symptoms related to GI health like pain, bloating, fatigue, cramping, acid overproduction, and nausea.

Now, backed with new scientific studies, AloeCure is being doctor recommended to help improve digestion, and even reduce the appearance of wrinkles – helping patients look and feel decades younger.

FIX YOUR GUT & FIGHT INFLAMMATION

Since hitting the market, sales for AloeCure have taken off and there are some very good reasons why.

To start, the clinical studies have been impressive. Virtually all participants taking it reported stunning improvement in digestive symptoms including bouts of heartburn.

Users can also experience higher energy levels and endurance, relief from chronic discomfort and better sleep, healthier looking skin, hair, and nails.

A healthy gut is the key to a reducing swelling and inflammation that can wreak havoc on the human body. Doctors say this is why AloeCure works on so many aspects of your health.

AloeCure's active ingredient is made from the famous healing compound found in Aloe Vera. It is both safe and healthy. There are also no known side effects.

Scientists believe that it helps improve digestive by acting as a natural acid-buffer that improves the pH balance of your stomach and helps the immune system maintain healthy functions.

Research has shown that this acid imbalance contributes to painful inflammation throughout your entire body and is why AloeCure seems to be so effective.

EXCITING RESULTS FROM PATIENTS

To date millions of bottles of AloeCure have been sold, and the community seeking non-pharma therapy for their GI health continues to grow.

According to Dr. Leal, her patients are absolutely thrilled with their results and are often shocked by how fast it works.

"For the first time in years, they are free from concerns about their digestion and almost every other aspect of their health," says Dr. Leal, "and I recommend it to everyone who wants to improve GI health before considering drugs, surgery, or OTC medications."

"All the problems with my stomach are gone. Completely gone. I can say AloeCure is a miracle. It's a miracle." Another user turned spokesperson said, "I started to notice a difference because I was sleeping through the night and that was great. AloeCure does work for me. It's made a huge difference."

With so much positive feedback, it's easy to see why the community of believers is growing and sales for the new pill are soaring.

THE SCIENCE BEHIND ALOECURE

AloeCure is a pill that's taken just once daily. The pill is small. Easy to swallow. There are no harmful side effects and it does not require a prescription.

The active ingredient is a rare Aloe Vera component known as acemannan.

Millions spent in developing a proprietary process for extracting acemannan resulted in the highest quality, most bio-available levels of acemannan known to exist, and it's made from organic aloe.

According to Dr. Leal and leading experts, improving the pH balance of your stomach and

restoring gut health is the key to revitalizing your entire body.

When your digestive system isn't healthy, it causes unwanted stress on your immune system, which results in inflammation in the rest of the body.

The recommended daily allowance of acemannan in AloeCure has been proven to support digestive health and manage painful inflammation through immune system adjustments without side effects or drugs.

This would explain why so many users are experiencing impressive results so quickly.

REVITALIZE YOUR ENTIRE BODY

With daily use, AloeCure helps users look and feel decades younger and defend against some of the painful inflammation that accompanies aging and can make life hard.

By buffering stomach acid and restoring gut health, AloeCure's ingredient maintains healthy immune system function to combat painful inflammation...reduce the appearance of wrinkles and help strengthen hair and nails ... maintains healthy cholesterol and oxidative stress... improves sleep and energy.... and supports brain function by way of gut biome... without side effects or expense.

Readers can now reclaim their energy, vitality, and youth regardless of age.

AloeCure Taken Daily

- Helps End Digestion Nightmares
- Reduces appearance of Wrinkles & Increases Elasticity
- Supports Healthy Immune System

HOW TO GET ALOECURE

This is the official nationwide release of the new AloeCure pill in the United States. And so, the company is offering our readers up to 3 FREE bottles with their order.

This special give-away is only available for a limited time. All you have to do is call TOLL-FREE 1-800-589-1625 and provide the operator with the Free Bottle Approval Code: AC100. The company will do the rest.

Important: Due to AloeCure's recent media exposure, phone lines are often busy. If you call and do not immediately get through, please be patient and call back. Those who miss the 48-hour deadline may lose out on this free bottle offer.



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“Now faith is the substance of things hoped for, the evidence of things not seen.”

—Hebrews 11:1 (KJV)

Faithful

As long as you as an individual ... can convince yourself that in order to move forward as best you can you have to be optimistic, you can be described as “one of the faithful,” one of those people who can say, “Well, look, something’s going to happen!” Let’s just keep trying. Let’s not give up.

TOM HANKS

If you’re going to be a good and faithful judge, you have to resign yourself to the fact that you’re not always going to like the conclusions you reach. If you like them all the time, you’re probably doing something wrong.

ANTONIN SCALIA

Be faithful in small things because it is in them that your strength lies.

MOTHER TERESA

I have had so much at heart. Defeated, not conquered; disappointed, not discouraged. I have but to be more energetic and more faithful in the difficult and painful vocation to which my life is devoted.

DOROTHEA DIX

Only the person who has faith in himself is able to be faithful to others.

ERICH FROMM

Those that are most slow in making a promise are the most faithful in the performance of it.

JEAN-JACQUES ROUSSEAU

Extemporaneous speaking should be practiced and cultivated. It is the lawyer’s avenue to the public. However able and faithful he may be in other respects, people are slow to bring him business if he cannot make a speech.

ABRAHAM LINCOLN

He fell in love with himself at first sight, and it is a passion to which he has always remained faithful. Self-love seems so often unrequited.

ANTHONY POWELL

A faithful friend is a strong defense; And he that hath found him hath found a treasure.

LOUISA MAY ALCOTT

I don’t think that faith, whatever you’re being faithful about, really can be scientifically explained. And I don’t want to explain this whole life business through truth, science. There’s so much mystery. There’s so much awe.

JANE GOODALL

True friends challenge us and help us to be faithful on our journey.

POPE BENEDICT XVI

The prudent heir takes careful inventory of his legacies and gives a faithful accounting to those whom he owes an obligation of trust.

JOHN F. KENNEDY

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