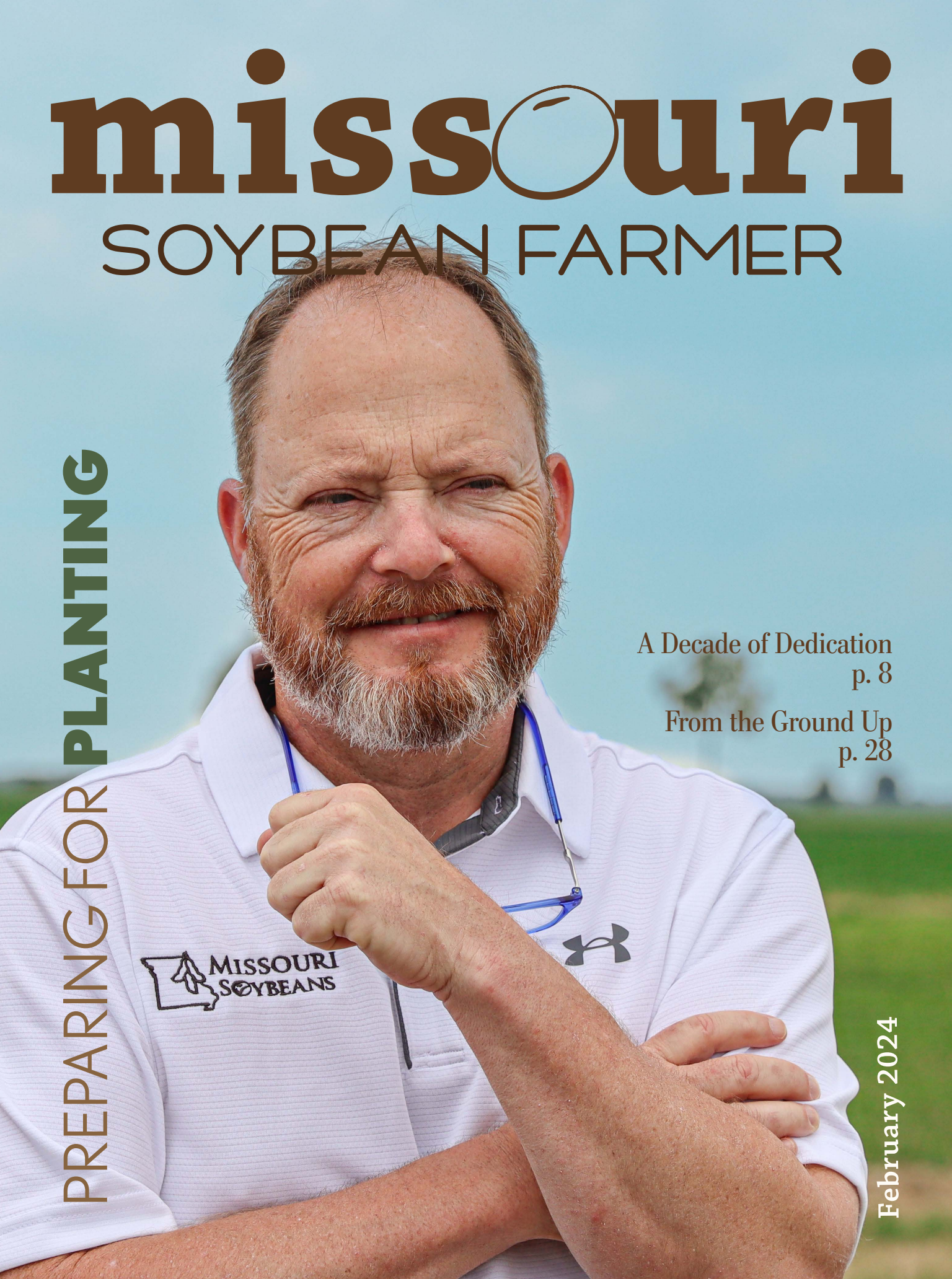
missouri SOYBEAN FARMER



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FEBRUARY 2024 | VOLUME 28 | ISSUE 1

Cover Shot

The cover photo of the February issue was captured by Samantha Turner. Pictured is Gary Wheeler, Missouri Soybeans' Executive Director and CEO.

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Missouri Soybean Farmer is published six times annually and is an excellent opportunity to reach row-crop farmers.

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From The Field

Notes from Missouri Soybeans' Leadership Team

If you want to see how time flies, mark a future date and watch for it on the calendar.

I remember my dad saying this many times. Now, I am telling my kids the same thing. I cannot believe how fast the past two years have flown. To have led the Missouri Soybean Association as your president has been an absolute thrill and honor. While I will continue to serve on the MSA board, it is time to pass the presidential reigns to the next farmer-leader.

As we transition, I know we will be in safe hands. I am proud of our association, board and staff. All these folks work extremely hard to meet our mission and vision. To them, and to me, it's more than just a job – it's personal.

I cannot begin to list or quantify all the accomplishments Missouri Soybean producers have enjoyed these two years. But I can tell you that the work and achievements will continue. The board is in a great place regarding knowledge, abilities and appetite to take on whatever comes our way.

The current legislative session will provide opportunities and threats for agriculture, as it always does. Our board and staff are most definitely ready for the task. They will be in the Capitol and on the road for long hours for the next couple of months. I encourage you to reach out and thank them if you have a chance. A great place to do that is our upcoming district meetings.

As a lifelong farmer, it has been an honor to serve the soybean producers of Missouri. I will continue to advocate for and protect our way of life so future generations can have the same opportunities I have had.

Matt Wright - Missouri Soybean Association President

Planting season is right around the corner. It is an exciting and stressful time of year as we prepare our operations for everything from equipment maintenance to assuring adequate labor is on hand. We order appropriate varieties for each field amd prepare the ground for arguably the most crucial window in the cropping season.

So much goes into preparing it, which can become a somewhat daunting task. There are many variables that impact raising a crop that determine whether we keep the lights on – many we control and many we are at the mercy of forces out of our control. But then, the tractors hit the fields, the smell of the dormant soil being worked for the first time lingers, and the seeds of hope we put so much physical and mental preparation into hit the ground. I am then reminded I was born for this, and I thank God. He put me here in this moment.

As we prepare for this season, there is good news in the world of soybean cyst nematode (SCN) resistance research brought to Missouri producers by their soy checkoff. As many folks battle SCN, the current resistance genes in the marketplace are growing increasingly less effective. This is not good news when combating the No. 1 cause of yield loss nationwide. Fortunately, in the future, producers will benefit from a partnership between MU, the University of Georgia and the United States Department of Agriculture, which has discovered a new gene that will assist in the suppression of SCN.

Through this partnership sponsored by the Missouri Soybean Merchandising Council, a new gene, GmSNAP02, has been discovered to suppress susceptible strains of SCN, resulting in higher soybean yields and, ultimately, greater profitability. I am proud that Missouri farmers and their checkoff are at the forefront of advancing genetic technology that will benefit farmers around the state and across the country.

I hope everyone has a safe and timely planting season this spring. It also would be nice to get a little more rain than last year, but not too much. It's a tall order, but Lord willing, we will all look back on 2024 as a record year.

Aaron Porter - Missouri Soybean Merchandising Council Chairman

Letter from the Executive Director

With the start of the year behind us, I reflect on the journey we've taken together as a community of dedicated farmers. The past year has brought its share of challenges, triumphs and growth opportunities. As we continue through 2024, I am filled with optimism and a renewed commitment to our shared vision.

In a world that often seems to move at an ever-accelerating pace, we need to take a moment to reconnect with our roots, our values and the fundamental principles that have guided us from the beginning. It's time to get back to the basics and the essence of what makes us a successful agricultural enterprise and a close-knit, resilient community.

The core of our success lies in the hard work, dedication and passion that each of you brings to the field daily. As we embark on this new year, I encourage us to revisit the foundational principles that have been the bedrock of our success.

Our mission statement, a beacon guiding our collective efforts, emphasizes the integral role of Missouri Soybeans in ensuring our farmers have the tools they need and a market for their produce.

With the power vested in us by two complementary organizations, the Missouri Soybean Association and the Missouri Soybean Merchandising Council, we stand as a united force, ready to advocate for, market and research the essence of our trade – Missouri soybeans.

As we stand at the dawn of a new year, I urge you to revisit our mission. Let's refocus our collective efforts on providing the necessary tools for our farmers and ensuring markets eagerly await the fruits of our labor.

In the coming year, let us leverage the strength of our two organizations to market our soybeans effectively, conduct impactful research and advocate for policies that safeguard the interests of Missouri soybean farmers. Together, we are an unstoppable force, and with unwavering dedication, we shall continue to fortify the legacy of Missouri farmers as leaders in sustainable soybean production.

Thank you for your hard work, dedication and the remarkable journey we've shared thus far. I look forward to another year of growth, success and collaboration.

God Bless,

Gary Wheeler

Executive Director/CEO
Missouri Soybean Association
Missouri Soybean Merchandising Council
Foundation for Soy Innovation

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MISSOURI SOYBEANS

SOYBEAN POLICY UPDATE

As usual, the January gavel drop in the midst of an election year is highly anticipated. Those vested in policy discussions await the unfolding political theatrics, anticipating the maneuvers that will unfold in the lead-up to the pivotal August primary race. However, whether attributed to the uncharacteristically frigid and snowy weather sweeping across the Midwest or the resurgence of an independent Freedom Caucus, the legislative arena has witnessed a notable lack of substantive action on the 3,000+ bills that have already been filed this session.

