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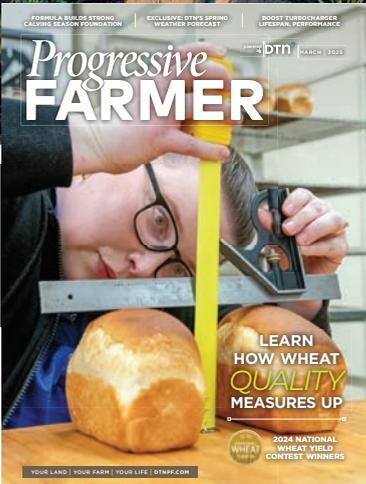
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MARCH 2025
 VOL. 140 / NO. 3
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JASON JENKINS

ON THE COVER

Lacey Schmidt measures bread height while assessing wheat quality at the Great Plains Analytical Laboratory, in Kansas City, Missouri.

PHOTO BY JASON JENKINS

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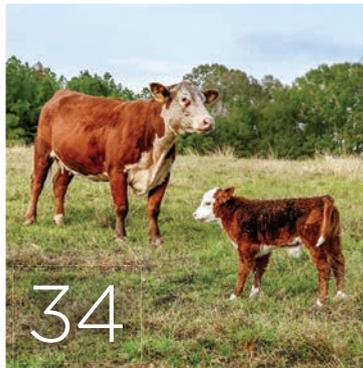
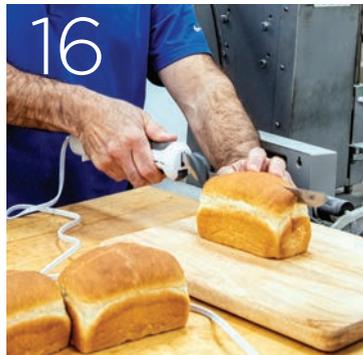
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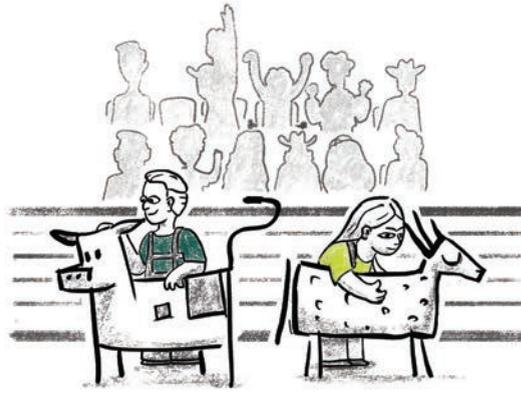
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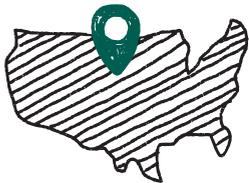
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1 LASTING



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Expect the Unexpected

As farmers prepare for spring planting, there are plenty of dark clouds on the horizon to dampen optimism. Regardless of the type of seed in the planter box, most will struggle to break even this year. Instead of growing green crops, farmers will be sowing red ink on every acre.

Growers and leaders of farm organizations testified before Congress in February about the tough times in rural America. For many, 2025 is a continuation of financial hardship going back to 2023. They urged legislators to pass a new farm bill with a stronger safety net, including higher reference prices and improvements to crop insurance.

Meanwhile, USDA released its most recent farm income estimates. As DTN Senior Farm Business Editor Katie Dehlinger reports, “USDA forecasts climbing farm income in 2025, but it’s due to a dramatic increase in government payments, not better prices or a higher volume of sales.” Specifically, net farm income is estimated at \$180.1 billion, a nearly 30% increase from 2024. Read more at <https://tinyurl.com/3242w9rj>

Costs for most inputs are expected to decline, seed being the exception. However, with low commodity prices, it’s not significant enough to improve producer margins. Overall animal/animal product receipts are expected to be higher than last year.

Such a formidable financial outlook creates uncertainty. And, with uncertainty comes risk, which is why it’s critical to manage what you can control and minimize the potential damage for what you can’t.

► BE ON THE LOOKOUT

Preplanning and crunching the numbers will show your operation’s projected profit and loss. However, your financial fortunes can quickly change if unforeseen or unpredictable events occur. These events usually have negative consequences and require you to keep your senses up. Two to keep on your radar in 2025 are:

► **Tariffs and Trade.** Levying tariffs on some of U.S. agriculture’s best customers—Canada, China and Mexico—raises the risk of a tariff and trade war. Certainly, China’s unfair trade practices need to be addressed, but imposing tariffs has consequences for America’s

farmers, as we saw during President Donald Trump’s first term.

A USDA report showed retaliatory tariffs by China and other countries from the summer of 2018 through the end of 2019 resulted in U.S. agricultural export losses exceeding \$27 billion, with China accounting for about 95% of the value lost.

Trade wars raise concerns about the reliability of U.S. supply. This creates an incentive for countries such as China to look to alternative supply chains, a role South America is more than happy to fill.

The share of U.S. soybean exports to China increased from below 40% in the mid-2000s to around 60% from 2011 until plummeting to just 18% during the trade war in 2018. China’s share of U.S. soybean exports hasn’t fully recovered to pre-trade war levels, averaging just over 50% since 2020, according to an analysis by University of Illinois ag economists.

► **Interest Rates and Inflation.** The Federal Reserve Board at its January meeting voted to hold interest rates steady following three cuts since September 2024. Borrowing costs remain a major concern for farmers as higher rates increase expenses and affect cash-flow.

The intertwining intricacies of these two economic indicators have far-reaching consequences for domestic/global outcomes and policies. Throw in politics, and the possible effects become even more unpredictable. Questions to ponder:

- What effect will a trade/tariff war have on interest rates and inflation? Ag exports?
- If inflation and interest rates increase, what effect will they have on global trade? Farmers’ financial stability?
- Will the dollar weaken or strengthen versus other currencies? A strong dollar helps to dampen inflation but makes U.S. exports more expensive.

There’s no doubt 2025 is shaping up to be financially challenging. Unknowns can make the risks even higher. But, expecting the unexpected will help you develop a game plan to counteract unforeseen consequences. ///


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Farming or Selling in Multiple States? Be Aware of State Tax Nexus Issues

Many of my farm clients don't give a second thought to state income or sales tax nexus. Years ago, when farms only sold commodities within their state, this wasn't an issue. But, as farms expand and sell commodities outside their states or expand their farming operations into another state, state tax issues are becoming more frequent. It is always better to get ahead of any issues than to wait until a state contacts

you. Most states have voluntary disclosure agreements that allow you to limit your tax liability if you are noncompliant.

Let's dive into the different state tax nexus issues you might run into.

First, let's look at the income tax nexus. As the name implies, this

relates to income tax (as opposed to sales tax). The nexus can be established through various factors, including physical presence, economic presence and affiliation.

A business has a physical presence in a state if it maintains a tangible connection. Physical presence is the most straightforward way to establish a nexus, and it applies regardless of the volume of sales or business activities. Here are factors that establish a physical presence in a state:

- owning or leasing property
- having employees or agents working in the state
- storing inventory or conducting business operations.

Economic presence nexus is established when a business reaches a certain threshold of economic activity within a state. Many people are surprised when they learn that just selling something in another state can give rise to tax liability even when you don't have a presence. Each state has different thresholds, so there is no bright-line test. Economic presence nexus can be created by the following:

- generating a specified amount of sales revenue
- reaching a certain number of transactions
- meeting a threshold for property or payroll expenses.

Income tax nexus can also be established through relationships with affiliated entities. If a business has subsidiaries, affiliates or agents operating in a state, its activities can create a nexus for the parent company.

Next, let's discuss sales tax nexus. Sales tax nexus rules determine when a business must collect and remit sales taxes on transactions within a state. Like income tax nexus, sales tax nexus can be established through physical presence, economic presence and other criteria.

The physical presence standard for sales tax nexus is similar to that for income tax nexus but a little looser. A business must collect sales tax if it has a tangible connection to the state, such as:

- owning or leasing property
- having employees, agents or representatives
- storing inventory, including through third-party fulfillment centers
- conducting sales activities, such as attending trade shows.

The economic presence nexus for sales tax was significantly affected by the famous case South Dakota vs. Wayfair Inc. The ruling allowed states to require out-of-state sellers to collect and remit sales tax if they exceeded certain economic thresholds, even without a physical presence. Common thresholds include:

- exceeding \$100,000 in sales revenue
- completing more than 200 transactions.

These thresholds vary by state, so businesses must stay informed about the specific requirements in each jurisdiction where they operate.

To summarize, if you farm in multiple states, sell commodities in a different state or do custom work in a different state, you could have a potential state tax liability. Even when you think you might owe state tax, you could have both an income and sales tax nexus. From experience, do not avoid the issue. It's a lot easier and less costly to address and fix the issue rather than wait to get caught. ///



Rod Mauszycki

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► A recent episode highlights new products and the latest innovations at the world's largest technology and electronics show in Las Vegas. Senior Machinery Editor Dan Miller discusses what leading ag equipment companies are bringing to fields—from robots and autonomous machines to electrified farm implements.



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UPCOMING WEBINARS

March 11: WASDE Report: DTN Lead Analyst Rhett Montgomery dives into the world supply and demand estimates and provides his perspective on what it all means for commodity prices.

BLOGS & COLUMNS



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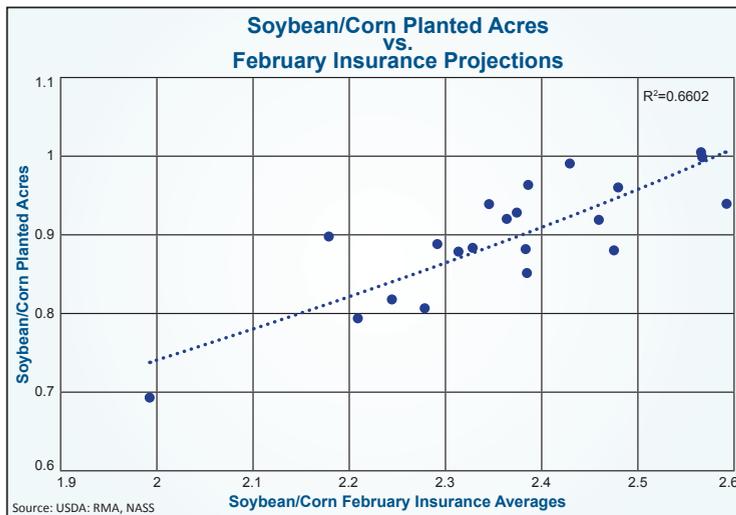
What to Expect for 2025 Corn and Soybean Acreage

The 2025 “Battle for Acres” is well underway in the U.S., and at first glance, it sure looks like corn is winning. At the time of writing this in late January, the ratio of new-crop soybeans to corn futures prices had collapsed from 2.55 in late September to 2.26. Corn prices have vastly outperformed soybeans, which up to this point have faced a steeper uphill battle in overcoming an inflated world supply situation. This is a departure from a relatively “normal” price ratio near 2.40 to 2.50 seen this time last year. It is more in line with the ratio in early 2023, although the price action leading up to that point was the opposite of this season, with the October 2022 soybean-to-corn price ratio hitting as low as 2.0 before resetting as those contracts expired and the new-crop futures boards moved to 2023.

Interestingly, despite the market rapidly attempting to “buy” soybean acres that year, the final planted figures swung drastically in favor of corn to the tune of nearly 4 million acres more than soybean acres in 2023. This would suggest that the price action during the previous harvest season holds a high influence over the following spring’s planting decisions, which certainly makes intuitive sense. Considering that traditionally, around 62% of Dec. 1 corn stocks and 48% of Dec. 1 soybean stocks are held on farm, there is still a lot of grain changing hands over the harvest period. And, while undoubtedly many sales are contracted prior to harvest, I can speak as a former grain merchant that there is considerable business done “across the scale.”

Another large piece of the acreage puzzle is the projected crop insurance prices calculated throughout February based on an average of the December corn futures and November soybean futures daily closes for that month. February insurance price protection levels can offer insights into what acreage mix can be expected. Looking back over the past 20 years, there is a strong positive correlation between a higher soybean-to-corn price ratio for February insurance projections and the final soybean-to-corn acreage ratio. I, personally, am penciling in a moderate increase in U.S. corn

acreage for 2025. I believe it could be somewhere in the 92- to 93-million-acre area based on corn cash price throughout the marketing year thus far, offering



a better chance at profitability compared to soybeans. However, neither is profitable compared to USDA’s cost of production estimates. Assuming the soybean-to-corn price ratio remains static through February, it would point to soybean acreage at roughly 90% of corn, or 83 to 84 million acres, which seems like a fair estimate at this point.

Ultimately, no amount of number-crunching can solve the acreage equation perfectly. U.S. producers are the only ones who know for certain what is going into the ground this spring, and those decisions certainly are more complex and variable than statistics alone can capture. At the end of the day, U.S. producers know what is the best use for the land and their operations, and I, for one, am excited to see what those decisions turn out to be. ///



Rhett Montgomery
Lead Analyst

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Senior Farm Business Editor

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Don't Wait to Make ARC/ PLC Decisions

Give farmers a deadline, and they'll show you how close they come to it, says Steve Johnson, a retired Iowa State University crop insurance specialist. But, he warns: 2025 is not a year to procrastinate.

Until this year, farmers had the same March 15 deadline to sign up for crop insurance as they did to enroll in their farm bill program of choice: Price Loss Coverage (PLC) or Agricultural Risk Coverage (ARC). USDA has now moved the ARC/PLC enrollment deadline to April 15.

Farmers have more risk-management options this year because of higher ARC benchmark prices, PLC reference prices and a higher subsidy for the Enhanced Coverage Option (ECO), a type of buy-up coverage that insures a county-level revenue guarantee of 86 to 90 or 95%. Historically, ECO's high level of coverage made it expensive, but Johnson says the new 65% subsidy could lower premiums by 40% or so.

