

# MISSOURI

## Soybean Farmer

AUGUST  
2016

### Soybean Breeding

The key to the next generation of soybean varieties may just be in the (very) distant past

### A Big Drink

The economics of irrigating soybeans have long been a little off for most Missouri soybean farmers, but change is coming

### Making Demand

Gubernatorial candidates share what they have planned for growing demand for Missouri's soybeans

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# MISSOURI

## Soybean Farmer

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Declining genetic diversity in the soybean seed industry has been on Matt McCrate's mind. Ancient cousins to the soybeans we know, *Glycine soja*, may hold the answer. Soybean breeders Andrew Scaboo and Grover Shannon are working on it.

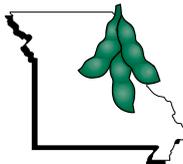
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# From The Field

Notes from Missouri Soybeans' leadership team

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The “R-word” has come up a lot recently. Normally, this time of year that “R-word” would be rain. What I’ve been hearing is a bit more of a long-game: Recession. From “Brexit” to low commodity prices, it seems like we’re all a little bit on edge about how we’re going to keep growing (rain or no rain).



Most of us who have been around a couple years have seen that the top way for the ag community to help ourselves is to roll up our sleeves - whether it’s by investing in ourselves or putting good people to work.

We know it’s about the long-term vision, not a quick fix. Missouri Farmers Care shows they get that too with their Agri-Ready County program - they’re giving our communities a chance to show they understand the long view of keeping agriculture Missouri’s number one industry. An Agri-Ready designation means your county commission welcomes agribusiness and knows that it’s not just the farmers who benefit – it’s the people with those new jobs, it’s the local businesses and it’s the schools.

Agriculture has always been good at finding ways to keep growing. I’m Agri-Ready and looking forward to being part of it.

**Matt McCrate** - Missouri Soybean Association President

This is my last column as chairman of the Merchandising Council, and I must say my feelings are a little mixed when it comes to passing the torch. It’s been an honor to lead this team and to be trusted with your soybean checkoff dollars. It’s also given me a lot of time to reflect on that advice we’ve nearly all heard to “leave it better than you found it.”

On the farm, those seven words apply to everything from topping off the fuel tank on the truck when you’re near the pump to keeping your farm debt in check so the next generation has the benefit of a firm foundation.

At the Merchandising Council, it applies to making sure the house is in order – that the team is strong and things that need to be getting done are getting done. It also means dealing with those unpleasant situations from time to time, including legal issues (see page 21 for details on that). It can also mean investing in those conservation and sustainability practices, making sure soil and water resources are protected for the long haul, like we’ve done with the Strip Trial program and cover crops.



I’m proud of the work we’ve done, and am confident that the reins are in good hands. Again, thank you for the opportunity to serve.

**David Lueck** - Missouri Soybean Merchandising Council Chairman

# Letter from the Executive Director

I've often used this space to share the challenges and opportunities your state soybean organizations have in front of them. Over the past few years, those have ranged from connecting with you, our growers, to prioritizing checkoff investments and research to most benefit your bottom line, and addressing burdensome policies and regulations affecting your freedom to operate.



Among those, we've had some wins, and we have some work yet to do. One thing we haven't spent much time with is where Missouri falls in the global market for soybeans, soybean oil and other links in the soybean value chain.

We know through our work with the U.S. Soybean Export Council (USSEC) and the World Initiative for Soy in Human Health (WISHH) that there's great opportunity for growing our slice of the international market for soybeans. We know that as it stands now, roughly every other row of Missouri soybeans is headed for the export market, and with the recent expansion of the Panama Canal, greater shipping opportunities from the Port of New Orleans can help us push that percentage even higher.

In looking at new markets, our farmer leaders, staff and partners have spent a great deal of time in Africa and southeastern Asia. However, we've recently had the chance to explore an option closer to home – Cuba.

