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JOEL REICHENBERGER

FEBRUARY 2024
 VOL. 139 / NO. 2
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ON THE COVER
 Autonomous robots, such as Solinftec's Solix, prowl fields 24/7.
 PHOTO: JOEL REICHENBERGER

An autonomy revolution looms for agriculture.

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PRINTED IN THE USA

The Progressive Farmer, (ISSN 0033-0760), serving families who have a vital and shared interest in American agriculture and country living, is published monthly in January, February, March, April, May, August, September, October, November, December, and a combined June/July issue, which counts as two issues in an annual subscription. Additional double issues may be published, which count as two issues. "Copyright 2024. DTN/*The Progressive Farmer*. All rights reserved."
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Canada Post Publications Mail Agreement #40732015 GST #83187 6255 RT0001

TO CORRECT YOUR ADDRESS: Attach mailing address label from cover, along with your new address, including zip code. Send to *The Progressive Farmer*, P.O. Box 5010, Harlan, IA 51593-0510. Give six weeks' notice.

POSTMASTER: Send all UAA to CFS. (See DMM 707.4.12.5); NON-POSTAL AND MILITARY FACILITIES: *The Progressive Farmer*, P.O. Box 5010, Harlan, IA 51593-0510.

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Margin Management Requires Cost Adjustments in 2024

The cyclical nature of the business of farming is a fact of life farmers and ranchers endure season after season. There are generally more downs than ups on profit/loss ratios, requiring prudent scrutiny of crop budget spreadsheets. This year is no exception.

Ag economists and farm-management specialists warn lower commodity price outlooks will mean belt-tightening in 2024. Other economic headwinds include continued concerns about inflation, a possible economic slowdown, the ongoing conflicts in the Middle East and Russia/Ukraine, and the November presidential election—how the next administration will approach ag exports, farm legislation and trade policy.

University of Illinois recently revised its 2024 crop budgets, citing lower projected commodity prices averaging \$4.50 corn and \$11.50 soybeans. Its August budget release used significantly higher prices of \$4.80 corn and \$12.80 soybeans.

As a result, crop budgets for Illinois show negative average farmer returns to cash-rented farmland for corn and soybeans in all regions of the state. Breakevens range from \$5.13 to \$5.34 per bushel for corn and \$11.79 to \$13.34 per bushel for soybeans. Projections don't include commodity title payments, as price levels are above those that would trigger payments. Crop insurance payments are also not included, as guarantees had not been set at press time.

While these estimates only apply to Illinois, and costs can greatly vary across states and individual farming operations, they provide a snapshot of the tighter margin environment many face this year. Record returns and income levels many growers experienced during the 2021 and 2022 crop years seem like a distant memory.

Costs allocated to land, machinery, fuel, debt payments, maintenance and more add up quickly. In many instances, cost-cutting options are limited without the potential of harming your bottom-line prospects. No doubt many farmers are pausing or taking a second look at big-ticket purchases like equipment, buildings and grain storage.

That means you need to take an extrasharp pencil to crop inputs as you prepare for spring planting. Use your farm data to scrutinize the performance of hybrids/varieties, traits, seed treatments, soil additives, insecticides and

fungicides. Buying a crop input because “it's good insurance” may not pay when margins are tight.

Farmers have seen some relief on fertilizer going into 2024. Ensuring crops have the proper amounts of nitrogen, phosphorus, potassium and micronutrients is critical to optimizing yields. Reevaluating your crops' nutrient needs could provide savings opportunities without jeopardizing yields. There are multiple calculators available to determine maximum returns on your fertilizer dollars. One for nitrogen—www.cornratecalc.org—helps illustrate how lower corn prices might suggest reduced application rates to enhance profitability.

Land costs such as cash rents offer another potential target to reduce expenses. Deadlines in some states may have already passed for parties to agree on payments. Regardless, open communication with the landowner is the first step to negotiating lower rates. Sharing your production costs and projected profit margins provides a strong case that any landowner understands and appreciates. In some regions of the country, shifting to a variable cash lease is gaining in popularity, resulting in return and risk-sharing between the farmer and landowner, which adjusts to market conditions through time.

In seasons when margins are marginal, resetting costs will keep you on firm financial footing regardless of the economic cycle.

CORRECTION

In our “Blurred Biologicals” story that appeared in the January 2024 issue, a statement from Pivot Bio should have stated: Pivot Bio officials say yield is just one way to measure effectiveness. Reducing N rates while maintaining yield parity is another, which the studies *did show*, they say.

The company added: The trials highlighted in this Extension paper do support what Pivot Bio has told growers—they can replace some of their synthetic nitrogen with Pivot Bio PROVEN® 40 and maintain yield.



EDITOR IN CHIEF

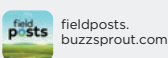
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An Easy-to-Use Nitrogen Strategy to Fit Any Farm

Nearly 80% of our atmosphere is nitrogen, but most crops can't make use of this free and unlimited resource. A new product – which uses 'biological nitrogen fixation' – looks set to change that, giving crops access to a season-long, 'always there' source of nitrogen.

Perhaps it sounds like a fancy new technology, but it's one with which most farmers will already be familiar. Biological nitrogen fixation (BNF) is the natural process that sees crops such as peas and beans – legumes – take inert nitrogen from the air to turn it into a plant-friendly form of nitrogen.

And while legumes rely on a particular bacteria, rhizobacteria, for that conversion, plant scientists have discovered another bacteria that can establish similar nitrogen-capturing relationships across a much wider variety of crops – finally bringing BNF benefits to every field and every crop type.

"It's easier to refer to the bacteria, *Gluconacetobacter diazotrophicus*, by its abbreviation Gd," says Aaron Eddy, national sales manager at Azotic Technologies, the company that's brought Gd to the market under the brand name Envita®. In fact, Azotic was founded to commercialize the Gd discovery, after scientists found the bacteria in action in South American sugarcane.

"We had a dry season in south-western Ontario with only 1 inch of rain in July and 1 inch in August. The crops were under stress and yields in the area were down to 175 bu/ac. Our results were different. Our average yield was 226 bu/ac and we saw the yield monitor go up to the 300's in the Envita strips." - Ted Gorski, Ontario

Fill the nitrogen gap

"Envita's there to fill 'the nitrogen gap'", Eddy explains. "When applied in-furrow or foliarly, the Gd bacteria colonize every cell in the plant, below and above ground, and creates a micro nitrogen production unit.

"That gives every colonized cell within the plant its own source of nitrogen, allowing it to fill any nitrogen shortfall it experiences through the season. Essentially, it never wants for more nitrogen."

"Envita is now standard practice on our farm - we know it's working because we're not seeing late season signs of nitrogen deficiency anymore - no yellowing of the leaves or translocation of the nitrogen from the leaves."
- Tyson Meeks, Idaho

In practice, Eddy says this gives growers a choice: optimize nitrogen in pursuit of maximum growth and higher yields or reduce nitrogen application while maintaining yields.

"Either way, it's a winning proposition for growers," says Eddy, "because Envita allows them to focus on nitrogen-use efficiency throughout the season."

Eddy points out that large amounts of soil-applied nitrogen are lost before crops can take it up, and soil conditions can also affect a crop's ability to absorb nitrogen.

Relieve drought stress

"Under drought conditions, there often isn't enough moisture in the soil to translocate the nitrogen – in the form of nitrates – into the plant. So even where soil nitrogen levels are theoretically high enough to satisfy a crop's demand, drought conditions can prevent that nitrogen from being accessible.

"This is what we call the available/ accessible contradiction, and it's why growers often report yellowing leaves from drought-stressed crops: nitrogen is a key component in chlorophyll. Yet if the crop's been treated with Envita, it will be able to call upon nitrogen season-long – irrespective of soil conditions."

Envita can be used on any crop and has been formulated to provide growers with effortless integration into existing programs. Compatible with leading starter fertilizers, as well as commonly used herbicide, fungicide, and insecticide mixes, Envita allows growers a choice – depending on the crop, and to suit their needs – between in-furrow or foliar application.

Six-fold return on investment

In corn, Envita's been shown to increase yields by an average of 8.4 bu/ac, providing a four-fold return on investment. That rises to six-fold in soybeans, where average yield increase from Envita-treated crops is 4.6 bu/ac.

Easy-to-use pack – and Performance Guarantee

Envita is available as a pre-mixed, ready-to-use liquid formulation in a pack that's suitable from 40 acres to an entire quarter section. The label covers typical row crops such as corn, soybeans and cereals, as well as forage crops, rice, cotton, potatoes, sugar beets and field-grown horticultural crops. Azotic anticipates strong demand for Envita from the organic sector and is awaiting its organic certification.

Demonstrating Azotic's confidence in Envita is a Performance Guarantee Program that gives growers a risk-free way to try Envita on their farm, in their production system.

For more information about stocking Envita, call 1-877-ENVITA1 or email info@envitasupport.com.

Tax Implications of Hedging Versus Speculation

More and more farmers are looking to futures markets to reduce risk. There are two techniques farmers can use: hedging and speculation. Hedging is what most people think about when they market their crop. Tax law defines hedging as a transaction in the normal course of business to minimize risk of price changes with respect to inventory or supplies. It's basically buying or selling a contract on an exchange in the normal course of business as a temporary substitute for a future cash transaction. Speculation is where you buy or sell commodities for a profit that is not a normal part of your operation.

Unfortunately, there is a blurry line between hedging and speculation that is often crossed. Many times, a farmer believes he or she is hedging but is, in fact, speculating. To be a hedge, the transaction entered into must be in the commodity the farmer is raising and within the normal range of production. The contract must be opposite to the farmer's physical position in the commodity on hand or to be acquired to be a price hedge.

However, there are many transactions that would not qualify for hedging. For example, selling a crop at harvest and buying it back on the board would rarely be considered a hedge. Marketing commodities you don't grow is not a hedge. If a farmer purchases a call option as part of a hedging strategy, it no longer qualifies as a hedge. Also, there are issues with common control entities entering into hedge transactions.

Let's talk about the tax differences between the two. Hedging is easy. Hedge gain or loss is ordinary income or loss on the farm schedule in the year the hedge is closed. If it's speculation, you must mark to market on the last day of the year (all contracts, not just closed contracts). It is reported on Form 6781, which allocates capital gains and losses to 40% short-term and 60% long-term. If there is a gain, speculation provides a better tax



GETTY IMAGES

result. But for losses, the capital loss can't offset your farming income (active business income) and might be suspended. For C corporations, there is not a separate capital gains rate, so speculation is rarely advantageous.

As you can see, the line between hedging and speculation is a blurry one, which many farmers cross. If it produces income, speculation provides better tax treatment. But, when it produces a loss, hedging always wins. ///

TOOLS FROM THE PAST

This device gets plenty of use when sitting by the fire at night. What is it?



Answer:

This is a whimsical nutcracker. Place the real nut inside the nut-shaped chamber and turn the wooden screw until it cracks the shell of the tasty treat.



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**

WHAT'S TRENDING @ DTNPF.COM



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► In a recent episode, Senior Machinery Editor Dan Miller provides highlights of ag technology displayed at CES, in Las Vegas.



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Feb. 8: WASDE Report: Todd Hultman, DTN Lead Analyst, analyzes the latest world supply and demand estimates, and provides insights on what it means for commodity prices.



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► **Rod Mauszycki**
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AG POLICY BLOG

Insights on farm legislation and regulations

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Make Room for Surprises in 2024

When Shakespeare penned the words

"Now is the winter of our discontent made glorious summer by this sun of York," they were attributed to Richard, Duke of Gloucester, trying to convince himself that things were better now with his brother, King Edward IV, on the throne. Little did Shakespeare know, the phrase "winter of discontent" could also describe modern-day grain markets and market analysts, including this one. After several decades of working in and writing about grain markets, I can say the changing seasons not only affect crop prices, they also affect analysts' price outlooks. I suspect it is true again as we venture into 2024.

Winter price outlooks are especially bearish when preceded by a record harvest, as we had for corn in the fall of 2023. The universal formula for a bearish new-crop forecast is fairly simple. Fresh from

estimates. But, analysts in winter, having no crystal ball, are stuck with trend-line yield estimates that cast a bearish tint on prices.

Even cash soybean prices trading below \$13 at the end of 2023 are reflecting bearish expectations for 2024. In soybeans' case, there was no large harvest in 2023. USDA's estimate of a 4.13-billion-bushel crop in 2023 was the lowest in four years and puts 2023–24 U.S. soybean supplies on track for their tightest finish in eight years. Even in this more bullish situation for U.S. soybeans, the early anticipation of trend-line yields in South America is keeping a lid on soybean price outlooks. The way things are currently going, Argentina's bearish price influence may be correct, but a drier-than-normal rainy season in central and northeastern Brazil will likely force USDA to reduce its record-high production estimate of 161 million metric tons, or 5.92 billion bushels.

