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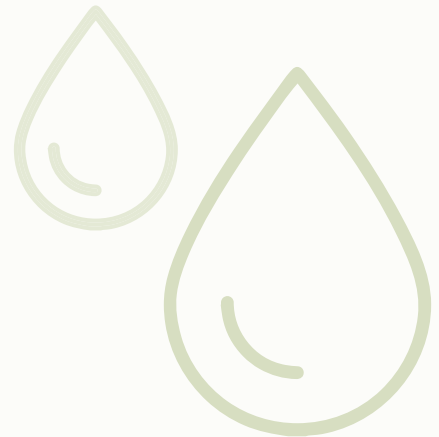


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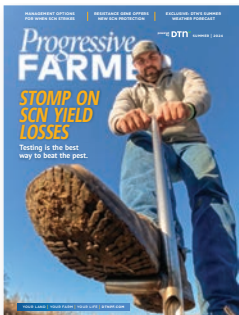
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PAVELA SMITH

SUMMER 2024
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ON THE COVER

Zach Grossman knows from experience that managing SCN starts with a soil sample to test for the pest.

PHOTO: JASON JENKINS

This is a good time of year to dig up soybean roots and see if soybean cyst nematode females (small white dots) are dining on them.

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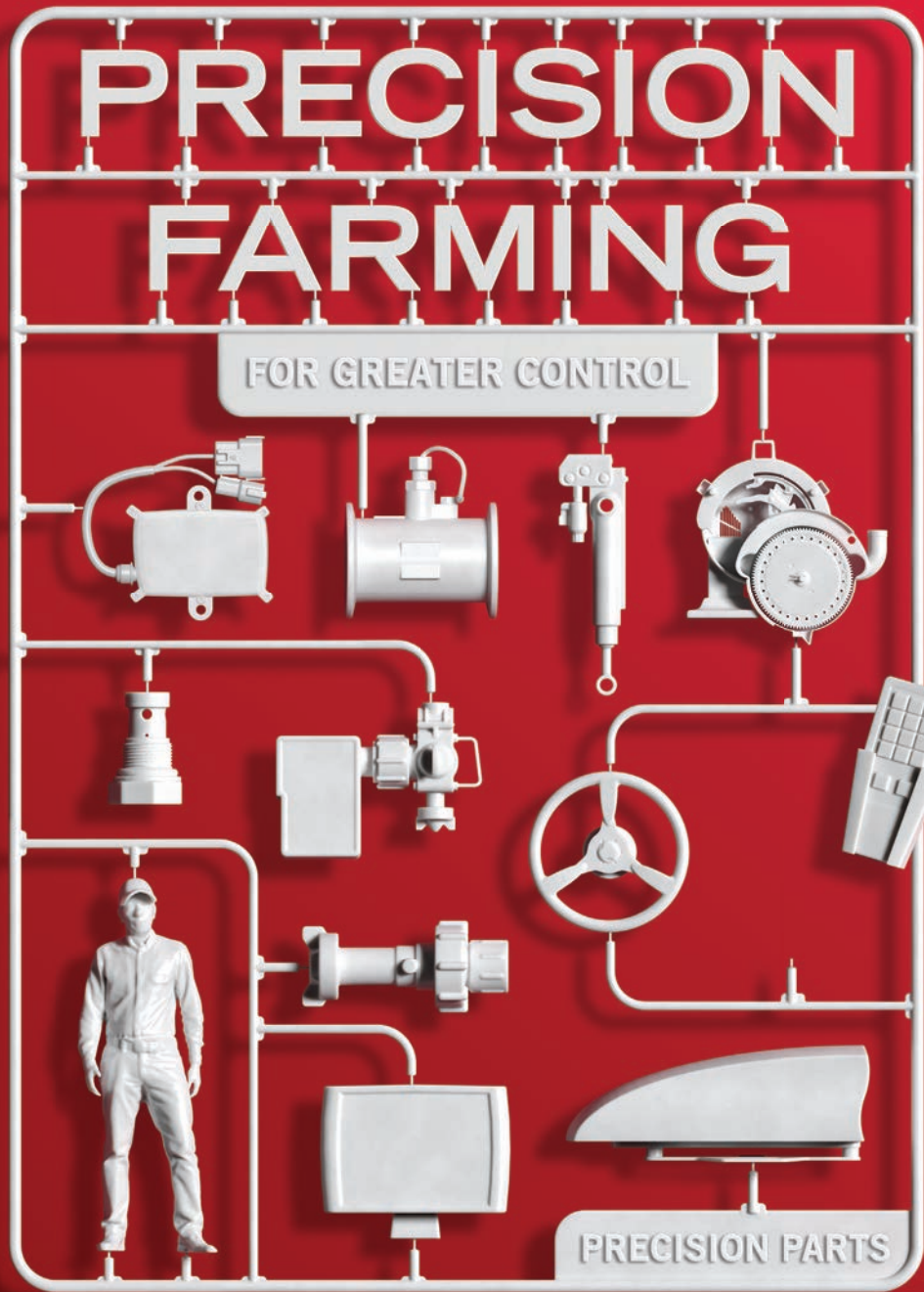
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Tech Critical To Close Food GAP

Innovation is synonymous with farming, yielding big results. According to USDA, technological advances have made it possible for America's farmers to nearly triple total agricultural output between 1948 and 2021.

But, where does ag stand globally to meet the challenge of feeding 9 to 10 billion people by 2050?

Experts use total factor productivity (TFP) to measure the amount of agricultural output produced from the combined inputs utilized by farmers—land, labor, capital, intermediate inputs. Growth in TFP indicates positive changes in the efficiency with which inputs are transformed into outputs. Long term, this growth is generally fueled by the adoption of new and updated technology by farmers, along with gains in labor and efficiency practices.

The most recent “Global Agricultural Productivity Report” (GAP), which includes the U.S., shows TFP from 2011 to 2021 grew an average of 1.14% annually. That falls well short of the 1.91% annual TFP growth needed to meet global food demands by 2050. In fact, TFP growth has dropped sharply compared to 2001–2010, when it was 1.93% annually. The GAP report authors concluded the slower rate suggests the pace of innovation and the adoption of ag innovations are declining, especially in low-income countries.

China and South Asia were the only world regions that experienced strong TFP, growing 1.97 and 2.18%, respectively, during 2011–2021. Meanwhile, annual average TFP growth in the U.S. has fallen from 1.49% during the 1990s to 1.39% in 2001–2010 to negative .01% through 2021. It's not a coincidence that in 2019, U.S. public ag research expenditures in constant dollars reached their lowest level since 1970, whereas China's ag research and development budget is now more than twice that of the U.S.

To jump-start the sluggish TFP growth to reach 1.91% and reduce the need to increase production by cultivating fragile lands or using unsustainable practices, GAP authors stress barriers must be reduced so farmers everywhere and at all scales of production can adopt appropriate and proven practices and technologies. These include:

- **Improved Genetics.** Enhanced crop and livestock genetics will help to maximize yield and nutritional quality, while minimizing input requirements and increasing tolerance to environmental stresses.
- **Precision Agriculture.** Data, technology and

automation are leveraged to make production management more precise and resource efficient.

- **Soil-Health Management.** Healthy soil practices reduce erosion, maximize water infiltration, improve nutrient cycling, reduce inputs and improve land resilience.
- **Integrated Production Systems.** Local integration of production practices (crops, livestock, aquaculture) increases output while strengthening ecosystem services and reducing the environmental impacts of resource use.
- **Pest/Disease Management.** Controlling these threats while also maintaining ecosystem services is critical to sustainable productivity growth.
- **Mechanization and Automation.** Machinery and agricultural engineering maximize labor productivity, improve output quality and maximize resource utilization efficiency.
- **Knowledge-Sharing Platforms.** Training on new and existing productivity-enhancing tools is necessary for optimizing the use of the tools, minimizing costs and maximizing uptake. Sharing knowledge on how to incorporate new technologies into indigenous farming practices is critical to attaining productivity growth.

America's farmers certainly know—and have demonstrated—the power of technology to help boost production. Yet, regulatory, political, social, economic and other roadblocks prevent many of the world's farmers from using some of these same tech tools. The GAP report presents a tech adoption road map to close the food fissure. But, it will also require adequate research funding across all countries to maintain stable and sustainable agricultural growth to meet the food needs of a global population.

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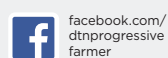
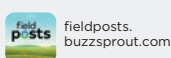
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Help Your Kids Save for Retirement

My oldest son got his first job last year and started putting money into a Roth IRA. I've always preached to my kids the importance of saving at an early age and "paying yourself first." A few months ago, I was listening to a podcast from an economist. He was talking about the younger generation (college age and younger) and how difficult it will be for that group to acquire enough wealth to retire comfortably.

The premise was that because of our current inflationary environment and issues with Social Security (i.e., our kids probably won't collect Social Security if they are financially solvent), if the younger generation wants to retire with income equal to \$100,000 in 2024 dollars, it will need approximately \$20 million. This, of course, follows the premise that these funds will not be depleted and will grow to keep up with inflation (the 4% rule of thumb).

Being a numbers guy, I did an inflation calculation to double-check these numbers. Rounding the numbers, an 18-year-old will need to draw \$500,000 at age 67 and \$1 million at age 85 to have a \$100,000 income in 2024 dollars. That's if inflation fluctuates between 3 to 4%. So, \$20 million might be on the high side, but it's not that far off.

A Helping Hand

When I heard this, my first reaction was, "What can I do as a parent?" I feel that my kids will face higher tax rates (both federal and state) and various surtaxes, which will make saving for retirement more difficult.

Let's look at a few things a parent can do to help their kids.

As a farmer, you are in a unique situation. You can pay your kids a reasonable, age-appropriate wage. It's a deduction to your farm, and more than likely, your kids won't have to pay tax minus FICA (Social Security) and FUTA (unemployment) on the wages. They can put the wages into a Roth IRA. If you start this at a young age, the Roth IRA will compound and grow over time, giving your kids a significant retirement account.

Many parents wait until later in life to gift money and assets to their kids. This is a flawed thought process. It might be better to gift them money now to put into a Roth IRA or to provide cash-flow so they can max out their

Roth 401k. This allows your "gift" to grow tax-free for 30-plus years. Think about this: Gifting \$100,000 over a period of 10 years when your kids are young could generate over \$3 million in IRA/401(k) wealth. That's likely more money than they would have inherited.

Educate and encourage your kids to invest in assets that can't be taxed by the federal government. If you can use tax dollars to grow wealth, you've won the game. For example, buy farmland. Farmland historically grows at 7%. You can use a 1031 exchange to avoid taxes while continuing to grow your investment. Even when you retire, you can collect rent on the land and avoid taxes since you didn't sell the land.

One popular method farmers use to avoid tax when they sell their farm is the Delaware Statutory Trust (DST). If this tax-deferral vehicle fits your exit strategy, you may want to gift a portion of your farm to your kids and allow them to invest in a DST along with you. A DST can be 1031ed into other DSTs so you can get tax-deferred growth. If your kids are young, rolling DSTs into new DSTs compounds growth and can create significant wealth.

The key for parents: Educate your kids on the need to start saving/investing at a young age, and to accumulate enough wealth to retire comfortably, focus on assets that aren't taxed until sold or distributed. ///

TOOLS FROM THE PAST

No, these glasses don't make their user look smarter. What is it?



Answer:

These are chicken eyeglasses used to prevent feather pecking and cannibalism. The rose-colored lenses were thought to keep the bird from recognizing blood on other chickens, which may increase the tendency for pecking. A pin through the nostril holds the glasses in place.



Rod Mauszycki

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

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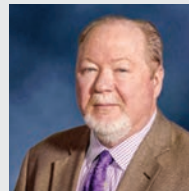
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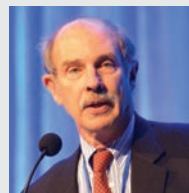
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Corn Prices Survive Bearish Winter

In the February issue, I talked about the bearish influence winter can have on commodity prices. In the case of corn, it was especially true this past winter, as the darker days followed a record U.S. harvest of 15.34 billion bushels (bb) and a return of U.S. ending stocks to levels above 2 bb. Combined with early expectations for big, upcoming harvests from Brazil and Argentina, the winter months were inundated with bearish expectations that kept potential buyers out of the market. Almost on cue, December 2024 corn hit a low of \$4.46 on Feb. 26, 2024, the lowest December price in three years.

