

# MISSOURI

## Soybean Farmer

JUNE  
2021

### MSA Membership

See how getting involved can make a difference for your bottom line.

# CHECKOFFS

GENERATING DEMAND. BUILDING MARKETS. SUPPORTING FARMERS.

The American Soybean Association represents more than 500,000 soybean producers from 30 primary soybean-producing states nationwide. Though not a checkoff itself, ASA works with the soy checkoff and strongly supports the benefits and ROI checkoffs bring to farmers, rural communities, the entire agriculture sector and our nation's economy.



## WHAT IS A CHECKOFF?



Officially named  
agricultural research  
and promotion programs



Financed by agriculture  
commodity producers  
and handlers via per-unit  
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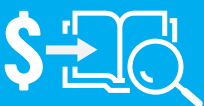


Funds raised go toward  
research, promotion and  
education initiatives, all  
aimed at driving demand for  
U.S. agricultural products



There are currently  
more than 20 commodity  
checkoffs from beef to dairy  
to pears, including soy

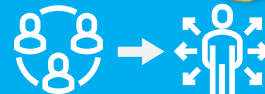
## THE BENEFITS OF CHECKOFFS



Checkoffs fund research that helps  
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efficiencies, nutrition benefits,  
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Checkoffs help growers of all sizes  
pool resources to market and promote  
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This research and promotion helps build  
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who then is better able to support their  
family, employees and surrounding rural  
communities.



U.S. SOYBEAN  
FARMERS RECEIVE

\$12.<sup>34</sup>

IN ADDED VALUE FOR EVERY DOLLAR  
THEY INVEST IN THEIR SOY CHECKOFF

# MISSOURI Soybean Farmer

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**10** Distribution has been a bottleneck for biodiesel growth. Hear from three people working to get biodiesel into fuel tanks across Missouri.



**16** Cathy Baker didn't let losing her husband, best friend and business partner jeopardize the family farm.



**20** From rural Missouri, through FFA to the University of Missouri and an internship with Missouri Soybean, Yia Yang used hands-on experience to chart his professional course.



« **Cover Shot**  
This photo of no-till soybeans comes courtesy of the United Soybean Board.



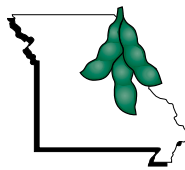
## Missouri Soybean Association

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# From The Field

## Notes from Missouri Soybeans' leadership team

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Matt McCrate, Cape Girardeau  
Ronnie Russell, Richmond



There's a saying, "Be like a duck, calm on the surface and paddling like crazy underneath." I've thought many times over the past few months that I wish more people could understand the amount of effort that goes into moving the needle for Missouri soybeans. Whether it's our lobbying team in the Capitol, the outreach to growers and consumers, or work to grow markets and quite literally move the pile of soybeans we produce in this country, there's always more going on than first appears.

That's no truer than in our global market for soybeans. As I write this, old crop cash beans are roughly double the price they were a year ago. We could point to any number of things: transportation infrastructure, coronavirus, rising middle class, trade policy. The truth is, so many things enter into pricing and the volatility of the markets, and we're always going to be paddling like the dickens to manage the risk inherent in those swings.

We also got a glimpse of that 'duck-like' focus in Jefferson City as Missouri's legislative session wrapped, with more discussion around negotiations and publicity for bills killed and amended, as well as procedures to expedite and delay legislation and session itself. Throughout it all, the Missouri Soybean Association's legislative team stayed calm and focused, and while many of the chips didn't fall our way, their response was to look for ways forward – and never to stop. I commend every one of them for that! Rest assured, that the MSA team is doing all they can to continue to try to move the needle for you, our soybean growers.

**Ronnie Russell** - Missouri Soybean Association President



As planters and sprayers roll across the countryside, it is worth considering how much Missouri soybean farmers invest in their farms. From tailored fertilizer applications to soybean genetics and herbicide trait technology, farmers take individual approaches to each acre in their care.

The same can be said for your soybean checkoff. Investment in the future of soy in our state, nation, and world takes many forms, each one individually tailored to a specific need in the soy value chain. A chain is only as strong as its weakest link, and soybean farmers are empowered by strengthening partnerships throughout the soy family.

In this issue of the magazine, I would direct your attention to the investments featured. From assisting farm families in preserving their agricultural heritage through succession planning to commercialization of new technologies utilizing soy, your soybean checkoff continues to steward your investment with constant focus on building partnerships and returning value to your farm.

The management choices we employ in our fields in preparation and throughout the growing season will be measured this fall in yield and quality of our crops. Investments often take time to realize their full potential, and building long-term partnerships that benefit the farmers of the state takes time. Your soybean checkoff remains vigilant in evaluating the return on your investment as we continue to serve you, and we welcome your input on the issues that affect your farm.

**Kyle Durham** - Missouri Soybean Merchandising Council Chairman



# Letter from the Executive Director

This time of the year, we're typically deep into discussions about policy and the legislative session, and keeping a close eye on things likely to effect the crop going in this planting season, from weather and inputs to bean prices and transportation. And baseball, definitely baseball – the Bulldogs, my son's team, and the Cardinals.

Not to say those things haven't been top of mind this year, because they all have, but our focus on innovation and the future for soy has been keeping the wheels turning, too. Specifically, it's been thoughts around what we're doing to ensure soy has more than a place at the table for everything from soil health and carbon to human nutrition and our homes. It's about leading in those areas, driving new opportunities - and how we show you, the Missouri farmers who invest in the soy checkoff each year as you sell your beans, what we're doing with your dollars to carry out the mission of maximizing Missouri soybean farmer profitability.

In the past few months, we've had some really exciting announcements about where soy fits into the next generation of batteries, bringing SOYLEIC™ non-gmo high oleic soybean oil to restaurants and home kitchens, and creating low-risk opportunities for farmers to get hands-on with emerging carbon markets. We've also put a spotlight on work to improve tires' performance through soy and a commitment by Goodyear to phase out petroleum derived oils by 2040 – replacing them with sustainably produced American soybean oil.

When we opened the Center for Soy Innovation a little more than a year ago in Jefferson City, we focused on soy-based building materials, from insulation and paint to plywood and solid surface countertops. We took pride in highlighting those new uses for soy and the innovation they represent. As we continue down this road of emphasizing and investing in innovation, I hope you find the energy is as contagious as I do.

The future is already bright, and with each of researchers, advocates and innovators I meet, I'm convinced they're not only finding new uses for soy – they're also turning up the lights on the opportunities for growth, and soy's place in all our lives, for generations to come.

I'm excited to see what's ahead, and to serve each of you who is contributing to that vision.

Thank you, and God Bless.



**Gary Wheeler**

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





*Casey Wasser serves as the Director of Policy for the Missouri Soybean Association and Merchandising Council. He represents Missouri soybean farmers on policy issues at the state and federal levels.*

# Soybean Policy Update

**W**hen Missouri's legislative session ended May 14, things looked a lot different than they had just a few weeks, or even just a few days, before. It's not out of the ordinary for the final week of session to move quickly and in new directions, but much like we said this time a year ago, there's nothing 'normal' about where we are now.

As we take stock of where priority legislation did and didn't move, the Missouri Soybean Association and soybean farmers have several high points:

- Through the budget process, we secured a \$2 million appropriation for biofuels infrastructure projects. This money will be administered through the Missouri Agricultural and Small Business Development Authority (MASBDA) and prioritized by their board to drive more demand for local biofuel blending. We are hopeful that fuel distributors and other partners in the fuel sector who move large volumes will apply for these funds.
- Also through the budget, led by Senator Jason Bean and Representative Don Rone, the University of Missouri's Fisher Delta Research Center received new, direct funding in the amount of \$2 million. Collectively, they added \$1 million through the University of Missouri budget bill, and then Senator Bean added another \$1 million in the Capital Improvements budget when that bill, House Bill 19, went through the Senate.