I had the opportunity to travel to Cuba this summer for a first-hand look at how Missouri agriculture stands within the slowly opening door to trade and partnership. The trip came in conjunction with a trade mission led by Missouri

*Missouri Department of Agriculture Director and soybean farmer Richard Fordyce, Missouri Soybeans' Gary Wheeler, Ernie Verslues, president and CEO for MFA, Inc., and Dan Featherston, general manager for SEMO Milling while in Cuba.*

Governor Jay Nixon, and was focused on potential for developing Cuba as an export market.

Spending nearly a week in a country not touched by American exports for the last half-century was an eye opening experience. Seeing the pristine classic cars was certainly a treat, but the differences in crop genetics, processing and transportation were most striking.

Last year, two Missouri soybean farmers, David Lueck and Tom Raffety, made a similar trip with a Missouri delegation focused on agricultural opportunities in Cuba.

Our 2016 group included First Lady Georganne Nixon, Missouri Department of Agriculture Director Richard Fordyce and Missouri Department of Economic Development Director Mike Downing. Other members of the trade delegation include Dr. Carlos Vargas, President of Southeast Missouri State University; Silvia Hollis, of Mid-Continent Aircraft, Hayti; Thorstein Holt, of

Holtec Gas Systems, Chesterfield; Brady Moses, of SatCommX, Lampe; Jeffrey Fort, of MOM Brands Sales, St. Louis; and several representatives of Martin Rice, of Bernie.

The Governor's mission was seen as a fact finding mission with bilateral talks on how we, Missouri and Cuba, could do business together at some point in the future when the embargo is fully lifted. Looking ahead, the opportunity to develop an export market for Missouri soy in Cuba certainly exists, but it won't be without its challenges. The embargo is not the only hurdle to success in this arena.

Among the challenges are competition from other players in the global soybean market and available credit.

On exporting US commodities and agricultural products to Cuba, there are currently medical supplies and small amounts of ag commodities being shipped from the US, including a donated container of southeast Missouri rice from the Martin family delivered during our stay in Cuba. However, the majority of their soybeans come from Brazil. Cuba is currently importing roughly 200,000 tons of soybeans per year, with potential to increase to 500,000 tons within the foreseeable future.

The US, and specifically Missouri, aren't alone in seeing that 300,000 ton opportunity. Our South American competitors have been investing in transportation and soybean genetics too. Capitalizing on that opportunity will require two things: credit and relationships.



**Infrastructure development is a significant priority in Cuba at this time. Missouri's delegation saw a number of projects, including at the deepwater port at Mariel, Cuba. That port is capable of receiving large cargo ships, like those often used to transport agricultural commodities.**

Even after the embargo is lifted, access to credit poses a significant challenge to doing business in Cuba. Currently, Cuba requests from their suppliers a 364 day credit at 5 percent - and they receive it. That combination of timeline and rate gives our competitors, including Brazil, a pretty significant leg up on US markets.

Overcoming such hurdles will require cultivation of strong business relationships, building trust and an

understanding of the value Missouri's ag exports can bring the island.

As a Missouri contingent, I am cautiously optimistic for the Cuban market. We will proceed as we have been, working to develop those relationships so when the embargo is lifted we will be ready to act.

Reflecting back on the experience, it's clear that while we've come a long way in understanding the challenges and opportunities partnership with Cuba presents, we still have a long way to go in realizing this potential market for US soybeans and soy products.

**Gary Wheeler**

Executive Director / CEO  
Missouri Soybean Association  
Missouri Soybean Merchandising  
Council  
Mid-America Research Development  
Foundation

# The Storytellers We Trust

*As the Missouri Soybean Association celebrates the 50th anniversary of its founding, Missouri Soybean Farmer is catching up with the leaders who helped shape the organization's history for their insights and perspectives on the milestone.*

By *Samantha Gibson*

Photography courtesy of archives from the Missouri Soybean Association and Merchandising Council and KRES radio

From the coffee shops and co-op counters to the air waves, the achievements and challenges of Missouri's top crop are told by the voices of farm radio. It's never been a one-man (or woman) job. Over the past 50 years, many outstanding men and women have helped share the work of the Missouri Soybean Association, especially through farm radio. Broadcaster's voices grow to be as recognizable as their names, and the familiar rhythm of market reports and weather forecasts become part of the daily routine in the truck, tractor, and farm shop. Broadcasters' ag news and policy updates have long become fodder for farmhouse dinner table conversation too.