There are also other bearish influences in winter. Price volatility often dries up for both corn and soybeans after harvest lows are made. For long stretches, watching and writing about daily markets can become an exercise in watching paint dry. Even though we intellectually know price volatility will likely pick up again in May as the reality of a new season begins, it's human to combine early bearish forecasts with inactive price behavior and reach bearish conclusions about where prices are headed in the year ahead. Somehow, we need to avoid that trap of certainty that winter doesn't deserve. We need to leave room for surprises.

I don't have a good answer for countering the foibles of being human, but it's helpful to remember, even in bearish years, markets have often been emotional enough to push corn and soybean prices roughly 18% above and below their one-year averages. Seasonally speaking, not only can the glorious sun of summer help corn and soybean prices trade higher in May and June, it sometimes shakes off the gloom of uninformed winter price outlooks.

Best wishes in 2024. ///



Following a record harvest in 2023, March corn prices have been chopping lower in November and December, weighed down by the anticipation of higher corn supplies in 2024 and the bearish bias of trend-line new-crop estimates.

experiencing harvest lows, analysts make shaky guesses about what demand will look like in the year ahead and start every new season with an expectation for trend-line yields, including South American seasons. Weather will eventually have the final say and may or may not agree with earlier



Todd Hultman
 Lead Analyst

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



Are Hopes of Interest Rate Cuts in 2024 Inflated?

The stock and bond markets finished 2023 with fireworks fueled by hope that the Federal Reserve would begin cutting interest rates as soon as March 2024.

Officials have since gone to great lengths to tamp down the most buoyant expectations, hoping to refocus the narrative on the progression of inflation and the health of the economy.

Nearly all the Fed's voting members believe the federal funds rate, which has sat at 5.25 to 5.5% since July, will be lower by the end of 2024. Yet, the meeting's minutes make clear that further increases could be necessary and that several committee members discussed the possibility "circumstances might warrant keeping the target range at its current value for longer than they currently anticipated."

Christian Lawrence, an interest rate specialist at Rabobank, falls in the latter camp. He told attendees at the DTN Ag Summit last December that he doesn't expect the first rate cut until the middle of the year. Overall, he anticipates a 75-basis-point reduction in 2024, while predicting inflation around 3%, above the Fed's official 2% target.

"The real story when it comes to inflation is energy prices," he says. Lower diesel and oil prices played a large role in cooling inflation rates in 2023, but geopolitical uncertainty has raised the risk that prices could head higher in 2024.

At the same time, the unemployment rate should slowly rise, while U.S. gross domestic product (GDP) will shrink to 0.7%. It still represents a growing economy, although at a much slower pace than in 2023.

The Fed's challenge in 2024 will be timing. Leaving rates too high for too long could cause unnecessary damage to the economy. But, rates cut too quickly could fuel more inflation.

Lawrence says forecasting 2024 is a tough job, but in the long term, he thinks interest rate expectations are pretty clear.

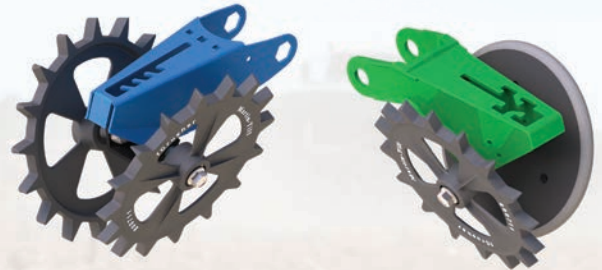
"We are not going back to zero-percent rates," he says. "We are in this new, old world that goes back to the preglobal financial crisis world. In fact, we think the low for U.S. interest rates is more likely to be 3.5%."

Scan the QR code (top right) to watch Lawrence's presentation. ///

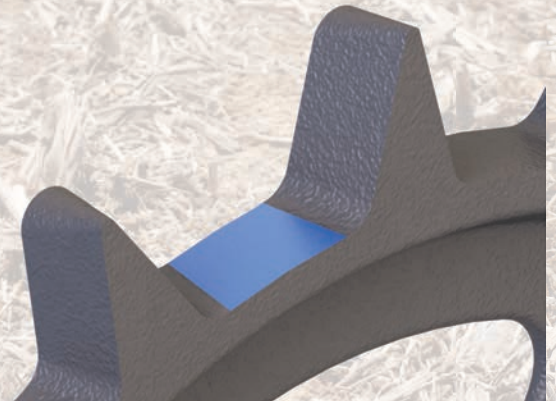
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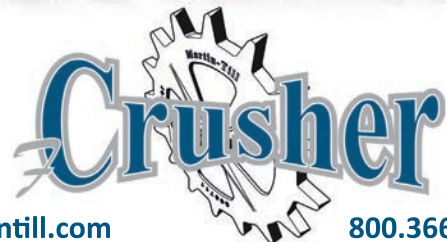
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My Grandma's Photo Albums

BY Jennifer Campbell

One of my most vivid memories is sitting in front of my grandma's secretary desk, opening the bottom drawers and pulling out her old photo albums. I could sit for hours looking through them and asking questions.

When my oldest blessed me with the grandma title, it took me back to those old photo albums. I immediately felt the urge to dig out all of my boxes full of pictures and put them in a place this new generation could enjoy.

So, I've been filling my desk drawers with pictures of her mom, my daughter, growing up and pictures of great grandparents she will have never met. There will be snapshots of our family working together on the farm, showing cattle, attending tractor pulls and county fairs. She will see trips to Disney World and wonder why we camped in a pop-up trailer during a rainstorm. I will explain that farmers travel when weather allows, and she will understand, because her dad is a farmer, too.



PHOTOS: JENNIFER CAMPBELL

It is the everyday pictures that tell a story I love most—those that make me ask questions and make me want to laugh or cry. I want to see what the person taking the photo loved about their life and the moment in time they wanted to stand still forever.

My sweet granddaughter may be too young to enjoy the pictures now, but they are out of those old boxes buried deep in the closet. They are ready for us to spend hours laughing at and telling stories over when she is ready.

PRINT THE PICTURES! Print the posed family photos, the silly pictures, the ones of kids covered in mud, the hundreds of cow and tractor scenes. Print the not-so-good, kind-of-blurry pictures, too, because sometimes, even they can trigger a memory that hugs your soul. ///



Jennifer (Jent) Campbell writes and sorts photos from a seven-generation Indiana family farm. She also writes a blog called Farm Wife Feeds (farmwifefeeds.com). Follow her on X [@plowwife](https://twitter.com/plowwife) and on the podcast [@girlstalkag](https://www.podtrac.com/podcast/girlstalkag)

Ways To Say the Words

BY Meredith Bernard

"I love you."

Three short and sweet words. Three words we hear a lot this time of year. Three words thrown around a bit flippantly other times of the year. And, perhaps three words some of us wish we used more purposefully.

One of my fondest childhood memories of my mother was her waking me every morning. She'd open the blinds, sit on my bed and sing: "You are my sunshine, my only sunshine ..."

Maybe you know the tune? Maybe you were blessed enough to have your mother sing it to you, too.

Back then, I didn't appreciate it every morning. Sometimes, I'd have rather slept a little longer and kept the light out just a few more minutes. These days, just the thought of her singing those words floods me with warm, happy memories. While my mother often told me she loved me, this sweet melody was one way she showed it to be true.

Sometimes, it's good to remember that while words definitely matter, actions can say even more. Maybe you have people in your life who aren't good at saying "I love you" but are there for you in other ways. Maybe they are showing you they love you the best they can. Maybe you've been that person to others in your life.

I'm old enough to realize that we all feel and show love differently. These days, I try hard to embrace enough grace for myself and others for the giving and receiving. We can't control how others treat us, but we can control how we receive it and even more, we can control how we treat them. If you have someone who needs to know you love them, it's not too late until it's too late ... and it's never too late to do it your own sweet way. ///



WESLEY BERNARD



Meredith Bernard writes, tends to farm and family, and chooses her words carefully from North Carolina. Follow her on social media [@thisfarmwife](https://www.instagram.com/thisfarmwife) and visit her website at thisfarmwife.com

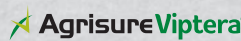
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Heal The Land



Depleted by years of crop production, farmer transitions to regenerative practices to restore soil health and returns.

□ *Seth Watkins wants to return intensively farmed ground back to a prairie system.*

Pinhook Farm is an operation in transition—as it has been since 1848, when Seth Watkins’ ancestors started farming its deep, rich, Drift Plain soils near Clarinda, in southwest Iowa. The farm, originally broken out of virgin prairie before the Civil War and immediately put into grain production, was said to be named for an oxbow lake in the area.

Watkins, who bought and inherited parts of what is now a 2,400-acre grazing operation of owned, rented and managed land, traces the history of the farm

through several cycles of full production and rest periods caused by economic conditions and farming methods that depleted the soil.

“As a young man, I watched the dissolution of many neighboring farms in our area during the 1980s and as unprecedented high interest rates forced many good producers out of business,” he recalls. “By the time I became involved in managing the farm in the 1990s, I was already convinced agriculture, as we know it, cannot survive without subsidies.”



> RETURN TO GRASS

That realization led Watkins to begin returning the farm's soils to what they had done best for thousands of years: growing grass with significantly fewer inputs than modern cash-grain business models require. Watkins, whose childhood was closely tied to family livestock, wanted to emulate the era of bison and use cattle to heal the land.

He reseeded pastures on his own land—which now includes 320 acres he and his wife, Christy, have purchased—and early in his career arranged a long-standing relationship (which still exists) with a Nebraska family to manage their cattle on land they owned in Iowa. The cattle would use the partnership family's corn

by-products available in nearby eastern Nebraska. At that time, Watkins also began managing neighboring beef cattle-grazing operations on shares.

Throughout, Watkins continued seeding his own land to grass and began using cover crops for rotational grazing. The regenerative practices also helped improve the soil's water-holding and infiltration capacity, which in turn improves the land's resiliency in times of drought.

He relies on a mix of fescue, orchardgrass, smooth brome and a mix of clover interseeded, along with native switchgrass to support 80 cows on the home farm. Watkins adds his goal is to replace some of those cow numbers with yearling stockers to improve cash-flow and ultimately maintain the same number of animals per acre. >

> A SMALLER FOOTPRINT

Today, he manages 600 beef-cow pairs on 2,400 acres, but he says that's going to change.

"I actually want my farm to get smaller," he explains, noting his goal is to someday drop the rented acres and focus on the 320 acres of his homeplace to see how diversified he can make it.

"I've bought a herd of Katahdin hair sheep to diversify because they provide a fairly stable market while also eating weeds and forbs the cattle won't eat. Potentially, they showcase an enterprise for young people to get started in agriculture with more affordable up-front costs than cattle," he says. The Katahdins produce 1.8 lambs per birth and remain productive for eight to 10 years, are parasite- and heat-resistant, and have excellent mothering ability.

He's convinced to save rural communities across the nation, it's necessary to create more—albeit smaller—farming operations rather than fewer, which he says is the result of today's ever-expanding "more-acres, bigger machinery" model.



Over the years, the 2022 Iowa Leopold Conservation Award winner has been preparing for the downsizing by eliminating gullies and ditches on the farm.

□ *Katahdin sheep play a key role in Watkins' grazing plan.*

On the most highly erodible soils and around a dozen ponds he's built and fenced off from cattle, Watkins has planted hundreds of trees as a potential future income stream from fruit and nuts, as well as timber—and a way to sequester carbon, reduce erosion and improve wildlife habitat.

"I'm trying to learn more about perennial tree crops like chestnuts, pecans and hazelnuts as potential cash and edible crops. As we continue this transition to a smaller operation, we're looking for a place for grapes and fruit trees. This isn't for me, it's for those who may be here 20 or 30 years from now," he explains.

In addition to reducing chemical use on their pastures—mainly to control ragweed which the sheep flock can handle—the Watkinses seek to increase the diversity of their pastures and the overall operation. They have plans to build a rental cabin on the farm to encourage agritourism and support lease hunting for wild turkey, pheasant and deer, which are thriving with natural habitat improvements.

Watkins says his methods have traditionally been viewed with curiosity by the more traditional farmers in the area, but he sees increasing numbers of his neighbors putting land back in USDA's Conservation Reserve Program (CRP), particularly on rough, less-productive acres.

Others are also taking notice of Watkins' pastures and alternatives to corn and soybean fields.

"We're getting lots of visits from neighbors and others interested in what we're doing as they try to understand why we farm the way we farm," he explains. "Even if they are getting bigger because of their current business model, we have farmers interested in trying to keep the wildness of the land intact where they can and realize a return on investment from that."



> FINANCIAL MINDSET

Watkins acts as a consultant to many landowners. He says a fundamental change is needed in the way many growers view revenue and return on investment (ROI), and the difference between net and gross income.

“I’m amazed at how many people don’t think that way,” he says, recalling consulting with various landowners on boosting overall productivity of their farms—sometimes by reducing the number of acres they plant.

As an example, he speaks of a neighbor who was planting an unproductive part of his farm to corn each year. Regardless of how many inputs, the top yield remained about 25 bushels per acre.