As advocates for your priorities, we are poised to work collaboratively with our elected representatives. Recognizing the weight of the tasks at hand, we are committed to ensuring that your concerns are not just acknowledged but actively championed by members of the legislative body. In this dynamic and charged atmosphere, we stand ready to engage, contribute and navigate the intricate web of policymaking to secure outcomes that truly reflect the needs and aspirations of our members.

State Legislation

Building upon the priorities highlighted in the December issue of the Missouri Soybean Farmer, it's noteworthy that many unresolved issues of significant importance are resurfacing this session. Issues such as initiative petition (IP), education, and tax reform, foreign land ownership, and eminent domain, which held high priority in the previous session but were left unaddressed, are making a reappearance on the legislative agenda. The upcoming five months promise a comprehensive and challenging agenda as we delve into these critical topics, aiming to contribute meaningfully to the discourse and resolution of these pressing matters.

On January 2, Gov. Mike Parson and Lt. Governor Kehoe announced the issuance of Executive Order 24-01 during a press conference at the State Capitol. This executive order imposed a ban on individuals and businesses from nations identified as foreign adversaries, including China, Cuba, Iran, North Korea, Russia, and Venezuela, preventing them from acquiring agricultural land within a 10-mile radius of critical military facilities in the State of Missouri.

Prior to the executive order, state statute Section 442.571, RSMo, placed a cap on foreign agricultural land purchases at one percent of the total agricultural land statewide. Executive Order 24-01 introduced more rigorous requirements for these acquisitions, necessitating approval from the Missouri Department of Agriculture (MDA) before any foreign entities could proceed with the purchase of agricultural land and prevents foreign adversaries identified under 15 C.F.R. 7.4 from purchasing or owning land within a 10-mile radius of a critical military facility.

The Missouri Soybean Association (MSA) appreciates the action taken by Gov. Mike Parson and Lt. Gov. Mike Kehoe to prioritize national security while balancing farmer's freedom to operate. As outlined by Gov. Parson and Lt. Gov. Kehoe, this executive order represents the best in government action—a commonsense approach to balancing the freedoms deserved by our members and the value we see in foreign trade and partnerships, while ensuring consequences for being a foreign adversary to the U.S.

Federal Legislation

Farm Bill Extension

In November, just days after the last issue went to print, Congress passed, and the president signed a continuing resolution

"In this dynamic and charged atmosphere, we stand ready to engage, contribute and navigate the intricate web of policymaking to secure outcomes that truly reflect the needs and aspirations of our members.."

-Casey Wasser, Sr. Director of Policy

"The Missouri Soybean Association (MSA) appreciates the action taken by Gov. Mike Parson and Lt. Gov. Mike Kehoe to prioritize national security while balancing farmer's freedom to operate."

-Casey Wasser, Sr. Director of Policy

on the extension of the budget and, perhaps more importantly to our readers, an extension of the 2018 Farm Bill to September 2024.

Beyond averting a government shutdown, the CR secured funding for nearly all "orphan" programs that would have faced a funding cutoff as of January 1st. The extension grants Congress an additional ten months to formulate a new farm bill. Despite this extended timeframe, substantial negotiations lie ahead. Critical decisions are pending on the distribution of IRA funding and funding allocations for the Supplemental Nutrition Assistance Program (SNAP), both of which are highly contentious issues.

While we had hoped that the Farm Bill would be laid to bed in 2023, it continues to be the word on everybody's tongues that is involved in the agriculture industry and in the realm of federal politics. As a reminder, the Farm Bill is an extremely extensive and intricate piece of legislation, and its journey through Congress will undoubtedly be marked by many more twists and turns.

"The Farm Bill is an extremely extensive and intricate piece of legislation, and its journey through Congress will undoubtedly be marked by many more twists and turns."

-Casey Wasser, Sr. Director of Policy

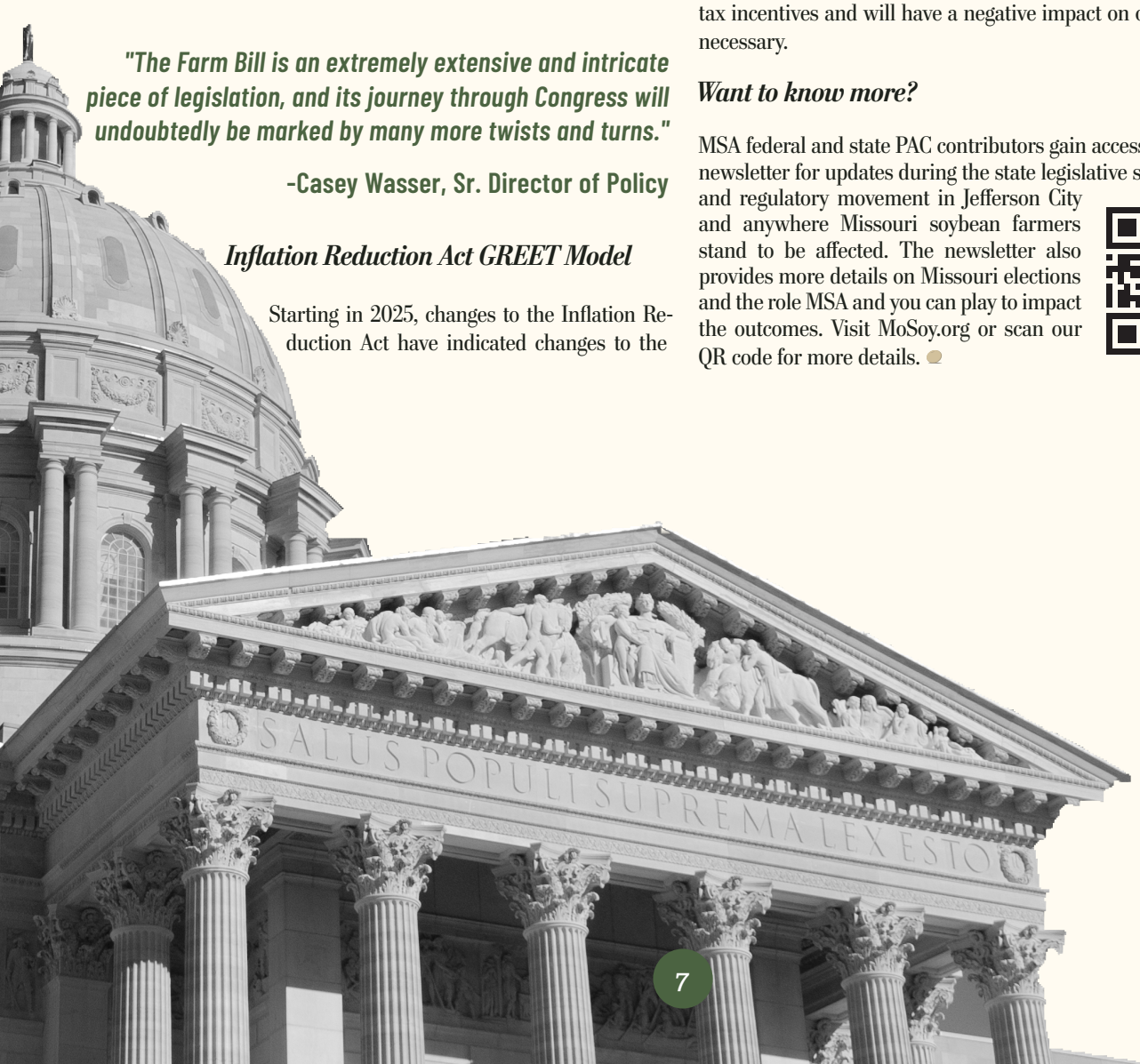
Inflation Reduction Act GREET Model

Starting in 2025, changes to the Inflation Reduction Act have indicated changes to the tax structure of biofuel incentives. The current $1-per-gallon blender credit will transition into a Clean Fuel Production Credit. This credit will extend to various on-road and aviation fuels, offering higher values for sustainable aviation fuel (SAF) that achieves a 50% lifecycle carbon reduction.

The IRA also mandates the use of Argonne National Labs' Greenhouse gases, Regulated Emissions, and Energy use in Technologies (GREET) model for the new producer credit. GREET serves as a versatile tool for evaluating various challenges associated with life cycle energy, emissions, and environmental impact. It can be applied to inform decision-making, guide research and development efforts, and shape regulations within the transportation and energy sectors. However, the American Soybean Association, Missouri Soybean Association and Clean Fuels Alliance American have been actively educating the Administration and Congress on the importance of using the GREET modeling. If an alternative is used, such as CORSIA, soybean oil will be sharply under-valued in the new tax incentives and will have a negative impact on overall supply of necessary.