Since then, the winter curse has lifted. USDA's ending stocks estimate is still large,

Strong Demand

A consistent performance of U.S. demand for corn is the other factor helping corn prices rise since winter. Thanks to active feed demand, ethanol production and export sales, USDA's March 1 "Grain Stocks" report showed 8.347 bb of corn on hand, confirming corn demand in the first half of 2023–24 was 710 mb higher than the same period a year ago. U.S. corn exports are currently up 34% from a year ago, and the U.S. has a good chance at becoming the world's top exporter again in 2023–24, one year after losing the crown to Brazil.

The most surprising indicator of strong corn demand in early 2024 is how the basis has steadily improved since harvest. Normally, basis strengthens after harvest and then levels out sometime after January. In 2024, the national corn basis, calculated from DTN's National Corn Index, has continued to strengthen and is now 15 cents below the May futures contract, the third strongest showing in 10 years for late April. A look at DTN's basis map shows above-average readings in Iowa, where ethanol demand has been active, and last year's production may not have been as generous as USDA's 2.52 bb estimate for the state. Other areas of strong corn basis are showing up in western areas of heavy livestock demand, where crops were also scorched by a stretch of hot and dry weather in the fall.

Room for Optimism?

As of late April, December corn prices have improved from the February low of \$4.46 to \$4.73, and the next big influence will come from the U.S. corn crop, a new season that is expecting the return of La Niña conditions (see DTN Meteorologist John Baranick's summer weather outlook, on page 12).

Thankfully for producers, the worst of winter's pessimism is behind us, and for the moment, the uncertainty of a new season offers some hope for better prices ahead. Seasonally speaking, the highest corn prices vary each year but tend to occur near early June. ///



JOEL REICHENBERGER



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Lead Analyst

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

2.12 bb at the time of this writing, but the South American season hasn't been as ideal as earlier anticipated. USDA holds to an optimistic 124.0 mmt (4.88 bb) corn production estimate for Brazil in 2023–24, while Brazil's crop agency, Conab, estimates production at 111.0 mmt (4.37 bb). Given Brazil's adverse weather and the weight of other private estimates, Conab's lower estimate looks like the more credible choice.



Katie Dehlinger
Senior Farm Business Editor
► Read Katie's business blog at
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Time To Reevaluate the Plan

Hopefully by the time this magazine issue lands in your mailbox, your corn is growing in weed-free rows, reflecting its timely planting and perfect early fertilizer application. Everything this spring went exactly according to your plans.

Or, did it?

It's incredibly unusual for anything to go exactly as planned, especially something with as many variables as planting a crop. Mother Nature's pretty good at throwing curveballs, too.

Now that the rush of the season is past, it's a perfect time to evaluate where you are, not just on your agronomic plan but also on your business plan.

"Are you still on the path to achieve what you hoped?" asks John Maman, senior director of business development at Nutrien Financial. "If you are, fantastic. What other ways can you gain success? If you are not, what conversations should you be having now that will help you gain the outcomes that you were looking for?"

For some producers, that will mean reevaluating fertilizer or fungicide applications. For others, it means a deeper look at the markets. Farmers across the country will be making space in

their bins, but is this the right time to make cash grain sales, or would it be better to sell the physical bushels and re-own them through futures contracts?

Some may need to scrutinize their spending so far this year. Where's the budget? Will that unplanned chemical application result in enough yield savings or growth to justify the expense? How much is on the operating note, and what's the interest rate?

These are all important questions farmers should be asking themselves as the crop grows.

Maman says there is a way to be profitable in every type of environment, even when commodity and input prices are challenging, such as they were this year. "It's about managing the variables that drive uncertainty and not having the variables manage you," he says. "It starts with support networks and keeping close to trusted advisers who are invested in your success."

Whether it's your crop consultant, banker, grain marketing adviser or someone else, now is the time to gather, assess and pick a path forward. Even though things rarely go as planned, the old adage remains true: Failing to plan is planning to fail. ///

CULTIVACE

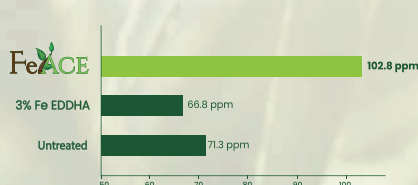
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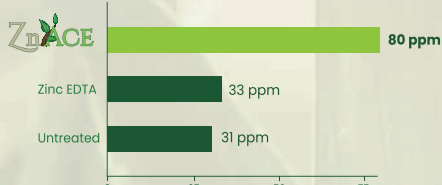
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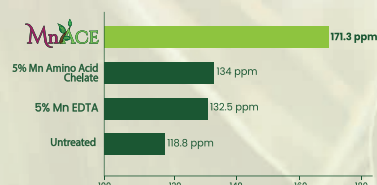
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Celebrate Summer “Wheatmas”

BY Jennifer Campbell



What is “Wheatmas” you might be asking? Is that even a real word?

If you follow me on socials or know me personally, then you know exactly what I am talking about. For me, Wheatmas is Christmas and wheat harvest combined. It is truly my favorite time of the year.

The miracle of planting a tiny seed in mid-October while all our other crops are mature and being harvested never fails to amaze me. I love watching it take root and survive winter to pull us out of the gray days with an early splash of green hope. Then, as corn and soybeans start to emerge in the spring to begin their life cycles, our winter wheat is maturing and getting ready for harvest, like it is showing us the promise of those crops, too.

Just as our favorite December holiday conjures up images of tinsel and scents of pine, Wheatmas brings its own sensory experiences.

The sights: Picture a vivid blue Indiana sky dancing with pure white, cotton candy clouds. All around is a sea of green in hundreds of shades, except for patches of shimmering gold waving in the breeze.

The smells: I love to close my eyes and smell the thick, warm earthy scent of freshly cut wheat mingled with the summer smells of blooming wildflowers and growing grass.

The sounds: The steady hum of the combine reel and the pings of wheat berries falling into the hopper play a familiar tune. It’s followed by little squeaks and the rhythmic sounds of balers working to gather straw. The pace is slower and more soothing than the rush-rush of corn or soybean harvest.

We have a very small wheat base, which allows me to relish and take in wheat harvest. As the world begins to flourish with the vibrant colors of summer, winter wheat delivers an important reminder that endurance and patience can turn into fields of gold worth celebrating. ///



Jennifer (Jent) Campbell celebrates wheat and a variety of other commodities from a seventh-generation Indiana family farm. She also writes a blog called Farm Wife Feeds (farmwifefeeds.com). Follow her on social platform X [@plowwife](https://twitter.com/plowwife) and on the podcast [@girlstalkag](https://www.podcast.com/girlstalkag)

Count Your Blessings

BY Meredith Bernard

It’s been said that in this life, you’ll only be able to count your true friends on one hand, and in that, you’ll be blessed. What about that? These days, it’s nothing to have thousands of friends, and in the same breath, we can “friend” and “unfriend” daily with a click. It’s almost as if friendship has become as consumeristic as shopping for a new car, which can be appealing, especially if you’re lacking in the “real” friend department. I know because I’ve been there.

I can’t speak for you, but I can speak for me and many other rural women I’ve met who admit that cultivating friendships can be hard. Some of us live 30 miles from the nearest town. Some of us live close to town but don’t know anyone like us who “gets” what farm and ranch life is like. It can be isolating and rob us of true friendships—but only if we let it. I know because I’ve let it. But I’ve also learned a few things.



You can find true friendship online. My best friend lives in Nebraska, and without the internet, we would have never met or had the opportunity to interact daily. There is nothing wrong with plugging into groups online with like-minded people and building friendships. Then, the sweetest days are when you get to meet in real life. I’ve also learned that there’s nothing wrong with stepping out of our comfort zones and making friends we can see on a regular basis. Have lunch with. Comfort, console, celebrate and cheer with. In real life.

“Yeah, Meredith, but I can’t find them.” Open your eyes and your heart, and they’ll find you. Church. School. Work. People are all around us, and when we open our lives to someone whose life is different than ours, we not only get to share the beauty of this rural life we love, we find common ground. And, another blessing to count. ///



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



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La Niña May Bring Heat This Summer

FIRST LOOK WEATHER LINK

“The change from El Niño to La Niña brings an elevated risk of hot temperatures to the entire country this summer, particularly in the Plains, though the rainfall pattern will likely be variable.”



John Baranick
DTN Meteorologist

► Read John's blog at [ABOUT.DTNPF.COM/WEATHER](https://www.dtnpf.com/weather)

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

El Niño, which was historically strong this past winter, whittled away in the spring. As of early May, conditions in the Pacific Ocean are heading toward normal, but only briefly, as ocean temperatures fall below normal and become a La Niña sometime this summer.

The return of La Niña will likely spark fears of poor weather conditions in the western half of the Corn Belt like we saw through much of the 2020–2022 growing seasons, when La Niña was in control.

La Niña usually has a stronger influence in the wintertime in the U.S. but can promote a stagnant ridge of high pressure in the upper levels of the atmosphere across the country. If the ridge is indeed stagnant, it could lead to hot and dry conditions during the midst of the reproductive stages for row crops and could cut yields.

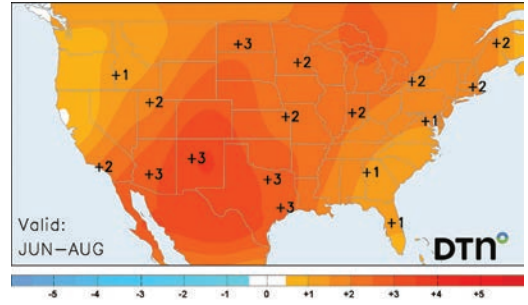
Both history and long-range weather models imply widespread heat this summer, but precipitation is a little more unknown. The western half of the Corn Belt is forecast to have poorer conditions than the east this year.

Here's a closer look at the summer weather outlook by region:

Pacific Northwest (Idaho, Oregon and Washington):

Good weather continued throughout most of the spring. Drought was limited mostly to the snowpack in the northern Rockies but saw better amounts in early May. Ample snowpack in the rest of the region should provide a good starting point for this year's crops. Weather will likely stay active and either side of normal early in the summer. But, as the season wears on, the likelihood for hotter stretches increases. That could occur beyond the life cycle of much of the region's row crops, but specialty crops and trees could face larger concerns later in the summer. That might be enough to provide fuel for wildfires going into fall.

Southwest: The spring weather pattern continued to stay active but was not enough to eliminate drought in the Four Corners area (southwest Colorado, southeast Utah, northeast Arizona, northwest New Mexico). Mountains have good snowpack on which to draw from, and water conditions in the region are getting back to normal levels. Unfortunately, the heat is likely to return



during the summer, especially later in the season. Models suggest that the monsoon rains will be limited. We could see drought increasing this summer, even though it is normally a dry season anyway.

Northern Plains: An active storm track has done much to limit the expansion of drought in the region but not completely eliminate it this spring. Soil moisture is starting the growing season with a good footing, however. June may be a good month for keeping this wetter period going as long as the upper-level ridge does not get its hold on the region early. But, later in the summer, when corn and soybeans are looking for good rainfall during pollination, there is a higher probability of hotter and drier conditions. We may see a good-looking crop turn poor throughout the summer season on fields without irrigation. Small grains may be able to escape the worst conditions, but farmers who graze or need hay might need to look outside of their operations.

Central and Southern Plains: The active spring pattern has been a blessing in some areas but skipped over others at times, leaving those in the southwest drier than normal and in need of frequent summer rainfall. May was also looking to be active, and depending on how the weather unfolded, we could see most areas in relatively good shape or poor shape entering the summer. If it is in poor shape, the risk is on for hot and dry weather during the summer that will likely sap soil moisture, possibly increase and expand drought, and leave livestock producers looking to import hay and feed.

Coastal Texas and Louisiana: An active storm track that developed over the winter

continued into the spring and brought areas of heavy rain that eliminated the drought from 2023. Dryness will be a major concern in early summer, as a hot ridge likely limits precipitation. However, there is potential for more tropical activity, especially later in the summer, which may increase showers coming off of the Gulf of Mexico and increase the threat for tropical storms.