Farm broadcasters become some of our best historians as well, bringing context to the day to day trends, connecting the dots between stories and generations, and serving as pillars of the agriculture community. They can also be counted on to know how to tell a good story.

Jim Coyle is one of those storytellers.

Coyle, who spent much of his career with KRES radio in Moberly, has one of those voices listeners trust for their ag news. On the air, Coyle shared the stories of Missouri agriculture for more than 15 years before retiring – covering the highs and lows of farming. He still remembers the times of foreclosure in the mid-eighties, and seven-dollar-per-bushel beans, as well as the emergence of no-till farming and rapid increases in technology on the farm.



*Jim Coyle*

***Jim Coyle in action, as captured in the March 2000 issue of Missouri Soybean Farmer magazine. In that issue, he credited central Missouri farmers with being his greatest teachers.***

Coyle came to the agricultural industry with a fresh perspective in a time where producers generally kept to themselves – and he was learning from his listeners as much as he was sharing their stories. Growing up Coyle had no background in agriculture. He was raised in St. Louis - about as far away from the farm as he could be, he said.

“Before I became farm director for KRES Radio, I didn't even know commodity groups like Missouri Soybean existed,” said Coyle.

That didn't stop him from diving in. To build a relationship with the Missouri Soybean Association and its members, Coyle attended local and statewide meetings and prioritized visiting with the staff, board of directors and soybean producers. He became a regular at the annual meeting.

It didn't take long for Coyle to broaden his horizons to the national level.



**Jim Coyle (far right) continues to lend his voice to local sporting events on occasion, although he's been retired from the radio business for several years. He was the farm broadcaster and voice for ag news at KRES radio for more than 15 years.**

He fondly recalls attending the first Commodity Classic in 1996, not only working with the Missouri delegation, but also directly with American Soybean Association (ASA). Just as he'd become a fixture at Missouri's annual meeting, he became part of Commodity Classic, attending each year and even receiving national recognition from ASA and Missouri Soybean with the Communicator of the Year award for his outstanding work.

"Still today I shrug my shoulders at the awards I received," said Coyle. "It wasn't what I did, it was what the farmers did."

What the farmers – and the markets, weather and regulators – did has long been a driving force behind farm radio. The rhythm of markets, weather and news and those farm broadcasters' familiar voices span generations as listeners continue to turn to radio for up-to-the-minute information.

"There is a direct correlation between farming and broadcasting," says Tom Brand, executive director at National Association of Farm Broadcasting. "We connect with farmers beyond the kitchen table; we reach them while they are planting beans, hauling grain,

working in the shop, or doing office work at home."

Listeners want information in real time and like having multiple platforms through which they can receive information, says Brand. Farm broadcasters are now using social media, newsletters, and blogs to share agriculture's story and strengthen relationships with listeners beyond their time on the air.

At Brownfield Ag News, which

**“We are now writing for both the eyes and the ears. Our main job is to give people information in a way most convenient to them.”**

-Tom Steever

broadcasts ag news on more than 50 radio stations across Missouri, those technological advancements add to the ways farm broadcasters tell the stories of agriculture.

"We are now writing for both the eyes and the ears," explained Tom Steever, anchor and reporter at Brownfield. "Our main job is to give people information in a way most convenient to them."

In addition to sharing his voice with listeners over the airwaves, Steever's reports can be found online for on-demand listening, and embedded in video. Getting out to the field and to community events remains one of his favorite parts of the role, he says.