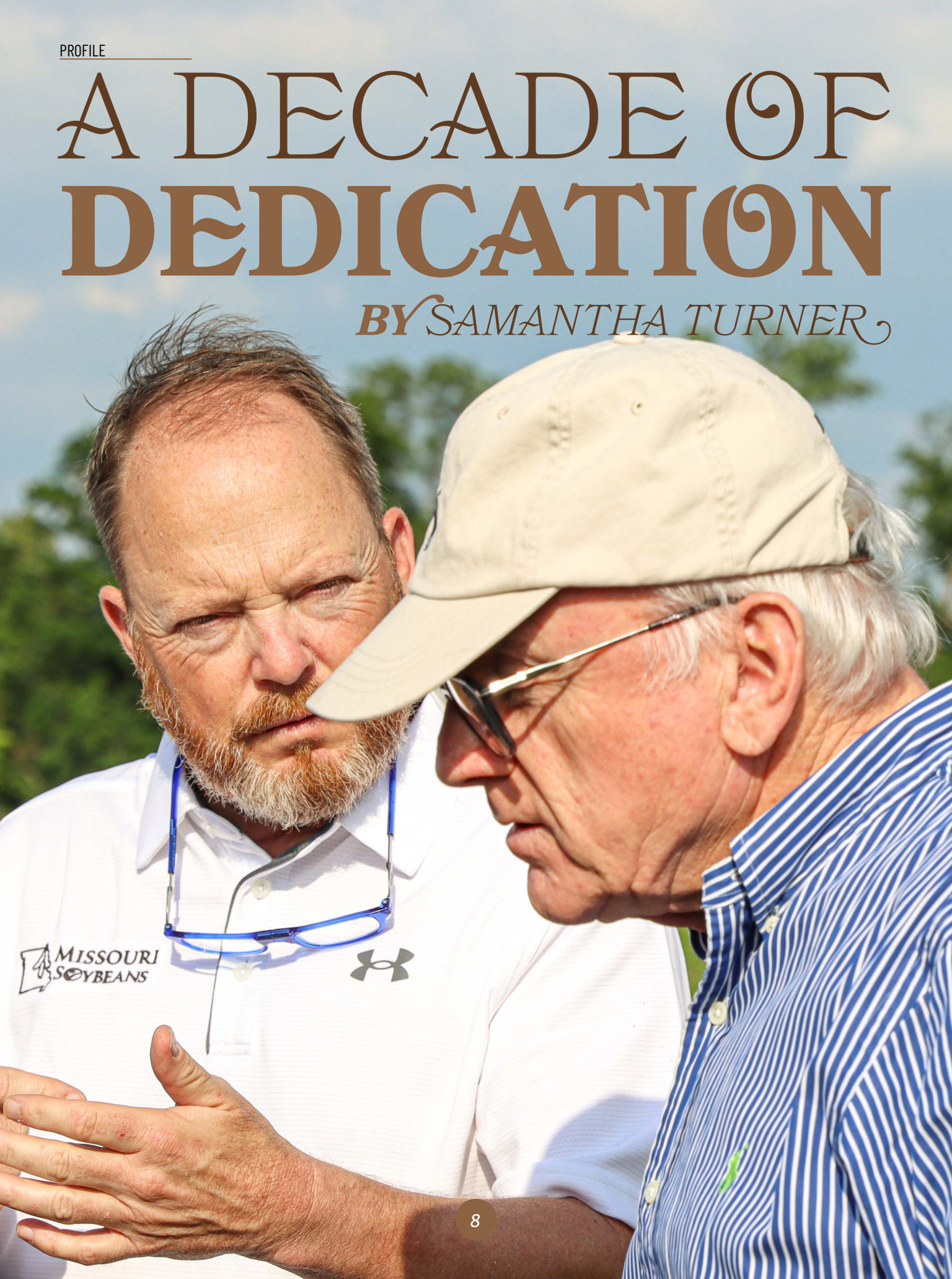
Want to know more?

MSA federal and state PAC contributors gain access to an exclusive newsletter for updates during the state legislative session on policy and regulatory movement in Jefferson City and anywhere Missouri soybean farmers stand to be affected. The newsletter also provides more details on Missouri elections and the role MSA and you can play to impact the outcomes. Visit MoSoy.org or scan our QR code for more details.



A DECADE OF DEDICATION

BY SAMANTHA TURNER



In the dynamic landscape of business, visionary leadership is the compass that steers an organization toward success. Today, we celebrate a milestone beyond mere tenure. We commemorate a decade of unwavering dedication, innovation and transformative leadership from Missouri Soybeans' Executive Director and CEO Gary Wheeler.

Wheeler has been at the helm of the Missouri Soybean Association, Missouri Soybean Merchandising Council and Foundation for Soy Innovation for 10 years, steering these organizations through operational and strategic challenges with a focus on partnerships and critical thinking. Under his leadership, farmers have seen remarkable achievements and growth.

"It was evident that Gary was the best candidate for the organization," said Will Spargo, past chairman of the Missouri Soybean Merchandising Council and farmer from Neelyville, Missouri. "We wanted to clean up our organization and be seen as a top organization. You do that by putting the right people in place and allowing them to succeed at their jobs."

Wheeler's agricultural business and leadership background contributed to his success and selection. He holds a Master of Business Administration from William Woods University and a Bachelor of Science in agricultural business from Murray State University. He previously served the Missouri agricultural industry in roles with the Missouri Department of Agriculture, Missouri Corn Growers Association and Missouri Corn Merchandising Council. Wheeler also served in the Missouri Army National Guard for more than a decade.

The Power in People

Wheeler's impact extends beyond the boardroom. He has fostered a culture of collaboration, innovation and inclusivity, empowering every organization member to contribute his or her best. This culture has commissioned each member to contribute creative insights, promoting an environment where ideas flourish and individuals thrive.

> When working on the farm, I try to bring in people with more extensive knowledge than me, from soil scientists to agronomists, to help build a plan. Gary has done that. ***He brings those people in to help the organization and Missouri's farmers.***
>
> -Aaron Porter

"Gary has proven that you must spend time 'looking into the trees' to find unique ways to tackle our members' challenges," said Casey Wasser, Missouri Soybeans' chief operating officer and director of policy. "He's one of the best, if not the best, at doing this and pushing those around him not to be complacent. He has built a fantastic team, bringing experts to help the organization and Missouri's farmers."

Even though the work can be challenging, Wheeler said it's incredibly humbling to work daily with a team of experts to provide a direct impact on the soybean industry.

"When working on the farm, I try to bring in people with more extensive knowledge than me, from soil scientists to agronomists, to help build a plan," said Aaron Porter, Missouri Soybean Merchandising Council chairman and farmer from Dexter, Missouri. "Gary has done that. He brings those people in to help the organization and Missouri's farmers."

With limitless opportunities, Wheeler has learned the importance of the power of people and establishing the right team to deliver for the farmer. That means surrounding yourself with people who are more knowledgeable in particular subjects than yourself, he said.

"Find your top three strengths and hire for the rest," Wheeler said.

For the Farmer

One of the hallmarks of Wheeler's tenure has been his forward-thinking approach. Whether embracing emerging technologies, championing sustainability initiatives or spearheading community outreach programs, he has led with a vision that extends beyond the bottom line.

"Gary let the farmers know he would work to put the farmers first and that they are the ones in control of these innovative investments," said Robert Alpers, past chairman of the Missouri Soybean Merchandising Council and farmer from Prairie Home, Missouri. "The farmers empower us and entrust us to spend their money wisely. Gary has tried to keep that top of mind, which is most important to our producers."

Throughout his time with Missouri Soybeans, Wheeler has focused on partnerships and used the power of critical thinking to successfully lead the state's soybean organizations through significant operational and strategic challenges.

"It's an organization you can be proud of," said Spargo. "We try to make sure farmers' funds aren't wasted. We are spending them on worthwhile projects that get the most return on investment (ROI)."

Looking back over his tenure, Wheeler stabilized the Missouri checkoff investments through renewed transparency and trust. Wheeler credits these accolades to his outstanding farmer-leaders, who made Missouri a leader for other states regarding compliance and ROI delivery to the farmer.

"I stand by our board's choice for selecting Gary for this position," said Spargo. "Gary has taken charge to get the ship in the right direction. I want to congratulate him for ten outstanding years of service, and I appreciate all he has done for Missouri soybean farmers."

Giving Gratitude

After a decade of dedication, Wheeler shared that it's difficult to put into words what the past 10 years have meant. Through adversity and challenges, Wheeler and Mis-

continued on page 10...

souri Soybeans have grown to serve the soybean farmer better and become a statewide agricultural leader.

"I love my job; I can't see myself doing anything else," said Wheeler. "It's been the biggest blessing and incredibly humbling, and I have my kids, board and staff to thank for that gift."

To Wheeler, some of the organization's most significant achievements include positive policy wins, building the Center for Soy Innovation, bringing traffic to the Bay Farm, continuing education efforts for thousands of people who don't know about the versatile soybean, and much more.

When asking farmer-leaders about Wheeler's most attributable successes, they were left with a laundry list of wins. However, a unanimous sentiment rang true.

"It's not about the big wins; it's about consistent small gains," said Porter. "It's his energy, passion and advocacy for agriculture."

Wheeler knows he can't do this job alone and credits his success to current and past Missouri Soybean Merchandising Council chairmen, Missouri Soybean Association presidents, board directors and staff.

"I find myself getting emotional thinking about all we have built together during the past 10 years," said Wheeler. "This job has been the pinnacle of my career."

As Missouri Soybeans looks ahead, the organization is confident that Wheeler will continue to bring the state's producers to new heights of success, growth, and impact.

The Missouri Soybeans' staff and board thank Gary Wheeler for his years of unwavering enthusiasm and love for this organization.

To learn more about Wheeler, please visit mosoy.org.