Farm bill program choice can influence eligibility for

another buy-up crop insurance product called the Supplemental Coverage Option (SCO), which provides a band of county-level revenue coverage from 75 to 86%. A farmer can only purchase SCO on acres enrolled in the PLC program.

That's why crop insurance and safety net program selection have historically had the same deadline: One decision influences the other.

In recent years, corn and soybean farmers have overwhelmingly elected the ARC-County program, and with this year's \$5.03-per-bushel benchmark price, ARC could pay out with an average yield if the marketing year average price falls below \$4.33. That's the highest since the 2015-16 season.

The choice for farmers becomes whether they want to purchase SCO or leave a gap between their farm's revenue protection policy and their ECO coverage.

Johnson cautions that staff turnover at Farm Service Agency offices has been high the past couple of years, and giving staff extra time is helpful. "Where would you rather be on April 15: planting corn or standing in the FSA office to sign up for the ARC or PLC program?" ///

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Learning for the Long Haul

BY Meredith Bernard

When I began homeschooling my children 10 years ago (wow, that's hard for me to write or believe), I had no clue what I was doing. All these years later, I still feel much the same to a degree. But, as they say, hindsight is 20/20.

My oldest was the guinea pig, getting a three-year head start before his sister joined him at the kitchen table. Most of our school sessions are held there or sitting on the porch when the weather allowed. For years, I doubted my teaching abilities (despite a master's degree in agriculture education) and wondered if the naysayers were right, that homeschooling was not the best decision for our family.



MEREDITH BERNARD

But, God had a lesson plan.

I can now assert that I would not change a thing about the years we had at home together, learning and growing alongside one another. I've learned more with and from my children than I ever learned in school myself.

This past year has been one of change. Our son ventured into new classrooms as he began working on an associate's degree at the local community college, while simultaneously completing his last two years of high school from home. He's excelling, finishing his first semester with straight As.

In addition, he's taught himself the art of leatherwork and started a small business on the side with all his "spare" time. I can't help but think the years helping on the farm, doing school in what many would consider an out-of-the-box way and learning to use his hands for good have given him the drive to finish this chapter of his life strong and lay the foundation for a successful future.

If you need encouragement to know that you are doing the best by your kids—whatever that looks like for you—I'm here patting you on the back and telling you to keep going. It just gets better. ///



Meredith Bernard documents rural life and tends to farm and family from North Carolina. Follow her on social media [@thisfarmwife](#), and visit her website at [thisfarmwife.com](#)

Time for New Dreams

BY Jennifer Campbell

There once was a family that stood on a patch of Indiana dirt and dreamed. They didn't dream of grandeur but rather of a home and a farm—a place to raise children, host Sunday dinners and gather with The Community Church Women's Guild. They pictured a simple Foursquare house, the kind you'd find in black-and-white photos, built with Indiana hardwood and hand tools. It was sturdy, practical and full of hope.

But, time marched on. The family moved on, and the house passed through hands that cared less and less. The roof began to leak, the floors softened with rot, and the paint faded. The modest, neatly kept yard grew tangled and overgrown. With each year, the house became more a shadow of what it had been.

When we bought the property, I stood in front of that house staring at its sagging roof and shattered windows. It was hard not to feel a twinge of sadness—not just for the house, but for the dreams and memories that once filled it. It wasn't salvageable. The years of neglect had been too much. Still, it felt wrong to dismiss its story without a moment of recognition. It had stood for something once, and that deserved respect. I pulled out my camera to record the memory.

Tearing it down was necessary. The house had become a hazard, and its absence opened the door for new possibilities. Owning the farmland and outbuildings that surrounded it, we knew this was the chance to improve the land.

Now, on that same plot, we are beginning to shape new dreams. I'm currently working on convincing my husband, Chris, to turn it into a cattle feedlot—or at the very least, a hay barn. Fingers crossed we will find a way to bring productivity back and add a new chapter to this proud place. ///



JENNIFER CAMPBELL



Jennifer (Jent) Campbell pushes the shutter and captures life from a seven-generation Indiana family farm. She also writes a blog called Farm Wife Feeds ([farmwifefeeds.com](#)). Follow her on Twitter [@plowwife](#) and on the [@girlstalkag](#) podcast.

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La Niña's Demise Creates Uncertainty In the Spring Forecast

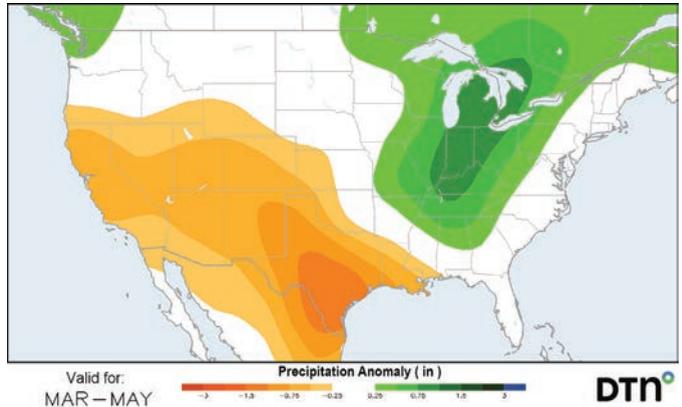
It took awhile, but La Niña finally showed up this winter. It didn't have a profound effect on the pattern until January and peaked in February, but it is on its way out, albeit slowly. The weak nature and limited time frame have meant there are other smaller players in the driver's seat for spring weather, those that are difficult to forecast beyond the span of about a month. So, writing this forecast at the beginning of February to meet the magazine's deadline means that we do not have a lot of certainty. We rely on long-range models and a few analog years to give us some ideas, but it's hard to trust them when we aren't certain of what types of patterns we should be seeing. So, the forecasts here are tentative and come with a grain of salt. We do have concerns about spring planting this year, however.

Pacific Northwest (Idaho, Oregon and Washington): What should have been a very active pattern over the winter only came in spurts, but there is almost no drought in the region, and that should be helpful for winter crops awakening from dormancy and for spring planting. March may leave some areas a little too wet, but our forecast is somewhat drier and warmer for April and especially May, which could be nice for getting planting done in a timely fashion.

Southwest: If there was a region that really saw a La Niña pattern, it was the Southwest, where dryness has brought expanding drought and the devastating wildfires past peak season. Hotter and drier conditions are forecast to continue through the spring, with more drought development and lower overall snowmelt for rivers and irrigation. This is a region that is forecast to have some significant troubles.

Northern Plains: Though precipitation has been coming through regularly, it has

been light for most of the winter season. The February forecast is calling for some enhanced snow, so some places may be in better shape than others. But, snow cover at



the end of January was quite low. Drought has been an issue for months, and that continues into spring. The longer La Niña carries on, the colder and drier the setup should be during the spring. DTN forecasts issues with cold lingering through April before warming up in May. That might be fine for soil temperatures and planting, but there is not an abundance of rain or snow in the forecast, and the drought concerns may continue to grow as temperatures rise.

Central and Southern Plains: Periodic rain and snow through the winter has helped to curtail drought development in the region over the winter. But, we didn't see much in terms of drought reduction either, which is spotty through the region and more focused across the north. Shots of cold air may have caused some winterkill, as well. The longer La Niña carries on this spring, the lower the rainfall potential, which could mean drought development for winter wheat at critical time periods and falling soil moisture during spring planting.

Coastal Texas and Louisiana: A round of heavy snow fell in the region in mid-January, and the pattern was more favorable for precipitation than La Niña usually suggests. This puts the region in better shape than we



John Baranick
Ag Meteorologist

► Read John's blog at ABOUT.DTNPF.COM/WEATHER

► You may email John at john.baranick@dtm.com

expected for spring planting. However, the warmer and drier outlook, at least through the first half of spring, could mean drought developing in some areas that weren't as wet as others during the winter.

Midwest: Drought lingered over the northern half of the region over the winter, though the February forecast did call for more storms that may have turned up at the right time. Otherwise, the snowpack was dismal for most of the winter outside of the prone lake-effect areas. And, that will lead to some concerns about soil moisture for spring planting. However, the longer La Niña lasts, the more likely we are to see above-normal precipitation in the Ohio Valley with the opposite concerns of being too cold and wet through spring that may bring planting and early growth challenges.

Delta/Lower Mississippi Valley: Systems moved through regularly during the winter season, atypical for a La Niña winter, but ensured that drought would not be a problem for early spring planting. With the Ohio Valley seeing increased rainfall, the northern sections of the region could be a little on the "too wet" side and may need to wait out a touch. This does suggest better moisture for early growth, however.

Mid-Atlantic and Northeast: It was very dry for much of the winter, causing a lot of drought to build up, especially along the coast. But, the February forecast calls for enhanced precipitation from several systems moving through that should have reversed some of this trend. The spring forecast is also calling for continued seasonal or slightly above-normal rainfall for the spring, which will help to reverse the drier trend if realized but could leave some spots a bit too wet to get planting going early. This is especially true for those west of the mountains, which had better precipitation during the winter and more lake-effect snow.

Southeast: La Niña was not much of a contributor to the pattern here, as systems frequently moved through this region during the winter. They even brought rare heavy snow to the Gulf and Atlantic coasts. With La Niña weakening, the trend should be for more variable weather patterns for the spring, especially early, which may cause some slower warming of soils. But, it would also provide better chances for increased soil moisture and a reduction of the remaining drought in the region. ///



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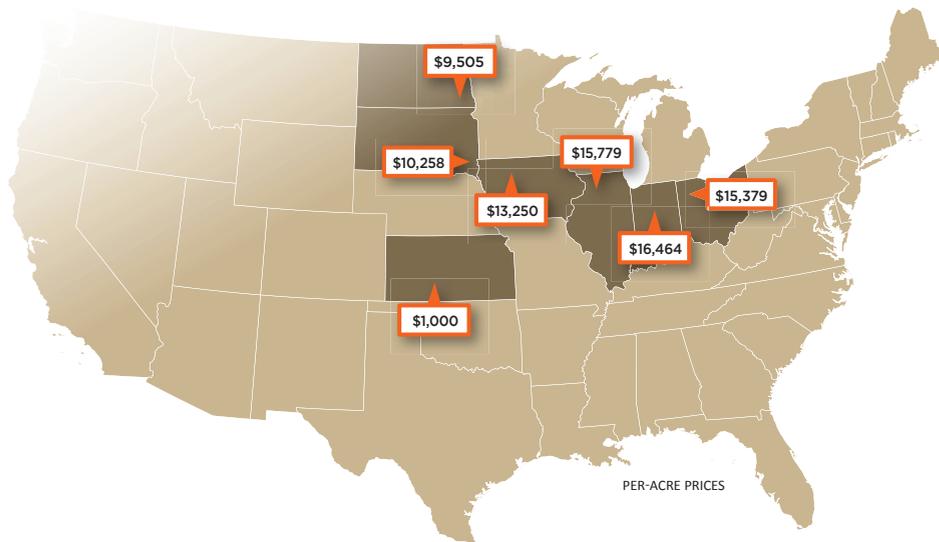
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Recent Farmland Sales



ILLINOIS, Bureau and Lee Counties.

Two tracts totaling 104 acres sold in an online auction for \$1.641 million, or an average of \$15,779 per acre. The 76 acres located in Bureau County have a productivity index of 133.6 and sold for an average of \$15,400 per acre. The 26 acres located in Lee County have a productivity index of 140.6 and sold for an average of \$16,750 per acre. The Bureau County farm has an open lease for 2025, but the Lee County farm is under contract until the 2026 growing season. **Contact:** Isaac Taber, Sullivan Auctioneers; sold@sullivanauctioneers.com, 844-847-2161

www.sullivanauctioneers.com

INDIANA, Miami County. A 181-acre farm that included two homes and outbuildings sold at auction for \$2.98 million, or an average of \$16,464 per acre. The sale was divided into four tracts. The first tract consisted of a 158-acre field that sold for \$15,379 per acre. The second tract was a nearly 4-acre homestead with a variety of buildings. It sold for \$100,000, or \$25,575 per acre. The third and fourth tracts sold together and consisted of an almost 16-acre field and a 3-acre homestead, including a modern pole barn. The buyer paid \$450,000, or \$23,486 per acre, for those

tracts. **Contact:** Larry Jordan, Halderman Real Estate and Farm Management; lj@halderman.com, 765-473-5849

www.halderman.com

IOWA, Pocahontas County. A 280-acre farm with 271 tillable acres sold for \$3.71 million, or \$13,250 per acre. The farm carries a CSR2 score of 84.4, and the investor buyer leased it back to the seller. **Contact:** John Kirkpatrick, Murray Wise Associates LLC; john@mwallc.com, 515-532-2878

www.murraywiseassociates.com

KANSAS, Comanche County. A 314-acre farm consisting of a mix of CRP land, pasture, native grasses and cottonwood trees sold in an online auction for \$314,000, or \$1,000 per acre. It contains 159 acres enrolled in CRP, a contract that was just renewed. The property has highway frontage on two sides and includes a small shed to give animals cover. Deer are abundant in the CRP grass. A buyer from Texas won the auction. **Contact:** Jacob Lemons, National Land Realty; jlemons@nationalland.com, 855-384-5263

www.nationalland.com

NORTH DAKOTA, Cass County. A 190-acre farm sold in January at simulcast

auction for \$1.806 million, or an average of \$9,505 per acre. The farm's predominantly Kindred-Bearden silty clay loam soil has a productivity index of 93.2. While the farm has corn, soybean and wheat base acres, it has a history of sugar beet production. **Contact:** Kyle Nelson, Farmer's National Co.; knelson@farmersnational.com, 701-237-0059

www.farmersnational.com

OHIO, Paulding County. Six tracts of land totaling 145 acres sold at auction for \$2.23 million, or an average of \$15,379 per acre. The farm features mostly Hoytville silty clay and Nappanee silty clay soils. The first three tracts were contiguous and totaled nearly 80 acres, selling for an average \$13,375 per acre. Two of the remaining three parcels were contiguous, with the other across the road. One parcel, at 5.5 acres, was billed as a potential homesite. Those three tracts sold for \$15,384 per acre.