"I enjoy being on farms when I am reporting, so that I can see what the farmers are doing on their operations," Steever says. "Being on the farms helps me better tell the story."

Steever enjoys meeting with farmers one-on-one, and in their own environment, whether that's in a policy meeting at an event like Commodity Classic or in the cab of the tractor or combine. It's that extra investment of time that helps farm broadcasters connect with agriculture, find those special stories and bring both information and entertainment to their reports. It's that little bit extra that builds trust too.

Steever joined Brownfield in 2003 after working for the American Farm Bureau Federation. The Missouri Soybean Association was one of his starting places as he got into the new role in Jefferson City.

"The week I arrived at Brownfield, I did a story with Missouri Soybean Association," said Steever. "It was the first story I did outside of the office, and I remember the story covered the introduction of soy-based beer."

The soy-based beer isn't much of a topic for Missouri Soybean these days, but Tom Steever and his distinctive voice continue to be a key partner in sharing the stories of soybean production and processing in Missouri – covering the Missouri Soybean Merchandising Council's checkoff-funded research and educational efforts, as well as the Missouri Soybean Association's key policy initiatives.

Today, Steever produces the weekly Spotlight on Soybeans program

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highlighting Missouri's soybean checkoff-funded projects, on the Learfield network of radio stations and websites. Steever and Brownfield Ag News are also using social media, videos, Google hangouts, and other trending platforms to share stories ranging from individuals' experiences with soy-based biodiesel to the latest soybean varieties and research, as well as information on potential market premiums.

Across all those platforms, Steever's distinctive voice – confident and reassuring – is a constant, just as it has been for so many years on the radio dial.

Likewise, Tom Brand uses his voice to help others make an impact across the agricultural community.

“The one thing that really attracted to me to farm broadcasting was the fact that I could be on the radio sharing the message to those who I knew were making a difference in agriculture,” said Brand. “My role is to share information that could help farmers with their operation.”

Brand started his relationship with Missouri Soybean very early in his career, serving as a farm broadcaster at KMA in Shenandoah, Iowa. Brand explained that his relationship with Missouri Soybean was strong from the beginning that that he appreciated the farmers' willingness to work with him.

“As a young journalist it is a little discouraging when you try to schedule interviews and no one calls you back

after several attempts,” shared Brand. “I remember calling Missouri Soybean Association and I always got a response.”

That spirit of partnership continued well after Brand's voice became recognizable across the airwaves. Grower interviews with soybean producers like Richard Fordyce, Terry Ecker, and Neal Bredehoeft, and so many others, were a highlight for Brand.

“I had a commonality with these farmers,” said Brand. “I would connect with them over the phone and then see them again face-to-face at the Missouri State Fair, Commodity Classic, or an annual Farm Bureau meeting.”

Today, as the executive director for the National Association of Farm Broadcasting, he works on behalf of farm broadcasters nationwide on professional development, research and technology.

“The one thing that consistently stays the same is the relationship farm broadcasters have with their listeners,” said Brand. “It's a voice they trust.”





# Back to the Wild

*Missouri researchers study soybean ancestors seeking opportunities to increase genetic diversity.*

By Jason Jenkins

Take a casual glance, and the plants growing in Andrew Scaboo's research plots look like ordinary soybeans. And they should because they are soybeans — but with an important genetic twist.

“By pedigree, they are all 50 percent wild,” says the University of Missouri assistant research professor who leads the Northern Missouri Soybean Breeding program. “By genetic makeup, they are about 25 to 40 percent wild soybeans. You’re standing in what may be the most genetically diverse soybean field anywhere.”

With more than 1,000 unique lines represented, this field at the Missouri Soybean Association's Bay Farm Research Facility represents the largest breeding effort in the world focused on wild soybeans, or *Glycine soja*. The research is part of a multi-institutional project aimed at broadening the genetic base of North American soybean cultivars using basic science and applied breeding research.