Midwest: An active storm track over the spring brought most areas out of drought and reduced long-term rainfall deficits, but also left some areas a little too wet through early May. While this caused some delays to planting, it should have been a net benefit for the region. That might be needed, as temperatures are looking to be above normal for most of the summer. Rainfall is likely to be streaky and sporadic, but there is neither an above- or below-normal bent to it. Some areas will likely do just fine, while others will be begging for water.

Delta/Lower Mississippi Valley: Drought was eliminated over the spring with a very active weather pattern. That brought a bit too much rain at times and delayed planting in some areas, though most farmers were able to get an early start to their season. The region is

likely to see overall favorable conditions throughout the summer, though hotter stretches may occur. The rainfall forecast of near- or even slightly above-normal amounts is expected to keep crop conditions from declining too much throughout the season. However, if enhanced precipitation occurs due to a more active tropical storm season, flooding may be a bigger concern.

Mid-Atlantic and Northeast: Drought has not been an ongoing concern as the active spring weather pattern continued to bring ample moisture. Some areas of flooding early in the spring have abated, and growing conditions are good for most areas. While hotter stretches are likely and could last longer than what is typical this summer, the forecast of near-normal rainfall throughout the season should lead to overall good growing conditions.

Southeast: An active-enough storm track is leading to most areas going into the summer season with good conditions. History and models suggest the summer thunderstorm season will be active, or at least active enough, to continue fair to good growing conditions throughout the summer. With a La Niña, the region will have to watch for an increase in the tropical storms. ///



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Keep Soils Covered

That's the bottom line for this conservation-minded farmer who embraces cover crops and no-till.

> Story By **Dan Crummett**, Photos By **Joel Reichenberger**

When Joel Myers hangs up his “active farmer” cap at the end of the 2024 growing season, he plans to continue promoting no-till farming with the use of cover crops. That reflects the conservation passion he developed as a youth while watching his family repair gullies and washouts on the family farm.

This zeal no doubt influenced Myers’ professional career. He is a retired state agronomist for USDA’s Natural Resources Conservation Service (NRCS), a position he held for 16 years after climbing the ladder in the organization beginning as a soil conservationist in 1967. During that time, he worked with Penn State University and other entities promoting soil conservation, and is recognized as a driving force behind the creation of the Pennsylvania No-Till Alliance.

> CONSERVATION MODEL

Myers and his brother, Don, manage Myers Farm, in the middle of Pennsylvania near Spring Mills. At only 75 acres, it’s not a big operation, but the effects of their work have been felt across the state. The brothers made their operation a working demonstration model for conservation practices and a host site for tours.



The Sand County Foundation, which awarded Joel Myers the 2023 Leopold Conservation Award, reports Pennsylvania farmland managed with no-till rose from 20% in 2000 to roughly 70% today, and cover crops are now on over 40% of the acres. The foundation says Myers’ practical experience and outreach has been a factor in that adoption rate.

> A LONG ROAD

Myers Farm wasn’t always a conservation mecca. “When my father bought this farm in 1944, it had six fields with pasture fences overgrown in timber,” Myers explains. “He cleared the trees and old wire so he could strip-crop the land and begin contour farming. He grew hay and small grains because he had little equipment, plus it helped to control erosion.”

Over the years, Myers added corn and soybeans. By the 1980s, however, he was seeing visible signs of erosion after the soybeans.

By that time, Myers had become the state NRCS agronomist and was intrigued with area dairy producers who were on the cutting edge of the no-till movement. Myers had experimented for several years



□ *Cover crops keep the soil on the Myers Family Farm armored against erosion. The brothers plant a multi-species cover crop (see left photo) including tillage radish (bottom left photo).*

with contour farming, residue management, reduced tillage and crop rotations to slow erosion. He realized he had to get on board with no-till to address his own erosion problems. He and Don, who has an ag engineering background, bought a new John Deere corn planter as they began the switch away from tillage.

“I quickly realized no-till equipment had to be tweaked to work in various settings,” Myers explains. “We were planting into soils not at all adapted to no-till, and we needed better closing wheels to close the slot. I knew I had to learn the equipment side of no-till and how to adapt machinery to various conditions.”

Several years later, the brothers bought a used 3-point hitch Tye drill spaced on 10 inches for alfalfa and modified it to improve pressure on the closing wheels.

“It dawned on us with the drill and the planter we could go continuous no-till,” he says. Eventually, they had five different no-till planters and drills, which offered them the chance to learn and demonstrate machine differences to other farmers.

Currently, they run a 30-inch 4-row Kinze 3000 corn planter with frame-mounted 13-wave coulters, Dawn spiked row cleaners and spiked closing wheels, and a 10-foot Vermeer Haybuster 107C drill equipped with a legume box used to seed cover crops and forage seeding on 8-inch spacing.

➤ TURN TO COVER CROPS

The Myers’ farm averages less than a ton of soil loss per acre per year, including the rolling upland fields with rock outcroppings and a few 15% slopes. Also, regular

soil analysis through a commercial lab shows soil organic matter across the farm averaged 5% in 2023.

In recent years, the brothers adopted a corn/soybean/four-year alfalfa rotation. They began interseeding cereal rye or triticale in the alfalfa after the fourth cutting and saw it boosted yields and suppressed weeds. “We already were planting covers after soybean harvest, but Penn State had a four-year program to expand cover crop use, so we began planting soybeans green in covers and including cereal rye and wheat in the rotation,” Myers explains.

“I’d been impressed with cereal rye since the year I had a drill half-full of rye during deer season, and I planted in 2 inches of snow,” he recalls. “I had no idea what would happen. We had a thaw in January, and there was no sign of it. Finally, in March, the field was green, and that convinced me you can plant rye just about any time.”

Corn yields on the more productive fields in the system topped 100 bushels per acre, but the poorer soils dragged down the overall average. Soybeans averaged 35 to 40 bushels per acre, with 2023 yields topping 60 bushels. By planting soybeans as early as possible in green rye cover and then terminating the cover shortly after planting, the standing rye shields the tender seedlings, improving the overall stand.

In 2020, the Myers family downsized the farming operation and enrolled the back half of the property in the Conservation Reserve Program. At that time, the remainder of the farm was put into an oat-soybean rotation.

“We planted soybeans into green cover crop, harvested the beans and planted a winter wheat cover crop, burned it down in the spring and planted oats,” Myers explains. Oats yielded 100 bushels in 2021, which exceeded local averages and expectations. In 2023, however, drought held yields to 75 bushels per acre.

➤ KEEP IT GREEN

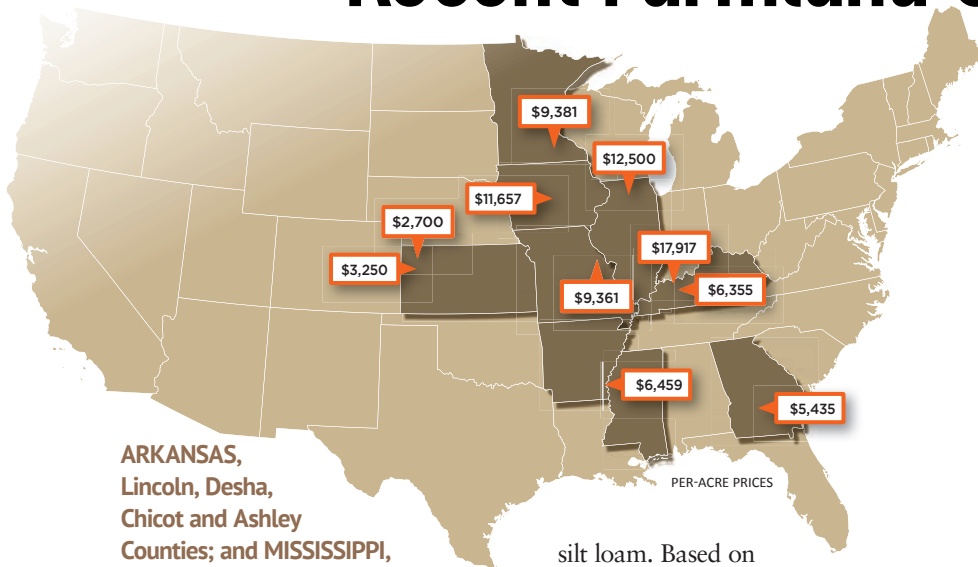
Following the 2023 oat harvest, they planted a 60-pound-per-acre multispecies cover crop that included 12% wheat, 9% buckwheat, 9% Austrian winter pea, 9% sunflower, 5% tillage radish and 5% clover.

“The winter wheat and radishes provided good soil-holding benefits despite cold weather,” he says. “As long as we keep cover crops growing out there, even on low-residue crops like soybeans, we can maintain our low soil-loss figures and continue building soil health.”

Myers says the farm will be rented in 2025 to another “conservationist at heart,” so the conservation legacy of the property will continue.

“I’ll be spending more time with my wife and enjoying the retirement property we own, and continuing to speak on conservation issues with the Pennsylvania No-Till Alliance,” he says. “Of course, I’ll be preaching ‘Soil is meant to be covered.’” ///

Recent Farmland Sales



ARKANSAS, Lincoln, Desha, Chicot and Ashley Counties; and MISSISSIPPI, Washington and Bolivar Counties.

A large portfolio of row-crop farms totaling 11,628 acres (10,763 in cultivation) recently sold for \$75.1 million, or \$6,459 per tillable acre. The farms are all pre-irrigation-leveled with outstanding water, yields and drainage, and have raised a mix of soybeans, rice, corn and cotton. Although divided into nine tracts, they all sold to the same buyer. **Contact:** Stacey Gillison, Scott Gillison or Drew Burton, Agriworld Farm Investments; d.burton@agriworld.com; 870-265-3276 www.agriworldinc.com

GEORGIA, Terrell County. A 230-acre farm sold via online auction for \$1.25 million, or \$5,435 per acre. The farm includes 165 acres under center-pivot irrigation, 51 dryland acres and 14 wooded acres. It has corn, soybean, peanut and wheat base acres. **Contact:** Joe Durham Sr., J. Durham and Associates; jdurham@jdurhamauctions.com; 229-881-1490 jdurhamauctions.com

ILLINOIS, Ogle County. A 148-acre property with 142.5 tillable acres and a 141.6 productivity index sold in a private sale for \$1.85 million, or \$12,500 per acre. The farm's soils are composed mainly of Plano silt loam, Drummer silty clay loam and Elburn

silt loam. Based on tillable acres, it has a weighted average corn yield of 198.2 bushels per acre.

Contact: Mark Mommsen, Martin, Goodrich and Waddell; mark.mommsen@mgw.us.com; 815-756-3606 www.mgw.us.com

IOWA, Dallas County. A 169-acre property sold at auction for \$1.97 million, or \$11,657 per acre. The property, with soil ratings in the mid-80s, sold in three tracts. An 80-acre tract with primarily tillable acres sold for \$14,100 per acre. The other two tracts were more wooded and advertised as potential future building sites. The second tract, at about 34 acres, was about 60% tillable. The third tract was 55 acres and about 40% tillable. They both sold for \$9,500 per acre. **Contact:** Matt Adams, Peoples Co.; matt@peoplescompany.com; 515-222-1347 www.peoplescompany.com

KANSAS, Logan and Thomas Counties. Two 160-acre quarter sections sold at a hybrid auction for a total of \$952,000. The Logan County quarter section sold for \$3,250 per acre, while the Thomas County parcel sold for \$2,700 per acre. Both are dryland farms. **Contact:** Ron Evans, Farm and Ranch Realty Inc.; frf@frmail.com; 719-342-2997 www.farmandranchrealty.com

KENTUCKY, Daviess and Ohio Counties.

Two tracts containing a total of 75 acres sold at auction for \$691,114. The nearly 18-acre tract includes 15 acres of gently rolling pastureland, a three-bedroom, 1,758-square-foot home and a 30- x 40-foot pole barn. It sold for \$322,500, or \$17,917 per acre. A mostly wooded plot containing nearly 58 acres sold in three tracts to one buyer for \$368,614, or \$6,355 per acre. It had about 6 acres of open land used as food plots and a 2.4-acre lake.