Contact: Jerry Ehle, Schrader Real Estate and Auction Co.; auctions@schraderauction.com, 866-340-0445

www.schraderauction.com

SOUTH DAKOTA, Union County. A 93-acre field sold in mid-January at auction for \$954,000, or \$10,258 per acre. The farm is leased for the 2025 and 2026 seasons, and the seller agreed to pay a \$75-per-acre rental enhancement, bringing the updated cash rent payable to the buyer to \$325 per acre for the next two seasons. **Contact:** Chuck Sutton, Sutton Auctioneers and Land Brokers; office@suttonauction.com, 605-336-6315

www.suttonauction.com

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

Submit recent land sales to
landwatch@dtm.com

Find previous Landwatch listings at
www.dtnpf.com/agriculture/web/ag/magazine/your-land



Are You Getting the Full-Value Treatment?



The demand for soybean seed treatments has surged in recent years as farmers recognize the significant benefits seed treatments provide. Today, it's rare to see farmers planting unprotected

soybean seeds—a trend driven by the critical role seed protection plays in managing tight margins. Farmers no longer consider planting untreated corn, so why risk it with soybeans? Seed treatment offers a vital layer of defense, helping to protect against diseases and pests throughout the growing season. With profit margins tighter than ever, investing in seed protection is not just a choice—it's a necessity.

As growers plant soybeans earlier and earlier, the need to protect those seeds has only increased. Diseases that thrive in cold, wet conditions are the biggest threat to early planted soybeans. Adding soybean seed treatments is one way farmers are pushing back against those early season diseases.

Adding soybean seed treatments to an operation not only gives soybeans a protection boost, but can increase the potential for more **FULL-VALUE** plants at harvest as well.

What does full-value mean?

Planting soybeans early extends the growing season to maximize pod and grain production. But this often increases seed and seedlings exposure to harsh environmental conditions and soilborne pests that reduce emergence and lead to uneven early growth.

Soybeans exhibit a remarkable ability to fill in for skips and gaps. Inevitably, however, some seeds emerge and grow more slowly than others. These slower growing "runt" plants direct growth energy into height. Plants narrow and elongate their stems, stretch the distance between nodes and produce fewer trifoliates and fewer pods.

While they eventually catch up in height, these spindly plants never produce as much grain as faster-emerging plants.

You know Pioneer breeds soybeans for vigor, fast emergence, and rapid early growth. But did you know you can boost your potential for more **FULL-VALUE** plants by adding LumiGEN® seed treatments to your Pioneer genetics?

The latest research shows just a two-day improvement in emergence speed and uniformity can lead to significant gains: a 5%-12% increase in stem diameter, 11% - 37% increase in total leaf area and grain mass increase ranging from 20% - 55% — the very definition of a high-value plant. The Iowa Soybean Association's (ISA) Research Center for Farming Innovation (RCFI) studies show that late-emerging soybean plants produce 20% fewer pods and have more than 30% fewer three-bean pods.

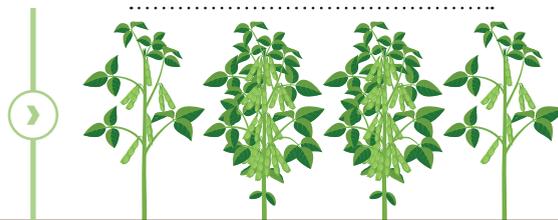
As it turns out, evenness of emergence speed is more important to yield than uniformity of plant spacing in the row. And researchers note this problem cannot be overcome by increases in seeding rates. Safeguarding seed from soilborne pests that can damage speed of emergence and early growth is the proper management strategy to maximize the number of **FULL-VALUE** plants. We have the research to prove it.

Adding LumiGEN seed treatments with Lumiderm® insecticide seed treatment and ILEVO® HL seed treatment decreased total gaps in rows by 18.4% compared to not treated control, increasing the potential for more **FULL-VALUE** plants.*

Stronger plants and more uniform emergence are important to producing **FULL-VALUE** plants at harvest. The results speak for the importance of striving for full value. And its powerful evidence for investing in LumiGEN® seed treatments to protect your Pioneer® brand genetics from emergence delays caused by soilborne pests and early season environmental stress.

Sets the stage for:

Uneven rate of emergence and early growth...



* Data based on an average of comparisons from Corteva Agriscience field trials from 2021–2023 from 100 locations across the major soybean growing region of North America. The data is taken from Unmanned Aircraft System (UAS) imagery and analyzed for gaps within the inner two rows of the plot. The two were a total of 1066.8 cm and gaps were subtracted from the total. LumiGEN consisted of a base FST + IST. ILEVO HL was applied at 0.99 fl oz/140k and Lumiderm was applied at 0.57 fl oz/140k on top of the LumiGEN FST/IST base.



Flour Fundamentals



From the field to the final product, wheat quality counts.

Even before the freshly baked bread is pulled from the oven, a familiar, comforting aroma envelops you. It conjures memories of sitting at your grandmother's kitchen table waiting eagerly for a slice simply slathered with butter while it's still warm.

Yet, here at the Great Plains Analytical Laboratory (GPAL), located about 20 minutes north of downtown Kansas City, Missouri, these loaves have been baked to satisfy science, not hunger.

Lacey Schmidt, GPAL's cereal chemistry lab manager, removes the "pup" loaves from their diminutive pans. She measures

their height, then loads them in a laser scanner that records not only each loaf's volume but also its weight. Later, she'll assess their crumb structure and crust formation—along with texture, taste and overall sensory appeal. Similar analysis is conducted with other baked goods, such as cakes, cookies and tortillas, all to help food manufacturers optimize their formulations, improve product quality and ensure consistent performance across every batch.

Likewise, halfway across the country, on the banks of the Willamette River, in Portland, Oregon, similar testing occurs

At the Great Plains Analytical Laboratory in Kansas City, Missouri, "pup" loaves are baked to assess wheat and flour quality (left).

Mike Moran (below) is executive director of the Wheat Marketing Center in Portland, Oregon.



at the Wheat Marketing Center (WMC), where staff members assess characteristics of wheat and flour, and how those characteristics affect end products including noodles, crackers, cookies, sponge cakes and steam breads. While the two organizations have different overall missions, they share a common goal: continued improvement in the quality of all classes of U.S. wheat.

"It's really easy in a commodity environment to forget that this is food," says Mike Moran, WMC executive director. "Somebody is going to eat this, so how are we producing the best food available? What do millers and bakers need, and how are we providing the best flour to meet those needs around the world?"

> METRICS THAT MATTER

When discussing wheat quality, the numbers that mean the most to farmers, millers and bakers often differ. Farmers most often concern themselves with yield, test weight, moisture, protein and bushel price. Millers will be interested in these and others, such as flour yield, ash, wet gluten and falling number, while bakers will focus on results of dough rheology, or physical dough testing. This includes mixing properties as measured by a farinograph or alveograph, which predict dough yield, stability, elasticity and extensibility.

“Quality changes depending on what you’re making,” says Jayne Bock, WMC technical director. “High-quality wheat for bread-making is very different from high-quality wheat for cake-making. So, we need to think about it that way. There’s no ‘bad’ quality wheat, but are you targeting the right application?”

In the U.S., six classes of wheat—hard red winter, hard red spring, soft red winter, soft white, hard white and durum—are recognized, each having its own niche. While hard red winter varieties, for example, have qualities that make them more suitable for bread, soft red winter is more likely to be used to produce crackers and cookies.

Within a class of wheat, there are genetic differences among varieties planted by farmers, and the resulting qualities of the grain are further influenced by agronomic management and the environment.

“It’s a complex mix,” Moran says. “The trend right now is really amplified climate variability. Each year is very different than the year before.

So, how are we equipping farmers with varieties that are going to have greater resilience? And, what are the unique characteristics of wheat, and how do you match the right class or blend of classes to a specific product? That is really at the core of who we are.”

> THOROUGH TESTING

Each season, the labs at both GPAL and WMC analyze the composition of wheat samples from multiple classes collected from various regions of the country. That grain is then milled into flour, and end-product testing with simple recipes provides data that millers and bakers will ultimately use to inform decisions when moving from old crop to new crop.

“A lot of the data we’re providing helps the mills understand if there are adjustments they need to make when they’re milling the product to make sure they’re still meeting their customers’ needs,” Moran explains.

Some data inform purchase decisions. For example, grain test weights correlate to potential milling yield.

“It’s not a 1-to-1 correlation, but generally, the higher the test weight, the heavier the kernels, the more flour we would expect to get from those kernels,” Bock explains. “Flour milling is a tight-margin industry, so every additional tenth of a percentage of flour extraction they can get, the more money they can make.”

Protein is another key parameter. Bakers will desire flour with certain protein percentages for particular products, so millers will source wheat to hit those targets.

“If a bread maker wants a 10.5% protein flour, then a >



1. A laser is used at GPAL to measure the volume of freshly baked bread.
2. Lacey Schmidt and Todd Lowenstein (GPAL) evaluate texture and crumb structure of bread samples.
3. Schmidt uses a windowpane test to evaluate if bread dough has been sufficiently kneaded before fermentation begins.
4. Derek Wilson (GPAL) takes high-resolution images of bread slices using a C-Cell analyzer that provides objective data about baking quality.



5



6

- 5. Liman Liu (WMC) places bread into a bamboo steamer basket.
- 6. Formulation and product development, such as for noodles, is one of the services offered to WMC clients.
- 7. Andrew Mense (WMC) combines ingredients for a batch of dough.
- 8. A flour slurry is prepared for a falling number test that measures the amount of any preharvest sprouting.



8

millers is going to be looking for wheat that's 11.5 to 12%," says Tom Fontana, GPAL's general manager. "Some years, they'll be able to purchase hard red winter wheat out of Kansas that hits the mark. But, in years when growing conditions kept protein

levels down, maybe they need to go buy spring wheat out of North Dakota to blend in to get that protein up to where they want it."

Dough rheology also provides insights that affect bakery production. For instance, a particular flour may have excellent water absorption leading to higher dough yield, but if that flour requires a longer mix time, throughput can be reduced.

"Any adjustments you have to make at a bakery costs time and money, so bakers want to buy flour that's consistent every time," Schmidt explains. "That means the mill has to find the wheat that's consistent to their customer specifications each time."

> **NO QUALITY COMPROMISE**

Moran says a perception still exists today that wheat yield and quality are



7

mutually exclusive, "but we're finding that's not necessarily true. You don't have to give up one to get the other. The more that we focus on both, it's going to be better for the farmer."

Annually, the Pacific Northwest Wheat Quality Council issues a list of preferred wheat varieties for the region based on quality rankings from most to least desirable. This emphasis on quality helps to differentiate U.S. wheat in world markets.

"You can really simplify a formula by buying the right wheat in the first place," Bock says. "You can buy cheaper wheat, but you're probably going to invest a lot more in specialty ingredients trying to get the formula to run properly. You'll save money in the long run, even if the wheat itself is more expensive. That's the message we're always sharing." ///



2025 National Wheat Yield Contest

The Goal of the National Wheat Yield Contest is to Improve Productivity, Quality, and Marketability of U.S. Wheat

Objectives:

- Educate and communicate to all segments of the wheat industry the importance of yield, quality and profit
- Develop and share best management practices to achieve high yield, high quality, and higher profit

National Winners:

- Winter Wheat - Dryland Bin Buster, plus 1st-5th
- Winter Wheat - Dryland % over county avg. 1st-5th
- Winter Wheat - Irrigated Bin Buster plus 1st-2nd
- Spring Wheat - Dryland Bin Buster, plus 1st-3rd
- Spring Wheat - Dryland % over county avg. 1st-3rd
- Spring Wheat - Irrigated Bin Buster plus 1st-2nd
- Pilot Category Digital Yield - Spring and Winter Dryland (4 winners)(limited to states MT,ND,MN,SD,WY,NE,KS,CO,OK,TX)

How to Enter:

- Everything is done online www.wheatcontest.org
- Must be a state wheat grower association member to enter (or a member of NAWG if entrant is from a state that has no state grower organization)
- Must use a certified or branded wheat seed variety; no bin-run seed accepted; minimum contest plot five (5) acres (20 for DY)
- Online registration and harvest results reporting only
Online Entry Fee: \$100 per entry, use a voucher from our partners or credit card for payment

Timing

Online registration deadlines:

- Winter Wheat - May 15th
- Spring Wheat - August 1st

Prizes for National Winners:

Winners will receive a trip to Commodity Classic where they will be recognized at a Winners Reception. Quality Award recognition will be cash awards.

Quality Recognition:

All contestants must save a 10lb wheat sample for quality testing if you are a National Winner. Our contest encourages High Yield and High Quality.

KERNELS OF KNOWLEDGE

The 2024 National Wheat Yield Contest winners glean production insights while growing high-yielding, high-quality grain.

New names joined familiar ones amongst the list of wheat farmers earning the title of “Bin Buster” in the 2024 National Wheat Yield Contest.

Phillip Gross, Warden, Washington, bested all contestants with an entry of 223.08 bushels per acre (bpa). It’s the second-highest yield recorded in the contest, which began in 2016 and is designed to encourage wheat growers to strive for high yield, quality and profit while trying new and innovative management strategies. DTN/*Progressive Farmer* is the official media partner of the competition.

Thanks to a favorable growing season for many farmers and the creation of a new website, interest in the contest soared in 2024. Anne Osborne, National Wheat Foundation (NWF) project manager, says total entries reached a record of 516. NWF also offered a new pilot category, Digital Yield, that allowed growers to use digital agriculture technologies and data from their calibrated grain cart scales to tally yields.