The genetic secrets these distant Asian relatives hold could help increase yield, improve soybean composition and provide new protections from drought, disease and pests for future domesticated soybean varieties, or *Glycine max*.

Germplasm diversity — or the relative lack thereof — in today's soybean is the result of more than 70 years of conventional plant breeding that began with just a handful of introductions from China. An analysis of 258 public cultivars released between 1947 and 1988 showed that 26 ancestors accounted for nearly 90 percent of the parentage, and just five ancestors accounted for more than 55 percent.

“Our breeding programs have been very successful, and our soybean yield potential today is much higher than it was in the past, but we may have inadvertently lost a few genes along the way that may be important,” says Bill Wiehold, MU state soybean specialist. “So, reaching back and looking at wild



soybean and other ancestors is a way to make sure we don't lose something that may be very valuable to our future commercial varieties."

### Raising a wild child

Crossing *Glycine soja* and *Glycine max* to create new lines requires Scaboo to grow wild soybeans at Bay Farm, which he's done for the past three years. It's tough to see any family resemblance when comparing these beans to their cultivated cousins.

Wild soybeans don't grow upright. Instead, they spread out like a vine, low to the ground, creating a thick mat of stems and foliage even when planted in 60-inch rows. The seed they produce is tiny and black — not plump and yellow — something more akin to poppy seed than soy. The seed has a hard coat that must be scarified in order to germinate, and the pods shatter as the plants attempt to re-seed themselves.

"They look nothing like soybeans," Scaboo says. "They have a lot of bad traits. There's absolutely no agronomic value to growing it, but from a genetic standpoint, there's twice as much diversity in wild soybean as in cultivated soybean."

The process of domestication began when primitive farmers saved seeds

from individual plants because of their agronomic superiority to others. Doing this for hundreds of years led to the soybean we know today, but it also led to a loss of genetic diversity that's only accelerated during the past 70 years of plant breeding.

"By domesticating the soybean, we funneled it down to just a few useful genes that produced, and they were derived from just a few wild soybeans," says Scaboo, who came to Missouri in 2012. "What useful ones might still lie within wild soybeans? There's potentially novel genes, or alleles, that were lost that could be beneficial. Something growing in Taiwan may harbor genes that we don't have here in North America."

### Seeking alleles that appeal

According to Scaboo, there are more differences in the genome of wild soybeans than in its domesticated relatives. His search for those unique genes began with the U.S. Department of Agriculture's Soybean Germplasm Collection housed at the University of Illinois in Champaign. The collection contains more than 22,000 lines collected from around the globe, including about 1,300 wild ones.

"From those, we selected a core collection of roughly 80 lines based on genetic diversity," Scaboo explains. "In these 80, we capture 90 percent of all the genes in wild soybeans."

Through this project, his primary goal is to discover and characterize differences that could genetically boost yield, something only conventional plant breeding can do.

"Yield is a quantitative trait, controlled partly by genetics and partly by the environment," he says. "There's hundreds of genes involved, and we don't know all of them. Heck, we don't know five of them."

In wild soybeans, characteristics such as photosynthetic rate, nitrogen use efficiency or water use efficiency — all of which affect yield — would have developed naturally over time. But when domestication occurred, the best genes for those characteristics may or may not have been captured.

"There's probably better genes for those things, but we've lost them," Scaboo says. "That one best gene for photosynthetic rate, for example, could be somewhere else and not in our cultivated beans."

Historically, making genetic gains that improve yield have been accomplished through breeding programs that cross the best of the best varieties to each other with the goal of producing an even better one with each breeding cycle. Scaboo's work is taking that same concept but applying it to pre-breeding — the steps taken between a wild soybean and a commercial cultivar.

That first cross between wild and domestic results in progeny far removed from anything Missouri soybean producers would want to grow in their fields. So, the researchers make additional crosses, and with each, they make gains.