These dollars provide much-needed support for research facilities and education programs in Missouri's top region for soybean production. Those dollars also amplify investments Missouri's soybean farmers are already making toward that work each year through their soybean checkoff.

The need for investment into transportation infrastructure saw attention this session, as well.

Senator Dave Schatz and Representative Becky Ruth championed the refundable fuel tax increase. In Senate Bill 262, the legislature is increasing the motor fuel tax by \$0.025 each year for the next five years for a total increase of \$0.125. The tax is not refundable for the approximately 50 percent of the fuel tax paid in Missouri by out-of-state travelers.

A similar law was passed by the Republican led legislature in South Carolina. In South Carolina, about 15 percent of their residents requested a refund at the end of the year. The Missouri Department of Revenue is anticipating a similar amount for Missouri, however it's worth noting the refund is only allowed for vehicles registered as less than 26,001 lbs.

If you had an eye on the final weeks of Missouri's legislative session, whether through local news, Twitter or legislative tracking, you saw a lot of quick changes and, possibly, some confusing about-face moves. A few weeks ago, the draft of this summary had a lot more positive news about our top legislative priorities:

- We successfully negotiated biodiesel legislation to a point where we no longer had any industry opposition.

The Missouri Made Fuels Act passed out of the House, joining its companion, Senate Bill 96, in the upper chamber the last day of March. In the Senate, negotiations emphasizing incentives were moving forward.

- Renewing tax credit programs administered by MASBDA was widely supported and nearing the finish line.

Senate Bill 37 held these priorities and was handled by Senator Bernskoetter, while House Bill 948, handled in the Senate by Senator Hoskins, had those priorities, and the Rural Workforce Development Act and several other tax credits.

However, when the gavels dropped May 14, none of those bills had made it across the finish line. In fact, the last day of session saw very little legislation moving at all due to a major logjam and the Senate's early adjournment. The web of issues driving decisions during the final days of session is long and complex, and frankly, I'm not much for pointing fingers. The reality is that the legislative process is a very tricky one, and politics sometimes overpowers policy.

#### Federal Policy Update

In late April, President Biden gave his first formal address to a joint session of Congress, which featured his Build Back Better plan. That plan includes his American Families Plan, as well as his infrastructure package, the American Jobs Plan and covid relief package enacted in March, and the American Rescue Act.

There's a lot to unpack within that set of plans, and the American Jobs Plan and the American Families Plan will have to go through both branches of Congress before signing and implementation. The high points for soy and for agriculture stand out as:

- President Biden called out the role farmers can play in fighting climate change as part of the American Jobs Plan, stating, "When I think climate change, I think jobs ... farmers planting cover crops so they can

reduce carbon dioxide in the air and get paid for doing it."

This was likely the first instance of a president mentioning cover crops in a joint address to Congress, which is certainly a positive sign for awareness and for the steps Missouri farmers are already taking into soil health, reduced tillage and cover crops, and carbon markets.

- The president called on Congress to invest in support for agricultural resources management and climate-smart technologies, hoping to position U.S. agriculture to lead the shift to net-zero emissions while creating new economic opportunities for farmers.

While the president's comments focused on electrification, rather than biofuels, the Missouri Soybean Association, along with the American Soybean Association and National Biodiesel Board, among other partners, continue to emphasize the need for diversification and the opportunities biodiesel presents to meet climate and economic goals.

- President Biden touted his previously-released \$2 trillion infrastructure proposal – the American Jobs Plan – during the speech. He pitched the spending as equal parts investment in infrastructure and a job creation plan. Specifically, he mentioned modernizing roads, bridges, and highways; and building ports and airports, rail corridors, and transit lines.

President Biden also highlighted his goal of connecting every American with high-speed internet as part of the American Jobs Plan. Specifically, he called out that 35 percent of rural

*“The reality is that the legislative process is a very tricky one, and politics sometimes overpowers policy.”*

-Casey Wasser



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America still does not have access to high-speed internet.

President Biden's address also included his proposal to pay for the sweeping investments in the American Families Plan, which includes several changes to current tax law. The proposal includes a call to end the "stepped-up basis" on unrealized capital gains. Under the proposal, unrealized capital gains would be taxed at death above \$2 million in gains per couple - the first \$2 million in gains would be exempt, which increases to \$2.5 if the farm includes the family home.

However, the administration points out that if the farm remains family owned and operated, heirs will not owe a capital gains tax at the time of death. Following the address, USDA issued a press release outlining how the American Families Plan encourages

family farms to stay in the family and does not tax farm and asset transfer to family members upon death. Following that announcement, in early May, leadership from the American Soybean Association participated in the quarterly meeting of the Family Business Estate Tax Coalition, which focused on President Biden's plan to repeal the stepped-up basis on capital gains at time of death. The Coalition is planning a series of meetings with House Ways and Means and Senate Finance members to discuss the impact the repeal of stepped-up basis would have on family farms and small businesses. Your soybean associations will be monitoring this closely throughout the coming months.

Also at the end of April, the Ninth Circuit Court of Appeals ruled that the Environmental Protection Agency (EPA) must grant a 2007 NGO petition that revokes all tolerances and cancels

registered uses for chlorpyrifos or modify them to meet a federal food safety law. The court decision gave EPA 60 days to, 1) Grant the 2007 petition to revoke all food-related uses of chlorpyrifos, which would effectively ban the chemistry, 2) Issue a new rule to allow for the safe use of chlorpyrifos to ensure there is reasonable certainty revised aggregate exposure tolerances won't cause harm, and 3) Modify or cancel chlorpyrifos' FIFRA registration in accordance with the revised tolerances. The mandate did not go into effect immediately due to procedural requirements taking approximately 21 days for the Court to issue, at which time EPA's 60-day deadline goes into effect.

#### **Want to know more?**

MSA members receive regular email updates on policy and regulatory movement. Visit [mosoy.org](https://mosoy.org) for details.

## Global Processing Expanding Access to SOYLEIC™ Soybeans and Oil

SOYLEIC™ high oleic trait technology is moving further into the marketplace through a new partnership between Global Processing, Inc. and the Missouri Soybean Merchandising Council.

The partnership has been in development for more than a year, and will serve soybean growers in Kentucky, Missouri, Iowa, Nebraska and Kansas, as well as in some areas of adjacent states, by increasing the accessibility of SOYLEIC™ high oleic soybeans and processing opportunities.

"Bringing new soybean varieties and market opportunities to growers is central to what we do investing their soybean checkoff dollars," said Kyle Durham, a farmer from Norborne and chairman of the Missouri Soybean Merchandising Council. "Partnerships are key to bringing growers the best returns, and we're proud to be taking this step forward in empowering farmers to improve their bottom line

*...one of the most exciting opportunities that the soybean industry has seen in decades.*

- Dave Wilcox

with value-added soybean varieties and markets."

The non-exclusive license agreement is focused on soybean varieties with the high oleic trait technology in maturity groups II, III and IV, which are typically grown across the Midwest. The agreement includes a license to the technology allowing Global Processing, Inc. to combine SOYLEIC™ with other soybean traits to best meet their farmers' and users' needs.

Global Processing, Inc., has served the food industry for more than a decade with high quality, non-gmo whole soybeans for domestic and Asian markets.