Contact: Clay Taylor, Kurtz Auction and Realty Co.; clay@kurtzauction.com; 800-264-1204 www.kurtzauction.com

MINNESOTA, Goodhue County. An 88-acre organic crop farm sold in an online auction for \$825,508, or \$9,381 per acre. The farm's sloping topography offers good drainage with a variety of conservation measures, waterways and cover crops. **Contact:** Brian Haugen or Kelly Bolin, LandProz Real Estate; info@landproz.com; 844-464-7769 landproz.com

MISSOURI, Ralls County. Three tracts of farmland totaling 313 acres sold in an online auction for \$2.93 million, or an average of \$9,361 per acre. Tract 1 totaled about 100 acres and sold for \$9,500 per acre. Tract 2, 57 acres, is across the street from Tract 3, 156 acres. They sold for \$10,100 and \$9,000 per acre, respectively. The farm's NCCPI rating is in the low 70s. **Contact:** Steve Zeiger, Sullivan Auctioneers; sold@sullivanauctioneers.com; 844-847-2161 sullivanauctioneers.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 current listings at about.dtnpf.com/landwatch

Will This Strange Antarctic Squid Solve America's Memory Crisis?

New Deep Sea Discovery Proven to Be The #1 Natural Enhancer of Memory and Focus

Half a mile beneath the icy waters off the coast of Argentina lives one of the most remarkable creatures in the world.

Fully grown, they're less than 2 feet long and weigh under 10 pounds...

But despite their small size, this strange little squid can have a bigger positive impact on your brain health than any other species on the planet.

They are the single richest source of a vital "brain food" that 250 million Americans are starving for, according to a study published in the British Medical Journal.

It's a safe, natural compound called DHA – one of the building blocks of your brain. It helps children grow their brains significantly bigger during development. And in adults, it protects brain cells from dying as they get older.

Because DHA is so important, lacking enough of it is not only dangerous to your overall health but could be directly related to your brain shrinking with age.

With more than 16 million Americans suffering from age-associated cognitive impairment, it's clear to a top US doctor that's where the problem lies.

Regenerative medicine specialist Dr. Al Sears, says thankfully, "there's still hope for seniors. Getting more of this vital brain food can make a life changing difference for your mental clarity, focus, and memory."

Dr. Sears, a highly-acclaimed, board-certified doctor— who has published more than 500 studies and written 4 bestselling books — says we should be able to get enough DHA in our diets... but we don't anymore.

"For thousands of years, fish were a great natural source of DHA. But due to industrial fish farming practices, the fish we eat and the fish oils you see at the store are no longer as nutrient-dense as they once were," he explains.

DHA is backed by hundreds of studies for supporting razor sharp focus, extraordinary mental clarity, and a lightning quick memory... especially in seniors.

So, if you're struggling with

focus, mental clarity, or memory as you get older...

Dr. Sears recommends a different approach.

THE SECRET TO A LASTING MEMORY

Research has shown that our paleo ancestors were able to grow bigger and smarter brains by eating foods rich in one ingredient — DHA.

"Our hippocampus thrives off DHA and grows because of it," explains Dr. Sears. "Without DHA, our brains would shrink, and our memories would quickly fade."

A groundbreaking study from the University of Alberta confirmed this. Animals given a diet rich in DHA saw a 29% boost in their hippocampus — the part of the brain responsible for learning and memory. As a result, these animals became smarter.

Another study on more than 1,500 seniors found that those whose brains were deficient in DHA had significantly smaller brains — a characteristic of accelerated aging and weakened memory.

PEOPLE'S BRAINS ARE SHRINKING AND THEY DON'T EVEN KNOW IT

Dr. Sears uncovered that sometime during the 1990s, fish farmers stopped giving their animals a natural, DHA-rich diet and began feeding them a diet that was 70% vegetarian.

"It became expensive for farmers to feed fish what they'd eat in the wild," explains Dr. Sears. "But in order to produce DHA, fish need to eat a natural, marine diet, like the one they'd eat in the wild."

"Since fish farmers are depriving these animals of their natural diet, DHA is almost nonexistent in the oils they produce."

"And since more than 80% of fish oil comes from farms, it's no wonder the country is experiencing a memory crisis. Most people's brains are shrinking and they don't even know it."

So, what can people do to improve their memory and brain function in the most effective way possible?



MEMORY-RESTORING SENSATION: The memory-saving oil in this Antarctic squid restores decades of lost brain power starting in just 24 hours.

Dr. Sears says, "Find a quality DHA supplement that doesn't come from a farmed source. That will protect your brain cells and the functions they serve well into old age."

Dr. Sears and his team worked tirelessly for over 2 years developing a unique brain-boosting formula called **Omega Rejuvenol**.

It's made from the most powerful source of DHA in the ocean, squid and krill — two species that cannot be farmed.

According to Dr. Sears, these are the purest and most potent sources of DHA in the world, because they haven't been tampered with. "**Omega Rejuvenol** is sourced from the most sustainable fishery in Antarctica. You won't find this oil in any stores."

MORE IMPRESSIVE RESULTS

Already, the formula has sold more than 850,000 bottles. And for a good reason, too. Satisfied customers can't stop raving about the memory-boosting benefits of quality-sourced DHA oil.

"The first time I took it, I was amazed. The brain fog I struggled with for years was gone within 24 hours. The next day, I woke up with the energy and mental clarity of a new man," says Owen R.

"I remember what it was like before I started taking **Omega Rejuvenol**... the lack of focus... the dull moods... the slippery memory... but now my mind is as clear as it's ever been," says Estelle H.

"My mood and focus are at

an all-time high. I've always had trouble concentrating, and now I think I know why," raves Bernice J. "The difference that **Omega Rejuvenol** makes couldn't be more noticeable."

And 70-year-old Mark K. says, "My focus and memory are back to age-30 levels."

These are just a handful of the thousands of reviews Dr. Sears regularly receives thanks to his breakthrough memory formula, **Omega Rejuvenol**.

WHERE TO FIND OMEGA REJUVENOL

To secure bottles of this brain-booster, buyers should contact the Sears Health Hotline at **1-800-440-5176**. "It takes time to manufacture these bottles," says Dr. Sears. "The Hotline allows us to ship the product directly to customers who need it most."

Dr. Sears feels so strongly about this product, he is offering a 100%, money-back guarantee on every order. "Send back any used or unused bottles within 90 days and I'll rush you a refund," says Dr. Sears.

The Hotline is taking orders for the next 48 hours. After that, the phone number may be shut down to allow for inventory restocking.

Call **1-800-440-5176** to secure your limited supply of **Omega Rejuvenol**. Readers of this newspaper immediately qualify for a steep discount, but supplies are limited. To take advantage of this great offer use Promo Code **PFOM624** when you call.



Know *ALL* Your Numbers

Take SCN management beyond egg counts with an HG type test.

Call it farmer's intuition, a hunch, a gut feeling. Zach Grossman knew something was going on in one of his soybean fields, even if he couldn't see it.

"It just didn't seem like I was getting the same performance in that portion of the field as I was on the whole field," says the farmer from Tina, Missouri. "Everything's the same—soil type, fertility, pH—so that's why I chose to test that area for the nematodes."

In 2023, Grossman, along with Chandra and Mike Langseth, of Barney, North Dakota, participated in DTN/*Progressive Farmer's* "View From the Cab" series, providing a weekly perspective from their farms throughout the growing season. After harvest, they agreed to sample a field for soybean cyst nematode (SCN) and share their results as part of a project sponsored by The SCN Coalition, a public/private/checkoff partnership formed to encourage growers to actively manage a pest estimated to cost farmers \$1.5 billion annually.

For years, the coalition has encouraged growers to "know their numbers," taking soil samples to determine the number of SCN eggs present in a particular field.

"But, egg counts don't tell the whole story," says Horacio Lopez-Nicora, a soybean pathologist and nematologist at Ohio State University. "Yes, farmers should know their egg count numbers, but without knowing the type of soybean cyst nematode in the field, you're missing the information you really need to manage the issue."

Zach Grossman had unexplained yield loss in a field, so he chose to test for soybean cyst nematodes.

› SCN "TYPE" CASTING

While the egg count test estimates the SCN population density in a

particular field, it doesn't tell a grower how vulnerable a particular soybean variety might be to yield-robbing damage. For that, an HG type test is required. The "HG" stands for "Heterodera glycines," the scientific name for SCN.

"The HG type test measures the ability of a specific nematode population to reproduce on a set of soybean lines containing different genes or combinations of genes conferring resistance to SCN," says Jeff Barizon, senior research specialist at SCN Diagnostics at the University of Missouri. "These lines, or plant introductions, include PI 88788, which is the most common source of resistance found in today's varieties."

Performing the HG type test requires at least 40,000 SCN eggs, so a grower is asked to submit a 1-gallon soil sample. If an

insufficient number of SCN eggs is present in the sample, the SCN population is increased by one or more life cycles on susceptible soybeans in the greenhouse. A life cycle requires about 30 days.

Once enough SCN eggs are available

to begin, soybeans are planted in separate containers of sterilized sandy soil. In the HG type test conducted by SCN Diagnostics, the soybeans are inoculated with 1,000 eggs. Four seedlings represent Lee74, a soybean variety susceptible to SCN. Four seedlings also represent four other plant introductions with SCN resistance found in commercial soybeans. These include PI 88788, PI 548402 (Peking), PI 90763 and PI 437654.

The containers of inoculated soybeans are suspended in greenhouse tables filled with water and set to about 80°F. This maintains the optimum soil temperature for SCN growth. After 30 to 35 days, the plants are removed from their containers, and the SCN females (the cysts) are removed from the roots of each plant and counted. ▶



What's your number?

Take the test.  Beat the pest.

The **SCN Coalition**™

Funded by the soybean checkoff

<https://www.thescncoalition.com>



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Jeff Barizon (above) is a senior research specialist who conducts SCN testing at the University of Missouri.

1. To set up the SCN HG type test, seedlings are planted representing Lee74, a soybean variety susceptible to SCN, along with four other plant introductions with SCN resistance found in today's commercial soybeans.

2. Once the seedlings are planted, they are inoculated with SCN eggs.

3. The plants grow for 30 to 35 days in the greenhouse, after which time they're removed from their containers and their roots are retained.

4. The SCN females (the cysts) are removed from the roots and collected using sieves.

5. The cysts are then counted, and a Female Index is calculated. The higher the index, the better an SCN population reproduces on a source of resistance.

“Using these numbers, we calculate the Female Index (FI),” Barizon explains. “We divide the average SCN reproduction on each soybean line by the average from Lee74, the susceptible line, then multiply by 100 to get a percentage. The higher the FI, the better that SCN population reproduces on that source of resistance. Anything above 10%, and that population is considered able to reproduce.”

SCN exceeding the 10% threshold for a source of resistance receives a number designation. For example, SCN with an HG Type 1.2 can reproduce above 10% on Peking and PI 88788. An HG Type 2 is only above 10% on PI 88788.

> ROTATE RESISTANCE

Repeated use of the same genetic sources of resistance exerts selection pressure on SCN populations, resulting in survival of individuals who can then reproduce on that source. Over time, a once-effective tool no longer controls the pest. Lopez-Nicora compares the breakdown of SCN resistance sources to the development of herbicide resistance in weeds.

“If I ask growers, ‘What happens when we use herbicides with the same active ingredient year after year to control weeds?’, they know the answer,” he says. “The same thing is happening with SCN resistance in soybeans. We’ve been using PI 88788

so much for 30-plus years that it's now ineffective at controlling many nematode populations."

The HG type test results from the samples from the Grossman and Langseth farms confirmed the nematologist's concern. In Missouri, Grossman's test revealed that while his SCN egg count was considered low at 100 eggs per 100 cubic centimeters of soil, the nematodes present in the field had an FI of 80.7% on PI 88788, meaning that SCN control was less than 20%. For every five nematodes that developed on a susceptible soybean, four of them could also develop on Grossman's soybeans.

"It made me feel good that the overall eggs were low, but the variety I planted had PI 88788, so we've definitely got to be proactive on it," he says. "I'll be honest. SCN wasn't something that I had considered at all when selecting seed varieties.

“Rotate. Rotate. Rotate.”

-Horacio Lopez-Nicora

"I've tried to pick my varieties kind of the same way that I pick out bulls," Grossman adds. "You want a balanced bull, and you want a balanced bean that's good across the board. Moving forward, SCN will need to be part of that."