JASON JENKINS

The 24 national winners in the traditional categories had a yield average of 145.05 bpa. Though awards are determined by yield, emphasis is also placed on high-quality grain production. National winners submitted a 10-pound sample that was analyzed for milling and baking qualities, and additional awards were given.

MEET THE BIN BUSTERS

IRRIGATED WINTER WHEAT

Phillip Gross

Warden, Washington

Variety: Limagrain Cereal

Seeds Jet

Yield: 223.08 bpa



JIM PATRICO

If once is an accident, twice is a coincidence and three times is a pattern, what does four times represent? In the case of Phillip Gross, the answer may be a legend.

For the fourth time in the nine-year history of NWF’s contest, the Washington state farmer submitted the highest overall entry, earning “Bin Buster” honors with irrigated hard red winter wheat yielding 223.08 bpa.

Farming in the rain shadow of the Cascade Mountains in eastern Washington offers a unique set of challenges. Characterized by hot, dry summers and cold winters, the region’s climate presents conditions that can favor wheat production—or bring it to its knees. Irrigation is a necessity.

Gross’ winning entry of Limagrain Cereal Seeds Jet was planted on Sept. 15, 2023, in a conventionally >



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CONGRATULATIONS TO OUR 2024 NATIONAL WHEAT YIELD CONTEST NATIONAL WINNERS.

Dale Flikkema
WB9668

David Ebers
WB4422

Bruce & Helle Ruddenklau
WB9668

Jess Blatchford
WB6341

Jordan Christman
WB9590

Oree Reynolds
WB1621

Greg Messer
WB9590

Dallin Wilcox
WB7589

John Hofer
WB9590

John Wesolowski
WB9590

Austin Kautzman
WB9606

Brad Disrud
WB9590



tilled field behind a crop of sweet corn. The field received an inch of irrigation prior to planting.

Using a custom-made 60-foot double-disc drill with Great Plains openers, he planted the seed treated with CruiserMaxx Vibrance in 7.5-inch rows. In addition to a broadcast fertilizer package, Gross' in-furrow program contained trace minerals, biologicals, carbon to feed those bacteria and a cocktail of acids and enzymes, seaweed products and desert plant extracts—even a tiny amount of wood vinegar.

“We really focus on healthy roots and the root zone microclimate,” he says. “My motto is, ‘It’s only crazy if it doesn’t work.’”

Excellent fall growing conditions had the wheat leaping out of the ground. Emergence and tiller counts were both above average.

“But, winter was brutal,” Gross says. “We had really cold winds and no snow cover. A lot of the wheat was within an inch of death, but there was life left in those crowns.”

As spring arrived, he applied herbicides to control weeds, along with a fungicide and a topdress fertilizer pass. Then, he turned on the water. The field received a total of 15 inches.

“A lot of years, you’ll get hot winds that suck out the moisture and shrivel the grain,” he says. “This season, we had some of the best flowering and head-fill temperatures that we’ve seen in a long time.”

Gross says the crop management he employs is about pushing the boundaries of what’s possible. “There’s this huge, relatively unknown world beneath our feet,” he explains. “The bacteria, the fungi, the protozoa, the nematodes and how that whole system works is what I find interesting and intriguing.”

DRYLAND WINTER WHEAT

Steve VanGrunsven

Forest Grove, Oregon

Variety: Limagrain Cereal Seeds Shine

Yield: 170.63 bpa



JASON JENNINS

In Oregon’s Willamette River Valley, friendly competition amongst neighboring farmers reached national proportions again in 2024.

With a yield of 170.63 bpa, Steve VanGrunsven, Forest Grove, Oregon, took home the title of “Bin Buster” in the dryland winter wheat category. During the past five seasons, farmers from this region have earned nine national awards, including one Bin Buster each year. This marks VanGrunsven’s second time atop a category.

“I guess we’re showcasing Oregon’s soft white winter wheat production pretty well,” he says. “We’re fairly open with each other, but I guess maybe we don’t tell each other everything.”

Farming just 60 miles from the Pacific Ocean, the climate is temperate, and winters are generally mild. Annually, 40 inches of precipitation fall, though rain is rare in June, July and August.

“If we get an inch total in three months, that’s a wet summer,” he says. “Having that moisture through the winter and then that warm, dry summer really helps with harvest and our quality.”

VanGrunsven aims to produce a low-protein soft white winter wheat, so managing fertility is crucial.

“We don’t want excessive nitrogen there at the end to push our protein too high,” he explains. “For our export markets in Asia who pay a premium for our wheat, the goal is 7 to 9% protein instead of 10% plus.”

VanGrunsven planted Shine, a soft white winter wheat variety from Limagrain Cereal Seeds, on Oct. 7, 2023, in a silt loam field that had been in silage corn. He used a John Deere 8350 grain drill to plant the wheat treated with CruiserMaxx Vibrance at a rate of 1 million to 1.1 million seeds per acre on 6-inch row spacing.

Nutrients remaining from the previous crop fed the wheat through the winter. Once it broke dormancy, VanGrunsven made topdress applications that included SuperU, a stabilized urea product, along with smaller amounts of potassium and sulfur. He says his primary objective was keeping the plants healthy and growing, controlling diseases with three to four fungicide applications.

“We’re just doing what we can to maintain the yield potential of the genetics,” he adds.

VanGrunsven points out Mother Nature was kind to his wheat, providing “Goldilocks” conditions that were never too wet or too dry, too cold or too hot. “When we saw test weights in the 62- to 63-pound range, we knew we were going to be in good shape,” he says.

IRRIGATED SPRING WHEAT

Jess Blatchford

Baker City, Oregon

Variety: WestBred WB6341

Yield: 174.74 bpa



CHELSEA BLATCHFORD

Jess Blatchford farms in the high desert country of eastern Oregon where seasons are short. He topped the irrigated spring wheat category with 174.74 bpa of WestBred WB6341, a soft white spring wheat variety.

His winning field of wheat was in the Baker Valley, which sits at an elevation of about 3,400 feet. ▶



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GRAIN CRAFT



STATES SUPPORTING OUR CONTEST



OFFICIAL CONTEST PUBLICATION:





It receives 6 to 8 inches of rainfall per year.

Blatchford applied 18 to 20 inches of water to the crop through sprinklers.

“It’s a good climate for wheat. We were hot this year with 10 days above 100°F, but we only had three nights all summer long that it didn’t drop below 60°F,” he says, noting late and early frosts are always a threat.

“My farm was formed off an alluvial fan. So, I have areas that have good, deep soils and other areas that only have about 5 inches of topsoil with a lot of river gravel and rock,” he says. The wheat contest field was planted to potatoes in 2022 and corn in 2023, and seeded in 6-inch rows at about 120 pounds per acre.

“We have a lot of residual fertility after potatoes. About what we put on the corn is what it takes off. So, we soil-test to make sure what’s left and base applications on that,” Blatchford says.

His winning entry received 125 pounds of nitrogen, 41 pounds of potassium, 44 pounds of sulfur, 20 pounds of magnesium and 7 pounds of manganese per acre prior to seeding. Around late May, just before leaf extension, he dropped another 25 pounds of nitrogen, 10 pounds of phosphorus and 17 pounds of potassium through the high-clearance sprayer in a pass with herbicide and fungicide.

Most of Blatchford’s production ends up in the export market. Livestock feedlots that buy and grind wheat for feed are also important customers.

“I cut the wheat about as high as I can get away with for the grain and then come back with the draper header on the swather to windrow all the straw and bale it. Baling helps manage residue. We’re getting 5.5 tons (per acre) of straw out here, and trying to get that all worked in is cost prohibitive from a fuel standpoint,” he says.

“The key to making spring wheat yield is selecting a variety that suits the climate of the valley and giving the crop what it needs in a timely manner,” Blatchford explains.

DRYLAND SPRING WHEAT

Nick Pfaff

Bismarck, North Dakota

Variety: Croplan 3099A

Yield: 117.60 bpa



ASHLEY PFAFF

Nick Pfaff says there is one ingredient vital to wheat yield—rainfall.

The Bismarck, North Dakota, farmer won top honors in the dryland spring wheat category with Croplan 3099A, a hard red spring awnless variety

that yielded 117.60 bpa. The winning field received 22.3 inches of precipitation during the season.

“Fields that received more in the 20-inch rainfall range (with the same inputs) were about 15 bushels off of this field,” Pfaff says.

On average, he spread 100 to 180 pounds of urea per acre in a variable-rate application ahead of planting. He followed with 80 pounds of starter (12-36-6 plus 5 pounds of sulfur) while drilling in 7.5-inch spacings on April 25, 2024. The crop followed soybeans and was seeded at 120 pounds per acre with a target population of 1.4 million plants per acre.

A fertility booster of 10 gallons per acre of 28% liquid nitrogen (30 pounds nitrogen per acre) was applied when the wheat was about 10 inches tall. A routine fungicide treatment was used to protect against fusarium head blight and other diseases. In general, beardless (also known as awnless) varieties can be more susceptible to disease.

“The upside is the awnless wheat has a longer maturity (92 days) and gives us a longer harvest window. This variety is extremely durable and holds up to wind and weather,” Pfaff says.

The offset is the increase in stalk strength and the volume of material generated, which requires combines to slow to 3 to 3.5 mph or slower. The heads of awnless wheat are also larger.

“We really like this wheat for its high yield potential, but it is lower in protein,” he adds. To boost protein, he applied another 30 pounds of nitrogen per acre (10 gallons of UAN plus 10 gallons of water) postanthesis (flowering) before the wheat berry started to become milky.

The field remains part of the yield equation in this region of central North Dakota along the upper Missouri River.

“Fields closer to the river are more nutrient dense and are almost always guaranteed to yield better—no matter the rainfall received,” Pfaff explains. “Since the farm is geographically spread out, I think about harvest logistics and try to place seed varieties with good durability against lodging in those northern fields.

“I’m focused on yields, but I’m also putting an emphasis on return on each input. We need yield, but it must make sense,” he says. ///



FOR MORE INFORMATION

Visit www.wheatcontest.org
for a complete list of contest rules.

MEET THE 2024 NATIONAL WINNERS

WINTER WHEAT DRYLAND

First Place: Jeffery Krohn

Owendale, Michigan
Variety: DF Seeds 271
Yield: 170.10 bpa

Second Place: Clint Zenner

Genesee, Idaho
Variety: Limagrain Cereal Seeds Shine
Yield: 167.03 bpa

Third Place: Garrett Warren

Dayton, Washington
Variety: Limagrain Cereal Seeds
50% Shine/50% Jefe
Yield: 164.68 bpa

Fourth Place: Scott Truskowski

Stewartsville, New Jersey 
Variety: Dyna-Gro 9070
Yield: 152.33 bpa

Fifth Place: Mark Deysher

Bath, Pennsylvania 
Variety: Seedway SW 65SR
Yield: 152.32 bpa

WINTER WHEAT DRYLAND ABOVE COUNTY AVERAGE

First Place: David Ebers

Wellston, Oklahoma 
Variety: WestBred WB4422
Yield: 136.42 bpa, 350.52%
above Lincoln County, Oklahoma, average

Second Place: Koby Dickerson

Vernon, Texas
Variety: Limagrain Cereal Seeds Steel AX
Yield: 102.80 bpa, 305.69% above
Wilbarger County, Texas, average

Third Place: Tom Hill

Tonkawa, Oklahoma
Variety: Limagrain Cereal Seeds Warbird AX

Yield: 135.64 bpa, 282.72% above Kay
County, Oklahoma, average

Fourth Place: Dylan Lindsey

Lamont, Oklahoma
Variety: Limagrain Cereal Seeds Atomic AX
Yield: 130.05 bpa, 270.51% over Grant
County, Oklahoma, average

Fifth Place: Cheryl Lindsey

Tonkawa, Oklahoma
Variety: PlainsGold Kivari AX
Yield: 130.32 bpa, 267.71% above Kay
County, Oklahoma, average

WINTER WHEAT IRRIGATED

First Place: Oree Reynolds

Castleford, Idaho 
Variety: WestBred WB1621
Yield: 220.81 bpa

Second Place: Zach Balahtsis

Tonkawa, Oklahoma 
Variety: Limagrain Cereal Seeds
Warbird AX
Yield: 177.52 bpa

SPRING WHEAT DRYLAND

First Place: John Wesolowski

Warren, Minnesota
Variety: WestBred WB9590
Yield: 114.93 bpa

Second Place: Dale Flikkema

Bozeman, Montana 
Variety: WestBred WB9668
Yield: 113.74 bpa

Third Place: Bruce & Helle Ruddenklau

Amity, Oregon
Variety: WestBred WB9668
Yield: 106.95 bpa

SPRING WHEAT DRYLAND ABOVE COUNTY AVERAGE

First Place: Greg Messer

Richardton, North Dakota
Variety: WestBred WB9590
Yield: 106.65 bpa, 166.49% above Stark
County, North Dakota, average

Second Place: Austin Kautzman

Mott, North Dakota 
Variety: WestBred WB9590
Yield: 90.13 bpa, 147.01% above Grant
County, North Dakota, average

Third Place: Jordan Christman

Hettinger, North Dakota
Variety: WestBred WB9590
Yield: 87.36 bpa, 137.40% above Adams
County, North Dakota, average

SPRING WHEAT IRRIGATED

First Place: Dallin Wilcox

Rexburg, Idaho 
Variety: WestBred WB7589
Yield: 169.94 bpa

Second Place: Joel Zwainz

Reardan, Washington 
Variety: WSU Tekoa
Yield: 165.35 bpa

PILOT DIGITAL YIELD – SPRING WHEAT DRYLAND

High Yield: Brad Disrud

Rolla, North Dakota
Variety: WestBred WB9590
Yield: 102.00 bpa

High Above County Average: John Hofer

Milnor, North Dakota
Variety: WestBred WB9590
Yield: 98.00 bpa, 61.98% above Ranson
County, North Dakota, average



Beyond the Bushels

The relationship between wheat yield and quality is complicated. To avoid compromise, the National Wheat Foundation (NWF) includes both components in its annual yield contest. Each national winner submits a sample for analysis of grain characteristics such as test weight and protein. Flour characteristics such as falling number, gluten strength, consistency and stability are evaluated. Hard wheat entries are baked into bread, and soft wheat entries are evaluated as sponge cake and sugar cookies.