"This milestone could not have been achieved without the vision and

perseverance from the farmer leaders at the Missouri Soybean Merchandising Council," said Dave Wilcox, president of Global Processing. "Their organization has facilitated a truly remarkable multi-year collaboration and it is another great example of how soybean checkoff dollars are making a difference."

High oleic technology is an advancement in the soybean market that gives soybean oil greater potential for uses such as baking, frying and sautéing in commercial and home kitchens. Test plots demonstrating the potential of high oleic soybeans have been planted across the Midwest since 2017, and the trait technology continues to be part of soybean research in Missouri.

Learn more and see the full announcement online at [mosoy.org](https://mosoy.org).



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# Grown, Made & Used in Missouri

*Biodiesel is carried by Missouri fuel distributors because it supports farmers across the state by adding value to the products they grow—and because it keeps that value in-state.*

**By Ron Kotrba**

RonKo Media Productions

The state of Missouri, where the commercial U.S. biodiesel industry was born in 1991 with a research investment from the Missouri Soybean Merchandising Council, is home to seven biodiesel production facilities today that can produce more than 200 million gallons per year. Ideally, every drop of Missouri-made biodiesel would be used in-state, completing the value-added circle of planting and harvesting soybeans; crushing them into soybean meal, oil and other products; processing soy oil into biodiesel; and then using that homegrown fuel to power everything from over-the-road tractor-trailers to home heating systems, farm trucks, tractors, locomotive engines and other on- and off-road diesel vehicles. But today, only a quarter to a third of that Missouri-made biodiesel is being bought and consumed in-state, with the majority of it being shipped to other states such as Illinois, Iowa, Kansas, California and elsewhere, says Matt Amick, executive director of the Biodiesel Coalition of Missouri.

“Our in-state consumption could be improved if more biodiesel was sold at retail stations,” Amick says, adding that truck stops along the state’s major interstates have done a lot to help increase the uptake of homegrown biodiesel. According to the BCM website, which features an interactive map of biodiesel retailers and distributors across the Show-Me state, Missouri is home to roughly 19 fuel distributors and 300 retailers that offer biodiesel.

*“As a cooperative, we’ve always supported biodiesel... We’ve been selling biodiesel since 1993.”*

—James Greer

## **Retail and bulk availability of biodiesel blends varies across Missouri.**

While the map shows relatively good uniformity of retailers selling low-level biodiesel blends throughout the state, the distribution of retailers providing higher blends, as well as fuel distributors carrying biodiesel, is less uniform. Biodiesel blends of 6 to 20 percent are concentrated in Springfield and Joplin, and along I-44 cutting through the state, as well as on I-55 toward Memphis and I-70 from St. Louis to Kansas City, and in and around those two major metropolitan centers. Bulk fuel distributors carrying biodiesel are also unevenly concentrated around Kansas City and St. Louis, with a few carriers in Columbia and Jefferson City, and a few more in the northwest and southwest. The north-central and southeast portions of Missouri, however, are lacking in this department.

"Biodiesel is more accessible in some areas than others," Amick confirms. "If I'm a farmer and I call my fuel supplier and ask for B20, some can get it easier than others. A few regions like southeast and northeast Missouri have lower access to biodiesel while others, such as the Kansas City and St. Louis areas, are good spots where it's very accessible."

The need for improvement in distribution of bulk biodiesel and the retailing of higher-level blends in Missouri doesn't—and shouldn't—discount what those fuel distributors and retailers who chose to provide biodiesel have done to increase its availability throughout the state. These forward-thinking companies have made a conscious decision, some quite early on, to forge local markets for Missouri-made fuel grown by the state's soybean farmers. One such firm is MFA Oil Company.



***Fueling city buses, including in Columbia, Mo., was among the early promotions to raise awareness of biodiesel - and to capitalize on environmental benefits like reduced emissions for cleaner air.***

### **MFA Oil**

"As a cooperative, we've always supported biodiesel," says James Greer, the senior vice president of supply and transportation for MFA Oil. Greer has been with the company for 28 years and oversees the procurement of gas, diesel, propane, biodiesel and lube products. He also oversees dispatching those products direct to customers or retail locations. "We've been selling biodiesel since 1993," Greer says, adding that he was with the company for about a month when MFA Oil announced that, with help from a federal grant, it would supply the city of Columbia with biodiesel for city buses.

In 1993, biodiesel was not easy to find. MFA Oil's foray into biodiesel distribution effectively predated any real commercial production.

"After that initial use for a few years in Columbia, we began supplying biodiesel to an electric co-op in northeast Missouri," Greer says. "At that time, it was cost prohibitive unless we had help. Those accounts eventually went away and by then, in the late 1990s, West Central Cooperative in Ralston, Iowa, got going—and that's when we really got into it."



West Central is the co-op out of which Renewable Energy Group was born.

"Every gallon of farm-delivered red-dyed fuel we sold was B2," Greer says. "We advertised that, and it grew over time."

Today, MFA Oil sells 1 million to 2 million gallons of pure B100 biodiesel per year sold in various blends throughout the state. The company owns 75 convenience stores and filling stations at which it sells biodiesel blends.

"We do a lot of B5 blending all across state," Greer says. "The Missouri Department of Transportation (MoDOT) uses a B20 blend from April through September, and we blend that for them as well. We either own or lease blending facilities in six locations across the state, near fuel terminals, and that is how we make it work. Our bulk plants are scattered throughout Missouri, eastern Kansas, central and northeast Arkansas and southern Iowa. These are bulk storage facilities with an unattended fueling site attached."

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MFA Oil splash blends biodiesel from one of its sites with petroleum diesel from a nearby terminal. The blend fuel is then delivered to its final destination—whether that's one of MFA Oil's retail stores, commercial or government accounts, farmers or other customers.

"Anyone who wants bulk delivery of fuel, that's who we deliver to," Greer says. "We also do specific blends in most areas of the state, depending on what the customer orders. We even have one farmer using a B50 blend."

The biodiesel MFA Oil blends is bought directly from the manufacturer. MFA Oil is an investor in Mid-America Biofuels in Mexico, Mo, a 51 percent farmer-owned producer. In addition, MFA Oil purchases biodiesel from the Archer Daniels Midland facility in Deerfield, Mo., and from Cargill's plant in Kansas City and Ag Processing Inc. (AGP) in St. Joseph.

When asked whether MFA Oil could do more to promote and sell biodiesel, Greer says, "From my company's perspective, I think we've done a lot. No one said we had to do what we did. We did it to support agriculture. If I could go back in time to provide even greater access, I would have put a few more [blending facilities] in a few more areas in the state. But we're going to fix that this year. We'll get a couple more built. Our customers are asking for it in a few areas. We'll put in heated tanks, a loading arm, and a computer system to authorize that pump."

In addition to selling biodiesel, MFA Oil uses it, too. The company fuels its trucks with blends up to B20.

#### **Consumers Oil**

Consumers Oil Company began selling biodiesel to Northwest Missouri State University in Maryville, where its ag-



**Consumers Oil began selling biodiesel in northwestern Missouri 20 years ago.**

retail cooperative is based, in the early 2000s, according to Harold Spire, general manager. Today, the fuel distributor has one retail location in Maryville where it sells biodiesel blends.

"In the summer, we sell between 2 and 5 percent at the pumps," Spire says, adding that Consumers Oil can "blend it however they want it. But not too many take it as B20. We deliver a lot to MoDOT in the summertime, and that's all B20. We have a lot of on-farm delivery, and we blend anywhere from 2 to 10 percent for farmers that want it."

Spire says Consumers Oil's customers are mostly farmers, so the reason the co-op sells biodiesel—and only the soy-based variety—is to help Missouri farmers and biodiesel producers who raise and process the crop into fuel get more value out of the products they make. "That's the reason we did it," he says. "Our customers are farmers."