In North Dakota, the Langseths also have planted soybeans with PI 88788 exclusively since the early 2000s. While their egg count was moderate at 800 eggs per 100 cubic centimeters of soil, the HG type test revealed an FI of 67.8% on PI 88788.

"I guess it shouldn't be surprising," Chandra Langseth says. "It explains a little bit of that yield drag we've seen during the past few years. I ran the numbers

through The SCN Coalition's Profit Checker, and it estimated we lost more than \$90 an acre because of SCN. It's definitely a wakeup call."

Both Grossman and the Langseths say that moving forward, they'll be looking for varieties with a different SCN resistance source, namely Peking. While the number of commercial varieties with Peking is still relatively small when compared to PI 88788, Lopez-Nicora says growers should be wary of planting it exclusively.

"If they do, we'll just shift the nematode virulence again," he says. "We need to think very wisely about how to use these tools and protect them. Rotation is key. Rotate from soybean to a non-host crop. Rotate soybean varieties. Rotate the source of SCN resistance. Don't feed these animals the same genetic material.

"Rotate. Rotate. Rotate." ///

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BUILT TO LAST

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After the Test

Consider these five steps when soybean cyst threatens.

> Story and Photos By Pamela Smith

So, you've decided to test for soybean cyst nematode (SCN). Most farmers start with a common soil test to detect the presence of eggs in cysts (dead females) in the soil.

Sam Markell, North Dakota State University plant pathologist, says to count yourself lucky if the test result is “zero” or “not detected.” But, don't get too comfortable with that diagnosis. “That's the result we want, but it doesn't necessarily mean the problem is not in the field or on the farm. SCN can be very patchy in the field,” he says.

Continuing to monitor and test is important. “We know SCN has now spread to almost every soybean-growing area. In many areas, SCN is overcoming the varietal resistance we've depended on for years. Continuing to test is the only way to detect, monitor and know how management tactics are working,” he adds.

“The first motivation to test is simple: SCN is costing you money,” Markell says. The SCN Coalition has a calculator called “SCN Profit Checker” to estimate that profit penalty based on egg count and soil conditions (www.TheSCNCoalition.com/ProfitChecker). Free soil testing for SCN is available in several states.

> TEST POSITIVE? HERE ARE YOUR OPTIONS.

> Rotate Crops. Crop rotation will reduce egg numbers. Research shows that a single year away from soybeans to a nonhost crop such as corn or wheat can reduce SCN egg counts by up to 50%. “Don't grow soybeans on soybeans,” Markell says. “Dry edible beans and some winter annual weeds such as henbit, purple deadnettle and pennycress are the other good hosts for SCN,” Markell says.

> Manage Resistance. Genetic resistance has been and remains an important tool for soybean farmers, but it needs to be managed. Most soybean varieties contain a source of resistance called PI 88788. “In many cases, PI 88788 is still reasonably effective against SCN, but it's not what it used to be because nematodes are adapting to it,” Markell explains.

PI 88788 resistance is complicated, and effectiveness can vary among varieties. Soybean cultivars differ in how much



they reduce SCN reproduction, and a system of rotating varieties, even those that contain PI 88788, is now considered a management strategy.

An alternative source of resistance, called Peking, has become more available in commercial soybean varieties. Yield data from trials by Greg Tylka, Iowa State University nematologist and member of The SCN Coalition, have found Peking varieties outyielding those containing PI 88788 resistance by as much as 20 bushels per acre in some areas of his state. That's good because it shows Peking is working. But, Tylka worries about the temptation to overuse Peking as PI 88788 effectiveness declines.

“Very few nematodes are able to overcome Peking resistance now,” Tylka explains. “But, those that do have a high likelihood of passing that ability along to their offspring. With Peking SCN resistance, the very few nematodes that successfully reproduce initially will likely become a high percentage in the SCN populations in fewer years than we saw with PI 88788.”

The message is don't grow the same SCN resistance over and over, Markell says. “Grow a Peking variety if available, then rotate to a nonhost crop, and then rotate to a different PI 88788 variety than you grew before.”

> Treat Seeds. Treating seed can be important, particularly in areas that struggle with sudden death syndrome (SDS)—the two problems often go together. However, nematode-protectant seed treatments should supplement, not replace, SCN management strategies,

Get a jump-start on SCN detection by digging soybean roots this summer. Look for small, white, adult SCN females (the cysts). Follow with fall soil testing.

TAKE THE TEST



[www.TheSCNCoalition.com/
ProfitChecker](http://www.TheSCNCoalition.com/ProfitChecker)

Soil testing for the presence of SCN not only detects the pest but also helps monitor if management strategies are working, Sam Markell says.

advises Carl Bradley, University of Kentucky plant pathologist.

The growing list of treatments available makes the market a moving target for farmers. Nematicides, biologicals and biological parasites differ widely in how they work and how well they work. Toss in the wide range of soil and field conditions, and it can be hard to predict how they will perform.

“The data on SCN seed treatments in our plots has been variable, and efficacy can be inconsistent,” Bradley says. “Unfortunately, there’s no silver bullet with this pest.”

Markell reminds growers that seed treatments only last so long, as well. “In general, seed treatments are really designed to get that plant out of the ground and protect it early in the season and not throughout the season,” he says.

► **Keep It Clean.** Nematodes move in soil. Equipment moving between fields, used equipment and custom applications are all potential transport mechanisms for the pest.

“In North Dakota, we still worry about moving SCN into fields where it doesn’t exist. In regions where SCN is more established, the concern is the possibility that you could be moving a population that is more highly adapted to PI 88788 into your field,” Markell says. “Washing equipment off before it moves is a good precaution.”

► **Think Positive.** Help is on the way, Markell assures. “It will take some time, but the soybean checkoff is funding research; companies and universities are working on tools and strategies. In the future, different sources of genetic resistance, new and improved seed treatments and more are likely.”



BASF is currently developing a Bt trait, a Cry14Ab protein, as the first GM (genetically modified) solution for nematode control. The nematode-resistant soybean (NRS) will be stacked with PI 88788 initially. The NRS trait is scheduled for commercialization at the end of the decade, pending regulatory reviews.

“Because of how this pest reproduces, there’s not going to be a silver bullet, and we need to keep all tools viable,” Markell says. “Continuing to manage to prevent profit losses is important. That starts with testing.” ///

SCN Resistance in a “SNAP”

The discovery of a new gene may prevent nematodes from robbing soybean yields.

It turns out being dysfunctional isn't always a bad thing—at least in the soybean world.

Researchers have uncovered a new and unexpected way to tackle soybean cyst nematode (SCN) by introducing a “dysfunctional” or a bad copy of a resistance gene.

A gene identified as GmSNAP02 has been a known component of several types of native resistance deployed to protect soybean varieties from SCN. Yet, scientists only recently have begun to understand that the gene may be helping SCN overcome genetic resistance mechanisms in the soybean plant.

Now, there's hope manipulating GmSNAP02 might deliver a sucker punch to preserve the utility of varietal resistance in soybeans.

“Think of it like a lock-and-key model, where SCN is the key and GmSNAP02 is the lock,” explains Melissa Mitchum, professor in the College of Agricultural and Environmental Sciences at the University of Georgia and a member of the research team that made the discovery. “If you get rid of that lock, the nematode can't access the plant. You make the parasite ineffective.”

> SHORING UP PEKING

Farmers have relied on PI 88788 genetic resistance in soybean varieties for decades, but overuse has eroded the utility of the tool. Consequently, there's an urgency for alternative modes of resistance to be rotated with PI 88788 to control SCN populations. Peking-based resistance, which contains three genes, has become the new tool of choice, although commercial soybean varieties containing it remain limited.

This new research shows nematodes can reproduce on Peking genetic resistance and appear to be doing it by exploiting GmSNAP02. Mitchum explains it's now believed some types of resistance work better than others because they lose this GmSNAP02 protein, circumventing the nematodes and making the plant more resistant.

The fact that Peking resistance contains three genes is critical in the nematode battle, says Andrew Scaboo,



Andrew Scaboo

assistant professor in the Division of Plant Science and Technology at the University of Missouri, who is spearheading the project with Mitchum. However, if farmers use Peking exclusively, nematodes will develop resistance.

“This is where this fourth gene comes into play. Adding a nonfunctioning copy of GmSNAP02 enhances the nematode resistance of Peking,” Scaboo says. “If we can come up with a strategy for using this and other genes in rotation, we could avoid a repeat of the situation we now have with PI 88788.”

A quadruple stack would enhance the genetic diversity on the market, which is critical to long-term management of SCN.

“As we bring different modes of action into the rotation, we enhance the durability of all the tools in our toolbox,” Mitchum says.

> NEXT STEPS

Scaboo is roughly halfway into a three-year process developing the plant material needed to test whether the GmSNAP02 omission impacts yield. That question must be answered before the new resistance tool can be moved toward commercialization.

“Nearly every major company and some of the smaller ones have reached out for more information since the report on the discovery was published,” Scaboo says. “That signals they know SCN is a big problem for farmers.”

The fact that CRISPR gene editing can be used to “knock out” GmSNAP02 is an advantage, especially for breeders working with a Peking background. “CRISPR technology facilitates and speeds along the breeding process for forging this stack,” the Missouri researcher says.

Seed companies are invested in the longevity of their soybean varieties. “One way to give products longevity is with better control of pathogens,” Scaboo explains. “With GmSNAP02, the private sector can pursue

prescriptive management strategies for pathogens such as SCN. The resistance this gene provides has the potential not only to protect soybeans and raise yield, but also to manage SCN long term.”

> DISCOVERY PAVES WAY

Looking ahead, Mitchum says it’s important to understand how SCN targets GmSNAP02. “Hopefully, that understanding will give insight into how we can further enhance durability of the tools in our toolbox and add to it,” she adds.

Technological advances are also shifting the conversation on SCN management.

“We are starting to understand the genetic architecture on a level that the resistance source is becoming irrelevant,” Scaboo says. “It would be great for seed companies, farmers and the industry to start talking about these resistance genes rather than sources such as Peking or PI 88788.”

The GmSNAP02 project was financed by farmer-supplied checkoff dollars by way of the Missouri Soybean Merchandising Council, the North Central Soybean Research Program and the United Soybean Board. The National Science Foundation and USDA National Institute of Food and Agriculture also provided grant funding. ///



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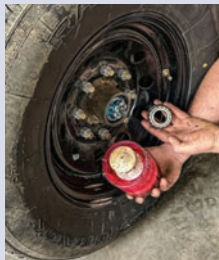


The Wheels Are Turning

I have always done my own wheel-bearing service on trailers and implements around the farm, and I have had pretty good luck not running them too long and ruining an axle. But, I have always wondered if there was any way of knowing when the bearings are tightened down right. Is there a special way to check the tightness of the nut?

Steve: You are really ahead of the game on servicing wheel bearings on your equipment. I believe packing the grease in the bearing so there are no hollow areas that go unpacked is very important. I finally bought the tool (see photo below) that fully fills the bearing with grease.

Another thing that I learned the hard way in my younger years in the field was to always change the race (cup) that the bearing runs in if you change the bearing. This team has been many rounds together, and they do not like to be separated.



After the bearings and seal have been replaced, what I do is gradually tighten the locking nut while rotating the tire until it locks. Then, back the nut out about an eighth of a turn. There, you should be able to rotate the tire easily. What you are setting is called rolling torque.

I also like to change the locking device that secures the nut. There are many options here, from a cotter pin to a multipiece setup. Be sure and always use the factory locking device when changed.

Misted Engine

Water in the wrong place in an engine usually means trouble. The photo of the rocker arm assembly on this 850 Ford tractor reflects a couple of stuck valves. The engine was rebuilt two years ago, and recently, after not running for a long period of time, it lost compression on two cylinders. What caused this was a stuck valve on both dead cylinders.

I noticed the oil bath air cleaner was leaking out the top of the cup. When I removed the cup, it was running over with mostly water. What I believe happened is that as the water, rather than the oil, rose up from the vacuum in the screen above it, the engine was forced to breathe through the water-soaked screen.

Normally, after the engine is shut down and no more vacuum is holding the oil in place (with oil in the cup), it drips down in the cup along with the particles, which sink to the bottom of the cup. Instead, this water solution was slightly misting the engine as it was running. The carburetor had problems because of water, too.