“Crop inputs are \$500 to \$600 per acre, and with 25-bushel-per-acre corn and \$5 market prices, that amounts up to a \$475 loss on each acre,” he explains. “Now, in CRP, that land would command nearly \$300 an acre; so instead of losing \$475, the grower would have a positive \$300—or a total financial improvement on poor-producing acres of \$775. The overall productivity of that farm would improve significantly by taking less-productive acres out of production.”

He says such examples come from applying geospatial examination to a landowner’s field maps. “If we see a bright red area on a yield map, and we know those are perennially low-producing, we have to ask, ‘Why are we farming this part of the field?’”

Watkins says he’s also taking that approach to Pinhook Farm by becoming much smaller and highly diversified and efficient. By doing this, he hopes to show the drive for maximum production isn’t always the guaranteed success formula many believe it to be.

“When we were first starting out, I realized I needed more forage for my cattle, but I didn’t want to put more land in production to do that. I liked to walk along the streams, near the trees, and felt much more at home there than standing in the middle of a cash-grain field. That’s when we began trying to restore the prairie system. I just had to figure out how to make it economically viable.”

The transition for the Watkins operation continues as they seek to whittle production costs and replace them with ecological solutions that show a positive ROI in each of the endeavors that will be Pinhook Farm in the future. ///



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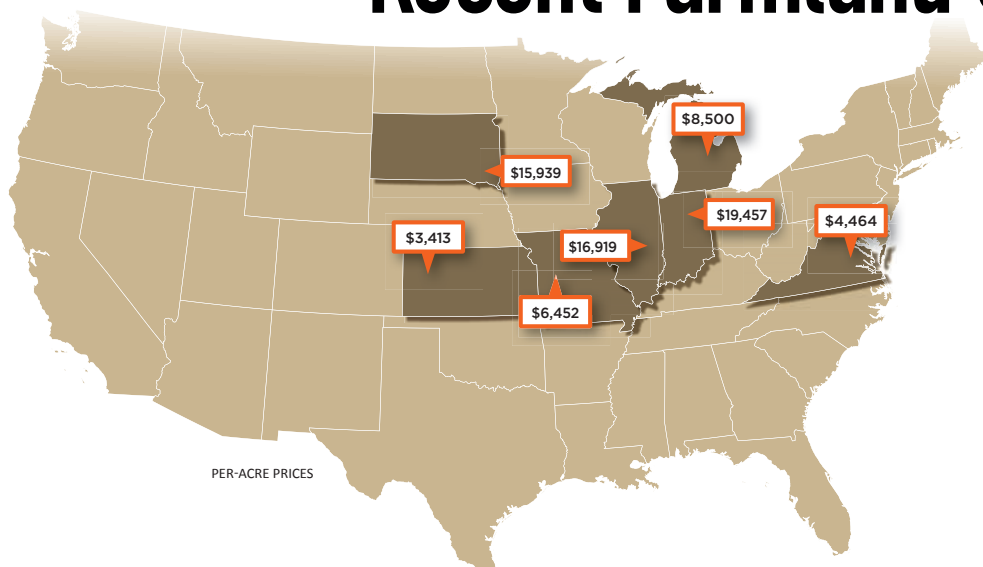
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Recent Farmland Sales



ILLINOIS, Douglas & Coles Counties.

A property totaling 853 acres divided into nine tracts sold for more than \$14.432 million, or an average of \$16,919, in an online auction. Productivity indexes ranged from 126.6 to 140.4, and over the past three years, corn yields have averaged about 220 bushels per acre (bpa), with soybeans at 70 bpa. Many of the offerings boasted tile work and/or grain storage. The two farms, located in Coles County, brought the highest (\$20,100 per acre) and lowest (\$14,250 per acre) prices of the sale. Two of the tracts in Douglas County sold for \$19,000 per acre, while the remainder sold for between \$15,650 and \$16,300 per acre. **Contact:** David Smith, Sullivan Auctioneers; sold@sullivanauctioneers.com, 844-847-2161 www.sullivanauctioneers.com

INDIANA, Howard County. A 230-acre farm sold for \$4.475 million, or an average of \$19,457 per acre. The property was auctioned in four tracts and included a home, a detached garage, a pole barn and three ancillary barns. The farm's weighted average productivity index for corn ranged from 146 to 149. **Contact:** Sam Clark, samc@halderman.com;

or Larry Jordan, lj@halderman.com; Halderman Real Estate and Farm Management; 800-424-2324 www.halderman.com

KANSAS, Sherman & Cheyenne Counties. Eight tracts of land encompassing 1,120 acres sold at public auction for \$3.822 million, or an average of \$3,413 per acre. The sale included about 305 irrigated acres, 642 dryland acres and 145 acres of pasture. Five of the tracts also included gas wells with mineral rights. The largest parcel was the only one in Cheyenne County. It included nearly 260 dryland acres and 55 acres of pasture, and sold for \$2,200 per acre. The sale's pasture-only parcel sold for \$900 per acre. A quarter section (160 acres) with more than 120 acres under irrigation and the most corn base acreage sold for \$6,400 per acre. **Contact:** Donald Hazlett, Farm and Ranch Realty Inc.; fr@frmail.com, 800-247-7863 www.farmandranchrealty.com

MICHIGAN, Clinton County. A dairy farm situated on 160 acres sold for \$3.125 million, or \$19,531 per acre. The 118 tillable acres were valued at \$8,500 per acre. The property had 19 buildings including a double-12

milking parlor, three freestall barns and two residences. **Contact:** Steve Herr, Farmers National Co.; SHerr@farmersnational.com, 810-569-5638 www.farmersnational.com

MISSOURI, Caldwell County. A 151-acre farm with corn, soybean and wheat base acres sold in a timed online auction for \$6,452 per acre, or \$974,222. The seller previously signed an easement allowing for a transmission line to be constructed across the property with a pedestal to be added in 2025. **Contact:** Rachel Tiffany, DreamDirt Farm and Ranch Real Estate and Auction; rachel@dreamdirt.com, 515-954-8063 www.dreamdirt.com

SOUTH DAKOTA, Minnehaha County. A 147-acre farm sold in two tracts for \$2.343 million, or an average of \$15,939 per acre. While the second tract included the potential for future home sites, the gently rolling, 141 cropland acres primarily consisted of silty clay loam soils. **Contact:** Chuck Sutton, Sutton Auctioneers and Land Brokers; office@suttonauction.com, 605-336-6315 www.suttonauction.com

VIRGINIA, Orange County. A 448-acre farm sold via private sale for \$2 million, or \$4,464 per acre. The property included 107 acres of pasture or grassland, 338 wooded acres, barns and a home. **Contact:** Gayle Harvey, Gayle Harvey Real Estate Inc.; gayle@gayleharveyrealestate.com, 434-220-0256 www.gayleharveyrealestate.com

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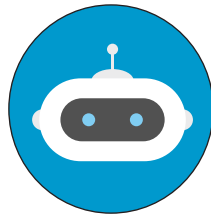
RISE OF THE ROBOTS

It was August 2021, and in a field outside of Decatur, Illinois, the future seemed at hand.

Raven Industries, at that point recently acquired by CNH Industrial, was showing off a Case IH tractor powered by the company's OmniDrive autonomous grain cart technology. It buzzed up and down the field pulling alongside, then away from, a combine, and it did it without anyone in the cab.

It wasn't the first time that brand of autonomy had been demonstrated at a major farm machinery show, but this was different, because the technology was about to go from beta testing and controlled environments to real farms with real, paying customers.

As new ag age approaches, some questions remain.



Autonomy was coming to store shelves, even for that looming harvest. Flash-forward to 2023, and Raven was again demonstrating technology outside of Decatur and, again, highlighting autonomous grain cart technology that was on the verge of going to market.

Only, this wasn't the purely driverless system of 2021 but one that would take over driving the tractor when it approached a combine, and an operator in the driver's seat gave the autonomous system the go-ahead.

A crowd packs in at the FIRA USA event, in Salinas, California, to see the WeedSpider robot, one of more than a dozen self-driving autonomous machines featured.



It was autonomous assist rather than the truly autonomous version that had been shown two years prior.

What gives?

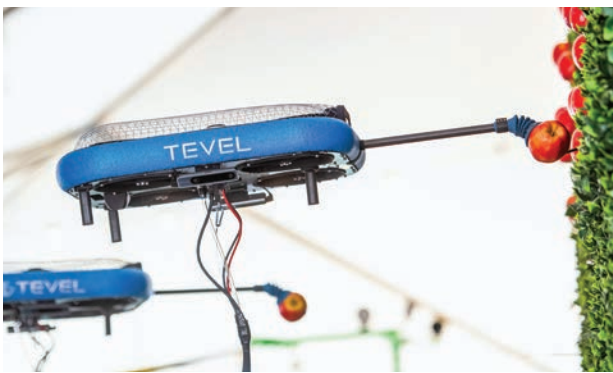
What gives is that autonomy isn't easy—not the technology itself, not the hardware that makes it happen—and it's certainly not easy getting it all in the field working comfortably with farmers.

“It's been a journey for us,” explains Eric Shuman, vice president and general manager of Raven. “It's been a learning process, weighing out some of the acceptance from customers to take that extra step. It's been a little slower adoption journey than maybe we expected.”

Raven and CNH Industrial are not alone. Some early attempts at autonomy have butted up against unexpected roadblocks, and some companies have even scaled back their ambitions, removing driverless autonomy from machines that initially had it.

Still, the tremendous potential of autonomy beckons from across the ag machinery landscape. Manufacturers ranging from the largest global-spanning corporations to the smallest startups are promising big things.

Ag seems to be on a precipice, but of what, exactly?



➤ ROBOTS EVERYWHERE

There was nearly nothing but autonomy on display in September at the FIRA USA event, in Salinas, California. Dozens of robots cut up and down demonstration plots, designed specifically for the labor-intensive specialty crops that dominate in a place like California.

Fruit-picking drones from Tevel (below left) and weed-picking machines from Stout (bottom left) and Naïo (above) are among the many autonomous robots bound for U.S. farms.

The innovation in those realms can make for an eye-popping display. Tevel, an Israeli company, for instance, has used California farm shows to demonstrate a fleet of fruit-harvesting aerial drones. Half a dozen launch tethered to a power-providing trailer, latch on to an apple, apply a small twist to separate it from the tree and return the fruit to a bin. It's apple-picking, albeit without the corn maze and hayrack ride.

“As it's picking it, we can tell you a massive amount of detail on every single piece of fruit,” says Danielle Efargan Hager, a marketing and communications manager with Tevel. “We're not picking as fast as humans can yet, but because we have a continuous energy supply, we can harvest 24 hours a day. We're more efficient.”

Efficiency is the goal, especially in areas where labor shortage is most acute and complicated.

Burro is a company that makes smaller robots not designed to take over an operation but just to help out. Versions can carry as much as 1,500 pounds and tow 5,000 pounds, hauling produce from harvesters to a collection point. Expansion packs can add mowing, scouting and even a guard dog function, patrolling a farm and alerting at the sight of an intruder.

Naïo Technologies has developed four in-field autonomous robots, ranging from small tool and crop carriers to large weeding machines capable of straddling ➤

a row of grape vines to keep them clean. It had more than 400 robots in the field.

“We started looking at what tasks we can automate in agriculture to support farmers in painful and repetitive tasks,” says Gaëtan Severac, a co-founder.

> SPEED BUMPS

But, some companies have learned hard lessons along the way about innovative machines and even opted to forget autonomy entirely, at least for now.

That’s the story for FarmWise, a manufacturer focused on a mechanical weeding machine. The company had its newest tow-behind implement at the 2023 World Ag Expo, in Tulare, California, where it seemed every third booth was showing off self-driving autonomous equipment.

There was a time FarmWise would have had a similar offering, but no more.

The value in its mechanical weeder is in the artificial intelligence, which aims to be strong enough to destroy weeds, delicate enough to preserve the crop and smart enough to know the difference between the two. The autonomy that had once been built in so it could drive itself through the field? It



was ruled overly complicated and expensive. The company is now focused on a tow-behind implement, keeping the artificial intelligence (AI) but ditching the autonomy.

“It’s much easier for a farmer to use, and it’s cheaper,” says co-founder Sébastien Boyer. “The payback period is much shorter. We believe this creates much more value than autonomous.”

The Carbon Robotics LaserWeeder was developed as a self-driving autonomous robot (above), but more recent iterations convert the tech to be a tow-behind implement.



BOTH ARE FISHING.

Carbon Robotics came to a similar conclusion with its LaserWeeder. It uses 30 150-watt carbon dioxide lasers to zap weeds, about as “Star Wars” a solution as it gets.

Moving at just 1 mph (it’s no Millennium Falcon), it can fry up to 5,000 weeds per minute. The key is the brains, a supercomputer on wheels that uses AI and fine-tuned optics to blast weeds smaller than the human eye can see.

But, it isn’t self-driving, not anymore anyway. After building such a platform, one that was still being demonstrated in 2023, the LaserWeeder team is focused on a towed implement.