A panel from across the wheat industry evaluates the entries based on recognized standards. NWF Director Brian Walker says it is important feedback.

“Adding quality components to the contest rewards those who achieve both, while we continuously improve and evolve. And it recognizes that each crop year can be different,” Walker adds.

 = Quality Award Winner



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¹Results based on internal John Deere strip trials. Results vary based on crop. Weed-control results based on dual-tank operation, adding an additional herbicide that could not be added to an existing herbicide mix in a single tank. Individual results will vary.

²Compared to broadcast spraying.

³See & Spray Premium is currently available for MY2018 or newer sprayers. See your John Deere dealer for details.



JOHN DEERE



Balancing Act

I have a 348 John Deere baler that has always had a vibration in it that I thought was excessive. It's like the whole baler had a shake to it. The vibration grew greater as the rpm increased. The dealer told me that I probably needed to change the bushing in the flywheel. I did, but it did not help. I noticed that the flywheel had some big places hollowed out (see photo below). A guy at the dealership told me that these must be little places in the casting they took out. What could be my vibration problem? I know it's hard on my baler, and I'm afraid it will cause my sheet metal to crack.

Steve: The flywheel on your baler is a heavy casting that spins very fast with a lot of energy behind it. That much weight spinning fast will certainly shake, rattle and roll a baler if the flywheel is not balanced or if the shaft is not spinning true and is wobbling.



In this case, I bet your problem is with the output shaft that comes from the gear case and through the flywheel. The flywheel is carefully balanced at the factory by drilling those round areas to create the balance, not remove defective material.

I think the output shaft is bent. This shaft is big, but if something were to hit the outside edge (like a truck backing into it), or if it was dropped at the dealership, it can bend. These balers are shipped with the flywheel facing down on a trailer, and if it were to fall off the truck or from the dealership's crane, the force would bend that shaft. A dial indicator placed between the baler and the flywheel while rotating the flywheel with the shear pin in place will show excessive movement of the flywheel.

Longer Life

I have been having turbocharger problems lately with my larger farm tractors. I seem to be replacing the turbocharger more than in previous years. Can you give me some advice on turbocharger maintenance and operator awareness on how to extend the life of a turbocharger?

Steve: The turbocharger is a device that boosts power and performance of an internal combustion engine (see photo, top right). It uses otherwise wasted exhaust gases to pressurize the cylinder and help scavenge the cylinder at the end of the exhaust



Have a mechanical problem you can't resolve? Email Steve Thompson at askthemechaniccolumn@gmail.com

Please include your contact information and phone number.

stroke. Because it uses exhaust gases to spin a turbine, the heat associated with this device is extreme, so operator awareness is critical for its life. It can reach spinning speeds of 120,000 rpm when the engine is under load.



Due to this excessive speed, the turbocharger balance is critical. If you look at the compressor end of the turbo, you will see that the end nut has been sliced or ground off. This is normal, as this is where the turbocharger gets its balance. Check to see if there is any sign of the turbine scraping on the housing. A bearing failure could be in the process if scraping is seen, which can throw the complete shaft out of balance.

Always allow the engine to warm up to operating temperature if possible, and before shutting down, let the engine cool down at idle for several minutes. This practice will extend the life of a turbocharger. You also may want to check the lube tube from the turbocharger to its drain location for blockage. ///

SAFETY TIP

Lawn mower blades usually run around 3,000 rpm, reaching speeds of around 18,000 feet per minute, or roughly 250 mph. The actual mph speed can only be derived from the radius of the blade and the actual rpm. However, these numbers represent a big danger when the lawn mower blade is not balanced. The faster something is rotating, the more crucial the balance becomes to eliminate vibration.

The lawn mower blade shown (see photo) was one of a set of three blades that came to my shop to be sharpened. This is absolutely the worst possible example of blade sharpening that I have ever seen. Never weld on a lawn mower blade. Even after sharpening, the blade should always be balanced.

Note: The guy who brought these lawn mower blades to be sharpened did, in fact, tell me the mower was not cutting cleanly and had a terrible vibration in the deck.

You've got to be kidding me.





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¹Based on Group 15 soil half-life of Zidua® Pro herbicide followed by Outlook® herbicide.

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Our company was founded more than 60 years ago in Sheffield, Iowa. Today we are known as the world's largest family-owned and operated manufacturer of grain storage, drying, and handling equipment. Sukup Manufacturing Co. has been known for understanding the agriculture industry's needs and providing

innovative solutions to effectively address those needs. We remain committed to that today.

Producers can confidently protect and preserve their grain with our solutions, whether storing for weeks, months, or longer. From corn and beans to grains and nuts, storing now can maximize profits later. Our bins are versatile, accommodating pistachios, rice, canola, wheat, coffee, and more.

Sukup bins and dryers are iconic in the agricultural landscape, symbolizing opportunity, and control for producers. On-site storage empowers producers to manage their harvests effectively. We believe those products symbolize opportunity; on-site storage puts the producer in control.

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grain. Synk is in beta testing, and had a limited release of phase 1 in February. We believe this will shape the future of farming worldwide.

Embracing the challenge of my lifelong mantra, "Grow it or make it" I remain committed to continuous improvement.

Committed to innovative solutions —
that is Sukup's mission.



To learn more about all our products, visit Sukup.com. To learn more about our innovative on-farm solutions, visit Synk.com.



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Read more at sukup.com/products/paddle-sweepway.



New EID Rules For Cattle

Q We sold some pairs recently, and our veterinarian said we had to have electronic ID (EID) tags in every animal for the health certificate. We did not have to do this last year. When did this become required?

A **DR. McMILLAN:** There was a significant rule change by the USDA that took effect Nov. 5, 2024. After this date, official ear tags for almost all cattle and bison must be both visually and electronically readable. The rule's goals, according to the USDA, are "to enhance disease traceback, limit the spread of devastating diseases and provide information needed for foreign countries to recognize disease-free regions."

While some producers have concerns over this rule, I have long worried that we don't have a good animal disease traceability system anymore. At the peak of the brucellosis and tuberculosis eradication program, almost every cow had an official ID that traced back to the farm of origin—the old reliable silver or orange metal tag.

The new USDA rule applies to:

- > all sexually intact cattle and bison 18 months or older
- > all dairy cattle
- > cattle and bison of any age used for rodeo or recreation events
- > cattle or bison of any age used for shows or exhibitions.

States may set stricter standards, however. Wisconsin, for example, requires official ID for all cattle and bison except beef steers. Michigan has had electronic identification tag rules in place for several years.

The tags must:

- > be approved by the USDA
- > meet quality and performance standards
- > be tamper proof
- > contain a unique ID
- > display the U.S. official ear tag shield.

The only tags that meet federal requirements are AIN (Animal Identification Number) ear tags commonly known as "840" tags. AIN tags begin with the official country code ("840" for the U.S.) followed by 12 digits. With some of these

tags, the EID part is the button back for the visual tag, but I prefer a visible tag and a separate EID button, since the button is much less likely to be lost than a visual tag.

Shearwell Data has a new EID tag similar to the old metal ear clips. I have never used these tags, but I am very interested in hearing from anyone who has experience—either good or bad—with them.

Q We are having issues with EID tags. We have lost several and have had some of the buttons get infected and had to be removed. Do you have any suggestions to prevent this? What do we need to do if a tag is lost?

A **DR. McMILLAN:** The first step to prevent both infection and tag loss is proper technique. Always clean the ears with a disinfectant such as chlorhexidine. Proper placement is critical. Both tags and button backs should be placed between the two cartilage ridges in the center of the ear. If using a separate visual tag and EID button as I recommend, the tag should be about halfway between the head and the tip of the ear. The button should be placed closer to the head. Make sure you have the right tagger and the correct pin for the tags you are using. Just because the button back goes on the pin does not mean it's a match. The wrong pin may damage the shaft or may not seat it correctly into the tag.

If tags are properly placed, the most common correctable reasons for tag loss are not removing twine or net wrap from hay bales, heavy brush or small trees on which the tags can get caught. Always remove twine and net wrap.

For more information on proper ear-tagging, I recommend the Canadian Cattle Identification Agency website at retentionmatters.ca.

One thing I wish our industry and the USDA would work to develop is microchips for permanent identification combined with a visual tag. I have personally implanted thousands of microchips in pets with no issues. We have an operation that uses goats, donkeys, sheep, pigs, rabbits and mice to produce antibodies for use in human and veterinary medicine. They are all "chipped," and we have never had an issue with a lost or migrated tag in the 17 years I have worked with them.

If you lose an EID tag, I recommend calling your state veterinarian's office to ask for help. ///

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.

These are only my thoughts and general guidelines. Please get with your veterinarian and together develop the best program for your herd.

Envita[®] Makes a Difference. And It Shows.



These two pictures were taken in Wisconsin, in the same field, on the same day. The difference is Envita. Envita is a nitrogen fixing product which allows the crop to fix its own nitrogen throughout the growing season. There's not just a difference in the pictures, but also a difference in yield. The Envita-treated crop produced a full 12 bushels per acre more than the one on the left.

With results like these, it's no surprise that Envita has been revealed as the third most common biostimulant¹ used by North American farmers.

Envita can be applied either in-furrow or foliar. It can also be tank-mixed with other inputs like starter fertilizer or herbicides, offering maximum in-season flexibility and suitability to different production systems. Envita doesn't just go to work on the surface of the crop; it works inside plant cells, fixing nitrogen in high-growth areas, where and when it is needed the most.

Gluconacetobacter diazotrophicus (Gd), the active microbe in Envita, establishes itself inside plant cells, capturing atmospheric nitrogen and making it crop-available for a season-long supply of nitrogen, right inside the cell.

Envita provides nitrogen in the right place and at the right time, throughout the growing season.

¹ Stratus Ag Research, 2023 data

During the growing season, nitrogen demand is high during cob and pod fill. This period generally coincides with a lower supply from the soil, leaving the crop with few options other than cannibalizing the leaves to fill the grain. Without abundant nitrogen in the leaves, there is a shortage of chlorophyll, photosynthetic activity is diminished and a significant decrease in yield occurs.

With Envita, grains get their nitrogen on demand to fill in-season needs, not at the expense of other tissues but from Gd. With a constant supply of nitrogen, physiological activity is not interrupted nor limited by supply issues. This keeps the crop in contention and allows it to keep building yield.

With a wide window for application, Envita can be used in-season to boost nitrogen supply when growing conditions cause nitrogen loss. This offers maximum flexibility in responsiveness and brings a new source of nitrogen to the crop.

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- Envita doesn't just work on corn and soybeans: you'll see the Envita effect on most crops.
- North American farmers have already used the technology on more than two million acres of cropland.
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- Envita SC is OMRI Listed[®] for organic operations, providing a needed solution where sources of nitrogen are limited.

Envita fits your farm, whatever and wherever you're growing. Azotic backs Envita with a Performance Guarantee Program to give you a risk-free way of trying the product.

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Solid Foundation Builds Calving Success

Genetic and phenotypic selection tools plus nutrition provide formula for making improvements in herds.

Successful calving starts way before the cow goes into labor. For Mississippi cattiewoman Rylie Melancon, a successful calving season starts when selecting females for the herd and continues through all stages of development.

“We need cattle that can survive on grass, are easy keeping and have a good maternal longevity,” she explains. “Phenotypically, they have to be correct on their feet and legs. We want females that are the right size to be easy keeping on grass. When we are considering maternal traits, we also check their teats when they are in the chute as a heifer. Even when they are young, you can get a pretty good idea of what their udder might look like by teat placement and length.”

Melancon raises Angus, Hereford and Brahman-influence cattle in southwest Mississippi with her parents, Ron and Shauna, and brother, Stran. The 2023 Texas Tech University graduate knew she wanted

to come back to the family ranch and has been involved in making replacement selections, breeding choices and other management decisions for several years.

When selecting replacement heifers, the Melancons’ primary tools used include balanced EPDs (expected progeny differences), genetic testing and phenotypic traits for structural soundness and doability.

Iowa State University Extension cow/calf specialist Randie Culbertson says properly developing heifers to meet a weight target and maturity is important. “Once heifers have matured, breeding to the right bull by using EPDs for calving ease can help prevent calving difficulties,” she says.

“Genomic testing is revolutionary in terms of how soon you can get information on a young heifer. Early identification of reproductively inferior heifers allows producers to make culling decisions earlier,” Culbertson continues. Looking at all traits, including economic indexes, which combines several traits to see the economic efficiency of a heifer, will help lead to more profitability in the long run.



Woodville, Mississippi, cattiewoman Rylie Melancon uses both genotype and phenotype when selecting cattle for her family’s herd.

> BULL SELECTION

Bull selection is important, as well, especially for Melancon, who is working with bigger groups of cows. “We continue to improve the genetics of our herd to match the demands of the industry,” she says. “We want to positively mate our cattle, not correctively mate them.” Melancon explains they want to select bulls to help make small improvements to the genetics they have worked to build through the years.

Currently, they are putting more emphasis on EPDs to make improvements on the carcass side, but she says they don’t want to ignore the other growth traits and the importance of a structurally correct animal. They like to find two or three bulls to use in their artificial insemination (AI) program in each of the breeds in order to see more consistency among the calves.

Culbertson says it’s important to carefully evaluate what bull to use. Using the different tools available while making bull selections helps with consistency.