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Aaron Porter, chairman of the Missouri Soybean Merchandising Council, best sums up agriculture's passion for agricultural stewardship:

"In agriculture, our greatest resource is the land, and as farmers, it is our duty to be good stewards of that land for future generations. Sustainability is one of the top priorities for our organization, and it's outstanding to see the spotlight on farm families who are truly living the example of stewardship."

Cope Grass Farm of Truxton, Missouri, received Missouri's highest agricultural stewardship and sustainability recognition with the 2023 Missouri Leopold Conservation Award. The award honors farmers, ranchers and forestland owners who go above and beyond to manage soil health, water quality and wildlife habitat on working land.

Given in honor of renowned conservationist Aldo Leopold, the award recognizes landowners whose dedication to environmental improvement inspires others. Leopold advocated for an ethical relationship between people and the land they own and manage. The Missouri Leopold Conservation Award is presented by Missouri Farmers Care and the Sand County Foundation in partnership with the Missouri Soybean Merchandising Council, Missouri Corn Merchandising Council, the USDA Natural Resources Conservation Service, American Farmland Trust and partners across Missouri ag.

Cope Grass Farm was established in 1990 with a focus on rotational grazing and finishing of cattle, sheep and hogs. Today, it's a partnership between Harry and his daughter, Sabrina Cope, the farm's fifth generation who heads up marketing for the farm.

Since the farm has been under his management, Harry has planted almost 400 acres of pastureland with a mix of native grasses and forbs. Today, innovative grazing practices coupled with deep-rooted vegetation keep pastures lush, even during drought. The variety of species include what others might call weeds, but in light of his goals, Harry knows the diverse mix of forbs brings pollinators, wildlife and biodiversity.

"Implementing all these different conservation practices, has really dropped our cost of production," Harry Cope says. "Then there are the side benefits from the conservation side of it with the wildlife."

Cope Grass Farm is one of just seven Missouri farms to receive the National Audubon Society's "Bird Friendly Beef" certification, a reflection of the Cope's stewardship philosophy and the farm's ecological health.

Terraces, grassed waterways, no-till practices and cover crops help prevent soil erosion on the rolling farm. Cover crops include sunflowers, turnips, buckwheat, oats and barley, all of which help improve the soil's ability to cycle nutrients and infiltrate water. As one of the principles of soil health, incorporating livestock into cropland benefits both the animal and the next crop.

"The main thing that fuels my passion for farming is knowing that we can improve every single year," says Sabrina Cope. "Dad has always been geared toward conservation, and it's rare when he doesn't come up with something new to try. And I think I've caught that bug."

The Copes have adapted an additional alternative to growing hay — microgreens. Using this innovative approach, barley seeds are sprouted, and after six days, transform into vibrant green turf. Loaded with minerals, sugars and carbohydrates, cattle thrive.

"The Cope family reflects the principles shared by so many in Missouri agriculture — innovative and responsible management of their land and livestock, mentorship and a longterm view of their farming operation," says Ashley McCarty, executive director of Missouri Farmers Care.

The main thing that fuels my passion for farming is knowing that we can improve every single year.

Sabrina Cope

Harry consults with young and beginning farmers on how to manage their grazing systems. As an effective communicator and educator, Harry is considered by some to be one of Missouri's best agricultural conservation ambassadors. His uncommon ability to engage people from all walks of life allows him to show others how agriculture and conservation can be compatible.

"It just takes time and effort," Harry says, reflecting on the family's efforts. "I'm old enough that I probably won't see it all. But my kids and grandkids will. And even if not my kids or my grandkids, it is the next person behind me. This is one of those cases that this isn't mine. We are borrowing it."

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STUDY SPEARHEADS SOYBEAN CYST NEMATODE RESISTANCE RESEARCH

The Missouri Soybean Merchandising Council, United Soybean Board and NSF-NIFA fund game-changing soybean cyst nematode research.

Researchers in the University of Missouri's Division of Plant Science and Technology have been academic and industry leaders in deciphering the underlying genetic mechanisms soybeans utilize to defend against soybean cyst nematode (SCN). For the past four years, a team of scientists at the University of Missouri, the University of Georgia (UGA), and the United States Department of Agriculture (USDA) have been devoted to discovering a new gene to combat SCN and improve the profitability and productivity of farmers worldwide. As a result, the research has led to the recent discovery of a new gene, GmSNAP02, for soybean breeders, farmers and private industry to utilize. The study was published last fall in *Nature Communications*.

"This is a novel mechanism for SCN resistance and serves as an instrumental breakthrough for farmers in Missouri and beyond," said Missouri Soybean Merchandising Council chairman Aaron Porter. "The next step will be to rapidly integrate this gene into soybean varieties planted by farmers across the country."

Plant-parasitic nematodes significantly threaten global agriculture. Realized annual losses by U.S. producers from SCN damage are billions of dollars. Recently, these losses have been exacerbated by a shift in the virulence of this pathogen. This is due to the overuse of known resistance genes and limited options to farmers to control these losses with improved cultivars or new management strategies beyond only early season protection with seed treatments. With increasing nematode resistance to the commonly used SCN resistance source PI 88788, the discovery of GmSNAP02 offers new hope for combating this destructive pest and improving soybean productivity.

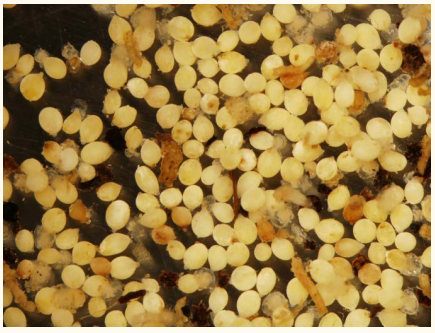
"Results of the last statewide survey of SCN in Missouri made us aware of the increasing problem of virulent HG type 1.2, a trend that is also observed in SCN populations throughout the Midwest," said Clinton Meinhardt, a researcher and lab manager for the Northern Missouri soybean breeding program at the University of Missouri. "This resistance gene offers a new tool for management that will target those problem SCN populations

The interdisciplinary research team was led by Andrew Scaboo at the University of Missouri and Melissa Mitchum at UGA. Using unique bi-parental populations, the research team employed advanced techniques to map, fine-map and select GmSNAP02 as a candidate gene. To further validate their findings, the team utilized CRISPR-Cas9 genome editing technology and observed

This discovery represents a breakthrough that has an ***immediate impact on soybean growers.***

-Mariola Usovsky

a gain of resistance in edited plants. The team also unraveled the answers to the effectiveness of different gene combinations while stacked with the GmSNAP02 gene and developed molecular assays for gene detection.



"This discovery represents a breakthrough that has an immediate impact on soybean growers," said Mariola Usovsky, a research scientist at the University of Missouri-Columbia. "With the employment of GmSNAP02 and other known underutilized genes, farmers will soon have a choice to buy seeds with resistance that will precisely target nematodes in their field."

These groundbreaking discoveries open new possibilities for developing soybean varieties with enhanced resistance to SCN. Scaboo's soybean breeding program works on the next steps to rapidly integrate this gene into new soybean varieties.

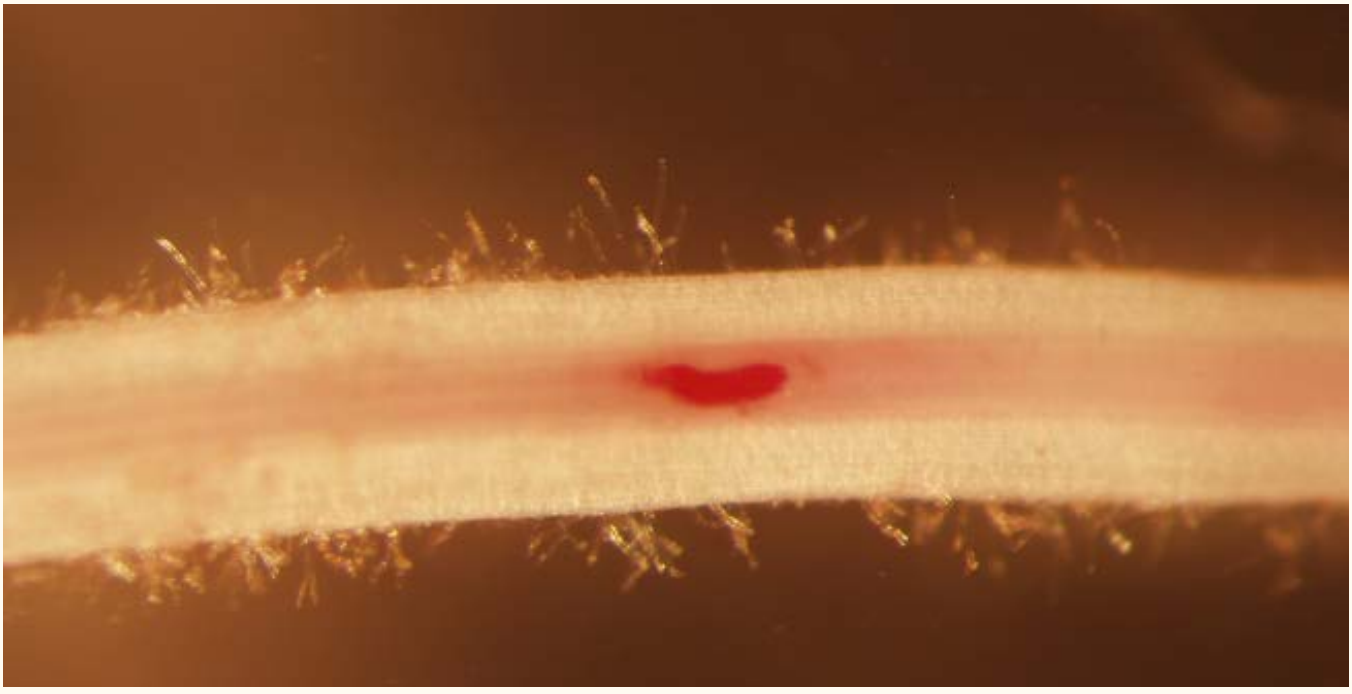
"Here, we used CRISPR-Cas9 technology as a more precise way to confirm GmSNAP02 function in soybean resistance to SCN," said Vinavi Gamage, a doctoral candidate at UGA's Institute of Plant Breeding, Genetics and Genomics (IPBGG) and co-first author of the study. "What's exciting is that our discovery has not only identified a new resistance gene but a gene editing-amenable resistance gene, opening the door for CRISPR-Cas9 technology that may make it easier and potentially faster for breeders to develop soybean cultivars with enhanced resistance to SCN."