“We’ll probably at some point go back to our self-driving roots, but that’s going to be a little bit of time,” says Paul Mikesell, founder and CEO. “There are some regulatory and safety hurdles, and just some issues on farms, in general. Today, there aren’t great systems for everything to talk to everything else. That’s the kind of stuff we have to work through to get to full autonomy.”

> MIDWEST MISSIONS

The reservations of some developers haven’t stopped others, and big companies and small are aiming to bring

the technology to the Midwest. Every major machinery manufacturer has been offering precision GPS and AI solutions, and they’ve all made major investments and acquisitions in the autonomy field in recent years. Those efforts are paying off in products that are on the verge of coming to market.

In John Deere’s case, recent headlines have showcased its looming fully autonomous tractor and tillage technology, already being tested on farms.

Both CNH Industrial and AGCO are putting a major emphasis on making their newest technologies retrofittable, so farmers aren’t left needing to buy all-new equipment to join the age of autonomy.

Smaller companies, too, are headed for the corn, soybean and wheat fields.

One Midwest-grown startup is Amos Power, based in Cedar Falls, Iowa. The company is building a tracked, fully autonomous, electric 80-hp tractor with an eight-hour battery life. Unlike similar ventures, there’s no driver’s seat, but there is an old-school approach.

“A lot of people think we started with the electric, but we started with stability,” says Tom Boe, company CEO. “My focus was on making sure we had the center of gravity placed properly, and we had power >

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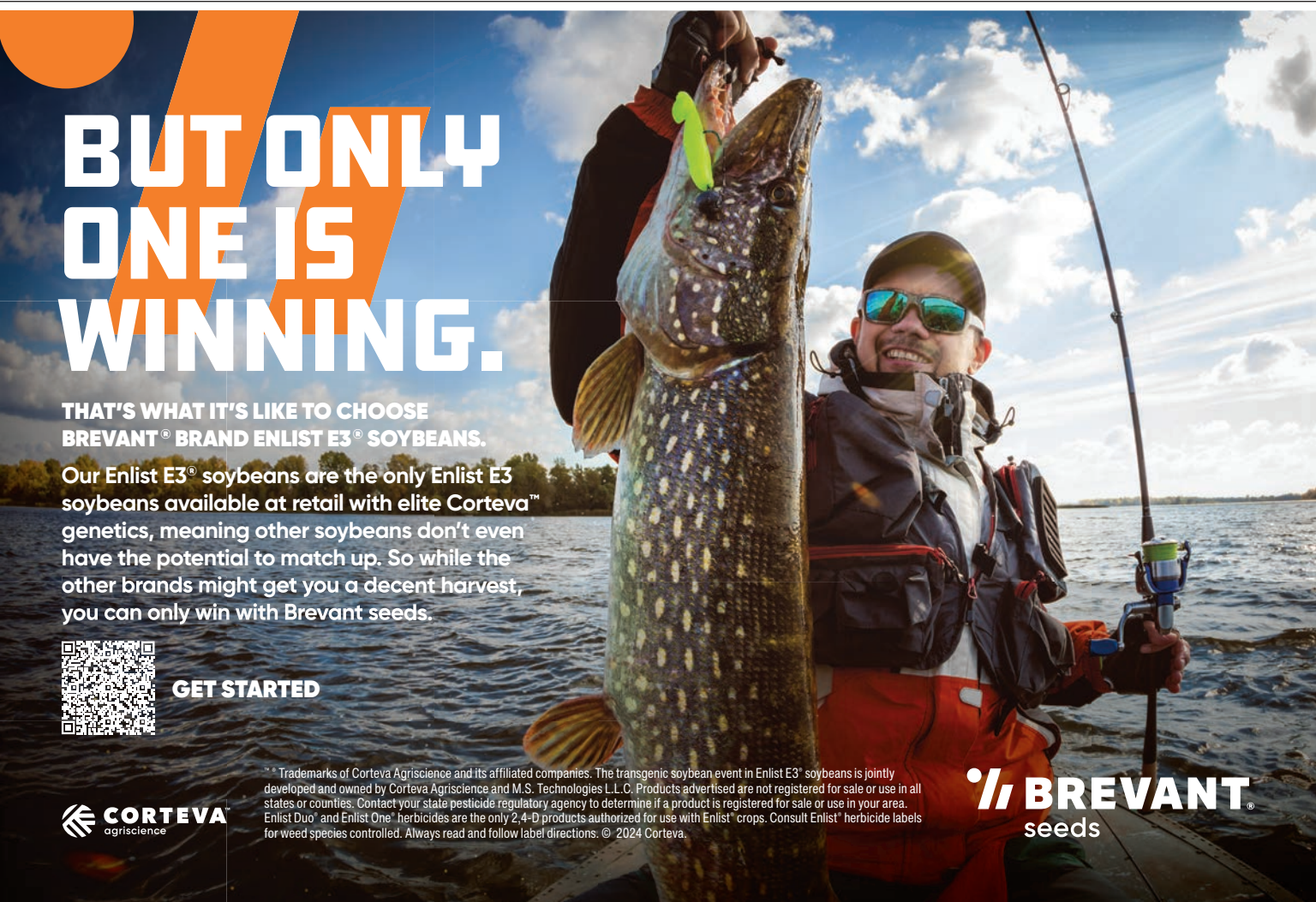
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Brady (left) and Kyle Gick, both with Solinftec, examine the company's Solix autonomous platform in an Indiana field while the machine (top right) looks on through LED eyes.

to the ground, that we had weight optimized.”

Another company, Monarch Tractor, is also in on the action. Monarch produces small autonomous, electric tractors. Through a partnership with CNH, it helped with equipment

such as the New Holland T4 Electric Power tractor but has big visions for its own line of tractors.

Carlo Mondavi, a company co-founder, sees an autonomous driving, operating tractor as having the potential to help with the farm labor crunch not just by requiring fewer farmers but by enticing more.

“I think farming is going to become more and more sexy,” Mondavi says. “The idea was that someone in a cubicle will see something about Monarch and say, ‘I want to get into farming.’ We want to make it tangible, easy to understand and relatable.”

> ALWAYS-ON ROBOTS

Solinftec, meanwhile, is more in line size- and taskwise with the

Monarch's autonomous electric tractor boasts a run time of up to 14 hours.



specialty-crop smaller robots than the companies aiming to replace tractors for fieldwork, but it's geared for the fields of the central United States and Canada.

The company's robots resemble a rolling card table. Long spindly legs stick up from the crop and are connected by a large frame with a solar panel and plenty of gadgets and sensors.

The machines, dubbed Solix, can scout, giving farmers an ever-present eye on their crop. More recent versions can spray, and some even come with a bug zapper.

The idea is for them to stay in the field throughout the growing season, spending about a week rolling up and down the rows from one end of the field to the other, spotting problems and, thanks to the spray tank and the zapper, taking care of them before they're a drag on yield.

“Look back 100 or 150 years to what your ancestors were doing. They were continuously going to the fields, maintaining that field. They were understanding the different agronomic pieces of what was happening,” says Solinftec's Taylor Wetli. “With the Solix platform, that is the concept, that agronomy should be a daily chore.”

Solinftec sees a future with always-on robots in the fields, adding in weather data and maybe soil analysis to inform farmers of conditions.

“There's just an incredible amount of agronomic data generated and insights where, ultimately, we can push yields,” Wetli says.

> GETTING COMFY

Some of the solutions ag technology companies have displayed can be stupefying. Trimble, the Colorado-based software and hardware company that, in September, formed a joint venture with AGCO, held a demonstration day at its headquarters last summer.

A robot dog wandered around the event as the company showcased the precision GPS, AI and autonomy ability in its ag and construction sectors.

What stole the show, however, was a small table set up in the middle of the hubbub. It held a child's slot car racetrack, and a woman sat nearby with determined focus and a headpiece, starting and stopping the car with only her mind.

Will farmers soon be able to think their way to a tilled field?

Even Trimble says there's nothing "soon" about anything like that.

Mind control would safely fall in "Stage 5" of autonomy, fully independent operation. But, some companies are finding that even if they could roll out that level of tech—Stage 5, not so much telepathy—customers aren't comfortable with it.

Raven has been working through what it dubs the "Path to Autonomy." Operator-assisted autonomy, such as the grain cart automation system Raven displayed last summer and is shipping to customers this year, is Stage 3.

Stage 4 would be supervised autonomy, like it demonstrated in 2021.



The tech is there, and there's belief soon the farmers will be, as well.

"It's going to be a slow adoption curve. It's going to take time for customers to get the confidence. They need to see it to believe it, see enough repetition to be comfortable with a fully driverless system," Raven's Shuman says. "There's not going to be a light-switch moment. It's going to be a continuation of our working with farmers." ///

The Amos Power autonomous electric tractor was developed in Iowa and aims to give a boost to Midwest farmers.



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Farmland Holds Value in 2024

Real estate experts expect prices to remain near record levels.

Agriculture's premiere business conference kicked off in early December. "Fortify Your Financial Foundation" was the theme for the 17th annual DTN Ag Summit, presented in a virtual format. Speakers focused on commodity markets, weather, financial issues, ag technology and more. One of the most popular sessions was a panel on farmland values. Following is a summary of comments from the panelists.

Good yields, strong 2023 farm incomes, a shortage of farmland for sale and moderating interest rates have farm real estate experts optimistic about keeping land values at current high levels heading into 2024.

At DTN's virtual Ag Summit, farmland specialists were in general agreement about steady farmland values for 2024.

"We had some exceptional yields this fall [2023]," says Howard Halderman, president of Halderman Farm Management. The business is based in Wabash, Indiana, and oversees farmland assets in 22 states. "That, combined with the potential for declining interest rates layered on top of soybean prices hanging in there at a high level, I think we're in for steady land values at these high levels through 2024," he explains.

In the Delta, where land values haven't risen as fast as in the Corn Belt the past three years, it's still a seller's market, points out Jeremy Stephens, partner and managing broker for National Land Realty, in Little Rock, Arkansas. Land-buying interest remains strong for top-quality cropland and marginal cropland with a high recreational value influenced by duck hunting.

From 2020 to 2023, farmland values jumped 30 to 40% in Illinois, Indiana and Iowa, according to USDA. During that same period, cropland in Arkansas, Louisiana and Mississippi increased only 10 to 11%.

That's part of why the Delta still attracts investment buyers. David Martin, managing director of US Agriculture, a farmland investment adviser based in Indianapolis, Indiana, told Ag Summit attendees that his firm is looking for investments in the Delta region during the next three to five years.

"You can buy Arkansas farmland for \$6,000 per acre, which is about half of what Midwest farm values are today. But, you can achieve 80 to 90% of



the corn and soy yields at half the cost, especially given some of the soy dynamics that we're seeing in the marketplace developing with renewable fuels," Martin explains.

In 2022, farmland values hit all-time highs, both nominally and adjusted for inflation, Halderman says. Indiana uses a soil productivity scale called weighted average productivity index (WAPI). According to cropland sales by Halderman Farm Management, land prices based on the index have been hanging around \$80 to \$90 per corn bushel, taking the sales price divided by the estimated corn bushels that soil averages.

"It's now on the low end of that, around \$80 in 2023," he continues. So, while land values are not making new record highs, the market still has underlying support.

> HIGHER INTEREST RATES WEIGH ON SALES

High interest rates—7% for term debt and 8 to 10% for operating loans—negatively affect the farmland market, says Martin, whose investment company owns some 60 farms in 14 states producing 20 different crops. But, the effect isn't that immediate.

“Mortgage debt is long term, and most farm owners have locked in low interest rates. So, only the new debt is experiencing higher interest rates,” Halderman advises.

The last time rates shot higher like this was in the 1980s, when farm operations paid an average of 35 cents in interest expense for every \$1 earned in farming, he points out. Today, that's only 12 to 15 cents in interest expense for every dollar earned in farming.



Howard Halderman



Jeremy Stephens

A study by Iowa State University shows as much as 84% of Iowa farmland has no mortgage debt. “That’s probably consistent around the Corn Belt,” he adds.

Christian Lawrence, a cross-asset strategist focusing on currencies and interest rates for Rabobank, expects the Federal Reserve will cut interest rates by 75 basis points in 2024, although it might not start lowering rates as quickly as some might want. Lawrence, also a speaker at the DTN Ag Summit, shared his insights on possible future actions by the Federal Reserve.

“Recently, we’ve seen the market get very optimistic that the Fed is going to start cutting rates,” he says in his presentation, adding that many are calling for the first cut in March. Instead, he thinks the Fed will start taking action to lower rates in the middle of next year, citing “sticky” inflation pressures and forecasts that unemployment will be slow to rise even if the economy slows.

But, there’s one point he wants to make clear: Rates are not returning to zero. He anticipates a return to the pre-Great Recession standard, something more like 3.5%. While that’s still below current rates, it will mean that future farmland buyers will need to budget higher interest expenses into their offers.