Like MFA Oil, Consumers Oil doesn't just blend and sell biodiesel, but the co-op also uses the fuel.

"Most of what we use is between 5 and 10 percent," Spire says. "With ultra-low

sulfur diesel, the refining process takes a lot of the lubricity out of diesel fuel, so if we put soy biodiesel in to add lubricity, it helps the injectors, pumps and stuff like that. That's why we do it. And we're using a product that we raise. It's also renewable—sustainability is a big thing now."

Consumers Oil gets most of its soy-based biodiesel from AGP in St. Joseph.

"If we have to get it elsewhere, we will—but we don't like to," Spire says. "We've been with AGP for a long time." The co-op buys B99.9 and has one 10,000-gallon tank in Maryville in which it stores soy biodiesel. Spire says Consumers Oil has considered installing blender pumps so that consumers at its retail station may blend 10 or 20 percent, if they wish.

As a company that blends and sells biodiesel, Spire says there's not a direct financial advantage to Consumers Oil offering the homegrown fuel—other than farmers being able to use their own product.

"It helps them get a better price for their soybeans," he says. "We do it because we raise it. I grow it, I use it." ■

*“It helps them get a better price for their soybeans...  
We do it because we raise it. I grow it. I use it.”*

—Harold Spire




[unitedsoybean.org](http://unitedsoybean.org)

# KEEPING THE FUTURE OF SOYBEANS BRIGHT

*From researching new uses for soybeans to identifying new markets for U.S. soy, the soy checkoff is working behind the scenes to create new opportunities and increase profits for soybean farmers. We're looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And it's helping make a valuable impact for soybean farmers like you.*

*See more ways the soy checkoff is maximizing profit opportunities for soybean farmers at [unitedsoybean.org](http://unitedsoybean.org)*

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# Heike Bücking Joins CAFNR

## as Director of the Division of Plant Sciences

**H**eike Bücking has been named professor and director of the Division of Plant Sciences at the University of Missouri College of Agriculture, Food and Natural Resources (CAFNR). Bücking's appointment began April 1, 2021.

Bücking has held the department head position at SDSU since early 2020; she previously served as associate dean for research and scholarly activity in the College of Natural Sciences at South Dakota State. She has served as a professor in the Biology and Microbiology Department since 2015, after joining SDSU as associate professor in 2009. Bücking was an assistant professor in the Biology Department at Rutgers, The State University of New Jersey. She served as a research assistant professor and postdoctoral scientist at Michigan State University and at the University of Bremen, Germany.

"I am excited about the opportunity to join the CAFNR team as the new director of the Division of Plant Sciences," Bücking said. "Together with faculty, staff and students of the division, I am looking forward to developing strategies to better prepare students for diverse careers, to enhance research and innovation in the division with the goal to support Mizzou's land-grant mission, to work collaboratively with other colleges and outside entities on mutually beneficial projects, and to generate a welcoming, diverse, and inclusive environment for students, staff and faculty in the division."

Her research focus is on research exchange processes in beneficial plant-microbe interactions and the development of endophytes and arbuscular mycorrhizal fungi as microbial fertilizers or pesticides for sustainable agriculture of food and bioenergy crops.

"Her commitment to the land-grant mission, to research and Extension, to educating students, is outstanding, as is her collaborative, inclusive nature," said CAFNR Vice Chancellor and Dean Christopher Daubert. "I am so pleased to have Dr. Bücking join our college."

She has experience in establishing interdisciplinary collaborations across colleges and institutions, and in the development of a grant support infrastructure, a research leadership team, and a mentorship program for junior faculty with the goal to advance research activities and enhance research funding success. Bücking developed a strategic plan for research in the College of Natural Sciences, and served on other college-wide committees, at SDSU. She has managed multimillion-dollar grants and projects, and her research program has attracted more than \$7 million in research funding.

For eight years, Bücking coordinated the NSF-funded Research Experiences for Undergraduates, a program with the goal to involve undergraduate students early in their career in state-of-the-art research activities. Bücking served as chair of the campus Diversity and Inclusion Committee, and as a member of the search committee for the Director of the Office for Diversity, Equity, Access and Inclusion at South Dakota State. She has been part of advisory boards for inclusion and diversity in STEM, as well as SDSU's Wokini Initiative to support American Indian student success and Indigenous Nation-building. She has championed and mentored postdoctoral scientists, graduate and undergraduates, including many minority students and non-traditional students.

She has advocated for the importance of agriculture to congressional delegates and collaborated with agricultural stakeholder groups in South Dakota. Bücking received an intellectual property commercialization award in 2016 from SDSU for her work on microbial fertilizers or pesticides, and her successful collaborations with multiple biotech companies.

Bücking received her Master's and PhD in Biological Sciences from the University of Bremen, Germany. 



*Heike Bücking*







# HELPING YOU DELIVER ON DEMAND

*Whether it's improving soybean meal to outperform the competition or promoting the sustainability of U.S. soy, the soy checkoff has been working behind the scenes to help farmers satisfy their customers' needs. We're looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And for U.S. soybean farmers like you, the impact is invaluable.*

*See more ways the soy checkoff is maximizing profit opportunities for farmers at [unitedsoybean.org](http://unitedsoybean.org)*





# Growing and Changing:

## One farm wife says you can't be prepared enough.

**I**n the early weeks of May of 2020, Cathy Baker's husband, Bob, spent most of his days on the farm.

"Planting season was well underway, and Bob was spending about 80 hours a week on the sprayer," said Cathy.

That changed one Saturday morning, when Bob suffered from a stroke and was taken to University Hospital in Columbia.

"The pandemic caused a ban on hospital visitors, and Bob was there for a week before they realized there was nothing they could do for him. That's the news we received the first day we were able to visit him," said Cathy. "He wanted to come back home to the farm, and so that's what we did. Nine days after he went to the hospital, he passed comfortably, in our home."

Cathy became the lead operator of the family farm nearly overnight. The couple had raised cattle and crops in rural Atlanta, Missouri, together, since 1972.

"People don't always pass in the order that you think they will. My father is 100 years old and living at home with my mom on their family farm," said Cathy. "I lost the love of my life, my friend and my business partner in a matter of days. We thought we were prepared for that, but we weren't."

**BAKER**  
*Family Farms*  
**ATLANTA, MO**



***For Cathy Baker, losing her husband brought incredible support from family, friends and their rural community, as well as lessons in business.***

When Bob became ill, Cathy's adult children scrambled to ensure the farm's financial house was in order.

"One property didn't have my name on it and would have went through probate," Cathy said. "Our beneficiary deed didn't include a couple of newer farms. We spent quite a bit of time making sure that things were in order and luckily, Bob was of sound mind to help us with that process as well."

"I don't know what people do when they're in this situation and they don't have family members to lean on," said Cathy. "Those days in May are still a bit of a fog to me."

With Bob back home, neighbors mowed farm roadsides, helped with planting, finished spraying the crops and brought meals to the Baker homestead. Several family and friends visited Bob in his final days. Friends and family washed his favorite vehicles and tractors and parked them outside his living room window.

"Hospice was a wonderful thing. I don't know what we would have done without them. Still today, I receive information from them by mail about the grieving process. They just seem to always know what to do and say," added Cathy.

Bob's funeral was held at the baseball field at Atlanta C-3 Schools, where he went to school and served on the board of education for twelve years. His visitation was a drive-by the family farm in Macon County, led by his favorite chore tractor.

"We hadn't really talked about final arrangements. The day before Bob passed, I went with my son to pick out burial plots," said Cathy. "During that time and still today, I have really relied on our kids and three important women in our lives - our banker, our accountant and our attorney," said Cathy.