Melancon does DNA testing of all animals in the herd to help predict what to expect in calves. EPDs require collecting weights at birth, weaning and yearling time periods; but through genetic testing, Genomic Enhanced EPDs (GE-EPD) can give a more confident selection



tool. Culbertson says this is becoming more of the gold standard for genetic selection and is also available for commercial herds.

The GE-EPDs are the best estimate of an animal’s genetic value as a parent when combining all available sources of information. This allows for higher accuracies of EPDs when the animals are younger. Traditional EPDs only get higher accuracies as weights are turned in on progeny.

Culbertson says being able to decipher the difference in what data is being considered is important. When looking at one trait, such as birthweight, other traits could be affected, which is why she prefers the GE-EPDs and looking at the animal’s rankings in >



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Hereford, Angus and Ultrablack bulls are developed to be sold in two bull sales each year at the MG/AM operation in southwest Mississippi.

comparison to all animals in the breed. She suggests doing research on the cattle in your herd and the bulls you plan to use, as each herd and breed will have differences.

Melancon agrees that genomic testing is important in their herd. It ensures the data they have on their cow herd and the cattle they offer for sale have EPDs that are as accurate as possible. “We want to have a balanced profile on the cattle in our herd. Genotype and phenotype are very important. We know what we see phenotypically, and with the genomic testing, we can stand behind their data, as well,” she adds.

When selling cattle, especially bulls, the Melancons want to provide customers with the information they need to be successful. The recent addition of Ultrablack bulls for their customers is meeting the demand of the Southern cattleman—providing performance genetics with tolerance to heat. These cattle are composites with validated and documented lineage that have the right percentage of Brangus breeding with the remainder being registered Angus. Melancon is excited to see how these cattle work for their customers by adding growth, power and hybrid vigor to a herd, and having EPDs for predictability.

> NUTRITION MATTERS

Genomic testing is an inexpensive way to know what to expect from animals genetically at a younger age. However, nutrition is also a big contributor to development and growth during an animal’s lifetime.

“Environmental influence doesn’t tell me about genetic influence,” Culbertson says. “While it doesn’t change the genetics present, if an operation sees drought or not can have a big influence on weights.”

Nutrition starts from the very beginning for calves by getting the proper amount of colostrum in a timely manner. Leading up to that point on the cow side, Melancon says they are fortunate in their area to have green grass most of the year. On their farm, native grasses are hearty, but they interseed rye in late fall to ensure they have feed for the cows. In the winter months—from November through early January—haylage is fed to the cows followed by being transitioned to the ryegrass and getting additional dry hay for roughage until April.

Weaning comes at different times depending on summer grass growth. Fall calves are usually weaned in May or June. Spring calves are weaned in July or August.

“We like to calve half the herd in the fall and half in the spring to be able to sell older bulls in our sales,” Melancon explains. “This also allows us to target the markets right on our commercial calves.”

All calves are developed on a ration that includes soybean meal, pellets and hulls, with some corn gluten flakes. Cows with young calves are fed protein supplement to ensure good milk production as they transition to raising their calves on grass. All cattle are also on a complete mineral program.

Overall, selecting the right genetics and providing proper care of cattle throughout their lifetime helps ensure success each calving season. For Melancon, watching the changes in the industry isn’t as hard when using the proper tools to make improvements in the herd. And, knowing how to alter nutrition based on environmental changes helps ensure performance at all phases of development. ///



Scientific Discovery Stuns Doctors

Biblical Bush Relieves Joint Discomfort in as Little as 5 Days

Legendary “special herb” gives new life to old joints without clobbering you. So safe you can take it every day without worry.

According to the Centers for Disease Control and Prevention, more than 54 million Americans are suffering from joint discomfort.

This epidemic rise in aching joints has led to a search for alternative treatments—as many sufferers want relief without the harmful side effects of conventional “solutions.”

Leading the way from nature’s pharmacy is the new “King of Oils” that pioneering Florida MD and anti-aging specialist Dr. Al Sears calls “the most significant breakthrough I’ve ever found for easing joint discomfort.”

Biblical scholars treasured this “holy oil.” Ancient healers valued it more than gold for its medicinal properties. Marco Polo prized it as he blazed the Silk Road. And Ayurvedic practitioners, to this day, rely on it for healing and detoxification.

Yet what really caught Dr. Sears’ attention is how modern medical findings now prove this “King of Oils” can powerfully...

Deactivate 400 Agony-Causing Genes

If you want genuine, long-lasting relief for joint discomfort, you must address inflammation. Too much inflammation will wreak havoc on joints, break down cartilage and cause unending discomfort. This is why so many natural joint relief solutions try to stop one of the main inflammatory genes called COX-2.

But the truth is, there are hundreds of agony-causing genes like COX-2, 5-LOX, iNOS, TNK, Interleukin 1,6,8 and many more—and stopping just one of them won’t give you all the relief you need.

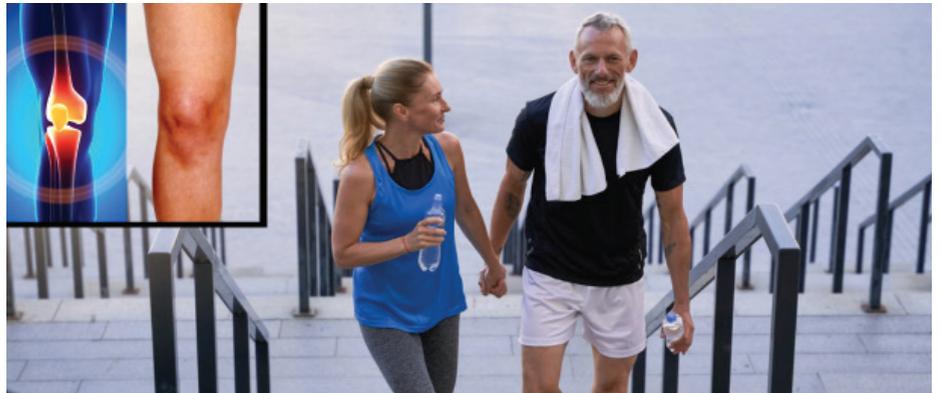
Doctors and scientists now confirm the “King of Oils”—Indian Frankincense—deactivates not one but 400 agony-causing genes. It does so by shutting down the inflammation command center called Nuclear Factor Kappa Beta.

NK-Kappa B is like a switch that can turn 400 inflammatory genes “on” or “off.” A study in Journal of Food Lipids reports that Indian Frankincense powerfully deactivates NF-Kappa B. This journal adds that Indian Frankincense is “so powerful it shuts down the pathway triggering aching joints.”

Relief That’s 10 Times Faster... and in Just 5 Days

Many joint sufferers prefer natural solutions but say they work too slowly. Take the best-seller glucosamine. Good as it is, the National Institutes of Health reports that glucosamine takes as long as eight weeks to work.

Yet in a study published in the International Journal of Medical Sciences, 60 patients with stiff knees took 100 mg of Indian Frankincense or a placebo daily for 30 days. Remarkably, Indian



The active ingredient in Mobilify soothes aching joints in as little as 5 days

Frankincense “significantly improved joint function and relieved discomfort in as early as five days.” That’s relief that is 10 times faster than glucosamine.

78% Better Relief Than the Most Popular Joint Solution

In another study, people suffering from discomfort took a formula containing Indian Frankincense and another natural substance or a popular man-made joint solution every day for 12 weeks.

The results? Stunning! At the end of the study, 64% of those taking the Indian Frankincense formula saw their joint discomfort go from moderate or severe to mild or no discomfort. Only 28% of those taking the placebo got the relief they wanted. So Indian Frankincense delivered relief at a 78% better clip than the popular man-made formula.

In addition, in a randomized, double blind, placebo controlled study, patients suffering from knee discomfort took Indian Frankincense or a placebo daily for eight weeks. Then the groups switched and got the opposite intervention. Every one of the patients taking Indian Frankincense got relief. That’s a 100% success rate—numbers unseen by typical solutions.

In addition, BMJ (formerly the British Medical Journal) reports that Indian Frankincense is safe for joint relief — so safe and natural you can take it every day.

Because of clinically proven results like this, Dr. Sears has made Indian Frankincense the centerpiece of a new natural joint relief formula called **Mobilify**.

Great Results for Knees, Hips, Shoulders and Joints

Joni D. says, “**Mobilify** really helps with sore-

ness, stiffness and mild temporary pain. The day after taking it, I was completely back to normal—so fast.” Shirley M. adds, “Two weeks after taking **Mobilify**, I had no knee discomfort and could go up and down the staircase.” Larry M. says, “After a week and a half of taking **Mobilify**, the discomfort, stiffness and minor aches went away... it’s almost like being reborn.” And avid golfer Dennis H. says, “I can attest to **Mobilify** easing discomfort to enable me to pursue my golfing days. Definitely one pill that works for me out of the many I have tried.”

How to Get Mobilify

Right now, the only way to get this powerful, unique formula that clobbers creaking joints in as little as five days without clobbering you is with Dr. Sears’ breakthrough **Mobilify** formula. It is not available in stores.

To secure your bottle of this breakthrough natural joint discomfort reliever, buyers should call with Sears Health Hotline at **1-800-211-7705**. “The Hotline allows us to ship the product directly to customers.”

Dr. Sears believes in this product so much, he offers a 100% money-back guarantee on ever order. “Just send me back the bottle and any unused product within 90 days, and I’ll send you your money back,” said Dr. Sears.

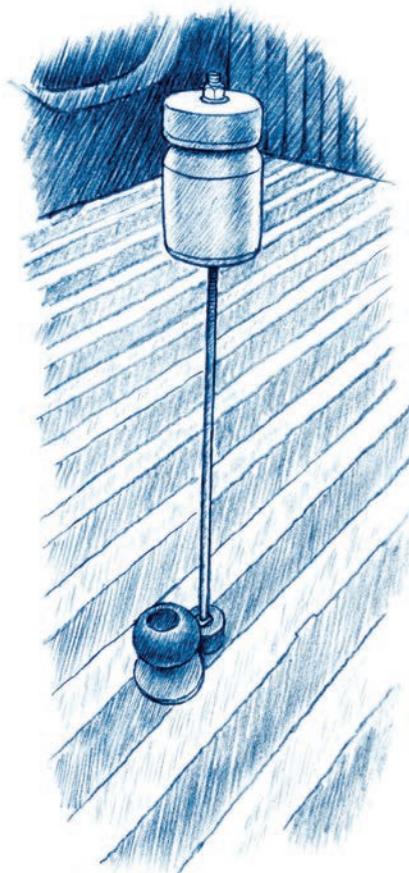
The Hotline will be taking orders for the next 48 hours. After that, the phone number may be shut down to allow them to restock. Call **1-800-211-7705** to secure your limited supply of **Mobilify**. If you are not able to get through due to extremely high call volume, please try again! Call NOW to qualify for this limited time offer provided at a significant discount. To take advantage of this exclusive offer use Promo Code: **PFMB325** when you call.

Handy Devices

Easy-to-build ideas make your work easier.

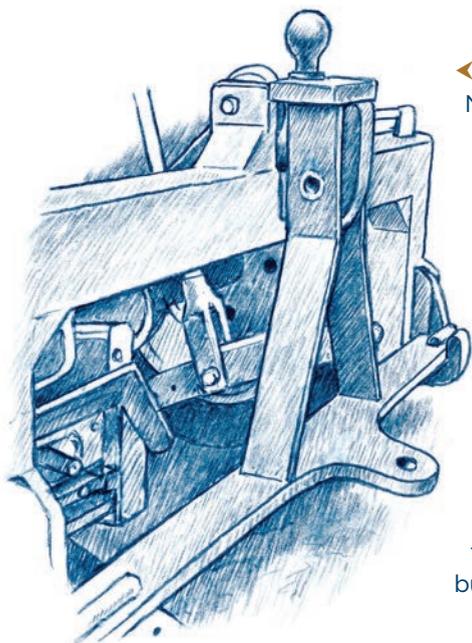
GOOSENECK GUIDE ›

George Sarver, Latexo, Texas, built an easy guide to help him line up the gooseneck trailer hitch to the ball in the bed of his truck. He used a piece of threaded rod with a heavy magnet screwed to the bottom and a discarded bottle placed at the top. A nut and washer above and below the bottle holds it in place. With the ball locator, it's easy to line up truck and trailer.



‹ QUICK HITCH

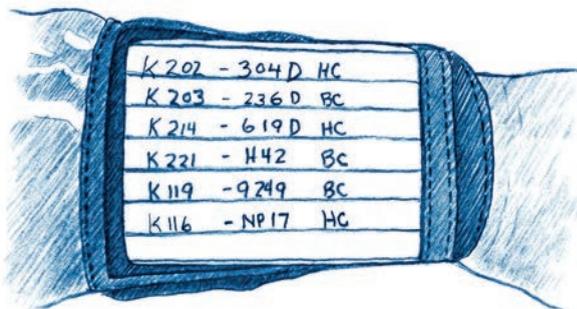
Noah Walder, Mitchell, South Dakota, needed a way to quickly hitch and unhitch a gooseneck or bumper hitch trailer while moving them around with his tractor. He used $\frac{3}{8}$ -inch steel to build the frame holding the ball and 1-inch steel to support the frame and attach the assembly to the tractor hitch. With this, he easily hitches the tractor to a gooseneck or bumper hitch.



NOTES AND HANDS ›

Jim Davis, Lexington, North Carolina, came up with a simple way to handle notes and free up a hand. While working cattle, he uses a wrist band with a plastic window cover to hold notes.

The notes are used while sorting cattle—for example, sorting cow/calf pairs to be separated from the rest of the herd. The wrist band frees up a hand, and the plastic cover protects the notes from wind, rain or dust.



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 (X, 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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A Quiet Roundup

For eight decades, this rancher has practiced patience overseeing cattle on his family's South Dakota ranch.