> CASH RENTS OUTLOOK

“Cash rents generally lag land values,” Halderman says. Even if land values decline, rents don’t go down as quickly, and when land values climb, cash rents rise more slowly. “At Halderman, we manage 700 farms, and our rents are still experiencing a lot of strength going into 2024,” he says.

Stephens says cash rents in the Delta are around \$225 per acre. “We’ve seen \$250 to \$275 per acre with some rents pushing \$300. But, for the most part, the top for the best cropland is \$250 per acre. Flex rents for quality land are generally \$200 cash rent plus a flex,” he adds. For B and C cropland, cash rents range from \$150 to \$175 per acre.

> WATCH THESE FACTORS

On the plus side, fertilizer, pesticide and energy costs continue to come down, making profit and loss look better for 2024 row crops, Martin notes. And, the general low supply of farmland coming to the market for sale props up land values.

What would cause land values to drop? “If we saw \$4.25-per-bushel corn for an extended period or soybean prices decline to \$11 per bushel, farm incomes would take a hit, and that would pressure land values,” Halderman explains. The University of Illinois estimated 2024 corn/soybean budgets for the state’s farmers at \$5-per-bushel breakeven for corn and \$12-per-bushel breakeven for soybeans.

He says that commodity prices could sink if South America has a large crop, geopolitical problems worsen, and the global economy slows down. “Then you could see a 10 to 15% decline in land values.”

If there is not a supply shock, Martin anticipates neutral appreciation rates for the next couple of years in farmland values. ///

To view the entire panel presentation on land values, scan the QR code.



THORNY

MANAGEMENT ISSUES In Family Business

Family farms and ranches are similar to non-family agriculture companies. Both kinds of businesses offer a product or service to the marketplace. They use capital, buy inputs, manage labor, run equipment, deal with vendors and serve customers. Furthermore, most business principles are the same regardless of family or non-family ownership. Taking care of the customer, treating team members well and managing working capital are principles found in almost any kind of successful business.

When it comes to managing a business, however, family businesses often struggle to discuss several key issues, including compensation, individual performance and transitions. Indeed, the desire for family harmony, assumptions about people's intentions and the habit of taking family members for granted cause families to avoid some of the most important topics in any business. Consider the following:

Compensation. In a family farm or ranch, regular pay for family members is often approached conservatively. Since the family members are the owners, they get the profits, and they understand that if they don't make money, any extra compensation is creating a loss. Thus, the family is often expected to contribute their labor, or "sweat equity," to the enterprise. This can lead to below-market compensation with a future promise of reward in the form of profits or ownership.

The problem is that the future reward is seldom established in writing, as it would be with a non-family manager. Someone not related to you would be wary of only a verbal promise, but it is assumed a family member will stick around. Without specificity, and when sweat equity doesn't materialize in the way or amount or time frame expected by the person who made the contribution of labor, feelings of wasted time or effort, or even shock, are pervasive. The family relationship may become strained or permanently damaged.

Additionally, it seems difficult to acknowledge different levels of family member contribution to the business, and the result is often that family members are paid equally. Money is seen as a proxy for love or recognition, and it doesn't feel good to be loved less (paid less) than another sibling. Many parents struggle with the idea that by differentiating compensation, they are signaling one family member has more, or less, value than another.

Performance. In most positions held by non-family members, there is a clear expectation of performance often embodied in a job description or evaluation form, and there are clear consequences for not meeting those standards.

But, for family members who don't perform, giving them an ultimatum or firing them feels like a threat to their family membership. The accountability for poor performance—termination—isn't a true reality for a family member, so bad behavior goes unpunished. This lowers the morale of the entire organization.

Transitions. Family commitment is a strength, setting many family businesses apart from their non-family competitors. But, every strength taken to an extreme becomes a weakness. Family members can be so committed, they won't give up their role, pass on their knowledge or encourage other people to learn and grow, which is terribly frustrating for younger managers.

Or, the senior generation member may delay any transitional activity by annually announcing he or she will slow down "in about five years." This also causes frustration and bottlenecks, and puts the business at risk, as so much knowledge and responsibility are tied up in the generation approaching retirement.

I often suggest that the key to being a good family business is not acting like one. When it comes to compensation, individual performance and transitions, try to act as if no one is related. It will help you act more professionally, increase respect and ultimately be a better family business. ///



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

THE CASE FOR OVERLAPPING RESIDUALS.

Weed management in soybeans is a race to canopy closure. Preemergence control of early-season broadleaf weeds and grasses helps keep your rows clean when it counts. Authority[®] Supreme, Authority[®] Edge and Anthem[®] MAXX herbicides are the keys to help you get there.

Combining the two best-in-class active ingredients, pyroxasulfone and sulfentrazone, Authority Supreme and Authority Edge herbicides provide the longest residual activity for your preemergence application. This helps keep your fields as weed free as possible until you're ready for a postemergence application of Anthem[®] MAXX herbicide 14–28 days later.

Pyroxasulfone is a key active ingredient in Authority Supreme, Authority Edge and Anthem MAXX herbicide. It has the longest lasting residual of any Group 15 herbicide, persisting 50% longer in the soil. This gives you an advantage against troublesome weed species like Palmer amaranth and waterhemp, which can germinate throughout the growing season.

Sulfentrazone is excellent against a broad spectrum of weeds as well, including morningglory spp., kochia, lambsquarters and redroot pigweed. And its soil half-life is 70.8 days, nearly double other Group 14 options on the market.

Increased value, increased yield potential

A preemergence application of Authority Supreme or Authority Edge herbicide followed by a postemergence application of Anthem MAXX herbicide:

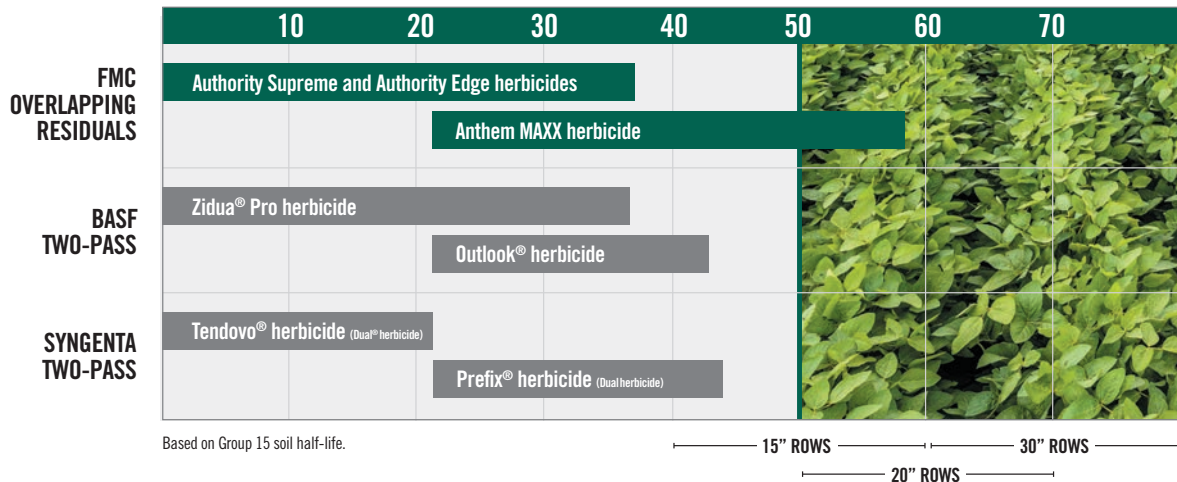
- Yields 8.3 more bushels than a single-pass herbicide program.
- Amounts to less weed escapes, less weed seed and more value on every acre.

See the results in your fields.

When it comes to keeping your soybean fields clean until canopy closure, nobody can compete with the long-lasting overlapping residuals program from FMC. See the chart below.

DAYS TO CANOPY CLOSURE

For best results, apply second pass at 21-28 days.



In-season application of residual products should be tank mixed with foliar active herbicides to address emerged weeds and provide additional modes of action for proper stewardship.

To learn more about getting your soybean season from planting to canopy closure with the FMC overlapping residuals program, talk to your local FMC retailer or visit LOCKIN.AG.FMC.COM.



Scan the code to access the free Residual Recharge e-book.



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

BVD Confusion

Q *The more I read about BVD, the more confused I get. What is the difference between BVD and BVD PI? What kind of disease does it cause? How important is it?*

A Bovine viral diarrhea virus is a common, complex and confusing disease of cattle. Some feel it may be the costliest disease in cattle. The name is certainly confusing since many, if not most, cases do not have diarrhea. Many cases are subclinical, meaning cattle do not appear to be sick or display mild signs. The virus suppresses the immune system, opening the door for other diseases, most commonly those that cause reproductive and respiratory issues. Classic BVDV presents with fever, discharge from the nose and eyes, erosions of the muzzle and in the mouth, and in some cases severe diarrhea.



JIM PATRICO

BVDV's most significant effect occurs on the developing fetus. Abortions can occur at any stage of gestation, from inapparent early embryo death to stillbirths at term. Even subclinically infected cows can abort, and it may occur months after infection.

If a cow is infected between approximately 40 to 120 days and does not abort, the calf may be born with a unique condition known as persistent infection (BVD PI). The calf's developing immune system does not recognize the virus as dangerous, accepts it as "normal" and will never mount an immune response to clear the virus from its body. It will be a permanent carrier and continuously shed large amounts of the virus in tears, nasal discharge, saliva, urine and feces. These calves become a major source

□ *Cattle producers can have ongoing problems if bovine viral diarrhea is in their herd. Vaccination and testing can help prevent these issues.*

of infection within the herd, at sale barns, in stocker operations and in the feedlot. BVD PI calves can shed a thousand times more viral particles than transiently infected non-PI animals. If a PI is infected with the cytopathogenic strain of BVD, a severe and often fatal bloody diarrhea known as mucosal disease can occur.

Producers and the herd veterinarian need to create a comprehensive vaccination program to prevent BVD. Many vaccines are labeled to provide fetal protection, which means if the cow is transiently infected with BVDV, the developing calf will be protected. A good biosecurity program is always essential to prevent exposure of the herd to disease. Purchased cattle should be from a well-managed herd and be quarantined for three to four weeks before introducing them into the herd.

Testing can be very helpful in finding and removing any PIs from the herd. Since a PI cow will always have a PI calf, testing all calves, bulls and any cows that did not calve is an effective herd-screening method. A tissue sampling in a special solution is required and can be obtained by ear-notching or a special gum that collects the sample into a small prenumbered tube.

Reflections From Ken

For Christmas this year, my wife gave me a notebook of every column I have written for *Progressive Farmer* over the last 22 years. It is an amazing and treasured present, and a whole lot of questions and answers. I appreciate all the readers who wrote or emailed questions, and all the readers of the magazine. I hope this column has been helpful.

As I look back over the years, I owe huge thanks to several people who helped with this column. Jack Odle, former editor, and Joe Link, former managing editor, gave me this opportunity. For the past several years, Vicki Myers has been in charge of making sure I get questions and answers in on time and editing my responses to make them much better and shorter than what I sent. Vicki retired from ag journalism at the end of 2023 to pursue a new career. Thank you, Vicki, for all you did to help me and the magazine over the years.

I would like to welcome Jennifer Carrico to *Progressive Farmer* as the new Senior Livestock Editor and look forward to working with her for many years. ///

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.

“96% of Burning, Tingling Leg & Foot Pain Rubbed Out On the *First Dose* of My New Remedy Reveals Harvard Doctor”

Never in the world did I think a Harvard doctor would say my remedy is the only one that worked for his 96% of patients. All I did was create a natural remedy I hoped would help my wife’s foot and leg pain.

By Alex Collins, Inventor

I’m in 7th heaven after reading this...! Harvard trained Dr Eric Wood says, “Now I finally have a natural solution I can recommend to my patients who suffer from leg and foot problems with pain. I’m delighted because previous treatments were not effective, but Neuroflo worked for *every one* of my patients without side effects.”

I created Neuroflo and I’m thrilled to tell you about it! My remedy doesn’t cost a lot, you don’t need a prescription, and 6 blue-chip, clinical studies *verified* its effectiveness. Imagine for a moment if you could...

- Go to sleep and wake up without throbbing pain
- Sooth the tiny nerves in your extremities that *directly* cause pain
- Get the feeling back in your feet, hands and legs
- Increase your blood flow to your hands, legs and feet
- Improve your finger strength—open any jar in seconds

MY SECRET: Science UNLOCKED The Amazing Power Plants Have to Stay Healthy and Repair Themselves

Plants are the healthiest life forms in the world. They stay this way without medicines of any kind. Finally understanding how they repair themselves helped scientists develop this all-natural, self-healing

treatments for you and me. We have this miracle from plant life to thank for it.

This God-given gift from nature can now help us all. You can now find this breakthrough “Plant Secret” solution in a new formula under the brand name Neuroflo. The all-natural ingredients in this breakthrough have been shown in six blue-chip, placebo-controlled medical studies involving 543 participants to be effective and safe.