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

Please include your contact information and phone number.



When the tractor was not run for a while, the valve stems became stuck to the valve guides. I tapped on them after soaking with Marvel Mystery Oil and Sea Foam. Both of these products have been around forever and are great additives, especially for engines that are not used frequently or only for short periods. Little by little, the valves started closing slowly and finally became free.

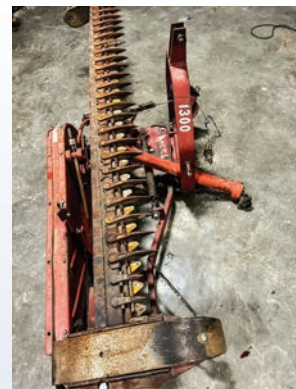
An exposed oil bath air cleaner, like on this model Ford tractor, if left outside can easily take on water around the clamp that secures the cup to the body of the air cleaner. ///

SAFETY TIP

The sickle mower has become very popular for cutting hay with a small compact tractor (see photo). It requires little horsepower and no hydraulics, and most models will fit right on the 3-point hitch.

They will do a good job cutting hay but are very dangerous to be around when in operation. A big safety risk of these manually folded sickle cutters occurs when the sickle is ready to be placed in cutting position or, from cutting position, back to transport position. It must be unfolded for cutting, and it must be folded back for transport.

The big safety issue is when the mower is unfolded or folded, the cutting sections will move just as they do when cutting hay. Never put your fingers inside the bar when unfolding or folding.



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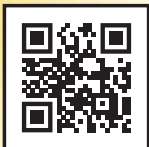


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In the Shadow Of Guilt

Positive feelings are what usually surround a family farm. Sun-filled images of grandparents walking with grandkids on family land. Original land deeds or old seed or feed dealership signs adorn office walls. Pride, history, tradition and legacy are a few of the words that come to mind as we think about the family business.

But, there can also be a negative side to family businesses. Conflict, secrets, drama, nepotism, avoidance, privilege and bias can float just under the surface in many family-owned companies.

One of the most complex notions is guilt, the idea of thinking or committing an offense. While guilt is generally created by the person feeling it, guilt can be triggered by another family member, as well. Consider the following ways guilt shows up in a business-owning family.

You Must Carry It On.

For multigeneration businesses, perhaps no feeling carries more weight than that of having to keep the family business going. The blood and sweat of your ancestors are manifested in the current farm or ranch. To stop the business is an insult to their efforts and will be seen as a disgrace to future generations.

The reality, however, is that there are often legitimate reasons to stop a business in its current form. You may have no family members returning, or those who have returned may not get along. The industry and competitive dynamics may have drastically changed. Considering a split or sale of the business your ancestors could not foresee may in fact be a wise business or family move. But, guilt gets in the way of good strategy.

You Must Come Back. Most parents want their children to pursue a vocation that makes them happy. However, many parents who own family businesses also hope that one, or all, of their kids will return. Depending on the verbal and nonverbal communication about this desire, the next generation may feel required to return. It may even be subtly hinted that they will be “missing out” on their inheritance if they don’t come back.

If a young person returns sheerly out of a sense of obligation or only for an inheritance, he or she will not be happy. There is a high likelihood that person’s unhappiness will be reflected in poor business performance, relationship challenges or problems such as addiction. I’ve met family members who gave up their dreams of working or living elsewhere out of a sense of obligation. Guilt got in the way of personal and professional happiness.

You Must Lead. Having the same last name as the business owner creates an expectation that a family member will lead the company. Regardless of intelligence, self-awareness, skills, goals or level of respect from others, it is assumed the namesake will take the helm. Consequently, a strong sense of guilt is associated with not wanting or having the desire to lead the family company.

The best person to lead the company may not be a family member. While being part of a business-owning family may create an affinity for the organization, DNA does not guarantee a family member will be a good leader.

Getting past the guilt implicit in family businesses requires two skills. First, it requires broadening your definition of stewardship from simply keeping “this business” going or keeping “this asset” intact, to taking care of family wealth and values in whatever form that might take.

It also requires broadening your definition of personal and business success. If you keep a business going regardless of the cost, if you guilt someone into returning, or if you choose a family leader when a non-family leader is a better option, you risk ruining family relationships. If that happens, have you truly succeeded? ///



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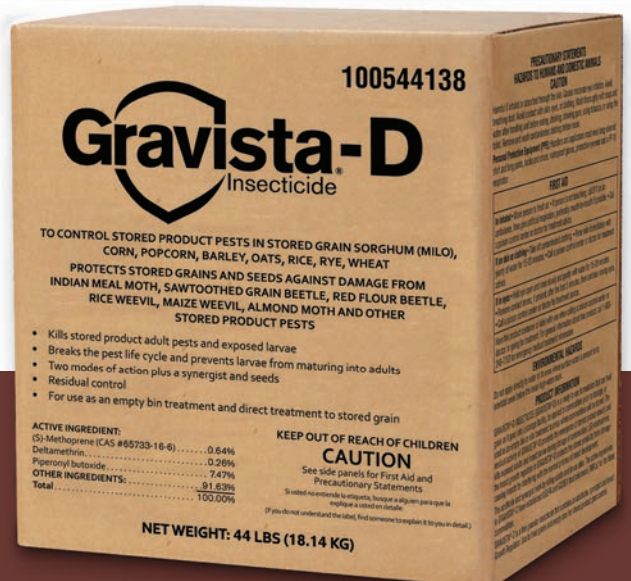
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Accelerating Innovation

AGCO Corp. has announced the formation of its new precision ag brand, PTx.

PTx includes AGCO's Precision Planting business. PTx also includes PTx Trimble, the result of an earlier \$2-billion deal between Trimble and AGCO—AGCO purchasing Trimble's ag assets, those merged with AGCO's JCA Technologies.

"I've been in the industry my whole life. At this intersection of agriculture and innovation, it's the most exciting time in my career," AGCO CEO Eric Hansotia told DTN/*Progressive Farmer*. "There's so much excitement in the organization with my whole leadership team ... about what this can mean for farmers. It's the biggest ag tech deal in history. And, we want to make the most of it and to do that quickly."

Seth Crawford, AGCO senior vice president and general manager PTx, will lead the new organization. Andrew Sunderman, a 12-year veteran of AGCO, has been named general manager of PTx Trimble. Keith Crow will continue to lead Precision Planting as general manager.

Visit the new PTx website at www.ptxag.com

Here are excerpts from an interview with CEO Eric Hansotia about PTx.

DTN/PF: *This is a big day, something you've been working toward for several months. Give us an overall picture of what this means for AGCO.*

Hansotia: If you don't mind, I'll actually answer that with what it means for farmers. We're going to serve farmers—the farmer that already has a piece of equipment who wants [a] retrofit upgrade, we'll serve the farmer that wants a new piece of equipment from one of our OEM partners or a new piece of equipment from one of our brands. The whole notion here is bringing the two best teams together to innovate faster, innovate more all the way around the crop cycle to solve some of the toughest problems in farming.



AGCO's new PTx technology arm—Precision Planting plus PTx Trimble—will put new tools into the hands of farmers operating any brand of machine.

DTN/PF: *Would you explain the structure of PTx?*

Hansotia: PTx is precision technologies multiplied ... big P, big T, small x. That's the umbrella name or brand over the entire tech business unit within AGCO. One component is this new [joint venture] we formed as the Trimble ag team plus JCA. That's called PTx Trimble. The other element of PTx is Precision Planting. It'll be PTx Trimble and Precision Planting working side by side to create one overall experience. That's precision technologies multiplied.

DTN/PF: *What should farmers expect today now that PTx is officially up and running?*

Hansotia: What [farmers] should expect is that we're accelerating the pace of innovation, and accelerating the scope of innovation ... from soil-sampling to planting and air-seeding to application equipment to harvesting, water management, carbon management.

DTN/PF: *PTx will build technologies for any brand of machine, new or existing. Regarding existing machinery, what is AGCO's retrofitting target?*

Hansotia: Trimble [has] 10,000 models of machinery out there where they had designed retrofit capabilities where you could put their guidance on to an old tractor or an old sprayer and older combine. The retrofit capabilities largely coming out of Precision Planting are all model dependent—[what's] the core technology they're building off of.

DTN/PF: *What are your first goals?*

Hansotia: There are a lot of people who historically bought Trimble technology. We want to reassure them that all of the great experiences they had with that technology will continue and that we aim to continue to support them as well or better than they've ever been supported in the past. So, that's one element. Second thing is reassuring and building confidence around the OEM (original equipment manufacturer) customer. A third element is standing up the AGCO channel. We're going to [get] the AGCO dealers focused on selling Trimble technology through the AGCO channel. ///



Email Dr. Ken McMillan at vet@progressivefarmer.com

Paperwork for Animal Travel Is Important



JENNIFER CARRICO

Q *What is the difference between the old health certificate we used to get and a certificate of veterinary inspection? A health certificate seemed to be a lot easier to get than what we have to do now.*

A **DR. McMILLAN:** Several years ago, state and federal government agencies moved to a new terminology. The term “health certificate” implied the animals were “healthy.” The new term, certificate of veterinary inspection (CVI), was chosen to indicate the animal or animals had been inspected by a veterinarian accredited by the USDA and, at the time of inspection, showed no signs of infectious or contagious diseases. In addition, the animals have met the requirements of the destination area, which is necessary for interstate shipment. These can include methods of identification, tests, treatments, vaccinations, specific required statements or other procedures. This will vary based on the species of animal, its age, sex and origin, and the purpose of travel. The CVI must also include the name, address and phone number of the consignor and present owner, destination of the shipment, the carrier or transporter, purpose of movement, method of transport, and species, age, sex and official ID of the animals.

This process can be fairly simple or extremely complex depending on the variables involved, but it is extremely important in protecting animals, the people involved and the public. Both the owner of the animals and the veterinarian have an obligation and liability to comply with all the requirements and assure the health of the animals involved.

CVIs can be the traditional paper form, but new platforms for electronic versions make it much easier and simpler for the producer, the accredited veterinarian and shipping and receiving states.

At times, it may seem complex and cumbersome, but it is serious business, and it is the law.

Q *What are the benefits of following a preconditioning vaccination program on calves? Should I get the paperwork when I take them to the sale barn even if I have a small group?*

A **DR. McMILLAN:** Disease prevention is in everyone’s best interest. Every level must be profitable for the industry to prosper. Healthy animals help stockers, feedlots and packers control costs and produce the highest quality product. This is a “hidden” payback to a preconditioning program.

At the producer level, a well-designed and implemented herd-health program will decrease the incidence of disease, increase weaning weights and maximize the genetic potential of the cattle, increasing profitability to the producer.

Marketing for smaller producers for maximum return is a different issue. If you market cattle directly to a sale barn, documentation of a preconditioning or vaccination program may not increase the price you receive. Order buyers do not look at your group of calves as much as they look at a load of cattle. So, your cattle, while preconditioned, may end up with others that are not, and this may not translate into an economic benefit for the buyer.

A better option for small producers is to use a cooperative marketing program. The goal is to group truckload numbers of uniform cattle that have a similar preconditioning and weaning program, and offer them for sale. Many times, these cattle are sold and picked up from the farm, eliminating stress and disease exposure in a stockyard.

Alternatively, many states offer retained ownership programs for small numbers of calves. They will set rules and assemble truckload lots to be shipped to the feedlot. You retain ownership of the cattle all the way to the rail. This can allow you to capture more of the profit on your cattle and get real carcass data back that can be used to help with culling decisions on cows and bull selection to improve the genetic quality of your cattle.

So, should you precondition your calves? Absolutely. But, to capture the maximum value requires a marketing plan so that buyers know and are willing to pay for the value you added to your calves. ///

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.



By Jennifer Carrico
Photo By Becky Mills

Challenges Prevent Herd Growth

Profitability concerns and lingering effects from drought have cattle producers cautious about expanding.

Many factors have led to the nation's smallest cow herd since 1961, and ongoing industry trends and challenges are preventing producers from expanding the herd in 2024.

As of Jan. 1, 2024, the cow herd was estimated at 28.233 million head, and according to Rabobank, the forecast calls for an additional decrease to 27.9 million head for 2025.