"We're getting rid of the genes from the wild soybean we don't want — all the bad genes — and trying to capture all the good stuff that might be different," Scaboo says. "You've got to get rid of as much of the bad as you can in that first cross, then cross that with your best line and hope you get something better."

The researcher likened the process to a professional baseball prospect working



*Andrew Scaboo in one of his soybean plots*



*Glycine soja*

his way to the big leagues. While the prospect may show a lot of raw natural talent, he must spend some time in the minors, improving his stats and eliminating his flaws, before he gets a chance to shine in the majors. Similarly, a new soybean line derived from a wild cross may have several hundred genes that could be beneficial, but it needs to have yield within a few bushels of the best lines before it's given a shot.

"Then you make that cross, and you could hit a homerun," Scaboo says.

#### **Looking beyond yield**

While their main focus is discovering new genes to improve yield, Scaboo and his research team also are searching for genes that alter the physical composition of the soybean seed, specifically the profiles of amino acids (proteins), fatty

acids (oils) and carbohydrates (sugars). Changing the makeup of the bean could make the crop more valuable.

"We've found some interesting amino acid and carbohydrate profiles in wild soybeans that are much different than domesticated varieties," Scaboo says. "We're looking to increase protein as a whole, increase oil as a whole and alter those profiles for nutritional benefit."

Soybeans are relatively low in sulfur-containing amino acids such as cysteine and methionine, and increasing these would make soybean meal more beneficial to non-ruminants like pigs and chickens. Similarly, increasing the level of sucrose within the carbohydrate profile would provide more metabolizable energy for livestock.

Fatty acids in soybean oil have received much attention in recent years as health concerns have arisen over trans fats. These are created when soybean and other vegetable oils are hydrogenated in order to make them shelf stable. The trans fat issue has weakened demand for soybean oil. Increasing soy's oleic acid content, while decreasing linoleic acid, eliminates the need for hydrogenation, creating an oil that more closely resembles olive oil, which is considered healthy.

MU soybean breeder Grover Shannon and USDA research Kristen Bilyeu discovered two genes that triple the amount of oleic acid, and they currently are developing a conventional high-oleic soybean variety that offers great opportunity for producers. Scaboo is searching out other genes in wild soybeans that might further improve the oil composition.

Of course, soybeans with great yield potential and favorable protein and oil content still fail in the field if they fall victim to pests and disease. Soybean cyst nematode, sudden death syndrome, fusarium and frog-eye leaf spot are all being considered as Scaboo's team explores the wild soybean germplasm.

All of this is music to Matt McCrate's ears. The Cape Girardeau-based farmer and seed dealer has watched as consolidation among seed manufacturers has continued to narrow the germplasm in today's commercial varieties, especially since the advent of GMO technologies. As he flips through the pages of Missouri soybean performance test results, he notes that the list of varieties is twice as long as it was 20 years ago, but those varieties come from fewer and fewer original sources.

"All the Roundup beans, the LibertyLink beans, they all came through the same funnel," says McCrate, the current Missouri Soybean Association president. "That's why the checkoff funds are so important. They continue to support the development of new varieties that will increase our diversity and ensure we have solutions for our farmers." ■



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# SCN Survey Results

*Knowing what is in your fields is key to a successful harvest. Soybean cyst nematode is a known yield-robbler that can greatly affect a soybean crop, and is easy to miss without a soil test. The Missouri Soybean Merchandising Council is investing checkoff dollars into helping producers better understand this risk to their bottom line.*

**By Amanda Howland,  
Manjula Nathan and  
Melissa G. Mitchum**

Photo courtesy of the University of Missouri College of Agriculture, Food and Natural Resources