Your Neuropathy, Swollen Legs and Feet, Edema, Chronic Venous Insufficiency (CVI) and Other Problems Can Now Be Conquered

Now you *don’t* need drugs with horrible side-effects. The 8 scientifically selected, all-natural ingredients in Neuroflo work by helping to repair your most distressed cells—just like plants do—helping to strengthen your arteries and increase strong blood flow.

The ingredients in Neuroflo improve your circulation so rich oxygen-filled blood gets to your damaged nerves and repairs them. This almost eliminates your pain. Oxygen-starved nerves in your hands, legs and feet is the major cause of your painful condition.

You’ll quickly experience a new sense of wellbeing when your hands, legs and feet become more nimble and warmer, letting you *feel* them again. Even the *slightest* decrease in blood flow sets off the stinging, aching, swelling and coldness.

“A Stunning 95% Reduction in LEG SWELLING, Verified in Clinical Study”

Says Dove Medical Press & Development and Therapy



“God bless this remedy.”

...meaning, discomfort, water retention, leg swelling, tiredness and circulation improved in 95% of test subjects.

Swollen legs are a warning sign. They mean blood and fluid is forced out of the blood vessels into the surrounding tissue. This causes non-stop pain. This is where Neuroflo’s active ingredient is such a big help.

Life Can Be a Lot of Fun Again Once Your Aches and Pains Are Gone

What if I told you that it *really* is possible to make every day the kind of day you can celebrate your life and good health?

By increasing blood flow through your body...banishing the throbbing pain in your hands, legs and feet...staying in a good mood...retaining more energy and healthy muscle function...and kick-up-your-heels vitality...It’s not too much to ask with Neuroflo. Here’s your next step...

I’m proud to say that **this is the official release of NeuroFlo for Progressive Farmer readers. Everyone who calls within the next 10 days will receive up to 50% OFF their first order.** A toll-free hotline number has been set up for local readers to call for this savings of up to 50% OFF. The number will be open starting at 7:00 am today and only for the next 10 days.

All you have to do is CALL TOLL-FREE 1-877-402-4301 and provide the operator with the special discount approval code: **NEF158.** It works for you or it FREE.

Very Important: Due to Neuroflo’s popularity and media exposure on ABC, CBS and FOX NEWS, please give us a call *right now.* Our friendly operators are standing by. We’re open 7 days a week, 24 hours a day.

Those who miss the 10-day deadline for up to 50% OFF will have to pay more for Neuroflo. **Act now—this offer may NOT be repeated!**

Meet My 8 Magical Ingredients Could Take Away Your Persistent, Stinging Pain That Never Seems to Go Away...

These 8 ingredients were chosen for their clinically-tested power to help support your cells in the same full-force way nature does for plants:

- | | |
|---------------------|---------------------------|
| 1. Ruscus aculeatus | 6. Aesculus hippocastanum |
| 2. Diosim | |
| 3. Crataegus | 7. Ginger root |
| 4. L-arginine | 8. Cayenne pepper |
| 5. Niacin | |

Harvard-trained doctor says it “works for every one of my patients.”



Making the Cut

When cutting hay with a sickle cutter, whether it's a sickle bar like a New Holland 451 or Haybine 1465 with a reel, we have a problem with hay building up on the end of the sickle. This causes the end of the machine to drag down some of the uncut standing hay, leaving a small streak of uncut hay. We like to use the sickle cutter on alfalfa because it seems to allow the hay to recover quicker than with a disc cutter. What can we do to eliminate the hay building up on the end of the sickle bars?



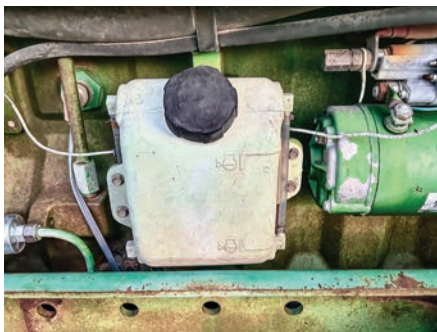
PHOTOS: STEVE THOMPSON

Steve: It's well-known that the shear cut of a sickle cutter is cleaner than an impact cut of a disc cutter, especially if the blades on the disc cutter are not sharp. But, yes, in certain crops, the sickle likes to drag up on the end.

There are a few things to help with this problem. The first thing you can do is make sure the sickle sections are sharp. The next thing is to check and make sure the ledger plates near the end are sharp (including the fixed one on the outer casting). Another area that needs to be checked is the special hold-down clip on the end, which is shimmed to allow only slight clearance between it and the sections near the end. But, to assure a clean end on the bars, install a "triplet" as the last section on the sickle (see photo above). They are available at most hay mower suppliers and will rivet or bolt to your existing holes in the sickle.

I have a 7800 John Deere tractor that has a plastic container on the left side of the engine that looks like it has coolant in it. When the tractor is cold, it has very little coolant in sight. But, after the engine gets out in the field and is working, it fills about halfway up. Is this spare coolant? What makes it come in and go out?

Steve: Yes, that is coolant you see in that reservoir (see photo). The coolant reservoir's function allows your radiator and engine to remain full of coolant, even after the engine's heat creates a gas



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

Please include your phone number.

in the cooling system, expanding the total volume of the liquid space. As the coolant passes through the radiator, the gas portion converts back to a liquid when it gives off its heat. As the coolant gets hotter, the volume of gas and liquid is larger than the volume of the cooling system, and it needs a place to go. So, it opens the pressure cap on the radiator and pushes the extra coolant into the reservoir.

The volume of the reservoir stays constant as long as the engine is hot, but when it cools, negative pressure pulls the coolant in the reservoir back into the radiator until it's completely full. The coolant being pressurized in the radiator is why it's not safe to open a hot radiator. Older cooling systems without a reservoir, when completely filled, just pushed out the excess amount through a drain hose.

What is the firing order of an 8N Ford tractor with a front distributor? Is it 1 2 3 4? And, does the rotor turn clockwise or counterclockwise?

Steve: No, the firing order of the 8N is 1 2 4 3. The rotor on the front distributor turns counterclockwise, looking at it from the front of the engine. ///

SAFETY TIP

Operating a portable grinder with a cutting disc can be very dangerous. A cutting disc is not a grinding disc, although both should never be used without a full-face safety shield and welding gloves. Shown in this photo is a small hand-held grinder with no guard and a worn-out disc attached compared to a new disc. Grinding discs and cutting discs can separate, and when they do, the broken pieces can crawl up the back of your hands and arms, not to mention put out an eye. We use this same safety equipment when we operate a chop saw. These discs can also explode under certain conditions.





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We create chemistry

DON'T LEAVE YOUR SOYBEANS VULNERABLE

Waterhemp and Palmer grow 2.5 times faster than soybeans, and each of these pigweed plants can produce at least 600,000 seeds¹. Are your soybeans protected? Ensure control from planting all the way through canopy. Ask your BASF rep about establishing a layered residual program.



Zidua PRO

Herbicide



Zidua SC

Herbicide

Outlook

Herbicide

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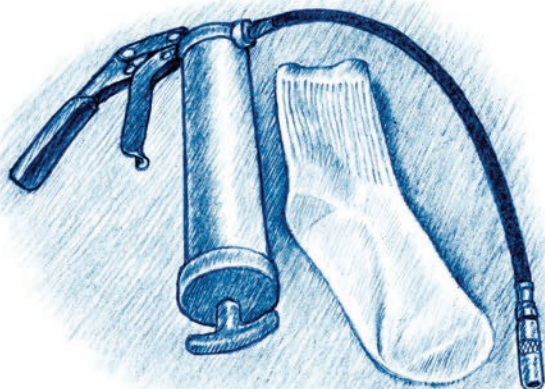
¹Palmer amaranth management in soybeans. United Soybean Board. https://weedsience.missouri.edu/publications/50737_FINAL_FactSheet_PalmerAmaranth.pdf 2013.

Handy Devices

Easy-to-build ideas make your work easier.

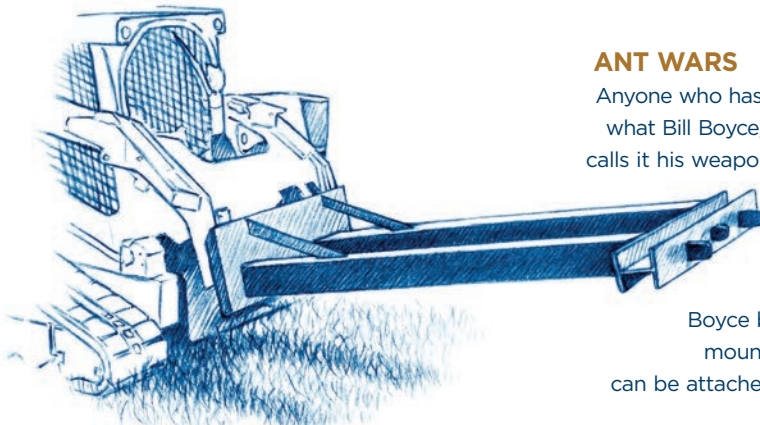
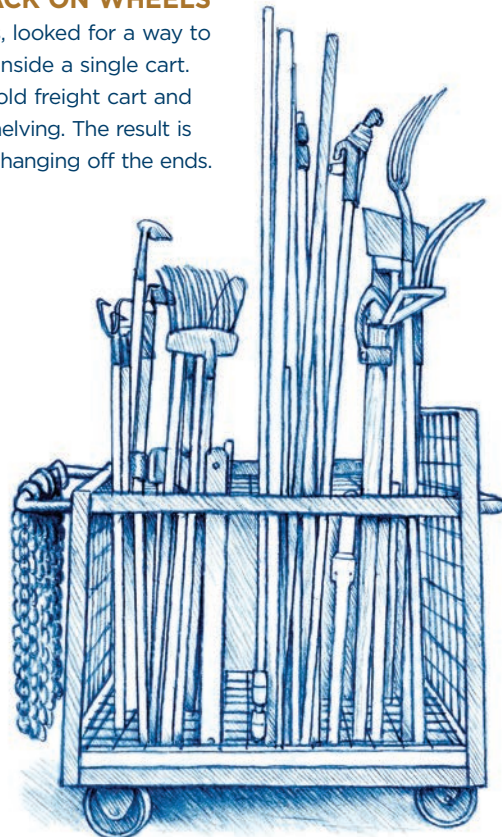
RACK ON WHEELS

After building a new shop, Arnold Harp, Gentry, Arkansas, looked for a way to organize his handled tools, chains and other loose items inside a single cart. He found the answer at an auction. There, he bought an old freight cart and several 4- x 6-foot wire panels once used as warehouse shelving. The result is a cart that holds 62 handled tools and 85 individual items hanging off the ends.



GREASE GUN SOCK

It's a simple idea, says James Terry Shaw, Jetersville, Virginia. Slide an old tube sock over your grease gun with the handle out. Instead of grease from the gun sticking to your hands, grease on the hose or tube is contained by the inside of the sock. Replace, as needed.



ANT WARS

Anyone who has ever battled fire ants understands what Bill Boyce, Texarkana, Arkansas, has built. He calls it his weapon of war against the stinging ants.

This is a mound pusher, he explains, built especially to disrupt ant communities and set up below and around wire fences.

Boyce built this with a 5-inch I beam and mounted it on a quick-attach plate that can be attached to a tractor or skid-steer loader.

CASH FOR YOUR IDEAS: Share with us your project ideas, and we'll pay you \$400 upon publication. To submit a Handy Device, please send a complete explanation of your idea and clear photographs or detailed drawings. We'd like to see a video, too, but that's optional. If you've published your idea on social media (Twitter, Instagram, Facebook), send us the link. With each entry, include your name, address and telephone number. Send Handy Device entries to: dan.miller@dtm.com. Sorry, but we cannot acknowledge submissions or return photographs, drawings or documentation.