"The main reason for the decline into Jan. 1, 2025, is that 2024 heifer retention remains lackluster. This trend has been in place since last year's fall run," says Chase Beisly, animal protein analyst for Rabobank. "Since October 2023, the USDA has reported that 42% of all feeder cattle and calves sold were heifers. That is higher than last year and the five-year average by nearly 41%."

The April USDA "Cattle on Feed" report showed feeder heifer and heifer calves account for 4.6 million head, up 1% from 2023. These heifers make up 38.5% of the total fed cattle population on feed, which was down 0.2 percentage points from a year ago, Beisly explains. The percentage of heifers in USDA fed cattle slaughter is at 40.4%, which is also down slightly from 2023.

> HIGH PRICES PRESSURE EXPANSION

Market prices for cattle have put some pressure on rebuilding the herd, as well. However, DTN Livestock Market Analyst ShayLe Stewart says the cattle complex's long-term outlook remains both bullish and supportive to cow/calf producers.

"The feeder cattle complex has seen tremendous demand through the early months

of 2024. Given that the U.S. beef herd remains at its lowest inventory in more than 60 years, feeder cattle demand through the latter half of the year should remain strong, as well," Stewart explains. She points out that in both 2022 and 2023, the feeder cattle market pinned its yearly high in late August/early September, and as of early May, there is a \$14 price spread between the May 2024 and August 2024 feeder cattle contracts.

It's common to see similar trends nearly every year. These seasonal trends are a reliable tool in the cattle industry, but in years like this, the market could see abnormal buying/selling behaviors from both cattlemen and feedlots alike, she adds. "The market is currently painting a picture that would align with its typical seasonal behavior, but one should also be aware that feedlot buyers and order buyers were more aggressive in the first quarter of 2024 than normal, and to date, feeder cattle imports from Canada are up 8.9% compared to a year ago, and feeder cattle imports are currently up 12% from Mexico."

> STAGNANT HEIFER RETENTION

Stewart stresses the heifer retention and deciphering when the beef cow herd could begin to build back remains a focal point for all cattle market enthusiasts.

Rabobank analysts point to USDA's report showing 4.9 million beef replacement heifers were on operations to start 2024, which is 71,000 head less than 2023 and the smallest reported number since 1950.

Rabobank's Beisly adds with beef cows still being culled at an expected rate of 10.7% in 2023, beef cow herd growth is not expected until 2026 at the earliest. Even then, Rabobank expects it to be modest growth compared to what the industry experienced from 2013 into 2014.

Adds Stewart, "The two main factors that dictate whether cattlemen will continue to liquidate their herds are profitability and access to cheap feed. And, with inflation remaining problematic throughout



our economy and interest rates high compared to recent years, input costs and any overhead expenses are quickly consuming any income generated on cow/calf operations.”

> WEATHER'S ROLE

Aggressive cattle herd liquidation took place in fall 2022, when drought in the Western Plains made life difficult for cattle producers in need of water, hay and corn for livestock, says DTN Lead Analyst Todd Hultman.

“All three had become scarce and expensive. Now, in spring of 2024, there are still some drought concerns in the Western Plains, but the situation is not as severe thanks to better precipitation over the winter and recent months, and a record corn harvest in 2023,” he says. Spot corn prices are in the low \$4s and aren't likely to change much unless adverse weather hits this year.

“The more widespread availability of water, green pastures and cheaper sources of feed are helpful conditions for encouraging the expansion of cattle numbers, but there has been no significant sign yet of beef cows being held back from market for expansion to take place,” Hultman adds.

Ongoing drought throughout cattle country has seen some relief, but pasture recovery in those areas has held off herd expansion. DTN Ag Meteorologist John Baranick says the

drought across the South and Southeast has been all but eliminated due to very active winter and spring seasons, which has made those areas a bit too wet.

The switch from El Niño to La Niña this year won't be immediate and likely won't be extreme, but when the transition does happen, an upper-level ridge usually takes shape, which means hot and dry conditions.

“Unfortunately, the DTN forecast has this ridge being somewhat permanent across the Western Corn Belt and High Plains this summer. That means hotter and drier conditions are favored generally west of Iowa,” Baranick continues. “This could either increase drought coverage or make the existing drought worse.”

Drought could lead to more liquidation of an already small cow herd. Stewart says with a hot and dry weather outlook expected for summer, she doesn't believe most cattlemen are going to keep heifers for replacements when the market is offering exceptionally high prices for them as feeder cattle.

“Even with high prices, it's not likely that heifers are retained until cattlemen see returns that exceed operational costs,” Stewart adds. The focus for cattle producers moving forward will be adapting to the challenges to make profits and produce a product demanded by consumers. ///



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Farm-Tested: John Deere 4075R

Progressive Farmer asked this Missouri farmer to put the compact utility tractor through its paces.

When testing a new John Deere 4075R compact utility tractor for *Progressive Farmer*, Jon Clark headed for his pasture ponds. He'd been too busy to mow around them recently, and their banks were overgrown. He figured this would be an opportunity to see if the tractor had the horsepower to handle heavy-duty mowing. It did.

"Going around some of my ponds, I mowed brush and saplings that had gotten pretty thick. It cut through them just fine," the Turney, Missouri, farmer, says. "That's probably a good test of horsepower."

Besides the way it powered the mower, Clark also liked the way the tractor handled the slopes around the ponds. "It has good balance that kept it centered," he adds.

The 4075R is Deere's new top-of-the-line compact utility tractor. Deere is positioning the new model as the most powerful in its compact utility tractor lineup, with user-friendly and comfort features you might not associate with a compact utility tractor. *Progressive Farmer* arranged for Clark to test one for a month last fall, just as the 4075R was coming to market.

At 75 hp, the 4075R's Yanmar 4-cylinder engine achieves 14% more horsepower than Deere's previous most powerful compact utility. The boost in horsepower



John Clark was impressed with the utility tractor's handling on slopes when mowing around ponds.

makes it more capable and productive, Deere product manager Mark Davey says: "It's the largest eHydro, 75-hp on the market."

During his month of testing, Clark used the 4075R for a lot mowing, moving piles of dirt and upgrading his gravel drive. Clark farms 220 acres of row crops, has 40 beef cows and harvests 100 acres of hay. He also has a full-time off-farm job.

As busy as he is, Clark values time-saving devices. The 4075R's Hitch Assist caught his eye: "The controls are right on the rear fender. So, you just raise and lower the arms, and you can creep the tractor forward and backward. I'm used to having to climb up and down to readjust things from the cab. So, this was very easy, and it didn't take me all morning to hook things up."



1. The 4075R standard cab comes with a large adjustable seat and instruments similar to an automobile.
2. Instrumentation is similar to an automobile's.
3. The electro-hydraulic hitch controls sit on the right console at the driver's fingertips. The technology sets the depth level of implements for consistent passes.
4. Hitch Assist 3-Point Control on the rear fender helps align an implement from the back of the tractor.
5. The hood lifts to allow easy access for maintenance. At 75 hp, the 4075R is the highest horsepower compact utility tractor John Deere has ever offered.
6. The heavy-duty mechanical front-wheel-drive front axle is beefier than its predecessors with a 3,528-pound capacity.
7. The e-Hydro transmission uses Twin Touch pedals to allow smooth control in forward and reverse.
8. High-output LED headlights and work lights are new on the 4075R.



He also liked the eHydro's infinitely variable speeds and its twin pedal directional changing: "The foot pedals took a little getting used to. But, it [the forward and reverse pedal system] worked really well in mowing around things. You let off the pedal, and the tractor slows down or stops. Press it, and it goes." Depress the other pedal, and the tractor reverses with the same ability to accurately control speed.

Clark's only quibble with the twin pedal system is sometimes, in rough terrain, his foot would lift or depress, and cause the tractor to jerk.

The 4075R's cab was designed for comfort and ease of use, with a large adjustable seat and thoughtfully placed controls. For instance, the controls for the electrohydraulic hitch are beside the armrest at the

driver's right. Davey calls the system "quite an upgrade. Instead of a manual lever, you now have fingertip control that gives you the exact depth you want when using rear implements, such as a rotary tiller or disc, just like on our larger row-crop tractors."

Clark found that feature useful when setting heights for the mower.

Davey says the new "beefier" limited-slip, engage-on-the-go mechanical front-wheel-drive front axle dramatically increases the 4075R's work capacity.

A new productivity feature on the 4075R is a powerful LED lighting system facing both forward and to the rear. "Those lights are awesome," Clark says. He used the system at night to move some dirt. "It lights everything up really well. It was impressive."

Clark's test 4075R didn't come with an owner's manual. So, he downloaded it to his phone's Deere TractorPlus app, which is a quick reference guide to the tractor's features. It also helps an owner stay on a regular maintenance schedule. Clark says the app "was pretty handy, because you always have your phone on you."

Deere's intended market for the 4075R includes small farmers such as Clark, landowners, highway departments and local government entities that mow, do loader work and light construction (grading, excavation, building fences), and move snow.

Starting price is \$68,000. ///

New Jersey Farmer Thrives In A Crowd

Top-ranked NCGA yield contestant succeeds in country's most densely populated state.

The two-lane highway that leads to Sam Santini's headquarters, outside of Stewartsville, New Jersey, curves around a tight corner and ducks under a low railroad bridge. Santini eases back on the throttle of his S760 John Deere combine as he approaches.

"You want to know what farming in New Jersey is like?" he asks, a grin spreading across his face. "Check this out."

Santini continues forward but at a crawl, creeping under the old bridge. He cranes his neck to see out the cab and glances at every mirror again and again.

He taps the brakes and stops right underneath for effect.

The combine fit, but by mere inches, a modern-day machine just barely managing to coexist with the most population-dense state in the United States, perhaps a fitting metaphor for agriculture itself in the Garden State. The U.S. has a population density of 93 people per square mile. In New Jersey, it's 1,283.

Row-crop farmers here know the rest of the farming world doesn't think much of their state when it comes to agriculture.

"People think the only thing we grow out here is concrete," says New Jersey farmer Leonard Truskowski, a winner in the 2021 National Corn Growers Association (NCGA) National Corn Yield Contest.

But, there they are all the same, squeezing machinery under century-old infrastructure and between ever-encroaching development, complications that have been threatening their families' livelihoods for decades.



> GROWING CHALLENGES

The Santini family has been farming in New Jersey for 102 years. Sam Santini is the third generation. He and his wife, Chris, raised the fourth generation, adult daughters Carly and Stephanie, on the same ground originally settled a century ago.

The field near the railroad bridge is fairly representative of what the family deals with. It's not a large field in the first place, and it's divided by several tree lines. Still, at nearly 90 acres, it's one of their largest single units of land.

The field sits across the street from a neighborhood filled with nice houses, well-kept yards and a dozen private swimming pools. And, it sits on what's known

Sam Santini keeps his combine header to six rows, one way he helps fit his operation into population-dense New Jersey.

as “The Concrete Mile,” the state’s first mile of concrete road, laid down in 1912 by Thomas Edison’s cement company.

To sum up, it’s small, it’s adjacent to suburban development, and it has plenty of history, three regular traits in the area.

In all, Santini farms 1,600 acres in 65 different fields, an average size of 24 acres. His smallest is just 2 acres, causing him to sometimes wonder if such a small parcel is worth the trouble to maintain. At the same time, he’s



unwilling to give any agricultural land up because there’s not any more agricultural ground coming back.

“There is only so much land in New Jersey, and you have warehouses and solar panels and everything else that’s eating all the land up,” Santini says.

He tends to lose a little land every year, rental ground seemingly always under contract to be built out as solar and warehouse projects. Even Santini isn’t immune from the pressure. He turned over a 60-acre plot he owned to a solar contract several years ago.

“What they can offer compared to what I can offer to farm it, there’s just no comparison,” he says. “We have more ground we farm under contract right now for solar, but hey, what can you do?”

Santini rents about half the ground he farms and is constantly looking to add more to counter what he’s losing. That switch of crop ground to development is a concern throughout the region.

“In the last five years, the pressure from warehouses and solar has grown exponentially,” says Christian Bench, a senior ag specialist with the North Jersey Resource Conservation and Development Council, and the USDA’s Natural Resources Conservation Service.

“There are small fields, deer pressure, development pressure, solar pressure. That’s a big problem in this area. We’ve tried to protect and preserve as much land as we can in northern New Jersey and in New Jersey in its entirety, but we still have those pressures to face,” he explains.