Bill Adrian leans forward on his mount, a 17-year-old pinto named Hawk. We're on thousands of acres of fluttering grass, rolling hills and buttes along Cut Meat Creek in south-central South Dakota, near White River.

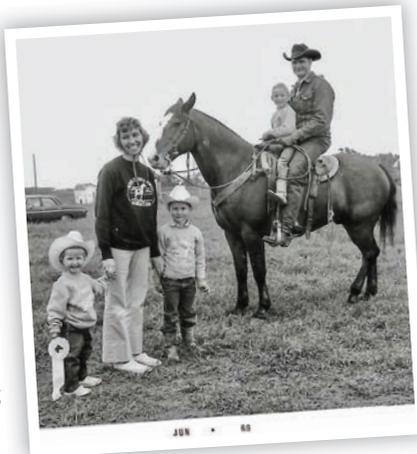
Hawk is touching noses with a contrary Red Angus yearling determined to slip into a tree-lined draw, away from the several dozen head that Bill and his daughter, Colette Adrian Kessler, are nudging toward the ranch's main corrals.

"Tell him to get back in the bunch, Hawk," Bill says during the face-off. Within seconds, the horse steps slightly to one side, and the steer turns back into the desired direction and saunters toward the rest of the cattle.

Many of us have grown up with the movie and storybook image of cattle drives that feature the animals running and cowboys whooping and hollering

amid massive clouds of dust. The reality for Bill, 87, is much more sedate, deliberate and by design.

"Anytime these animals are moving beyond their natural pace," he says, "they are burning energy and losing weight. And, weight is what you have to sell, so moving slow is the low-cost way." The result is a "roundup" that's easier on the cattle as well as the horses and riders.



> BORN TO BE A COWBOY

It's hard not to take the word of a guy who's been handling cattle from a saddle for literally 84 years. At age 3, Bill saddled his Shetland pony, Ned, to help his dad go after a cow hesitant to pass through a pen gate.

"No, you get back to the side," his father, Earl, told him.

Young Billy didn't really listen. "I put the bridle on and away we went," he recalls. "I rode out there, the cow

looked down at me on this little pony and then came right through the gate.”

Bill Adrian has been training his own saddle horses and coaxing cattle ever since, particularly at the end of every August, when family members and friends help round up about 1,300 head that have been pasturing on the ranch since May. This past year, the family has been custom-grazing cattle owned by Nebraska-based investors.

Like a good cowboy, Bill—and really everyone now involved in the roundup—will patiently take the time to coax a single animal back to the desired pathway. He has emphasized quietly working cattle with his kids and grandchildren.

“It might seem to take longer to work cattle slower, more intentionally,” says his daughter, “but it is better for everyone. I have seen Dad on his horse alone handle cattle more effectively than a crew of cowboys. This is like playing chess, and Dad is very good at it.”

In fairness, the chess game has slowed a bit for the elder Adrian. He uses an overturned bucket to hoist himself into the saddle. Though he never lets on, spending hours in the saddle isn’t easy in your 80s.

Bill and Donna with their three children in 1969 (lower left); Collette Adrian Kessler, Bill and Donna Adrian, and granddaughter Mariah Kessler (below)

> A FAMILY AFFAIR

What Bill and his wife, Donna Adrian, did—and are still doing—is create a place of love, support and cooperation for family and friends. Though they have careers elsewhere in the state, Colette and her daughter, Mariah Kessler, pine to get back to this ranch, this work, this life as often as possible.

“I became who I am today because of spending time out there growing up,” says Mariah, the communications director for the South Dakota Soybean Association. “I’ve always been pulled back to it. I remember learning food production and preservation from Grandma and being sent out by horse, by yourself, to fix fence or other problems on the ranch.”

Bill and Donna’s son, Chuck Adrian, moved back six years ago with his wife, Bobbi, to work the ranch full time after 25 years as a car technician at a dealership in Rapid City.

“I had a good career for 25 years,” Chuck says. “But, I was ready to do something different and wanted to do it while I was still young enough. My parents created an environment that people wanted to come back to. And, I wanted to help this ranch continue.”

Even though both now drive about 22 miles to work (Chuck to the ranch and Bobbi to teach at a school on the Rosebud Indian Reservation in Mission), their time spent on those trips isn’t any longer than their morning commutes in Rapid City.

The family has endured heartbreak. Chuck and Colette’s two older brothers, Ken and Jeff, who were involved with the ranch on a regular basis have passed away, Ken from cancer three years ago and Jeff in an electrical accident on the farm 25 years ago. To this day, Jeff’s wife, who lives nearby, is still a regular ranchhand.

The ranch encompasses more than 10 square miles and combines privately owned grasslands with leased land. In addition to the summer pasture rental, the family maintains a small cow/calf herd and breeds pinto horses. Their mares and colts become strong running in these wide-open spaces, training for when they’ll be saddle horses capable of covering miles during work.

The family has also operated Adrian Trucking for years. Several decades ago, Bill, with the help of investments from local ranchers, established a state-certified commercial truck scale. The scale complements the trucking business and serves as a major convenience for ranchers to weigh livestock, hay, feed >



and grain without having to haul product miles to the next nearest scale.

The trucking business is the main reason Bill and Donna moved into White River 37 years ago—the town offered a centrally located lot for their trucks with quick access to paved highways. Their Cut Meat Creek Cattle Co. is actually located 22 miles southwest of town on dirt-to-gravel roads.

“You don’t tell a customer you can’t haul their load this week because you can’t get out on your ranch’s muddy roads,” Bill says. “We needed a better location on the highway.”

> **COMMUNITY SERVICE**

The Adrians’ marriage of 62 years may be a bit shy of Bill’s history as a horseman, but it’s just as enduring. Donna grew up 10 miles west of White River and was attending business college in Rapid City when they met at a local dance.

“I came home on weekends because I didn’t really like the city life,” Donna says. “I was looking for a tall cowboy, and there was Bill at this dance.”

In addition to helping manage the ranch, Donna has her own lauded history of work in the community. In 1997, her late son, Jeff, who was the county Extension agent, convinced her to sign up for the first master gardener class, ensuring there would be at least one person in attendance.

“I think we ended up with 32 people, and many of us still meet once a month,” she explains. She later taught the classes herself, both in White River and on the Rosebud Reservation. She also wrote articles on gardening for area newspapers. In addition, she’s volunteered for years with the Mellette County Historical Society, helping to secure a building donation for their museum.

Both Bill and Donna have served as officers in the state and national Pinto Horse Association while showing their ranch horses. Their home’s trophy case is brimming with awards from when Bill was competing in halter and performance classes.

On the second day of what is generally a three-day yearling roundup, Bill and Donna are posing for photos with the expanse of their ranch in the background. A good portion of the time she is giggling as Bill tries to

hug then kiss her. This is a brief respite before both go back to work.

If this were a Western movie, you’d expect the tall cowboy to mount his horse and gallop into the sunset. Not here, not now. It’s early morning, and Bill Adrian and Hawk move off at an easy pace, just enough to keep the cattle walking in the right direction. ///



□ *Mariah Kessler stands atop a butte that dots part of the family ranch (above). Two young cowboys-in-training sit on the bunkhouse porch (right). Chuck Adrian gets ready for the day’s work with his father, Bill (bottom right).*



Popular CoQ10 Pills Leave Millions Suffering

Could this newly-discovered brain fuel solve America's worsening memory crisis?

PALM BEACH, FLORIDA — Millions of Americans take the supplement known as CoQ10. It's the coenzyme that supercharges the "energy factories" in your cells known as *mitochondria*. But there's a serious flaw that's leaving millions unsatisfied.

As you age, your mitochondria break down and fail to produce energy. In a revealing study, a team of researchers showed that 95 percent of the mitochondria in a 90-year-old man were damaged, compared to almost no damage in the mitochondria of a 5-year-old.

Taking CoQ10 alone is not enough to solve this problem. Because as powerful as CoQ10 is, there's one critical thing it fails to do: it can't create new mitochondria to replace the ones you lost.

And that's bad news for Americans all over the country. The loss of cellular energy is a problem for the memory concerns people face as they get older.

"We had no way of replacing lost mitochondria until a recent discovery changed everything," says Dr. Al Sears, founder and medical director of the Sears Institute for Anti-Aging Medicine in Palm Beach, Florida. "Researchers discovered the only nutrient known to modern science that has the power to trigger the growth of new mitochondria."

Why Taking CoQ10 is Not Enough

Dr. Sears explains, "This new discovery is so powerful, it can multiply your mitochondria by 55 percent in just a few weeks. That's the equivalent of restoring decades of lost brain power."

This exciting nutrient — called PQQ (*pyrroloquinoline quinone*) — is the driving force behind a revolution in aging. When paired with CoQ10, this dynamic duo has the power to reverse the age-related memory losses you may have thought were beyond your control.

Dr. Sears pioneered a new formula — called **Ultra Accel Q** — that combines both CoQ10 and PQQ to support maximum cellular energy and the normal growth of new mitochondria. **Ultra Accel Q** is the first of its kind to address both problems and is already creating huge demand.

In fact, demand has been so overwhelming that inventories repeatedly sell out. But a closer look at **Ultra Accel Q** reveals there are good reasons why sales are booming.

Science Confirms the Many Benefits of PQQ

The medical journal *Biochemical Pharmacology* reports that PQQ is up to 5,000 times more efficient in sustaining energy production than common antioxidants. With the ability to keep every cell in your body operating at full strength, **Ultra Accel Q** delivers more than just added brain power and a faster memory.

People feel more energetic, more alert, and don't need naps in the afternoon. The boost in cellular energy generates more power to your heart, lungs, muscles, and more.

"With the PQQ in Ultra Accel, I have energy I never thought possible at my age," says Colleen R., one of Dr. Sears's patients. "I'm in my 70s but feel 40 again. I think clearly, move with real energy and sleep like a baby."

The response has been overwhelmingly positive, and Dr. Sears receives countless emails from his patients and readers. "My patients tell me they feel better than they have in years. This is ideal for people who are feeling old and run down, or for those who feel more forgetful. It surprises many that you can add healthy and productive years to your life simply by taking **Ultra Accel Q** every day."

You may have seen Dr. Sears on television or read one of his 12 best-selling books. Or you may have seen him speak at the 2016 WPBF 25 Health and Wellness Festival in South Florida, featuring Dr. Oz and special guest Suzanne Somers. Thousands of people attended Dr. Sears's lecture on anti-aging breakthroughs and waited in line for hours during his book signing at the event.

Will Ultra Accel Q Multiply Your Energy?

Ultra Accel Q is turning everything we thought we knew about youthful energy on its head. Especially for people over age 50. In less than 30 seconds every morning, you can harness the power of this breakthrough discovery to restore peak energy and your "spark for life."

So, if you've noticed less energy as you've gotten older, and you want an easy way to reclaim your youthful edge, this new opportunity will feel like blessed relief.

The secret is the "energy multiplying" molecule that activates a dormant gene in your body that declines with age, which then instructs your cells to pump out fresh energy from the inside-out. This growth of new "energy factories" in your cells is called



MEMORY-BUILDING SENSATION: Top doctors are now recommending new **Ultra Accel Q** because it restores decades of lost brain power without a doctor's visit.

mitochondrial biogenesis.

Instead of falling victim to that afternoon slump, you enjoy sharp-as-a-tack focus, memory, and concentration from sunup to sundown. And you get more done in a day than most do in a week. Regardless of how exhausting the world is now.

Dr. Sears reports, "The most rewarding aspect of practicing medicine is watching my patients get the joy back in their lives. **Ultra Accel Q** sends a wake-up call to every cell in their bodies... And they actually feel young again."

And his patients agree. "I noticed a difference within a few days," says Jerry from Ft. Pierce, Florida. "My endurance has almost doubled, and I feel it mentally, too. There's a clarity and sense of well-being in my life that I've never experienced before."

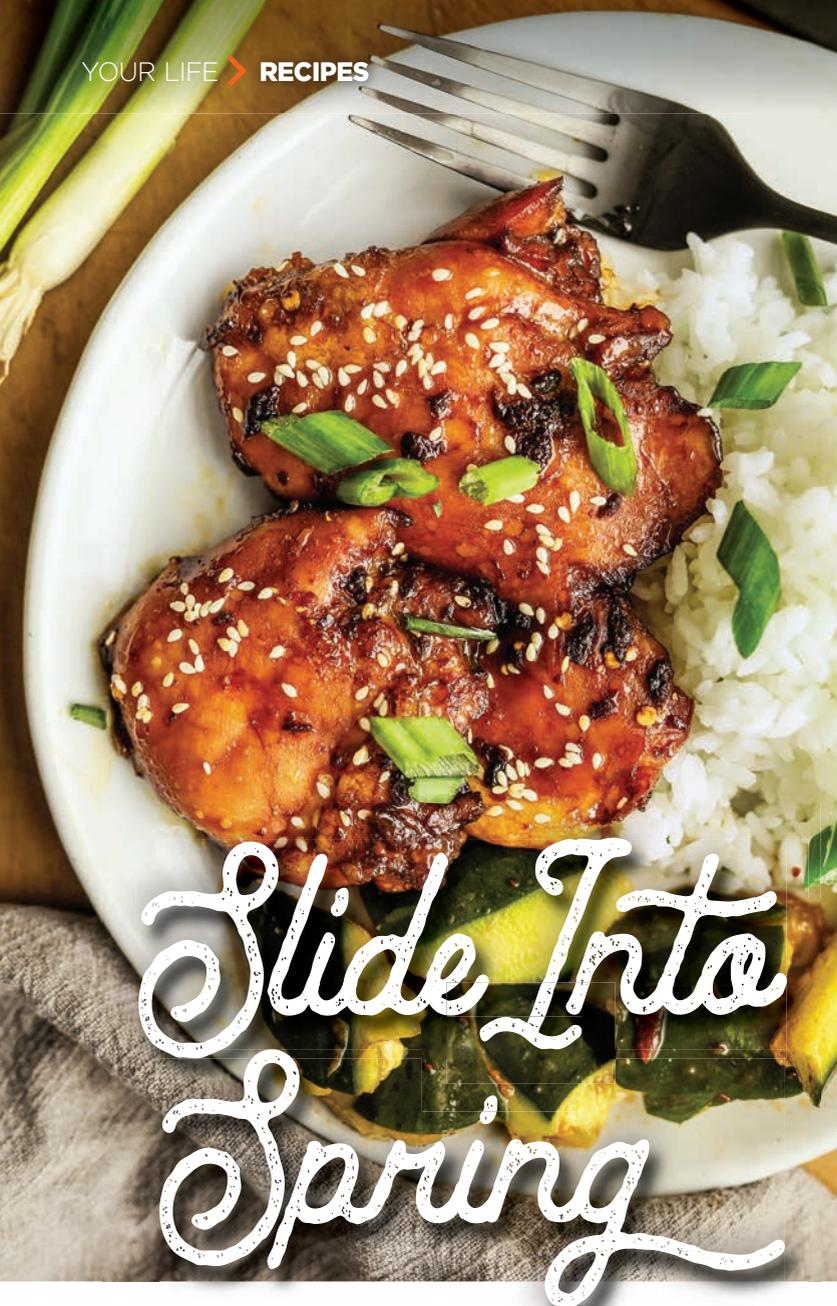
How To Get Ultra Accel Q

This is the official nationwide release of **Ultra Accel Q** in the United States. And so, the company is offering a special discount supply to anyone who calls during the official launch.