"Moreover, the nature of this resistance gene has provided us with new insights about how SCN may be adapting to overcome genetic resistance mechanisms in the soybean plant," said Mitchum. "A better understanding of how SCN circumvents the soybean plant's resistance response is necessary for enhancing the durability of resistance genes by providing soybean farmers with more prescriptive management approaches."

By harnessing the power of GmSNAP02, farmers can look forward to increased yields and reduced economic losses caused by SCN.

"The results found in this research will have a significant impact on the varieties grown by farmers now and in the future to combat SCN," said Andrew Scaboo. "Although SCN will continue to evolve, we now have a new genetic technology desperately needed to improve productivity in soybean farmers' fields in Missouri."

For more information about this research, contact Eric Oseland, Missouri Soybeans' director of agronomy and research, at eoseland@mosoy.org or visit mosoy.org.



Carbon Pilot Update

from Clayton Light

Missouri soybean and corn farmers wanted to take a deep dive into carbon markets to see if there is a real opportunity, or if this is just another fad. To answer that question, a partnership was formed to explore carbon and ecosystem credit markets through a pilot project that was focused in Missouri with two major goals. The first goal was to learn more about ecosystem credit markets, and the second goal was to ensure Missouri farmers had a voice as these markets develop. This project helped us further evaluate and understand the potential economic and conservation value that voluntary private carbon and ecosystem credit markets provide to Missouri farmers.

In 2021, a partnership was formed that included the Missouri Soybean Merchandising Council, the Missouri Corn Merchandising Council, MFA Incorporated and Ecosystem Services Market Consortium (ESMC). The pilot project was launched in the spring of 2021 with the goal of enrolling 5,000 acres in Missouri. To qualify for enrollment, the producer had to add a conservation practice that is known to help sequester carbon or benefit water quality. This is very similar to all the other carbon programs that are offered to producers. Once we opened enrollment, it only took five days to meet our goal of 5,000 acres. There were two big themes that we noticed during enrollment. The first was no surprise; producers were very upset that they could not participate in the carbon market if they had already been doing these practices in the past. These producers are known as "early adopters," and they made it clear that they would like to have the opportunity to participate in these programs. It was a top priority to make sure early adopters had a voice throughout this project. The next common theme was producers were very confused about carbon markets and had been approached by many other carbon platforms wanting them to enroll. Producers were nervous about signing a long-term contract, especially when the carbon market failed before. There were too many questions that producers did not have good answers. This was the main reason why we were able to meet our enrollment goal so quickly. Producers liked the short, two-year study that would help give them a look into a developing market.

We had a great start to the pilot project with how quick and easy the enrollment process went. I wish the rest of the pilot would have been as smooth. Once enrollment was complete, we had to start the process of soil sampling and building the online producer portal. The 2021 pilot year was consumed by data and building the online system. This work was not fun, but everyone had high hopes that once we put in the work, the new system would be easy and efficient for producers to navigate and use. There was also excitement around the potential of these credits being sold and what that would look like for the producers involved. While the 2021 credits were in the process of being certified, we already began the process for the 2022 pilot year. Since we already had acres met, enrollment was much easier. Data collection and soils sampling was less time consuming as well. Since outcome-based carbon and water quality credits are sold after the crop year is complete, producers do not receive payments upfront. Their payments come after the crop year is complete and the carbon and water quality benefits can be quantified, verified and certified by ESMC. This made the excitement in 2022 drop during this project. Producers were losing interest, and they were not quick to enter data, which was understandable. We did manage to get all the data needed for 2022 pilot year, but it was a challenge.

continued on page 20...

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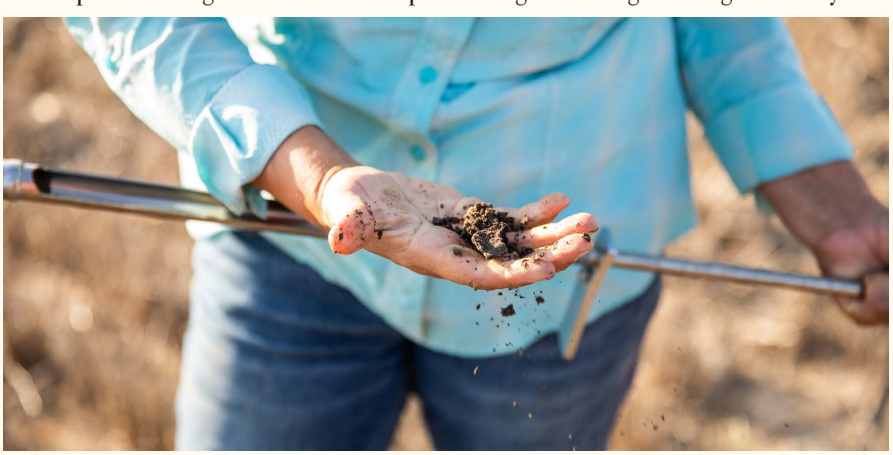
This pilot was wrapped up in the spring of 2023, and no certified carbon or water quality credits were sold. This was disappointing but a very good learning opportunity. The producers did receive one payment when General Mills purchased the "un-certified carbon credits" from 2021 for $8 per acre. What are "un-certified carbon credits?" I will explain this soon as I dive into what we learned from this pilot project.

Now that we have a basic outline of the two-year pilot project, let's dive into what everyone wants to know. What are the key takeaways?

What goes into the development of ecosystem credits? First of all, think of ecosystem credits as a certification process that can document a positive outcome that was new on the landscape due to a conservation practice that was added to a field. There are multiple different ecosystem credits such as carbon, water quality and biodiversity credits. For this project, we just focused on carbon and water quality. We found that the science behind generating carbon and water quality credits is very intensive. Models have been developed and continue to get more accurate as additional data is collected for these credits. As experts gather more data, the margin of error reduces and makes the confidence in the ecosystem credits increase. After working with this pilot project, I have great confidence that the science to document these credits is accurate.

Once credits are generated, what is the process of getting them sold and the payment in the pocket of the producer? I will just speak about how this process worked for ESMC during our Missouri pilot. Other carbon platforms might have a different approach. With no certified credits being sold during this pilot, I found out how difficult this process can be. My first main takeaway when it comes to the sale of credits is to lock down a buyer before you enroll any acres. Buyers prefer to purchase credits that only fall within their geographic footprint. There were many potential buyers during this project that were interested, but only a few of the farms fell within their geographic footprint. This made it very difficult because getting buyers all lined out for all the different geographic footprints is a huge challenge. Another reason to work with the buyer first is to see what standards they need when purchasing ecosystem credits. Some buyers are just meeting internal sustainability goals and they do not need a "gold standard" ecosystem credit. This is one of the reasons that General Mills purchased the "un-certified carbon credits" from the 2021 pilot year. These carbon credits were not stamped with the gold standard label, but they still had a positive benefit when it comes to reducing their carbon footprint. Durning this pilot, carbon credits were by far the most popular. ESMC did not get any buyers interested in purchasing water quality credits in Missouri. I do think that other ecosystem credits such as water quality and biodiversity credits have potential in the marketplace in the future, but during this pilot, buyers were only interested in carbon credits.

Are farmers getting their fair share when it comes to carbon credits? From what I learned in this project, my answer is yes. The cost associated with the generation of the credit is way more than what I ever imagined. The soil sampling cost was very high, and when you factor in all the labor that goes into generating an ecosystem credit, it is very expensive. Overall, the price that farmers would have received in this project is fair, in my opinion. Now, when it comes to the overall carbon market and the question about farmers getting a fair value, that is a little different story. Think about a large company wanting to reach net zero sustainability goals by a certain date. They are a business first and foremost and are going to try and meet these goals at the lowest possible price. Farmers are producing the goods that go into their products and can make a few management changes that can help reduce the overall carbon footprint. So, it makes sense that buying credits from farmers is the cheapest option. I personally do not look at this as farmers are not receiving their fair share. I look at this as an opportunity for farmers. If farmers are not selling carbon credits, then these companies will find someone else.