Bench estimates one-third of the ag land in his area has gone over to development in the last five years alone.

“It’s not good. It’s not a good direction,” he says.

➤ EARNING THE NICKNAME

Still, the “Garden State” is not on the verge of losing any claim to its moniker.

New Jersey’s population density means what one might assume: Developed metro areas adjacent to Philadelphia in the southern part of the state and New York City in the north give way to vast stretches of suburbia, and smaller pockets of development, many dating back to America’s colonial era, are sprinkled densely throughout the state from bottom to top.

Sometimes, however, it doesn’t fit the stereotype, and agriculture is deeply woven into the state’s landscape.

New Jersey farms more than 100 different kinds of crops and is near the top nationally in growing fruits and vegetables such as tomatoes, blueberries, cranberries, bell peppers, apples and asparagus, to name a few.

The state’s acres for the likes of corn, soybeans and wheat are minimal, less than 200,000 total. The 76,000 acres planted to corn in 2022 could be a rounding error in Midwest states. That corn acreage was surpassed by 60 different counties in Illinois.

But, farms are strewn across the state, set between centuries-old towns, with nearly 10,000 operations in all. The further west you travel, the less likely you are to realize what state you’re actually in.

“People think of New Jersey when they land in Newark airport. They go to New York to sightsee and

whatnot, and do the tourism thing, but they never come west into New Jersey, to the really nice parts, like Hunterdon County and Warren County,” Bench says. ➤

It’s a tight squeeze to move large farm equipment through some of the state’s outdated infrastructure.



> BUILDING A LEGACY

The challenges of the region dictate plenty about how the Santinis farm. Sam Santini sticks to a six-row header on his combine, for instance, to make trips such as the one under the railroad bridge possible.

The family farmers are often restricted on what and where they can spray, especially when it comes to aerial application. Several of their farms are not just across the street from suburban neighborhoods but planted in the midst of them, and children sometimes pause and watch the Santini hay operation en route to the school bus stop.

Things were different 30 years ago. The Santinis ran a dairy at that point, one of many in the area, and they had a limited grain operation.

It wasn't all that different from the operation Santini's grandfather, Dominic, set up when he settled on the farm in 1922, still fresh from Ellis Island and his native Italy. Dominic had started with just 13 acres, and into the 1980s, the Santinis oversaw several hundred.

But, by the 2000s, the math was changing fast on the dairy business.

"There was just no more market here," Santini says. "I had 150 dairy cows. If you don't milk 1,000 or more, it doesn't pay to be a dairy farmer in New Jersey."

He began trying to grow his acreage from 200 acres in the late 1970s—when he started entering the NCGA National Corn Yield Contest—enough to make a row-crop operation sustainable. He finally gave up the dairy in 2010 and continued pushing to add more land to his operation.

It isn't as diversified as other corners of the state's agricultural output. The Santinis stick largely to corn, soybeans and grain sorghum, with their only dalliance in anything more unique being a large pumpkin patch next to their house and headquarters.

That part of the operation is run by his daughter, Carly, and her husband, Jeff Barlieb.

> PLANNING AHEAD

Where the focus is on row crops, New Jersey soil and its farmers have proven to be a competitive match of nearly any location in the country.

Santini has been a regular in the NCGA contest rankings for nearly 45 years. The first time he won the

state yield title, in 1978, he did so with 125 bushels per acre (bpa). He kept improving cropping practices, honing his high-yield aspirations into a hobby. He passed 150 and 200 bpa, then eventually 300. His best came in 2020, yielding 382 bpa.

"That crop just had the right timing," he says. "The moisture, that's the main thing. I feed the crop. I take care of it, and if we get moisture at the right time, that'll compete with most of the United States on dryland."

Santini hit 343 bpa in 2023, placing third nationally in the conventional dryland category and making the most of a year that was dry early, wet late and aided, he says, by a month of Canadian wildfire smoke in the middle.

He's just as prolific in sorghum, where his best is 232 bpa, and he's also regularly at the top of the nationwide yield contest.

The goal for corn is now 400 bpa. Santini has always tinkered with his approach, new ways to plant or fertilize, and he has ideas for upcoming crops, albeit not ideas he's ready to share publicly.

One of his more radical recent attempts was 15-inch rows. He tried it for five years, but yields couldn't keep up. He switched back to 30-inch and almost immediately raised his best crop, a personal best at 382 bpa.

"I still believe in the future of 15-inch row corn," he says. "They're breeding corn now to be shorter, and that's going to work a lot better in 15-inch rows. I'm going to try again at some point."

Despite some of the headaches, Santini insists he's in the right place to continue to aim high and, despite the ever-present pressures, maintain the opportunity for a farming lifestyle for his children and grandchildren, who would be the fifth generation to make their lives in the New Jersey dirt.

"There's enough preserved land. They may have to farm it a little different, maybe go into more vegetables, but there's going to be enough land here to farm if they want to farm," he says.

So, even if he has to be careful pulling under railroad bridges, Santini says he's perfectly fine farming in a state known for seemingly anything but.

"I was born here," he says proudly, "and I don't plan on leaving." ///



New Libido-Powering Pill Helps Men Enjoy Long-Lasting Intimacy - At Any Age

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

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

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

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

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

And this became **Primal Max Red**.

PROBLEM IS, RESULTS ARE MORE MECHANICAL THAN HORMONAL

Truth is, once blood flow slows down for men, no matter how exciting it is, it won't be enough without the necessary amount...

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Luckily, a Nobel prize-winning scientist discovered the simple answer to help support performance strength and confidence -- by boosting vital blood flow -- and enhancing this

essential performance function.

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

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

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

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

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

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



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

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

BETTER BLOOD FLOW, STRONGER RESULTS

The best way to promote healthy blood flow throughout the body is with the use of **Primal Max Red**. By using it, when exciting signals leave the brain, blood flows much faster like it used to.

This critical action is how men across the country are enjoying full and satisfying performance at any age. No need to bother with testosterone-boosting shots, blue pills, or shady capsules that have no effect.

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

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

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

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

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To secure free bottles of **Primal Max Black** and get the hot, new **Primal Max Red** formula, buyers should contact the Sears Health Hotline at **1-800-908-0996** TODAY. "It's not available in retail stores yet," says Dr. Sears. "The Hotline allows us to ship directly to the customer." Dr. Sears feels so strongly about **Primal Max**, all orders are backed by a 100% money-back guarantee. "Just send me back the bottle and any unused product within 90 days from purchase date, and I'll send you all your money back."

Call NOW at **1-800-908-0996** to secure your supply of **Primal Max Red** and free bottles of **Primal Max Black**. Use Promo Code **PFPMAX624** when you call. Lines are frequently busy, but all calls will be answered!

Savory Summer Flavors

LAMB CHOPS WITH MINT PESTO

Bring your taste buds to life with this 30-minute dish that highlights a herby, fresh sauce.

TOTAL TIME: 30 MINUTES

MAKES: 2-3 SERVINGS

8 Frenched lamb rib chops (about 2 pounds)

Olive oil, for brushing

Kosher salt and pepper

MINT PESTO

2 cups fresh mint leaves

¼ cup fresh basil leaves

¼ cup nuts (walnuts, pine nuts or slivered almonds)

1 clove garlic

¼ teaspoon crushed red pepper flakes

½ cup extra-virgin olive oil

½ teaspoon kosher salt

Freshly ground black pepper

2 teaspoons lemon zest

1. Heat a pan over medium-high heat. Brush both sides of the lamb chops with oil; season with salt and black pepper.
2. Place all pesto ingredients in a food processor; pulse until well-combined. With motor running, add olive oil in a steady stream until a thick, emulsified sauce is created; set aside.
3. Grill chops 3 to 4 minutes per side. Transfer chops to a plate; allow to rest.
4. Place chops on a platter; pour any remaining juices over chops. Spoon Mint Pesto over chops; serve.

STRAWBERRY SPINACH SALAD WITH PISTACHIOS

This fresh, vibrant salad contains ingredients that can be plucked straight from the garden.

TOTAL TIME: 5 MINUTES

MAKES: 2-3 SERVINGS

1 (8-ounce) bag baby spinach

1 cup chopped fresh strawberries

½ cup shelled pistachios

¼ cup white wine vinegar

1 tablespoon honey

1 teaspoon Dijon vinegar

½ cup olive oil

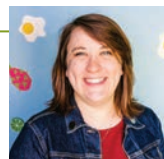
1. Fill a large salad bowl with fresh spinach; top with strawberries and pistachios.
2. To prepare dressing, combine all ingredients except olive oil in a food processor; pulse until well-combined. With motor running, add oil in a steady stream until a thick, emulsified sauce is created. Place in a glass jar; cover with lid. Shake vigorously; set aside. Top salad with dressing, as desired. ///

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February • March

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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

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

PANAMA Canal Cruise



Enjoy cruising from Miami to Los Angeles with a full transit of the Panama Canal. Land Tours included at Five Ports of Call. Visit farms growing a variety of crops from macadamia nuts & coffee to coconuts & bananas. Walk on white sandy beaches, see the Canal Expansion Project, & much more! Two weeks of fabulous food, entertainment, and sunshine!

January

CANADIAN TOUR FALL COLORS TOUR



Canadian Farm & Niagara Falls Tour: Visit the breathtaking Niagara Falls, visit multiple farms & inspect crops like tomatoes, tobacco, peppers, ginseng, canola, corn & soybeans, as well as livestock farms & a vineyard.
New England Fall Foliage: See history come alive in Boston and travel the colorful adventure found for only a few weeks in Vermont, New Hampshire, Rhode Island, & Maine. Take in the beautiful array of gold and autumn leaves as you enjoy an integrated farm tour and special visits to a Cranberry Bog, Maple Syrup farm, and more!

September & October

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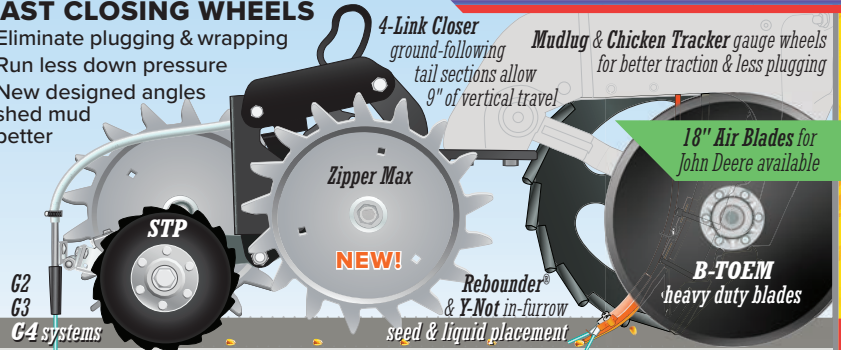
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When I was growing up, I don't remember being told that America was created so that everyone could get rich. I remember being told it was about opportunity and the pursuit of happiness.

MARTIN SCORSESE

America is another name for opportunity.

RALPH WALDO EMERSON

Duty, honor, country. Those three hallowed words reverently dictate what you ought to be, what you can be, what you will be.

DOUGLAS MacARTHUR

I say to you that our goal is freedom, and I believe we are going to get there, because however much she strays away from it, the goal of America is freedom.

MARTIN LUTHER KING JR.

Patriotism is easy to understand in America; it means looking out for yourself by looking out for your country.

CALVIN COOLIDGE

A man's country is not a certain area of land, of mountains, rivers and woods, but it is a principle, and patriotism is loyalty to that principle.

GEORGE WILLIAM CURTIS

For they that say such things declare plainly that they seek a country.

HEBREWS 11:14 (KJV)

The essence of America—that which really unites us—is not ethnicity, or nationality or religion—it is an idea—and what an idea it is: That you can come from humble circumstances and do great things.

CONDOLEEZZA RICE

It is not what we have that will make us a great nation; it is the way in which we use it.

THEODORE ROOSEVELT

America without her soldiers would be like God without his angels.

CLAUDIA PEMBERTON

For love of country they accepted death, and thus resolved all doubts, and made immortal their patriotism and their virtue.

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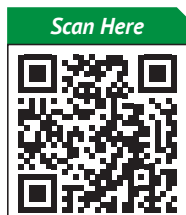
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