An Order Hotline has been set up for local readers to call. This gives everyone an equal chance to try **Ultra Accel Q**. And your order is backed up by a no-hassle, 90-day money back guarantee. No questions asked.

Starting at 7:00 AM today, the discount offer will be available for a limited time only. All you have to do is call TOLL FREE **1-800-997-7861** right now and use promo code **PFUAQ325** to secure your own supply.

Important: Due to **Ultra Accel Q** recent media exposure, phone lines are often busy. If you call and do not immediately get through, please be patient and call back.



Slide Into Spring

MAPLE-SOY GLAZED CHICKEN THIGHS

Even with a chill still in the air, the sweet-and-salty glaze on this chicken will beckon warmer days.

TOTAL TIME: 1 HOUR

SERVES: 6-8

1 tablespoon olive oil
1 cup maple syrup
¼ cup soy sauce
2 tablespoons sesame oil
2 teaspoons ginger powder
1 teaspoon sesame seeds
1 teaspoon ground black pepper

2 pounds boneless, skinless chicken thighs
Sliced green onions, for serving (optional)
Fresh cooked white rice for serving (optional)

1. Preheat oven to 350°F. Line a sheet tray with aluminum foil; brush with olive oil.
2. Combine maple syrup, soy sauce, sesame oil, ginger powder, sesame seeds and black pepper in a bowl.
3. Arrange chicken thighs on prepared pan; pour sauce over top. Using tongs, turn thighs in sauce until fully coated.
4. Bake 40 minutes or until chicken registers at least 165°F. Flip chicken again to coat in sauce.
5. Turn up oven to 400°F. Bake until sauce is thick and sticky, and the chicken is slightly charred (about 15 minutes).
6. Garnish with green onions; serve with white rice, if desired.

SMASHED CUCUMBER SALAD

Crushing the cucumber in this zesty salad brings forth flavors regular cukes can't.

TOTAL TIME: 1 HOUR 15 MINUTES

MAKES: 4-6 SERVINGS

2 cucumbers, peeled
1½ teaspoons kosher salt
1 teaspoon white sugar
1 clove garlic, finely crushed
2 tablespoons seasoned rice vinegar
1 teaspoon soy sauce
1 teaspoon sesame oil
1 teaspoon chili oil (optional)
2 teaspoons toasted sesame seeds



1. On a work surface, wrap cucumbers in a clean kitchen towel (you can also use a plastic bag). Using a meat mallet, smash cucumbers until they crack into pieces.
2. Break up cucumbers into bite-sized pieces; toss with salt and sugar. Refrigerate 30 minutes or until the cucumbers start to release their liquid.
3. In a small bowl, whisk the garlic, rice vinegar, soy sauce, sesame oil and chili oil (if using); mix well.
4. Drain cucumbers from their liquids; toss with soy dressing. Refrigerate another 30 minutes to allow the flavor to penetrate the cucumbers.
5. Sprinkle cucumbers with sesame seeds and serve. ///

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October

SOUTHERN Charm & Farm

From the charm of Charleston to the blue suede shoes of Memphis, inspect farms growing sweet potatoes, tobacco, watermelon, peanuts, pecans, and rice in Alabama, Arkansas, North Carolina, Tennessee, Georgia & more! Experience southern hospitality and great food.

August

ARGENTINA CHILE - PERU

Explore fascinating Machu Picchu & visit a table grape and citrus farm in Peru. Experience beautiful Santiago, Valparaiso and Vina del Mar in Chile. Enjoy a vineyard tour & wine tasting. See the world's largest cattle auction in Buenos Aires, travel to the pampas to meet Gauchos (cowboys) at a cattle farm & inspect their corn, soybean & sunflower fields before they host us for a BBQ. See wild Penguins!

January

HAWAII Island Cruise Tour

Explore 5 ports on 4 islands and only unpack once! 3 days by land & 7 days cruising. Visit a pineapple farm growing 300 acres of the famous Maui Gold variety, and also North America's largest coffee farm. Enjoy an authentic luau, Iolani Palace, and much more! Learn about Hawaiian culture at the Bishop Museum & see Volcanoes National Park. Visit Pearl Harbor and USS Arizona Memorial. A great winter getaway!

January • February

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

BRAZIL

See Soybean Harvesting & Planting. Talk with Farmers about logistics and operational costs. View Corn & Cotton in various stages and see cattle. Tour Mato Grosso, Brazil's largest agricultural state. Visit a sugarcane ethanol plant and one of the world's largest soybean farms with 150,000+ planted acres. See the Rainforest on an Amazon River Cruise & experience the world's largest waterfall - Iguassu Falls

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St. Jude patient Londyn blood cancer pictured with her dad, Anthony

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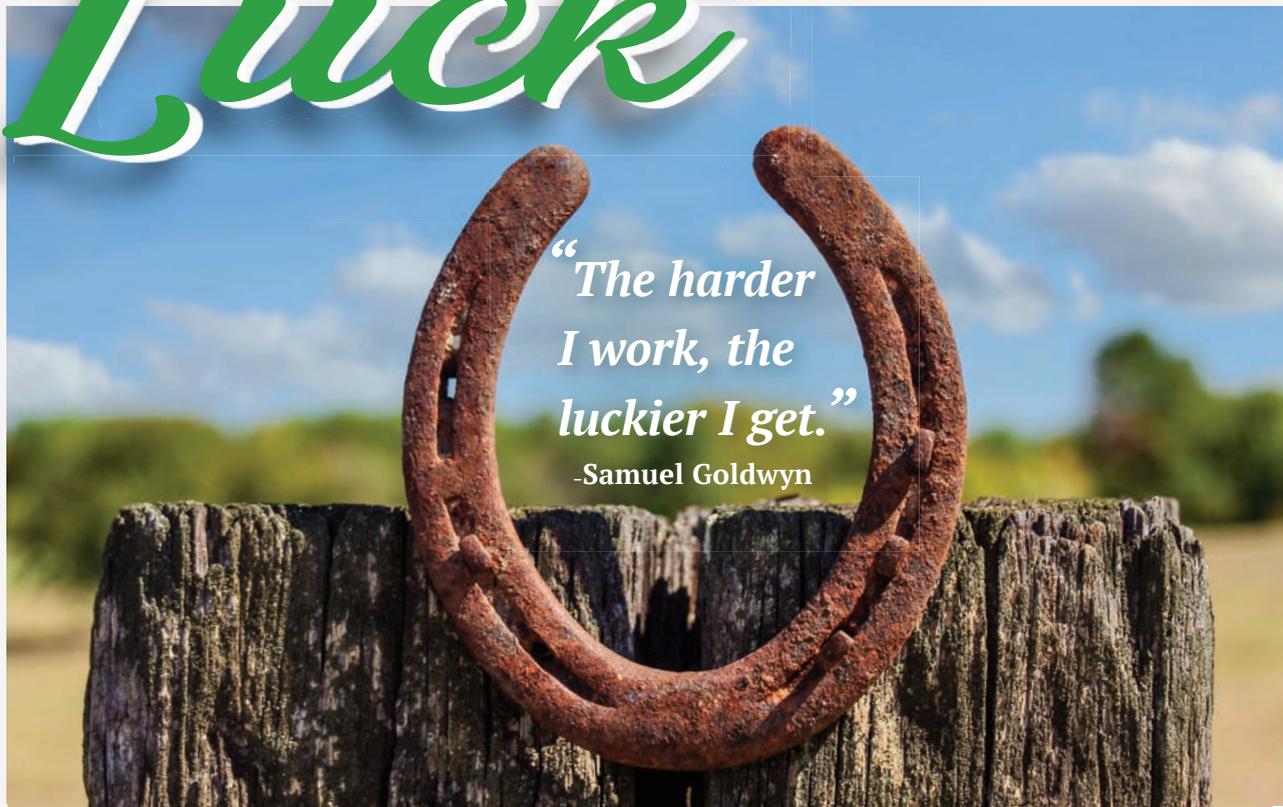
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Luck



*“The harder
I work, the
luckier I get.”*
-Samuel Goldwyn

GETTY IMAGES

In the long run, you make your own luck—good, bad, or indifferent.

LORETTA LYNN

Luck never gives; it only lends.

SWEDISH PROVERB

The best luck of all is the luck you make for yourself.

DOUGLAS MACARTHUR

If you are lucky enough to find a way of life you love, you have to find the courage to live it.

BETTE DAVIS

I am a great believer in luck, and I find the harder I work, the more I have of it.

THOMAS JEFFERSON

Luck? I don't know anything about luck. I've never banked on it and I'm afraid of people who do. Luck to me is something else: Hard work—and realizing what is opportunity and what isn't.

LUCILLE BALL

I believe luck is preparation meeting opportunity. If you hadn't been prepared when the opportunity came along, you wouldn't have been lucky.

OPRAH WINFREY

Luck is a very thin wire between survival and disaster, and not many people can keep their balance on it.

HUNTER S. THOMPSON

Those who have succeeded at anything and don't mention luck are kidding themselves.

LARRY KING

Things happen to you out of luck, and if you get to stick around it's because you're talented.

WHOOPI GOLDBERG

All that matters in business is that you get it right once. Then everyone can tell you how lucky you are.

MARK CUBAN

As regards the extraordinary prizes, the element of luck is the determining factor.

TEDDY ROOSEVELT

I returned, and saw under the sun, that the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favour to men of skill; but time and chance happeneth to them all.

ECCLESIASTES 9:11 (KJV)

Shallow men believe in luck. Strong men believe in cause and effect.

RALPH WALDO EMERSON

People always call it luck when you've acted more sensibly than they have.

ANNE TYLER

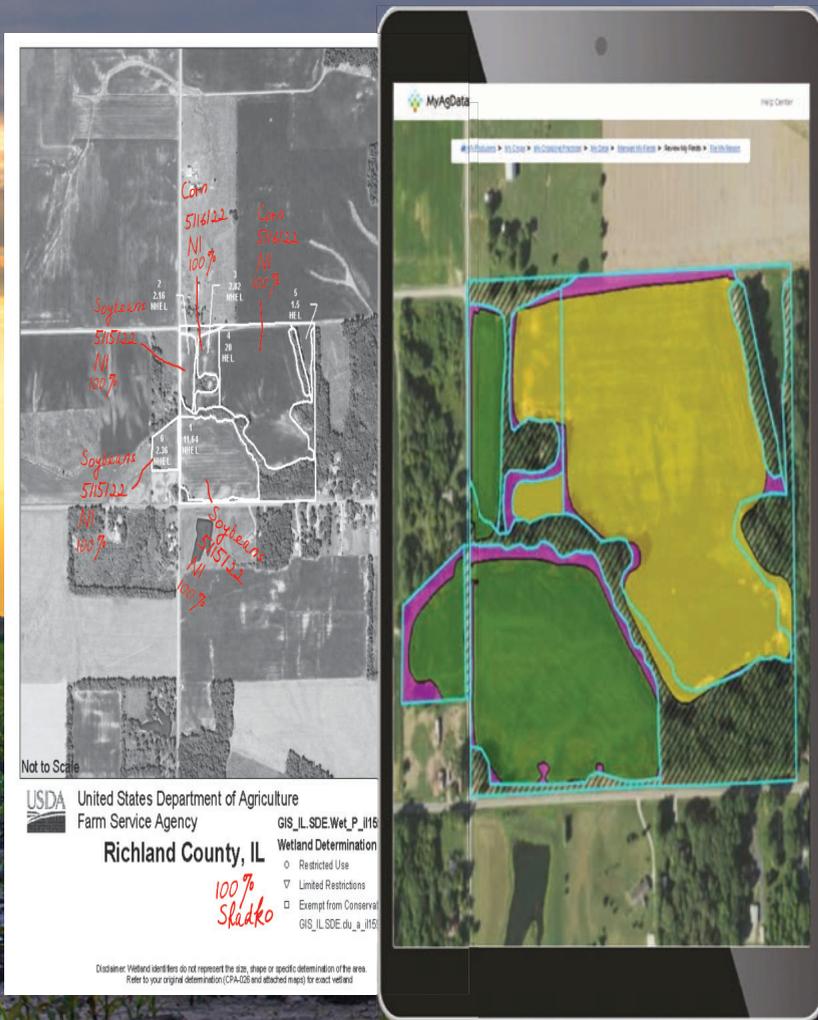
Luck can only get you so far.

J.K. ROWLING

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