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DEKALB® BRAND HAS HAD MORE NATIONAL
WINNERS IN THE NCGA YIELD CONTEST THAN
ANY OTHER SEED BRAND.**

- | | | | |
|---|--|--|--|
| <p>3RD NAAMAN CULLERS (MO)
363.52 Bu/A
DKC68-35RIB BRAND BLEND
CONVENTIONAL IRRIGATED CLASS</p> | <p>1ST KEVIN KALB (IN)
425.86 Bu/A
DKC68-35RIB BRAND BLEND
CONVENTIONAL NON-IRRIGATED CLASS</p> | <p>1ST TEMPLE RHODES (MD)
375.68 Bu/A
DKC63-91RIB BRAND BLEND
CONVENTIONAL IRRIGATED CLASS</p> | <p>2ND TROY UPHOFF (IL)
362.5 Bu/A
DKC64-21RIB BRAND BLEND
CONVENTIONAL NON-IRRIGATED CLASS</p> |
| <p>1ST HEATH CUTRELL (VA)
396.12 Bu/A
DKC68-35RIB BRAND BLEND
CONVENTIONAL NON-IRRIGATED CLASS</p> | <p>1ST RHYLAN KALB (IN)
363.12 Bu/A
DKC66-06RIB BRAND BLEND
STRIP-TILL, MINIMUM-TILL, MULCH-TILL,
RIDGE-TILL CLASS NON-IRRIGATED CLASS</p> | <p>3RD JULIA RIGDON (MD)
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DKC59-82RIB BRAND BLEND
NO-TILL NON-IRRIGATED CLASS</p> | <p>2ND STEVE VAN BOGAERT (WI)
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DKC63-91RIB BRAND BLEND
NO-TILL NON-IRRIGATED CLASS</p> |
| <p>3RD COREY FARRENS (OH)
340.47 Bu/A
DKC63-91RIB BRAND BLEND
CONVENTIONAL NON-IRRIGATED CLASS</p> | <p>1ST SHAWN KALB (IN)
399.78 Bu/A
DKC66-06RIB BRAND BLEND
NO-TILL NON-IRRIGATED CLASS</p> | <p>3RD TRENT UPHOFF (IL)
324.84 Bu/A
DKC65-84RIB BRAND BLEND
NO-TILL NON-IRRIGATED CLASS</p> | <p>2ND JOSHUA WATSON (TN)
344.91 Bu/A
DKC67-44RIB BRAND BLEND
CONVENTIONAL NON-IRRIGATED CLASS</p> |
| <p>2ND ALEX HARRELL (GA)
401.94 Bu/A
DKC68-95 BRAND
STRIP-TILL, MINIMUM-TILL, MULCH-TILL,
RIDGE-TILL IRRIGATED CLASS</p> | <p>3RD JEFF KOELZER (KS)
322.37 Bu/A
DKC68-35RIB BRAND BLEND
STRIP-TILL, MINIMUM-TILL, MULCH-TILL,
RIDGE-TILL NON-IRRIGATED CLASS</p> | <p>CONGRATULATIONS TO THE DEKALB
FARMERS WHO PLACED NATIONALLY
IN THE 2023 NCGA YIELD CONTEST.</p>  | |
| <p>3RD DON JACKSON (OH)
324.7 Bu/A
DKC66-06RIB BRAND BLEND
STRIP-TILL, MINIMUM-TILL, MULCH-TILL,
RIDGE-TILL CLASS NON-IRRIGATED CLASS</p> | <p>2ND JR NEWCOMB (VA)
366.26 Bu/A
DKC68-35RIB BRAND BLEND
CONVENTIONAL IRRIGATED CLASS</p> | | |
| <p>2ND JAMES JUSTICE (WV)
324.9 Bu/A
DKC62-08 BRAND
NO-TILL NON-IRRIGATED CLASS</p> | <p>1ST KELLY PADGETT (KY)
337.32 Bu/A
DKC68-35RIB BRAND BLEND
NO-TILL NON-IRRIGATED CLASS</p> | | |

Performance may vary, from location to location and from year to year, as local growing, soil and environmental conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on their growing environment. The recommendations in this material are based upon trial observations and feedback received from a limited number of growers and growing environments. These recommendations should be considered as one reference point and should not be substituted for the professional opinion of agronomists, entomologists or other relevant experts evaluating specific conditions. **ALWAYS READ AND FOLLOW IRM, WHERE APPLICABLE, GRAIN MARKETING AND ALL OTHER STEWARDSHIP PRACTICES AND PESTICIDE LABEL DIRECTIONS.** Bayer, Bayer Cross and DEKALB and Design® are registered trademarks of Bayer Group. All other trademarks are the property of their respective owners. ©2024 Bayer Group. All Rights Reserved.



Is LRP Affecting The Cattle Market?

JENNIFER CARRICO

Recent price fluctuations raise questions about whether Livestock Risk Protection plays a role.

The fourth quarter of 2023 brought considerable price fluctuation for both feeder cattle and fat cattle, leading many to question if a risk-management tool was behind the abrupt changes. For some cattle producers, Livestock Risk Protection (LRP) helped save their operations, while others may be playing the system on both sides.

An LRP policy is set up to reduce losses from price declines. But, recent changes have added flexibility and incentive to use it, similarly to how crop farmers buy crop insurance to insure against a declining market.

Northwest Iowa farmer Craig Moss began using LRP in his hog operation in 2008. After the program was

overhauled in 2019, he used it more and eventually took out policies on the cattle side of his business.

“The guy who markets our hogs wanted to meet with us and our lender at the same time to discuss using LRP. That’s how we got into using it in our hogs and now in our cattle, too,” he says. For the past two years, Moss has used LRP mostly for basis management on cattle. He says it has worked especially well when the actual ending value is below the coverage price. However, using the LRP program does not guarantee a profit if the livestock is not insured at a high enough coverage price.

“Our lender and us have an understanding if we are going to use a lot of futures and options, we need to have a structured line of credit for that. LRP gave us the option to use it as margin management to guarantee ourselves on our fat cattle. It helps ensure we can see where we will be in the end,” Moss explains.

> REASONS FOR MARKET DECLINE

Lance Zimmerman, senior beef and cattle market analyst for Rabobank, points out prices in the live and feeder cattle futures markets have gone through a significant correction lower over the last several months. “Looking specifically at the April 2024 live cattle contract, prices have declined \$34 per cwt. from the September highs to the recent lows. That is a \$500-per-head decline in prices in roughly three months (end of September through the end of November). That magnitude of a price move causes all participants to take pause and assess what is happening in the marketplace,” he says.

Zimmerman adds risk managers have left some margin on the table by simply selling live cattle futures as they procured feeder cattle. “You likely miss out on some of the market upside potential in exchange for avoiding some of the downside market risk,” he says.

The risk managers had to look for more than one way to prevent a larger loss because of the fluctuating markets. Zimmerman explains one strategy would be selling a put option below the market, and as the market started to break, the risk managers may have needed to

manage those positions, adding to some of the downside potential. Some have discussed whether the increase in the use of USDA’s LRP program added to some of the recent downside.

Though the program has been around for 20 years, it had a slow start and, as recently as 2017, less than 100,000 head of cattle were enrolled, Zimmerman explains. In 2023, volume had increased to more than 5 million cattle. “The program absolutely has benefits to cattle producers, and it can serve as a valuable risk-management tool for producers, especially smaller producers where futures or options markets are not always the best tool for price protection,” he adds.

> A CLOSER LOOK

Brad Kooima, president of Kooima Kooima Varilek Trading, in Sioux Center, Iowa, has been a cattle marketer for more than 40 years. He says several of his customers are using LRP as a marketing tool, and when it’s used for its intended purpose, it works well.

“The LRP contract is basically a put option. Fairly recently, the government decided to increase the subsidy much like they do with crop insurance. They have increased the subsidy by 35%. This is very attractive to >



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Example of LRP Feeder Cattle

A cow/calf producer is considering purchasing LRP on March 1 to insure a minimum price for 50 head of beef calves that are expected to be born in March and April, and marketed Dec. 1 at approximately 600 pounds.

The following table shows data available to the producer from the USDA RMA website for livestock reports: www.rma.usda.gov/Information-Tools/Livestock-Reports

The producer can choose the coverage level desired.

Coverage Length*	Expected Price	Coverage Price*	Coverage Level %	Premium per cwt.
39 weeks	\$162.397	\$162.29	99.93%	\$9.712
39 weeks	\$162.397	\$153.89	94.76%	\$5.631
39 weeks	\$162.397	\$149.69	92.18%	\$4.154
39 weeks	\$162.397	\$145.49	89.59%	\$3.009

*Other coverage lengths and corresponding prices are available.

The producer chose the 94.76% coverage level LRP to provide a minimum price as follows:

Insured value:

50 head x 6 cwt. x \$153.89 per cwt = \$46,167

Premium: 50 head x 6 cwt x \$5.631 x 60% (40% subsidy) = \$1,014 (\$20.27/head)

Cattle are sold at 37 weeks for \$150 per cwt.

The CME feeder cattle index at the end of the 39-week period is \$149 per cwt.

Calculated ending value:

50 head x 6 cwt. x \$149 per cwt = \$44,700

Indemnity payment: \$46,167 insured value - \$44,700 ending value = \$1,467 paid to producer

The producer would pay \$1,014 in premium.

Cattle need to be owned within 60 days prior to the end of the coverage. If cattle are sold 60 days before the end of the policy, the policy could be transferred to the new cattle owner, if eligible.

COURTESY OF IOWA STATE UNIVERSITY EXTENSION

smaller producers or cow/calf producers looking for some protection,” Kooima points out.

However, some have been covering the cattle twice. Kooima describes it this way: “Some entities who have taken advantage of the program and have taken a \$9 put option, which is covered 35% by the government subsidy, and then sell the exact same option back to the commodity broker for \$9, thus collecting \$3 with no risk no matter what happens.”

Kooima says his partners, who are licensed to sell LRP, alerted USDA’s Risk Management Agency (RMA) to the issue. The RMA called it subsidy harvesting but didn’t think it was a widespread practice. Kooima’s partners told RMA differently.

“Why should we care about the subsidy harvesting? For me, it doesn’t pass the smell test and isn’t an ethical use of taxpayers’ money. If it’s used for the intended purpose, no problem, but this is not its intended purpose,” Kooima stresses. He also points out another problem is people can spend more on feeder cattle because of their lower breakeven, which could have extended and accelerated the recent break in the market.

Kooima contends the oddness of what happened when the market went down dramatically hard and fast like it did in November means a solution is needed to prevent it in the future. A simple revision of rules could help prevent these problems.

Moss hopes the LRP continues to be available for producers like himself, even during market dips such as they recently experienced, which resulted in writing a check back to the LRP. “We’ve never traded any options along with it, mostly because that’s another thing to manage, and time is something we have the least of. The dollar amount per head we spend on LRP is sometimes sizable, but it’s a guaranteed return, and we know it’s going to be there.” ///

How LRP Works

Livestock Risk Protection (LRP) policies go back 20 years. USDA’s Risk Management Agency increased the premium subsidies in 2019 and continued to adjust them in 2020, creating tiered rates based on coverage levels. Policies can range from 70 to 100% with the premium subsidies at 55% for policies up to 79% protection levels, and subsidies declining to 25% for the 95% and higher coverage levels.

Producers can cover up to 12,000 head at one time and 25,000 in one crop year, and they can purchase LRP contracts for both feeder cattle and fed cattle. Coverage periods can stretch from as little as 13 weeks to as long as 52 weeks. Producers also must indicate their ownership interests in the cattle that are covered.

LRP operates like a put option, except the government is subsidizing 35% of the cost of the put. Unlike crop insurance, contracts actually change daily. Prices for new contracts are posted in the late afternoons on weekdays and are available until 8:25 a.m. Central time the next day.

At the end of a policy, an indemnity is generated if the regional/national cash price average is below the insured coverage price. If the cattle are sold more than 60 days before the end of the contract date, producers can’t collect an indemnity or get their premium back unless their share of the cattle is properly transferred.

—Chris Clayton, DTN Senior Ag Policy Editor

New Blood Flow Breakthrough Helps Men Enjoy Strong, Long-Lasting Intimacy – At Any Age

Men across America are raving about a newly enhanced potency supplement that helps achieve healthy blood flow on demand

After age 40, it's common knowledge that performance begins to decline in many men. However, a new, performance empowering pill is showing that any relatively healthy man can now enjoy long-lasting, and frequent intimacy – at any age.

This doctor-designed formula, created by leading anti-aging expert Dr. Al Sears, has already helped men overcome low and sinking libido -- and has recently undergone a potency-enhancing update -- with remarkable new results.

When the first pill -- **Primal Max Black** -- was first released, it quickly became a top-selling men's performance helper, promoting intimacy across America.

It worked by supporting healthy testosterone levels. However, Dr. Sears soon realized that this isn't the only challenge men face with performance. That's when he turned his attention to blood flow.

And this became **Primal Max Red**.

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and enhancing this essential performance function.

Using this landmark Nobel Prize as its basis, **Primal Max Red** enhanced healthy blood flow for untold millions of men around the world with the use of strong nitric oxide boosters.

While **Primal Max Black** helped maintain optimal testosterone, **Primal Max Red** tackles a lesser-known challenge.

Director, Al Sears MD, who has authored over 500 scientific papers and has appeared on more than 50 media outlets including ABC News, CNN, ESPN, Discovery, Lifetime, and many more say, *"Less than optimal blood flow can be part of a huge problem that affects a lot of men. And it needed to be addressed once and for all, so men would not dwell on it. Then, once we optimized it and had a great deal of success, we set out to see if we could do even better."*

The former formula had excellent results. However, new research showed that for even faster, anytime, anywhere results, increasing the dose of a key compound was needed.

So, one of the three nitric oxide boosters in the new **Primal Max Red**, L-Citrulline, was clinically boosted to 9000 mg, and the results were astounding. Which is no surprise considering that 5000 mg is considered a "normal amount" -- giving the new version nearly doubled the blood flow boosting power.

Men who had previously been unsure about their power and stamina were overjoyed to be back to their



A new discovery that increases nitric oxide availability was recently proven to boost blood flow 275% - resulting in improved performance.

old selves and to get and maintain a healthy bloodflow when they needed it.