One of the most economically devastating pathogens facing soybean producers is *Heterodera glycines*, or the soybean cyst nematode (SCN), costing US soybean producers an estimated \$1.2 billion annually. Determining the presence and virulence phenotypes of SCN is essential for devising management strategies implementing the use of resistant cultivars. A statewide survey was conducted to determine the distribution and virulence phenotypes of SCN in Missouri and to assess grower awareness during 2015. One hundred soil samples from fields representing eight geographic regions and 62 soybean producing counties were collected and processed for SCN egg counts. In all, 92 percent of the samples tested positive for SCN with 77 percent of these at >500 eggs/250 cm<sup>3</sup> soil. The frequency of samples with >500 eggs/250 cm<sup>3</sup> soil was higher than reported in a 2005 survey, where 74 percent of samples tested positive for SCN and 62 percent

of samples had >500 eggs/250 cm<sup>3</sup>. Despite the high number of samples testing positive for SCN, only 34 percent of farmers reported that they were aware of a SCN problem, and 54 percent acknowledged that they had never sampled their fields, a slight improvement compared to 64 percent in 2005.

Survey results indicated that Missouri farmers are planting SCN-resistant cultivars and rotating to non-host crops, two of the recommended strategies for managing this pest. Sixty-eight percent of Missouri farmers reported planting SCN-resistant soybeans, although this number is likely higher because some farmers were unsure whether or not they were planting resistant soybeans. Of these farmers, 94 percent have been planting resistant soybeans for more than 5 years. In addition, 85 percent of Missouri farmers rotate fields with non-host crops including corn, wheat, rice, milo, and sorghum. However, the





# Turning on the Tap

*The Missouri Soybean Merchandising Council is investing checkoff dollars into options for making irrigation an efficient option for soybean farmers across the state.*

**By Jason Jenkins**

Photos by Jason Jenkins and the University of Missouri College of Agriculture, Food and Natural Resources

With a rhythmic pulse, the end gun sprinkler on Chris Kohl's center-pivot irrigation system sends a gentle arc of water cascading down upon a field of soybeans west of Vandalia. As the machine slowly crawls along its route, the constant hum of electric motors is the only other sound in the field.

When the sun began its climb into the sky above Audrain County on that early summer day, there was a sense of relief. Gone was the record-setting heat from earlier in the week, but its effects remained. The young soybean plants hadn't had a good drink since they emerged, and with no real rain chance in the extended forecast, Kohl really didn't feel like he had a choice.

"What we're doing here, this is not normal," Kohl says of irrigating beans in June. "If it means the difference between having a stand established or not, that's obviously going to give you payback for your dollar spent. But most of the time, there are too many other factors these days to make it pay at 5 bushels to the acre. It makes you think twice about the cost and effort involved."

Kelly Nelson also is thinking about the cost and effort involved with irrigating soybeans. Three counties to the north, he was watering soybeans at the same time as Kohl — but not with a center-pivot system. The research agronomist at the University of Missouri's Greenley Memorial Research Center in Knox County is studying a subsurface drip irrigation system that could allow soybean producers to boost yields in fields where other irrigation options aren't practical and water resources are limited. The research is funded by the Missouri Soybean Merchandising Council and Missouri's portion of the soybean checkoff.

"Timely application of supplemental water can make a tremendous impact on overall yield," Nelson says. "Water — whether it's too much or not enough — is a limiting factor, and I think the subsurface drip irrigation may give us a lot more options."



**Kelly Nelson**

Nelson has studied drainage and subirrigation systems extensively during the past 15 years. In north Missouri, an impermeable claypan layer creates poor internal drainage in the soil. When water is overabundant, a perched water table develops and causes issues. In 2001, the MU Drainage and Sub-Irrigation (MUDS) demonstration site was established to determine if installing drain tiles could offer a solution. The system not only removes excess water, but it also allows a producer to irrigate through the tiles when Mother Nature turns off the tap.

“Depending on your soil type, it can work really well,” Nelson says. “We’ve seen soybean yields increase more than 20 percent and corn yields increase more than 40 percent compared to where we don’t put water back into the system.”

But some producers were quick to point out that the MUDS system wasn’t for everyone.