Overall, this pilot project was a great learning experience. Although it was disappointing when credits did not sell, it gave us a deep understanding of all aspects of the carbon market. From the excitement of enrollment to the frustration of not getting a buyer to commit and purchase, this project gave an inside view of a marketplace that is very complex and confusing. You might have heard the carbon market described as the "Wild West." After this project, I would agree. Since there are no set standards, buyers can work with any carbon platform to develop a credit that works for their internal needs. This is why there are so many different options, and that overall makes this marketplace very confusing. After almost three years of working closely in this space, I still have questions. My advice to producers wanting to jump into the carbon market is to ask plenty of questions. Do not sign an agreement without fully understanding the contract. Look for a carbon platform that locks in the buyers before the credits are even generated. You can tell this because most of these carbon platforms offer half the money upfront, and the producer receives the rest of the payment once the credits have been verified. If a producer has the ability to stack payments, that will be the best way to get the most profit. If you have questions, never hesitate to reach out, clight@mosoy.org.

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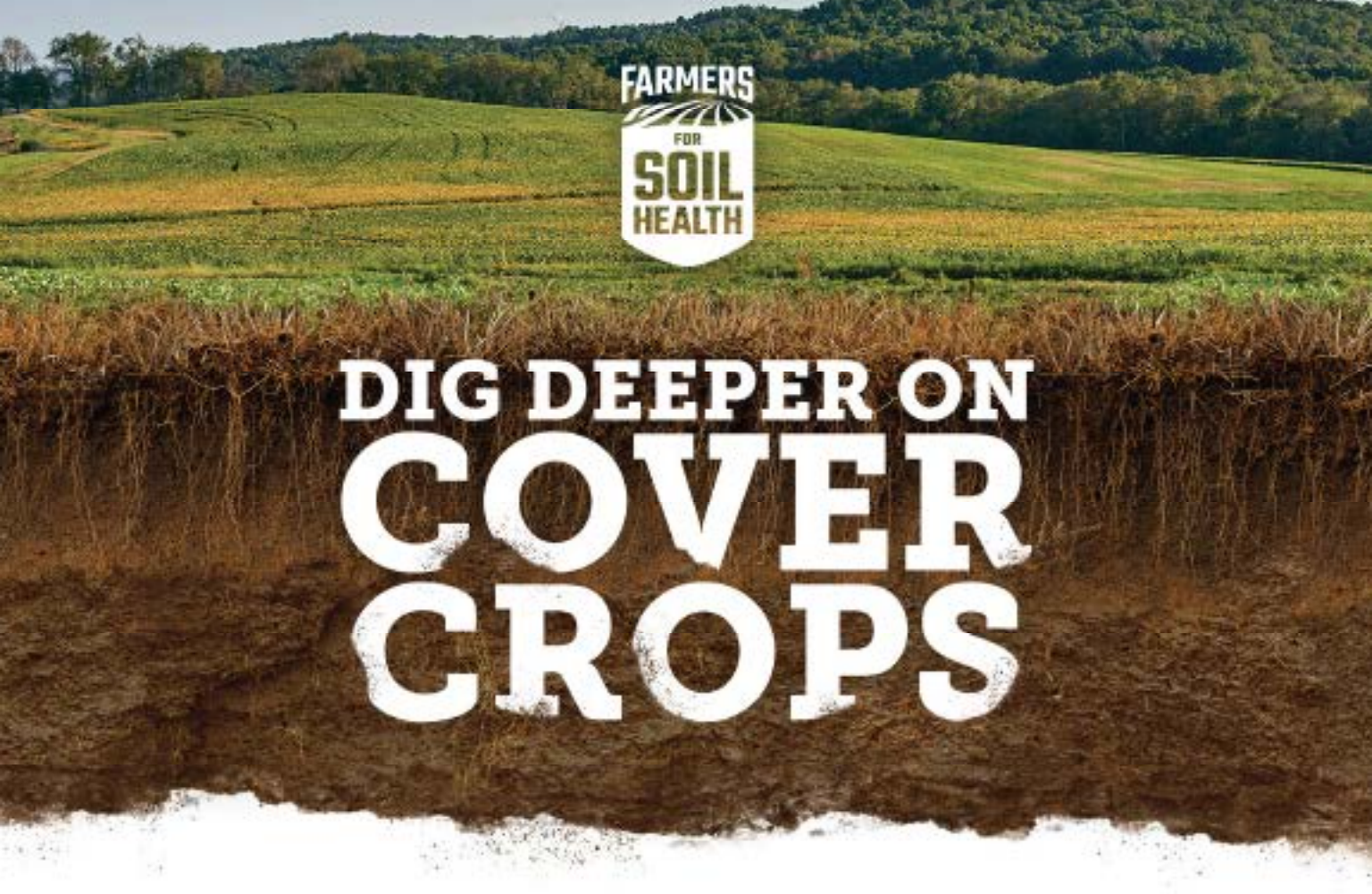

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CULTIVATING EXCELLENCE: THE UNIVERSITY OF MISSOURI BREEDING PROGRAM

BY SAMANTHA TURNER

The University of Missouri (MU) boasts a rich history and a commitment to excellence in various fields, including agriculture. One of the university's standout initiatives is its comprehensive soybean breeding program, a dynamic hub of innovation and research that plays a pivotal role in shaping the future of agriculture.

"The MU breeding program is a wonderful partnership with our land-grant university to serve the needs of our soybean growers to advance genetics," said Justin Rone, MSMC director and farmer from Portageville, Missouri. "The program promotes bringing new varieties to the market and advancements that will increase yield through disease resistance, environmental stress tolerance and quality."

With roots that can be traced back decades, the soybean breeding program, powered by MSMC, exemplifies MU's dedication to advancing sustainable and productive farming practices. Through the innovative program, MU develops new soybean varieties – conventional, Enlist E3, Roundup, Liberty and high oleic. Researchers develop projects to understand better soybean genetic mechanisms, seed composition and breeding methodologies.

"Public breeding and research programs are an extremely important investment, as these are where discoveries and varieties are made that improve farmers' productivity and profitability," said Andrew Scaboo, MU assistant professor and leader of the Northern Missouri soybean breeding program. "Once these novel scientific discoveries are made and new technologies are developed, private companies take the knowledge and technologies and scale them for the marketplace."

RESEARCH ROI

MU's soybean breeding program has a storied history, one that has addressed agricultural challenges and brought top-tier innovations to the state. One of the program's leading innovations is the MSMC SOYLEIC soybean varieties.

SOYLEIC is a non-GMO, high-oleic oil trait developed by the MU and the United States Department of Agriculture (USDA and patented by MSMC. The product of years of conventional soybean breeding, SOYLIEC soybeans have the functionality and performance that soybean oil is known for and a high-oleic fat profile that naturally eliminates trans fats.

"SOYLEIC soybeans are an excellent representation of Missouri Soybeans' checkoff research at work," said Bryan Stobaugh, Missouri Soybeans' director of commercialization and licensing. "Every small item adds up in research, and the checkoff allows us to compete, innovate, educate and promote one of the most versatile crops on the planet. It is amazing what one session of trial and error in the field can lead to – SOYEIC soybeans."

The relative maturity range of commercially available SOYEIC varieties allows for contract production

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across maturity groups 1-7 in the U.S. soybean-growing region. Missouri Soybeans has 20 states with SOYEIC soybeans being commercially produced.

Another robust advancement of the MU soybean breeding program is the renowned breakthroughs in soybean cyst nematode (SCN) research.

For the past four years, a team of scientists at the MU, the University of Georgia (UGA) and the USDA have been devoted to discovering a new gene to combat SCN and improve the profitability and productivity of farmers worldwide. As a result, the research has led to the recent discovery of a new gene, GmSNAP02, for soybean breeders, farmers and private industry to utilize.

“This is a novel mechanism for SCN resistance and serves as an instrumental breakthrough for farmers in Missouri and beyond,” said Aaron Porter, MSMC chairman. “By harnessing the power of GmSNAP02, farmers can look forward to increased yields and reduced economic losses caused by SCN.”

Additionally, MSMC devotes dollars to identifying soybeans with higher water-use efficiency.

“Our producers should be proud of their checkoff investment in this program,” said Gary Wheeler, Missouri Soybeans' CEO and executive director. “This past year is a direct example. The technology developed at our land-grant institution made the yields possible despite a devastating drought. Because of what we have bred and our changes to our state’s resilient crop, soybeans can handle the pendulum that swings when dealing with Mother Nature.”

The checkoff continues to evaluate agronomic management practices and ways to conserve water in the soil better than we are today.

“Sustained investment in genetic development and soybean breeding focused on drought resiliency has provided farmers with soybean varieties that withstand and produce in water-stressed conditions,” said Eric Oseland, Missouri Soybeans' director of research and agronomy. “Ultimately, these varieties infiltrate the market through the private sector, but often the genetic development can be credited to checkoff-funded research at public institutions.”

Over the years, the program has evolved and expanded, embracing advancements in technology, genetics and agricultural science. Today, it stands as a testament to MU's enduring commitment to addressing the ever-changing needs of the farming industry.

“We have proven ourselves in the past 20 years to stand out as a world-class breeding program,” said Wheeler. “We are now one of the top six programs that provide germplasm and technology to major seed companies in the industry.”

FRAMING THE FUTURE

The MU soybean breeding program still has a lot of opportunity for growth, and fortunately, those options are available in the state due to the expansive range of maturity groups. Wheeler explained that Missouri covers maturity groups anywhere from 3.2 to 5.1.

“Many people look at the breeding program as a research powerhouse, but many of our victories come from the simple things,” said Wheeler. “Those simple innovations have a large impact.”