## Now is the Time for Estate Planning

**By Connie Haden**

The Law Firm of Haden & Colbert

**I**t is an uncertain time in our farming communities. Potential changes in the law due to the new presidential administration, recovery from the coronavirus pandemic, increasing land and equipment costs and uncertain commodity prices make it a difficult time to plan.

However, the old adage that the only two things that are certain in this world are death and taxes still holds true today. That is why estate planning is more critical for family farms now than ever before - the stakes are higher on the tax side, and the family arrangements involved in maintaining and operating a family farm have become more complicated.



**Connie Haden**

Good planning now can ensure that your loved ones are able to keep more of your assets in the farm, and can also help avoid fighting and wasted resources within the family after you're gone.

I encourage you to start having the right conversations and working on your estate plan today. You usually end up with a better plan if you involve multiple generations in the discussion (to learn their expectations) and multiple trusted advisors (attorney, accountant, financial advisor, etc.). However, I know that when the weather is good (and even when it isn't), there is always some other work to be done on the farm.

There will always be a reason to put off planning, but I want to discuss a few of the most common reasons and provide suggestions on how to minimize these concerns so you can take action toward getting a good plan in place.

Following are some of the most common reasons I hear for putting off this type of planning:

**1. I don't want to cause a fight in the family!**

The short-term discomfort for your family that may come with estate planning pales in comparison to the fights that break out in families when a loved one dies with no plan or an inadequate plan. When someone dies without a plan, it often results in protracted litigation through the court. Litigation is expensive and time consuming - and your kids are still fighting. I encourage you to have these difficult conversations now so that you can work to resolve these issues. It is almost always better to communicate with your family about what you want to have happen so that they know what to expect and can plan for it.

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Cathy's oldest child works for the USDA Farm Service Agency in Macon County. Her middle son is a full-time farmer active in the operation, and her youngest son is a lobbyist for the Missouri Soybean Association.

The family's attorney and accountant both suggested the family prepare a list of Bob's assets at the time of his passing, including taking photos of the crops in the ground to help estimate their value.

The Internal Revenue Service Form 706 allows taxpayers to claim credit for estate taxes when one spouse passes, to claim against future estate tax liability. Families have nine months to complete the form, which requires appraisals of all real and personal property.

"I have been a bit surprised by the amount of paperwork involved in this process. I had paid the bills for our household since 1972, but my name wasn't on our home telephone bill, diesel deliveries or even with the electric cooperative," said Cathy. "In some ways, it was like starting over. One tractor brand transitioned my credit account easily. The other sent his account to collections when we called to let them know he had passed. Nothing was consistent."

The day after Bob's funeral, Cathy drove her four-wheeler to a farm auction next door and bought the 80-acre homestead, where the farm's hired hand and his family now reside. The Baker family is also working on a Trust to protect the farm's assets.

"In business, you are either growing or you're not," said Cathy. "For my entire life, I have always chosen to surround myself by things that are growing. That's how I am going to continue Bob's legacy." ■

2. It's troublesome and time consuming!

Setting up an estate plan does take some time and thought, but your loved ones will come out ahead on time and headaches if you give some careful attention to the future now. And planning for tomorrow can have immediate benefits today, as you may get a fresh perspective and new understanding of your finances and operations. It is not unusual for good estate planning to lead to better overall business planning and higher profits.

3. It's too expensive!

While there is some expense in setting up an estate plan, the price of having a plan done right almost always outweighs the cost and trouble for your loved ones if you have no plan or an outdated plan. The probate process and unanswered questions about your transition plan can take a huge bite out of your assets, and these costs can be significantly reduced or even avoided with a good estate plan.

4. I already have a will!

Estate plans should be reviewed and updated periodically to ensure that they still conform to your wishes and reflect your current operations. In addition, having a simple will does not avoid the costly and time-consuming process of moving property through the probate court upon your death. With the potential change in the estate tax laws at the federal level, there may be some unique planning opportunities this year.

5. I don't know how to make it fair!

Particularly with farming operations, an equal division of the estate is not always a fair division. Careful thought should be given to how the plan will be carried out after you are gone. A generic division of property (which usually means an equal division) often does not work for a family farm.

6. I don't want to talk about dying!

Like everything else on your farm, avoiding or putting off a task because it is unpleasant does not make things easier. We all know that death is inevitable, but it is also our nature to ignore or avoid that reality. For your family's sake, you should commit yourself to plan for the one certainty with which every person, farm and business must contend.

Good estate planning doesn't have to be prohibitively expensive or painful. In this time of uncertainty, now is the time to get an estate plan in place.

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*“During that time and still today, I have really relied on our kids and three important women in our lives - our banker, our accountant and our attorney.”*

- Cathy Baker

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*The Missouri Soybean Association has been fighting on behalf of our state's producers for more than 50 years.*

*From federal trade issues to taxation to supporting biodiesel and animal agriculture markets, MSA drives policy work that protects your freedom to operate and improves your bottom line.*

# MEMBERSHIP

**F**or 2021, MSA is announcing a newly structured membership model and two new benefits. In addition to Lifetime Memberships, One-Year and Three-Year memberships – now renamed Advocate Memberships – producers will have a new option to be a Farmer Member. Becoming a Farmer Member is free of charge to producers marketing at least 250 bushels of soybeans annually. This new membership level provides farmers the opportunity to “get their feet wet” in learning what MSA provides.

Because your checkoff dollars cannot be used for lobbying purposes under any circumstance, MSA relies on membership dues to keep critical policy work moving. Becoming a dues-paying Advocate or Lifetime Member provides you with additional benefits and expanded opportunity within the Missouri Soybean Association.

As an Advocate or Lifetime Member, you'll receive a 15 percent discount on Okabashi purchases. The Georgia-based company produces soy-based flip-flops, sandals, rain boots and other accessories - all made in the USA.

Advocate and Lifetime Members will also receive 20 percent off purchases of Biosynthetic Technologies Motor Oil. Produced in Indiana, the high oleic soy-based motor oil is available in 5W-20 and 5W-30 and is approved by the American Petroleum Institute and API SN-RC certified. Field testing showed engines running on Biosynthetic® motor oil had far less varnish, ran cleaner when compared to commercially available mineral oil-based motor oil.

All Missouri Soybean Association members will continue to receive the exclusive monthly e-newsletter, highlighting policy updates, top news,

**OKABASHI**



upcoming events, and more. Dues-paying members will also have access to benefits provided by American Soybean Association, including: Commodity Classic Discount, Cabela's gift card discount and additional discounts toward your purchase of Ford, Chrysler and GM vehicles.

Membership renewal notices for those expiring this year will be hitting mailboxes soon. Learn more about membership levels and benefits online at [mosoy.org](http://mosoy.org) or by calling (573) 635-3819. ■

*“I've seen the Missouri Soybean Association from all aspects – staff, member, and district director – and I can say without a doubt, membership to MSA is one of the greatest investments a soybean farmer can make. Be it biodiesel, sustainability, infrastructure and beyond, MSA ensures our voices always have a seat at the table when those policy and regulatory discussions are happening.”*

- John Kleiboeker







## RENEW NOW: CURRENT MEMBERS CAN WIN A DRONE

Make sure your membership is current by July 31, 2021 to be entered to win a DJI Phantom 4 Pro V2.0 drone. One winner will receive the drone, carrying case, and accessories.

Current One-Year and Three-Year Advocate Members, and Lifetime Members, are eligible to win.