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Primal Max Red can effectively promote healthy blood flow that most men can use for maximum intimacy. This is leading to more greater capacity and satisfaction, coupled with long-lasting performance.

"There was a time when men had little control when it came to boosting their blood flow," Dr. Sears said. "But science has come a long way in recent years. And now, with the creation of nitric oxide-boosting **Primal Max Red**,

men can perform better than ever, and enjoy intimacy at any age."

Now for men across America, it's much easier to stay at their performance peak as they get older.

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To secure free bottles of **Primal Max Black** and get the hot, new **Primal Max Red** formula, buyers should contact the Sears Health Hotline at **1-800-379-0411** TODAY. "It's not available in retail stores yet," says Dr. Sears. "The Hotline allows us to ship directly to the customer." Dr. Sears feels so strongly about **Primal Max**, all orders are backed by a 100% money-back guarantee. "Just send me back the bottle and any unused product within 90 days from purchase date, and I'll send you all your money back."

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Cory Bryk, a Marine veteran turned farmer, is dispensing wisdom, insight and some tough love to 30 erstwhile farmers standing in a light drizzle near Lenoir, North Carolina, in the foothills of the Blue Ridge Mountains.

“We used to have turkeys, chickens and 50 pigs here,” says Bryk, who started New Life Farm 11 years ago following his service, a college degree and work in the construction industry. “I have learned along the way what was profitable. We dropped things that weren’t helping pay the bills.”

Making at least a part-time living from agriculture is the reason these 30 listeners—all military veterans themselves—are taking this tour as part of the weeklong Armed to Farm seminar, at Appalachian State University. Numerous Armed to Farm seminars around the country are conducted annually and sponsored by the National Center for Appropriate Technology (NCAT), which works with local

Cory Bryk, of New Life Farm (above), explains the finer points of trimming tomato plants.

Armed To Farm

Program cultivates military veterans and their experiences to learn how to make a career working the land.

organizations such as (in this case) Appalachian State’s Frontline to Farm program.

> LESSONS IN FARMING

Armed to Farm combines classroom lessons on everything from agronomy to business planning to applying for grants, with field trips to working farms. The Bryk family’s New Life Farm, which specializes in produce, such as tomatoes, and now offers RV and tent camping, or glamping, on the farm, is an early stop in the week.

The Bryks have learned—and continue to adapt—their business to the market and what works for their operation. The straight talk continues as the group visits New Life Farm’s greenhouses.

“As trendy and hip as heirloom tomatoes are, what our customers want [restaurants and health food stores] is a nice uniform, delicious, round, red tomato,” Bryk says.

He has everyone’s attention: “We get trapped in our heads and project onto the market what we think they want because we like a certain something, but at the end of the day, the customer is what makes the financials work.”

There is a lot to be said for veterans learning about farming from other veterans.

“Veterans’ shared backgrounds and common experiences allow them to quickly connect to each





Wilbert Bryant (left) talks with Amy Fiedler, of Springhouse Farm. Attendees Brendan and Brandi Bickel (above) of Virginia

conference, more than 80% were still farming.

NCAT is a nonprofit based in Montana and founded in the 1970s in response to the energy crisis. The goal was to develop low-cost, energy-saving strategies for underserved

communities. The organization, with a half-dozen regional offices, expanded in 1987 to include sustainable agriculture.

Sessions at this Armed to Farm conference ran the gamut from basic accounting to maintaining healthy pasture soils to marketing and branding products.

> HIGH DEMAND

If there's a downside to Armed to Farm, it is that there is more demand than space. The 30 veterans at the conference at Appalachian State were selected from 115 applicants. That demand has been similar for every Armed to Farm conference, Hale explains.

"This is the worst part of this job, having to narrow down the attendees," says Hale, who is based in Arkansas. "We know the interest and need is still there." Most of those attending found out about the conference from other veterans or farmers—and from NCAT social media—including a weekly e-newsletter. Those accepted for the conference will attend free of charge and can often get their travel expenses paid through various funds and grants.

"I didn't initially want my own business," says Melanie Carter, who has traveled to North Carolina for the conference from Chicago. After years of working with urban agriculture groups in the city and becoming certified in horticulture therapy, she is exploring, on a small scale, growing edible flowers and herbs along with vegetables.

"This conference is a good fit for me," Carter says, "with people who have a like mindset and a connection >



other," says Margo Hale, the Southeast Regional Director for NCAT. "The ability of a group of veterans to have a shared sense of mission has been a big part of why Armed to Farm has been so successful."

The first Armed to Farm conference took place in 2013. In 2022, there were six such conferences around the country with at least the same number this year. More than 900 veterans have now participated in Armed to Farm, and a year after they attended the

to the military. They understand what you've gone through." Carter served in the Air Force Reserve then active duty in the Army as a medic.

With demand high for the conferences, Armed to Farm favors applicants who already have land or access to land, are trying to determine the best enterprise for their operation or may have already begun selling products.

They are not quite to selling products yet, but Brendan and Brandi Bickel, of Prince George, Virginia, are exploring options. A Navy veteran, Brendan trains K9 dogs for police and military use from the 10-acre farm they bought two years ago.

"We're still trying to decide what our niche will be," Brandi says. The couple—neither of whom grew up farming—have taken permaculture classes and are considering growing cut flowers, but haven't ruled out anything. "I loved today's conference sessions on legal issues in farming," she says. "We've been working toward getting our soils in shape but hadn't done anything on the business or legal side."

> SELL BEFORE YOU GROW

On the second day of the conference, the veterans visit Springhouse Farm, near Boone, and founder Amy Fiedler. She has become well-known as a single mom who raised her kids and made a full-time living on 7 acres growing cut flowers, up to 40 different vegetables and greens, and honey from beehives. More recently, she's begun selling dried flower wreaths and teaching group classes on how to make them.

Farm newcomers listen to Holly Whitesides, of Against the Grain farm, Zionville, North Carolina.

In a new open-air pavilion near the barn, Fiedler reinforces the business side of this life. "The first advice I give to every intern we have is that before you put a single seed in the soil, you have to be able to sell the product," she says. "If you don't have a market for what you grow, you're going to fail. The gateway to farming for me was beekeeping."

Fiedler, along with her mother, Jean Fiedler, developed an 80-person CSA (community-supported agriculture) business in which they provide produce and cut flowers to regular customers. "Everything we grow is presold," she says. The Fiedlers allow interns to use their farm as an incubator to try different products or methods of growing.

Wilbert Bryant, who retired in 2013 as a commissioned officer in the Army after 24 years, owns a 300-acre farm near where he grew up in Rocky Mount, North Carolina. He bought the farm sight unseen and has leased it out for years, but now wants to try and pasture cattle there in addition to growing timber.

Bryant says he really likes the feel of a learning conference like this for veterans. NCAT offers the participants ongoing access to experts in areas such as horticulture, livestock management, sustainable practices and on-site technical assistance. Conference participants also continue to network on the private Armed to Farm Facebook page and can access online more than 400 publications.

"In the military, we create a bond with fellow soldiers," Bryant explains. "That is hard to do in the civilian sector, but here, we elevate each other up. We learn and grow together." ///



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1 cup heavy whipping cream, cold from the fridge

½ cup chocolate-hazelnut spread

¼ teaspoon salt

Whipped cream, for serving

DIRECTIONS

1. Place cold cream into a large mixing bowl. Using a whisk or a hand mixer, whip the cream until soft peaks form (about 3 to 5 minutes).
2. Using a rubber spatula, fold chocolate spread and salt into cream until well-incorporated.
3. Transfer mousse to two serving cups. Cover with plastic wrap; chill at least 2 hours.
4. Serve cold with more whipped cream, if desired.

Recipes and Photos By
Rachel Johnson
On Instagram
@racheltherecipe



> Fudge Brownie Cups

MAKES: 12 BROWNIE CUPS

TOTAL TIME: 45 MINUTES

INGREDIENTS

Cooking spray

10 tablespoons unsalted butter, melted

1 cup granulated sugar

⅔ cup unsweetened cocoa powder

2 teaspoons vanilla extract

¾ teaspoon kosher salt

2 large eggs, at room temperature

½ cup all-purpose flour

½ cup semisweet chocolate chips

12 filled chocolate candies

DIRECTIONS

1. Preheat the oven to 350°F. Coat a 12-cup muffin tray with cooking spray.
2. In a medium bowl, combine sugar, cocoa powder, vanilla, salt and eggs; whisk until well-incorporated.
3. Add flour and chocolate chips; mix to combine.
4. Divide batter among the muffin cups (about 2 to 3 tablespoons per cup); clean up the sides.
5. Bake 15 minutes or until brownies are almost set. Gently press a chocolate candy into the center of the brownie; bake another 10 minutes or until the tops are cracked and shiny.
6. Allow to cool in pan for a few minutes; transfer brownies to a wire rack to cool completely. ///



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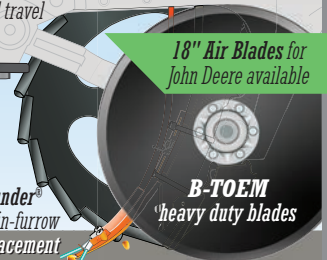
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August

GLACIER PARK & Calgary Stampede



In Montana, traverse Glacier National Park's 50-mile Going-to-the-Sun Road to see impressive glaciers, beautiful valleys, cascading waterfalls, towering mountains, and colorful wildflowers. Explore a glacier on an all-wheel-drive bus buggy equipped for the Canadian Ice Fields. See the famous Calgary Stampede Rodeo & enjoy their Chuckwagon Races!

July

EUROPE



Tour Holland, Belgium, Germany, Austria, Czech Republic and Switzerland. Inspect 3 farms growing grains, potatoes, sugar beets & more. See the best of Europe & sample Belgian Chocolates. Explore a salt mine in Salzburg and cross the majestic Alps. A crowd favorite!

July

CANADIAN TOUR FALL COLORS TOUR



Canadian Farm & Niagara Falls Tour: Visit the breathtaking Niagara Falls, visit multiple farms & inspect crops like tomatoes, tobacco, peppers, corn & soybeans as well as livestock farms & a vineyard.

New England Fall Foliage: See history come alive in Boston and travel the colorful adventure found for only a few weeks in Vermont, New Hampshire, Rhode Island, & Maine. Take in the beautiful array of gold and autumn leaves as you enjoy an integrated farm tour and special visits to a Cranberry Bog, Maple Syrup farm, and more!

September & October

"I am sincere about providing a great tour experience. We take you beyond the typical attractions to provide a complete cultural experience. Historic city sites, scenic country villages and real working farms. An unforgettable opportunity to converse with people like yourself from countries around the world."

- Larry Rupiper

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Heart



“Despite everything, I believe that people are really good at heart.”

-Anne Frank

GETTY IMAGES

I think there is only one quality worse than hardness of heart and that is softness of head.

THEODORE ROOSEVELT

The heart of a fool is in his mouth, but the mouth of a wise man is in his heart.

BENJAMIN FRANKLIN

The best and most beautiful things in the world cannot be seen or even touched. They must be felt with the heart.

HELEN KELLER

To wear your heart on your sleeve isn't a very good plan; you should wear it inside, where it functions best.

MARGARET THATCHER

There never was any heart truly great and generous, that was not also tender and compassionate.

ROBERT FROST

It is a weakness that I lead from my heart, and not my head?

DIANA, PRINCESS OF WALES

Blessed are the pure in heart: for they shall see God.

MATTHEW 5:8 (KJV)

The heart is the best reflective thinker.

WENDELL PHILLIPS

It is the heart always that sees, before the head can see.

THOMAS CARLYLE

Few are those who see with their own eyes and feel with their own hearts.

ALBERT EINSTEIN

If I can stop one heart from breaking, I shall not live in vain.

EMILY DICKINSON

What stronger breastplate than a heart untainted.

WILLIAM SHAKESPEARE

It is strange how often a heart must be broken before the years can make it wise.

SARA TEASDALE

The less you open your heart to others, the more your heart suffers.

DEEPAK CHOPRA

I wish I were a little girl again because skinned knees are easier to fix than a broken heart.

JULIA ROBERTS

Nothing is less in our power than the heart, and far from commanding we are forced to obey it.

JEAN-JACQUES ROUSSEAU

Hearts can break. Yes, hearts can break. Sometimes I think it would be better if we died when they did, but we don't.

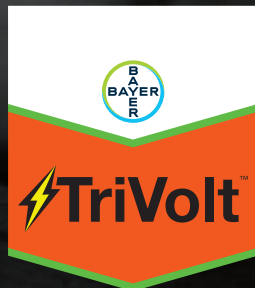
STEPHEN KING

Keep thy heart with all diligence; for out of it are the issues of life.

PROVERBS 4:23 (KJV)

“We’re gonna use it again next year.”

– Debbie P., grower and TriVolt™ herbicide user



TriVolt™ herbicide for corn delivers clean fields for up to 8 weeks, but don’t take our word for it. Hear unfiltered conversations between growers who used TriVolt and growers who are ready to use it this year.

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