As part of its holistic approach, MU's soybean breeding program is committed to nurturing the next generation of agricultural scientists. Through hands-on research opportunities, mentorship programs and state-of-the-art facilities, students at MU are equipped with the skills and knowledge needed to address the complex challenges facing modern agriculture.

“We have trained more than 350 individuals from this program,” said Wheeler. “Training future scientists and plant breeders is critical to the Missouri soybean farmers’ investments. It aids our industry in allowing us to steer the program commercially while not impacting academia.”

The success of the MU breeding program is not confined to the laboratory. The program actively collaborates with farmers, industry partners and other research institutions to ensure that its findings have real-world impact. Additionally, MU strongly emphasizes outreach and extension services, disseminating knowledge about improved crop varieties to farmers across the region and beyond.

FOR THE FARMER

"I want farmers to know that MU and its partnership with the checkoff is producing high-quality, high-yielding soybeans," said Rone. "We are running a powerful program on a shoestring budget and competing on yield."

Rone further explains that the MU soybean breeding program is conducting research directly relevant to Missouri producers and what the Show-Me State's farmers need, which provides added value, unlike other seed brands.

The MU soybean breeding program is a beacon of innovation and excellence in agriculture. Through decades of research, collaboration and a steadfast commitment to sustainability, MU continues to make significant contributions to advancing crop breeding practices.

"We must keep challenging the breeding program to deliver for our farmers and offer alternatives to the seed industry's big three," said Porter. "We must understand why we are here and strive to achieve our mission instead of maintaining the status quo."

As the agricultural landscape continues to evolve, the MU remains at the forefront, cultivating a legacy of excellence that extends beyond the campus and into the fields that feed the world.

"This is a pivotal program with immense potential, and if the farmer wants to see success in the breeding program, we have to continue to have knowledge transfer and make sure the university knows the importance of what the partnership is today and what it could be," says Wheeler. "Partnership will be critical for the future success of this program."

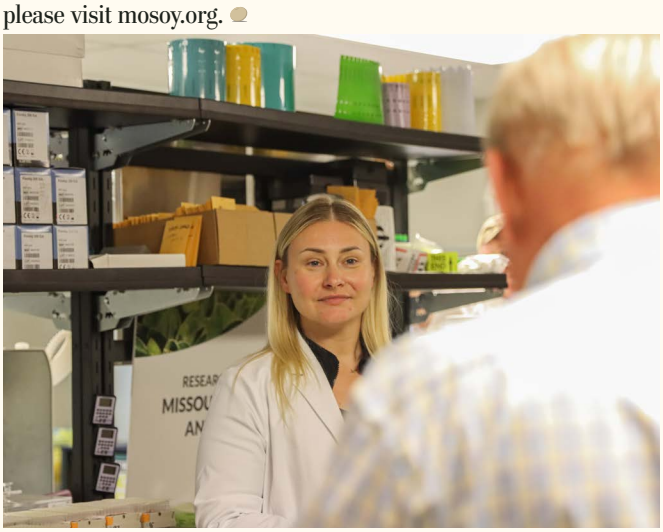
I want farmers to know ***that MU and its partnership with the checkoff is producing high-quality, high-yielding soybeans.*** We are running a powerful program on a shoestring budget and competing on yield.

–Justin Rone

MU's soybean breeding program, in collaboration with the MSMC, epitomizes excellence and innovation in agriculture. From high-oleic soybean varieties to breakthroughs in cyst nematode research, the program actively addresses challenges soybean growers face, fostering real-world impact through collaboration with farmers and industry partners.

The program remains dedicated to growth, solidifying its position at the forefront of agricultural advancements and contributing significantly to the industry's excellence and innovation.

To learn more about the MSMC's checkoff investments in research, please visit mosoy.org.



FROM THE GroundUp

by Madelyn Warren

Nate Bloss' solid foundation for crop success starts from the ground up to reach triple-digit yields.

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Achieving high yields requires meticulous expertise, strategic planning and the right resources. For one dedicated farmer, last year's ambitious goal of once again raising 100-bushel soybeans became a reality through a carefully crafted approach that began with a focus on soil fertility. Drawing on his background as an agronomist and the invaluable support of a trusted team, Nate Bloss' solid foundation for crop success secured his victory in the 2023 Missouri Soybean Association (MSA) Yield Contest.

"I love to compete, and that is what initially led me to enter," says Bloss, reflecting on his recent win. "But, as you know, my job revolves around helping others grow higher yields and make more money. I initially set out on this high-yield journey to serve as a better consultant to my customers. I wanted to learn from the crops and study what the plant needs. Ultimately, my biggest motivation was, and always will be, the opportunity to help others succeed."

Nate Bloss of Fulton, Missouri, became the state non-irrigated winner in the conventional-till category after reaching an impressive 119.28 bushels per acre with the Alliance A391E3 variety, far more than doubling the state's 45-bushel average, according to the United States Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS).

The young farmer's approach to attaining and accomplishing his goal lies in a carefully crafted strategy that takes into consideration overall fertility management, seed selection and foliar application.

"A plan is only as good as its practical implementation," emphasizes Bloss.

Recognizing the significance of base fertility, Bloss insists that attempts to achieve high-yield beans will only be successful with a solid nutritional foundation. For him, the process always starts with the soil and soil testing.

"When I went to school for an animal science degree, one of the most important lessons I learned, and one that is the basis for my whole program now, is 'You can't manage what you can't measure.,'" he says.

Bloss applies this principle by conducting thorough annual sampling at the end of each growing season, partnering with trusted experts from Braungardt Ag Services, Turner Ag Solutions and Perry Agricultural Laboratory. He then utilized hog and cow manure from his farm to replenish essential nutrients such potassium and phosphorus while ensuring a rich supply of valuable micronutrients and monitoring calcium and lime levels.

Having established optimal soil fertility conditions, Bloss turned his attention to selecting the right genetics, planting early and creating an extensive foliar application schedule. He again utilized proprietary Braungardt products and Turner Ag Solutions to execute his plan.

"Many believe soybeans are a low-input crop, but growing up on a dairy, hog and cattle farm taught me the importance of providing the necessary nutrients," says Bloss. "I firmly believe in having a comprehensive program that meets the specific needs of the crop you're aiming for. If you try to make them [soybeans] a low-input crop, you'll have low yields, in my opinion."

Bloss also emphasizes the hard work that went into producing the award-winning beans.

"Most people would be shocked and exhausted if they knew the number of hours spent on the phone, in person and in the

I would have given up many times if it weren't for the unwavering support of my wife. There were moments when I doubted whether all the money and resources I'd invested would yield results. Her encouragement has been a driving force, keeping me from giving up and motivating me to push through.

-Nate Bloss

cab just to fully execute the plans in place," he explains. "Timing is everything, and growing 100-bushel beans is hard. They don't just happen."

Above all, he attributes much of his success to the people around him, namely his wife, Katie, and five sons.

"I would have given up many times if it weren't for the unwavering support of my wife," says Bloss. "There were moments when I doubted whether all the money and resources I'd invested would yield results. Her encouragement has been a driving force, keeping me from giving up and motivating me to push through."

Although Bloss grew up on a diversified operation, his father's decision to leave farming for a short time during his college years meant that he had nothing to return to after completing his education in 2014. However, the time he spent off the farm pursuing other agricultural careers turned out to be a blessing.

"I truly believe it made me a better farmer," Bloss says. "It taught me to be humble, gather information from anyone willing to share and think creatively. I'd give that advice to anyone looking to get started."

"This industry may not be friendly to beginning farmers, but with the right relationships and creativity, you can transform 20 acres into 2,000."

The MSA Yield Contest is made possible by generous contributions from the Missouri Soybean Merchandising Council, Ag Power Inc., Asgrow, Baker Implement, Beck's Hybrids, Braungardt Ag, Channel Seed, BASF, CFM Insurance Inc., MFA Incorporated, Nutrien, Pioneer, Sydenstricker Nobbe Partners, Ag Power Inc., Legacy Equipment, MFA Oil, Missouri Crop Improvement Association, and ProHarvest – Resor.

Participants could enter their fields into the competition during harvest without an entry form. To enter, participants were required to have a designated judge verify their yield results and submit their verified results by Nov. 30.

SOY-PERBOWL SNACKS

Pulled Pork Sliders

Ingredients:

3-4 pounds of pork shoulder
1 cup cola (soda)
1/2 cup soy sauce
1/4 cup ketchup
2 tablespoons brown sugar
1 tablespoon apple cider vinegar
1 teaspoon garlic powder
1 teaspoon onion powder
Slider buns
Coleslaw and pickles for topping (optional)

Directions:

In a slow cooker, combine pork, cola, soy sauce, ketchup, brown sugar, apple cider vinegar, garlic powder and onion powder.

Cook on low for 6-8 hours until the pork is tender and easily shredded.

Shred the mixture using forks and serve on slider buns.

Top with coleslaw and pickles if desired.

White Miso Mushroom Flatbread

Ingredients:

Pizza dough or flatbread
1/4 cup white miso paste
2 tablespoons olive oil
2 cups sliced mushrooms (shiitake, cremini or your choice)
1 clove garlic, minced
Salt and pepper to taste
Fresh parsley, chopped (for garnish)

Directions:

Preheat the oven according to the pizza dough or flatbread instructions.

Roll out the dough or prepare the flatbread on a baking sheet.

In a small bowl, mix white miso paste and olive oil. Spread mixture over the dough.