# MATTERS



*"Membership is a microphone! Every day there are people forming opinions and making decisions that have the potential to impact our livelihood and membership with Missouri Soybean Association puts my voice with all other Soybean members to amplify our message. The staff work tirelessly to direct that microphone at the people who need to hear us most."*

- Kate Lambert

*"Between raising crops, cows, and kids, my wife and I stay busy year-round, making it hard to give full attention to what's going on in Jefferson City & D.C. - that's why my Missouri Soybean Association membership matters to me. I know MSA is fighting for my family's freedom to operate and addressing policy matters head-on that affect our bottom line. The land we farm has been in the family for four generations, and with MSA's advocacy efforts, I know it'll stay in the family for many more to come."*

- Matt Wright



*Interested in supporting MSA's policy efforts even more? Register for MSA's clay shoot or SOYPAC golf tournaments. By participating in any of these events, you'll receive a complimentary one-year Advocate Membership to Missouri Soybean Association.*

*To learn more and register for the golf tournaments or clay shoot, visit [mosoy.org](https://www.mosoym.org).*

# Charging on Soy:

## Scientists at PSU Convert Soybean Biomass into Batteries

*Courtesy of Pittsburg State University*

Scientists at the Kansas Polymer Research Center have invented a new kind of battery that is more eco-friendly.

While that's good news, equally good news is that they invented it by transforming a product that is plentiful in the heartland: soy. Or rather, crop residue after soybeans have been harvested.

"We're using the stems, the leaves, the shells — things that would otherwise have no commercial value — to produce activated carbon material and suddenly that has tremendous value," said Associate Professor of Chemistry Ram Gupta, the chief researcher for the project.

Soybeans are the number one crop in Missouri, and one of the top 10 crops in Kansas. A grant from the Missouri Soybean Merchandising Council using soy checkoff dollars funded Gupta's research in the labs at the KPRC, located on the campus of Pittsburg State University.

"Research has long been a priority for the soy checkoff, and our commitment to innovation is a key driver in partnerships like the one behind this technology," said Kyle Durham, a farmer from Norborne, Missouri, and chairman of the Missouri Soybean Merchandising Council. "Soy is an incredibly versatile crop and developing new uses for all parts of the soybean is an exciting opportunity, powering the bright future we know is ahead."

Demand for batteries is growing rapidly — to the tune of about 10 to 12 percent annually in what has become a \$100 billion industry globally.

"Think about how many batteries we



*Ram Gupta*

use — laptops, phones, computers, automobiles — in daily life. They're everywhere," Gupta said.

His invention is aimed at replacing the more costly conventional activated carbon-based batteries made from fossil fuels. A patent is pending and once it's finalized, the new technology will be available for licensing to commercial buyers.

"This is important to farmers, to jobs, to green energy," Gupta said. "It adds value to soybeans and creates a new market."

An added bonus: the research was done with the assistance of students majoring in polymer chemistry, giving them a unique opportunity on their path toward a degree and ultimately, a career in what has become a lucrative field.

"We have this great polymer program and we want more students in it, because there are good paying jobs, jobs that make a difference, and we have a fantastic facility for them to learn in

alongside scientists like Dr. Gupta," said Bobby Winters, associate dean of the College of Arts & Sciences at PSU, which includes the Department of Chemistry.

Their work isn't finished yet, though, Gupta said.

"Our ultimate goal is to produce a dual carbon battery, with both electrodes made of biomass instead of just one, and to achieve a more efficient battery that can be used in the automobile industry that charges in just 10 to 15 minutes instead of a few hours," he said. "That's the next step."

### Learn more

PSU's Polymer Chemistry Initiative is a joint project of the Department of Chemistry, the Department of Plastics Engineering, and the KPRC. The Missouri Soybean Merchandising Council is a farmer-run organization, with 13 farmer-directors overseeing the investment of 50 percent of Missouri's checkoff dollars. For additional details, click over to [mosoy.org](https://mosoy.org). ■



# Car vs. Pole

Thank You for being #aMemberOwner!



## Stay in the Car!

If you are in a car accident with a power pole, do not leave the car until utility professionals tell you it is safe. If the car is in contact with electrical equipment or power lines, it could remain energized. Stepping outside could be deadly if your body becomes the path to ground for electricity.



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## Collaboration Provides Resources for On-Farm Conservation Work

A new partnership is expanding resources for on-farm stewardship projects by bringing together leading voices for agriculture and conservation in Missouri. The Missouri Corn Merchandising Council, Missouri Department of Conservation and USDA Natural Resources Conservation Service joined forces with the Missouri Soybean Association and Missouri Soybean Merchandising Council to better serve Missouri farmers' and landowners' desire for collaboration.

"The wise use of our resources is a recurring theme across agriculture and conservation, and among landowners," said Kyle Durham, a farmer from Norborne and chairman of the Missouri Soybean Merchandising Council. "Partnerships maximize the impact of

farmers' investments, from learning about new research and opportunities, to implementing those practices on the farm. It's a great value to have that collaboration happening here in Missouri."

The partnership is focused on facilitating new opportunities to collaborate, promote and enhance the conservation and stewardship of Missouri's working agricultural lands.

The partnership also allowed the Missouri Soybean Association to add a new position focused on those priorities, conservation programs manager. In January, Clayton Light of Freeburg was hired into that role. He'll also serve as the conservation programs manager for Missouri Corn.



*Clayton Light, left, with his wife and children.*

The collaboration is made possible, in part, through Missouri farmers' corn and soy checkoff programs. To learn more about the effort and connect with Light, explore [mosoy.org](http://mosoy.org).



# HONOR WALL

*Good news from those working on behalf of Missouri soybean farmers*


## Bissonnette Receives Faces of the Future Award from American Phytopathological Society

**K**aitlyn Bissonnette, assistant Extension professor, plant sciences, has been awarded the Schroth Faces of the Future award from the American Phytopathological Society for her work in applied nematology and Extension nematology. This award is given to forward-thinking scientists within 10 years of earning their PhD who are perceived to be future leaders in the field.

Bissonnette coordinates a regional applied nematology project exploring the impacts of soybean cyst nematode (SCN) seed treatments on SCN reproduction and soybean yield across more than 12 US states and one Canadian province. This includes research at four MU research stations. In addition to building a foundation for applied nematology trials that have bridged the gap between nematologists and plant pathologists across North America's soybean growing states, she has played a pivotal role in the development and leadership of the national SCN Coalition. Her Extension and outreach efforts as part of the SCN Coalition have not only included hands-on work with Missouri soybean growers, but also has reached a global scale with an estimated media aggregate readership of 4.5 million, specifically in reference to SCN, since January of 2018.




**Kaitlyn Bissonnette**

Awardees are invited to present their work and speculate on the direction of their discipline at a symposium designed to acknowledge up-and-coming researchers who are shaping the future of their respective scientific discipline. The Schroth Faces of the Future Symposium takes place this year in early August at Plant Health 2021 Online. 

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## Baker Family Honored for 4R Efforts

**B**aker Family Farms was recently named an Enduring Farm by Prarieland FS, Inc. for implementing nutrient management practices during the 2020 growing season, as well as their commitment to preserving and improving their land and natural resources for future generations.

Jared McAfee, Market Development Manager at Prarieland FS, said "Daron Baker and Cathy Baker are proving best management practices on their farm with variable rate fertilizer applications, implementation of cover crops, split nitrogen, as well as other practices meeting the 4R Nutrient stewardship principles of Right fertility source at the Right rate at the Right Time and in the Right Place. These practices benefit their soil health, optimizes the efficiency of their fertilizer use while increasing production." 



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Do you have good news to share about people working with soybeans and on behalf of soybean farmers across Missouri? Visit [mosoy.org](https://mosoy.org) and Contact Us to send those stories our way to be considered for the Honor Wall in the future.

# Lambert Recieves Honorary Degree

The Missouri FFA Association named Kate Lambert, Laclede, an Honorary State FFA Degree recipient at the 93rd Missouri FFA Convention.

Lambert is the director of marketplace education and engagement at FCS Financial. She works with FFA students and programs to help develop their leadership skills and advocates for agriculture at various organized events throughout the year. Lambert also serves on the Missouri Soybean Association board of directors.

The Missouri FFA Association recognizes Honorary State FFA Degree recipients for their valuable efforts and contributions to the FFA organization and its members. Those eligible to receive the Honorary FFA Degree include farmers, school superintendents, principals, members of the board of education, chapter advisors, teachers, staff members in agricultural education, business professionals and others who are helping to advance agricultural education and the FFA. ■



*Kate Lambert*

# Dierking Wins FFA Proficiency Award

Michael Dierking of the Santa Fe FFA Chapter won the Missouri FFA Fiber and/or Oil Crop Production Proficiency Award at the 93rd Missouri FFA Convention.

Case Doody of the Adrian FFA Chapter received the second-place Missouri FFA Fiber and/or Oil Crop Production Proficiency Award.

Proficiency awards recognize FFA members who excel as agricultural entrepreneurs, employees or volunteers while gaining hands-on career experience. Fiber and/or Oil Crop Production is one of 46 proficiency award areas recognized at the state level. Missouri Soybean Merchandising Council sponsored this award. ■



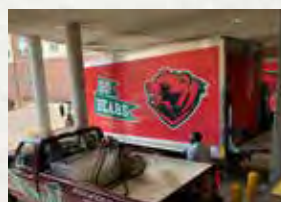
*Michael Dierking*

# Rockwood Summit - Fueling with B40

Congratulations are in order for the students, instructors, parents and community partners of the Rockwood Summit Biodiesel Project. In May, the group met a long-standing goal: to fuel Washington University with biodiesel made by students.

To meet the goal, they blended biodiesel with diesel fuel - 40 percent biodiesel and 60 percent diesel fuel, also known as B40.

To learn more about the Rockwood Summit Biodiesel Project, find them on Facebook or visit [mosoy.org](https://www.mosoy.org). ■







# Finding His Place with Soy

*Internships and hands-on experience have been central in helping Yia Yang chart his course from the family farm, through research and into industry. Now, this former Missouri Soybean intern is headed to one of the fastest-growing companies in ag and food technology.*

**By Brandelyn Twellman**

Growing up on a family farm in Wheaton, Missouri, Yia Yang found a passion for the agricultural industry at an early age. What started as daily chores on a commercial broiler and cow-calf farm quickly grew into much more. Little did he know, his background on the family farm and in agriculture would change the trajectory of his career path in the future.

“My parents and family have been farming for generations in the mountain regions of Laos and Thailand before immigrating to the U.S. in 1993,” he explained. “We then moved to Wheaton, Missouri in 2003 where my family currently resides and farms. So, farming has been in the family for a long time.”

Once he entered high school, Yang followed in his family’s footsteps and joined the National FFA Organization. The organization started opening doors to other areas of the industry yet to be explored, in addition to countless leadership opportunities. Yang served as a Missouri FFA State Officer as he moved past high school and into his freshman year of college.

Attending the University of Missouri in Columbia, Mo., Yang knew he enjoyed research and had deep roots in agriculture. However, he had some choices to make when it came to landing on a degree program.

“I was very interested in biology in high school, and coming from an agriculture background, I wanted to stay in the field of agriculture,” he said. “I ended up choosing plant science because our global population is growing at an extraordinary rate and we need to produce more nutritious foods with fewer resources to meet global demands.”

Yang said the University’s focus on research and credibility played into his decision to attend MU.



**Yang at the front of the Bay Farm Research Facility, with the sign recognizing partners in soybean research.**

### Focusing on Soy

The young researcher began his career in the soybean industry in plant scientist Gary Stacey's Plant Molecular Biology Lab as part of MU's Freshman in Plant Sciences (FRIPS) cohort. To further this experience, Yang sought out multiple internships that allowed him to explore plant sciences even more. This journey eventually led him to become deeply rooted in the soybean side of the industry.

"My freshman year, I was a life science undergraduate researcher," he explained. "Then in 2016, I had the opportunity to intern for the Missouri Soybean Merchandising Council (MSMC) as the research and business development intern. This exposed me to the commodity world, especially the soybean side. I was able to travel around the state and got to engage many farmers and researchers. I also met Andrew Scaboo, the MU northern soybean breeder."

These connections led to further opportunities in the industry. Scaboo asked Yang to join the MU Northern Soybean Breeding Program at the Bay Farm Research Facility in Columbia as an undergraduate research assistant. This role granted him two years of learning not only about soybean breeding, but also how important the crop is to Missouri.

Yang found his place in research focused on soy, and he accredits some of that discovery to MSMC.

"MSMC has really helped develop me both professionally and personally," he said. "I was able to interact with the staff members, board members, and many farmers. They supported me from the start of my internship throughout my undergraduate and graduate career."

### Rooted in Research

After graduating with a Bachelor of Science degree in plant sciences, Yang

*“We were able to identify 50 potential candidate genes that may be responsible for the increase in seed protein content in soybean.”*

- Yia Yang

pursued a Master of Science in plant breeding, genetics, and genomics, again working with Scaboo and Dr. Jason Gillman, USDA-Geneticist, in soybean breeding and genetics on a project funded by MSMC, the United Soybean Board (USB) and U.S. Department of Agriculture (USDA-ARS).

"I had a population that was developed from a PhD student before me," Yang explained. "He worked with my advisor, Scaboo, to develop this population, and they discovered a potential new region in the DNA responsible for increasing seed protein content. I came on board in 2018 and took over this project to identify potential candidate genes responsible for the increase in seed protein content."

Yang conducted multiple field trials in different parts of the state throughout the three years of his research: two research plots at the Bay Farm Research Facility in Columbia, MO and two research plots at the Lee Greenly Jr. Memorial Research Center in Novelty, MO.

"I was able to narrow the genetic region," he said. "We were able to identify 50 potential candidate genes that may be responsible for the increase in seed protein content in soybean. There is still more work to be done to narrow our pool of candidate genes, but we made good progress."

The gene Yang was narrowing in on came from a wild soybean line, an area of the industry less researched than most.

"Soybean cultivars are what you see in a farmer's field," Yang explained. "They're the top of the line soybeans from elite germplasms and farmers grow them because of their high yields and desired agronomic traits. Wild soybean is the ancestor line to those cultivar lines that we have today."

Yang believes further research into wild soybean could yield positive results for soybean farmers and their bottom line.

"Right now, there is a relatively low genetic diversity in our elite cultivar lines that we grow," he said. "Wild soybean was first domesticated in Southeast Asia and they have an abundance amount of untapped genetic diversity. Crossing soybean cultivars with wild soybean lines could introduce more genetic diversity into those elite soybean cultivar lines. My advisor, Scaboo, cross a soybean cultivar line with a wild soybean line in 2011 and by doing so, we were able to discover that this new gene that came from that wild soybean line."

A discovery that was unexpected, but more than welcomed.

"When you increase protein content in soybeans, you're usually going to see a significant decrease in oil content," Yang explained. "But, with this new gene that had not been discovered or reported, we saw a significant increase in seed protein content without a significant decrease in seed oil content. Soybean protein and oil are both important for animal feed and human consumption. Our goal is to develop a high yielding soybean cultivar with a high seed

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protein and oil profile, which will be a great source of nutrients for animal and humans.”