Sauté mushrooms and garlic in a pan with a bit of olive oil until mushrooms are tender. Season with salt and pepper.

Spread the sautéed mushrooms over the flatbread.

Bake in the oven until the crust is golden and toppings are heated through.

Garnish with fresh parsley before serving.

Soy Brownies

Ingredients:

1 cup flour
1/2 cup sugar
1/2 cup brown sugar
1/2 cup cocoa powder
1/2 teaspoon baking powder
1/2 cup vegetable oil
1/4 cup soy sauce
2 teaspoons vanilla extract
3 eggs
1/2 cup chocolate chips (optional)

Directions:

Preheat the oven to 350 degrees and grease a 8x8 baking pan.

Combine flour, sugars, cocoa powder and baking powder in a bowl.

Whisk together vegetable oil, soy sauce, vanilla extract and eggs in another bowl.

Add the wet ingredients to the dry ingredients and mix until well combined.

Fold in chocolate chips if desired.

Pour the batter into the prepared pan and bake for 25-30 minutes or until a toothpick inserted comes out clean.

Allow to cool before cutting into brownies.

Adobo Wings

Ingredients:

2 pounds chicken wings, patted dry
2 garlic cloves, minced
1/3 cup soy sauce
1/4 cup white or rice wine vinegar
2 fresh bay leaves or 3 dried
2 tablespoons (soy) vegetable oil
1/2 yellow onion, sliced
2 tablespoons brown sugar
1 tablespoon cracked black pepper

Directions:

Combine wings and all ingredients in a bag and mix until evenly coated. Let marinate for 8 hours.

Preheat your oven to 425 degrees.

Line a baking sheet with foil and place an oven-safe wire rack on it. Lightly spray the rack with cooking spray.

Take the chicken wings out of the marinade, pat them dry and place them on the prepared rack, making sure they're at least 1/4 inch apart. Remember to reserve the marinade.

Roast the wings in the oven for 45 to 50 minutes, flipping them after 25 minutes. Ensure the meat reaches at least 165 degrees.

While the wings are roasting, boil the reserved marinade in a saucepan until it thickens and reduces to about 3 tablespoons (14 to 16 minutes).

Strain the boiled marinade through a fine wire-mesh strainer into a bowl, discarding solids.

Toss wings in the marinade and serve.

Growing with Grassroots

MSA board member Ronnie Russell shares memories from his years of service with MSA and ASA.

Q: Tell us a little about yourself.

A: My wife, Robin, and I live in Richmond, Missouri, in Ray County. We have five daughters and six grandchildren. I graduated from the University of Central Missouri with a Bachelor of Science in agriculture education.

Q: Tell us about your farm.

A: My wife and I raise soybeans, corn, wheat and cattle. We operate a fertilizer business and we own an agritourism business, growing sunflowers. The purpose is to bring people who need to become more familiar with agriculture to the farm.

Q: Should tractors be red or green?

A: Is there anything else but green?

Q: What is your involvement in agriculture?

A: In addition to farming for more than 45 years, I'm currently on the Missouri Soybean Association board of directors and the American Soybean Association executive committee, doing all I can to promote and advocate for policies that impact all Missouri producers. I have also served on the Missouri Fertilizer Control Board.

Q: How do you take your coffee?

A: Caramel sweetener and creamer.

Q: What is your favorite planting or harvest snack?

A: Rice Krispies Treats.

Q: Tell us about your favorite memory on the farm.

A: My favorite memories are the early years when my dad had me driving a tractor and helping on the farm.

Q: Does your family implement any sustainable practices?

A: Yes, we utilize no-till, minimum till, cover crops and land structures and improvements.

Q: Who is your favorite farm influencer to follow?

A: I don't have any.

Q: What are you listening to while working?

A: In the tractor, it is 80s or 90s country. However, in the combine, I'm listening to the machine itself.

Q: Who is your biggest influence?

A: My dad. He taught me a lot about farming and what it takes to survive the tough years.

Q: What would you tell your kids, or other next gens to encourage them to be involved in ag?

A: There is no better reward than knowing when I go out on my farm that I'm producing a safe product and that I am part of the 2% that feeds 100% of the people. It is essential for them to get involved with their local boards so that they have a say in what affects their farm and their daily lives.


KEHOE
GOVERNOR
SOYLENT

STRONGER **SEED** SELECTION

from the Missouri Soybean Merchandising Council

The University of Missouri's Variety Testing Program, established in 1973, is evolving under Andre Reis. The program now offers personalized analytics tools, aiding farmers in informed seed selections.

The first soybean variety test plots from the University of Missouri variety testing program date back to 1973. Since then, the program has provided unbiased third-party comparisons of commercial soybean, corn and wheat seed varieties to farmers. By collecting data across 32 locations spread out across four regions of the state, the data collected during the past 50-plus years has helped guide seed-purchasing decisions for farmers. Seed genetics, soybean yields and planting dates have changed over time, as have the way farmers look for data that informs decisions made on their farms. As the new leader of the MU Variety Testing Program, Andre Reis is eager to deliver better and more actionable data for farmers across Missouri.

"The variety testing program is an important tool for Missouri farmers, and it will play a pivotal role in my research program at the University of Missouri," said Reis, who serves as state extension soybean specialist. "The data we can collect over time allows us to develop statistical models that provide in-depth analytics not only of varieties but also of management and environmental trends."

These statistical models allow farmers to sort through varietal data based on several factors, including trial location, seed brand and year. Still, farmers can view the data based on soil texture, expected planting date and historical yield environment.

"The analytical tools developed by Reis are the types of innovative resources farmers need to make decisions," said Eric Oseland, Missouri Soybeans' director of research and agronomy. "The days

of presenting the data by sorting the yields from high to low are in the past, and farmers want more individualized and action-focused data. These tools allow farmers to make seed selections based on their unique situation."

The analytics tool is free and hosted on the variety testing website, varietytesting.missouri.edu. The site allows for comparisons of multiple varieties. In addition, an environmental response tool demonstrates the stability of different varieties across environments. The traditional formats for viewing testing results are still available on the website. It also allows farmers to digest the information in other ways.

> Support from the Missouri Soybean Merchandising Council and farmers across the state will **help bring these vital seed varieties back to the program.**
>
> -Eric Oseland

Beyond measuring yield, the library of data collected over the years has other utility.

"By mining the historical data of variety testing, we have been able to evaluate factors such as maturity group and planting date over time," said Reis. "Although varieties come and go, there are standards such as maturity group that we can glean from that historical data to help inform farmers' planting decisions."

> By mining the historical data of variety testing, we have been able to **evaluate factors such as maturity group and planting date** over time.
>
> -Andre Reis

In addition, the program plans to provide other data to farmers, such as protein and oil percentage, disease ratings, lodging and vigor scores, and more.

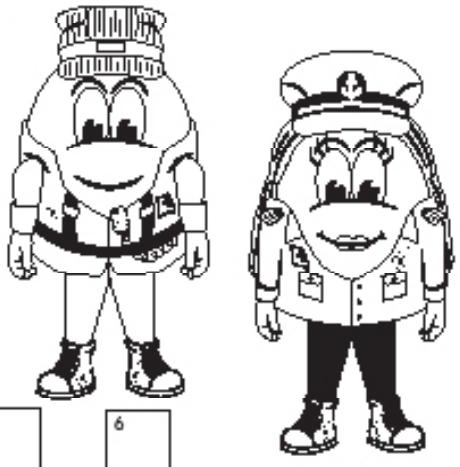
"Over time, some of the major seed companies in the industry have brought much of their variety testing 'in house,' which has hurt public variety testing programs," said Oseland. "Support from the Missouri Soybean Merchandising Council and farmers across the state will help bring these vital seed varieties back to the program."

The University of Missouri's Variety Testing Program is transforming, introducing an advanced analytics tool for personalized and action-focused data. Reis' commitment to inclusivity ensures accessibility, while the program's historical data promises deeper insights. With support from the Missouri Soybean Merchandising Council and the farming community, this revitalized initiative stands as a beacon of innovation, shaping the future of agriculture in Missouri.

To find out more, visit mosoy.org or contact Eric Oseland at eoseland@mosoy.org.

Transportation terms to know

Simon's journey begins at a Northwest Missouri farm and finishes in the country of Chile, which is in South America. Complete the crossword to see some terms that relate to soybean transport.



ACROSS

1) A flat-bottomed boat that transports soybeans on rivers and canals.

2) This is what we call goods carried in bulk by truck, train, ship, or plane.

5) A grain _____ uses conveyors or buckets to move and store grain, or soybeans!

8) This machine has a very long arm that can move heavy shipping containers.

9) We use this to weigh ourselves. There are also giant ones to weigh soybeans!

10) A piece of land that has a narrow body of water running through it.

11) A body of water moving in a defined direction. This can be strong or soft.

DOWN

1) This is how we count soybeans. Each one weighs 60 pounds.

3) Most vehicles and machines need one of these to power them.

4) Soybeans are typically packed into a shipping _____ to travel long distances.

6) Trucks transporting soybeans normally run on _____. It can be mixed with soy-based fuel, too!

7) This is a tower used for long-term storage of soybeans and other food products.

ACROSS 1: Barge, 2: Freight, 5: Elevator, 8: Crane, 9: Scale, 10: Channel, 11: Current
DOWN 1: Bushels, 3: Engine, 4: Container, 6: Diesel, 7: Silo

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