He was grateful for the opportunity to have worked on this project because he believes that this might open new doors into genetics and how genes work, which will make a difference in the fields for farmers and on the table for consumers.

**Looking toward the Future**  
Though Yang has already made great strides in the industry, he hopes to have a long career ahead of him. He recently accepted a position with Benson Hill in St. Louis as a Research Associate II. His role will allow him to work with next generation sequencing, on validating genome editing and in statistical analysis. In this position, Yang is looking forward to digging deeper into the industry side of research while

*“I ended up choosing plant science because our global population is growing at an extraordinary rate and we need to produce more nutritious foods with fewer resources to meet global demands.”*


- Yia Yang

developing and learning new techniques to implement at the production level.

He is confident his roots will prove valuable throughout his time working in soybean research.

“My background brings a lot of benefits to my research,” he said. “Having that farm and agriculture background, I kind of know what farmers are thinking and what they want. It can be hard for a scientist to do all this great research and convey the importance of their work to farmers.

“For me, I have that farm background, as well as a network of family farmers that I still stay connected with across the state. I can explain the research to them and how it will benefit them, but also explain the innovation their checkoff dollars support.”

Yang is grateful for USDA-ARS, USB, MSMC and their soybeans farmer making his research possible through their checkoff projects, and that his role as a soybean scientist allows him to stay connected with the farmers his research will benefit in the future. 



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## Biodiesel & Poultry Producers: How Soy-based Fuel Supports Your Need to Feed

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# Soy-Based Tires Rolling in MO

*The Cole County Sheriff's Department is putting soy technology to work with new tires from Goodyear.*

Tires that are environmentally friendly, meet high performance standards and support Missouri's number one agricultural crop are rolling in the capital city. They're from Goodyear's soy-based lines, where a portion of the tires' petroleum content is replaced by renewable soybean oil. The Cole County Sheriff's Department is now 9 months into testing a set designed specifically for law enforcement.

"Developing new uses for soy while simultaneously addressing challenges our partners face is key to realizing the bright future for Missouri's top crop, soybeans," said Kyle Durham, a farmer and chairman of the Missouri Soybean Merchandising Council board of directors. "The soy-based tires are an exciting example of the innovation we're proud to drive through farmers' investments in their soy checkoff, and we appreciate the partnership from law enforcement in putting this technology to work."

*"This has been a positive experience, and we expect to continue with the soy-based tires."*

- Sheriff John Wheeler

The Cole County Sheriff's Department purchased a set of Goodyear Eagle Enforcer tires in size 245/55/18. The Department installed those tires July 30, 2020, on a 2019 Dodge Charger patrol vehicle used by a deputy for traffic enforcement, community assistance and emergency response. A second set of the soy-based tires was installed on another Dodge Charger this spring, as well.

"The first set of Goodyear Eagle Enforcer tires currently has 22,000 miles of service, with no reported issues," said Cole County Sheriff John Wheeler. "This has been a positive experience, and we expect to continue with the soy-based tires."

The Department averages 25,000 miles per year on patrol vehicles, rotates tires regularly and replaces tires after 40,000 miles. The Department is currently considering adding a third set of the soy-based tires to their trial, to be installed on a Ford Police Interceptor.

The Goodyear Eagle Enforcer soy-based tires have been available in a limited range of sizes since 2019, promoted through a partnership with the United Soybean Board, soybean farmers and the soy checkoff. The Eagle Enforcer tire is designed specifically for law enforcement use, combining the traction and tread-life benefits of the soy-based tire with performance features necessary for demanding operating conditions.

In June 2020, staff from the Missouri Soybean Merchandising Council met with the Cole County Sheriff's Department to discuss the availability of the soy-based tires and share other law enforcement teams' experiences. In addition to the Eagle Enforcer line, Goodyear also offers the soy-based technology in their Assurance WeatherReady and high-performance Eagle Exhilarate tires. Learn more about those products at [mosoy.org/soytires](https://mosoy.org/soytires).

The Missouri Soybean Merchandising Council is a statewide, farmer-led organization working to improve opportunities for Missouri soybean farmers through a combination of research, outreach, education and market development efforts supported by the soy checkoff. Learn more online by exploring [mosoy.org](https://mosoy.org). 







## Upcoming Events

July 15 *SOYPAC Golf Tournament - Richmond*

July 23 *Missouri Soybean Association  
Sporting Clays Tournament - Bogard*

August 6 *SOYPAC Golf Tournament - Dexter*

August 12-22 *Missouri State Fair - Sedalia*



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# Passion and Partnerships Fueling the Future

Growing up, my best days were in the seat of the tractor. Riding in my dad's John Deere 4240, baling hay or prepping the fields for planting, you could always see the grin on my face. Some say farming runs in the blood, and growing up on a diversified beef and row crop operation in Versailles, Mo., I know this is true. It is passion that gets you through the long days – and the really long days.

I remember getting up at 6 a.m., climbing in the cab, hooking up the chisel plow, filling up with fuel twice, and not parking the tractor until 2 a.m. Seeing the red glow on the exhaust manifold signaled the end of a hard day's work. But looking back on the fields covered, there was a huge sense of pride in what a little determination could accomplish. This same deep-rooted passion and commitment for the industry has driven my career since starting with the Missouri Corn Growers Association and Missouri Corn Merchandising Council in 2008. Being recently selected to serve as the chief executive officer (CEO) for the organizations is an extreme honor.



**Bradley Schad**

Missouri Corn has a deep history of helping set the stage for growth and putting the framework in place for corn-based ethanol and other renewable fuels. Our mission continues to be building corn and livestock markets here at home and with our international customers. That focus includes expanding ethanol demand across the U.S. as well as providing a cleaner-burning fuel for cleaner air in cities across the globe.

Removing biofuel barriers in other countries has opened the door for U.S. ethanol to be blended in places like Japan and Mexico. In 2016, I was part of a U.S. Grains Council delegation that traveled to Japan to meet with regulators to push for changes that would allow ethanol to be blended in their marketplace. Today, Japan's biofuel policy is being fulfilled entirely through the use of ethanol to produce bio-ethyl tert-butyl ether (ETBE), which is used as a gasoline additive.

Moving from the international market to Missouri, doors for increased biofuel blends are also opening in the Kansas City region. Drivers on the western side of the state will now have more fuel choices at the pump thanks to an Environmental Protection Agency (EPA) decision allowing the year-round sale of E15 (15 percent ethanol) fuel in the metro area. Working with our partners at the Kansas Corn Growers Association, Kansas Department of Health and Environment, and the Missouri Department of Natural Resources, EPA removed a regulation that previously banned the sale of E15 in the region. With the regulatory hurdle cleared, the focus now shifts to working with fuel retailers to increase the availability of E15 in the area.

We are taking that same cooperative approach to answer the many questions surrounding carbon. A partnership with the Missouri Corn Merchandising Council, the Missouri Soybean Merchandising Council, MFA, Inc., and Ecosystem Services Market Consortium offers Missouri corn and soybean farmers a low-risk opportunity to participate in a new voluntary carbon and water quality pilot project. Working with these strong collaborators, our goal is to explore and better understand carbon and ecosystem credit markets for growers moving forward.

Passion and partnerships play a major role on the farm and in building the future of our corn industry. Today my family's farm is entirely no-till. While my two boys will not likely experience the joy of plowing until 2 a.m., my wife and I want to do everything possible to make sure they can drive that tractor, plant some corn, and fish when the weather is right. It is the legacy we are working together to build. ■

Bradley Schad began his role as CEO of the Missouri Corn Growers Association and Missouri Corn Merchandising Council in March 2021.



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