“Guys would come to our field days and say, ‘I have hill ground. That doesn’t work for me,’” Nelson says. “We know we have good drainage on that ground. So, it’s just a matter of when it dries out, we need to be efficient at putting water back on those fields. That’s when I started to think we need to target subsurface drip irrigation. It may allow farmers with smaller irregular-sized fields with varying slopes to provide effective irrigation, especially in locations with limited water supply.”

With center-pivot irrigation, growers are able to achieve about 80 percent water use efficiency. Furrow irrigators reach only 50 percent efficiency, meaning half of the water is lost to evaporation. With subsurface drip irrigation, producers can see up to 95 percent efficiency.

At the Greenley Center, Nelson installed the drip irrigation test plots at a depth of 14 inches in a no-till field with greater than 3 percent slope. The low-pressure system — fed from a nearby 18-acre lake

— runs perpendicular to the slope. The hope is that some lateral flow will occur between the half-inch lines, so the spacing of those lines is being considered. The MU project is testing 5-foot, 7.5-foot and 10-foot spacing with emitters positioned every 2 feet.

“That’s one of the biggest questions with these systems. We don’t know the lateral flow on sloping soils, but the impermeable claypan may actually allow us to increase the spacing between drip lines,” Nelson explains. “We have a lot of sensors put in to look at the water distribution as you move away from that line.”

Yield data will be collected and evaluated in terms of the economic benefit of subsurface drip irrigation compared to both overhead sprinkler irrigation and a non-irrigated control. Research from Georgia found that corn and cotton yields increased more than 45 percent with subsurface drip irrigation on slopes up to 3 percent, but this is the first work in soybeans in Missouri.

“We should see about a 25-percent reduction in water use when compared to overhead sprinkler irrigation, so there should be a reduction in energy costs associated with the system,” Nelson adds.

Of course, installation cost is a major consideration, as is the system’s life expectancy. Nelson said to expect about \$1,200 per acre for installation with a payback after about 10 years. Rodent damage is another concern, as are various filtration systems, which may be necessary depending on the water source.

“You want to make sure you’re applying clean water through the system,” says Nelson, noting that the study is using a disc filter system to remove any sediment from the lake water. “You also need to consider chloride or salt issues



**Installation of the subsurface irrigation line during a field day demonstration**

that could clog the lines.”

While the system was in place during 2015, abundant rainfall throughout the growing season prevented the researchers from ever turning it on. As a result, this year’s crop will be the first to truly test its effectiveness. If the system proves itself in small plots, Nelson said the plan is to move to larger contour runs. He believes the economics favor the subsurface system in fields up to about 60 acres.

“With a subsurface drip irrigation system, a small amount of water can be applied quickly to avoid crop stress allowing a fast irrigation cycle to occur,” Nelson says. “We’ve had drought events in four of the past 10 years. Can this be a way to try and reduce that variability?”

“We need to determine what our yield benefits are and whether it would justify the installation costs and maintenance costs,” he says. “Is it just a headache or is it the best thing since sliced cheese?”

*To learn more about irrigation options for soybeans, consider attending the annual Greenley Research Center Field Day. The event is scheduled to run from 7 a.m. to 2 p.m., Aug. 9. A free breakfast and lunch will be served. For more information, call (660) 739-4410. The Greenley Center is located just east of Novelty in Knox County.*



# Making Soybeans Pay

*A new soybean crushing facility in southeastern Missouri is working overtime to bring back market premiums for non-GMO and specialty treated soybeans.*

*By Jason Jenkins*

As the father of two young daughters, Kade McBroom thought he knew what sleepless nights were all about. Then he and his wife, Shana, decided to welcome another infant into the family — a \$2.2 million non-GMO soybean crushing facility.

“The stresses of a new business are definitely enough to wake you up in the middle of night,” says the 28-year-old farmer from Qulin. “But it’s also exciting to get up the next day and go to work. A lot of the risk involved with farming prepared me for the risk of this.”

McBroom is president of Malden Specialty Soy, which began producing high-quality, conventional soybean meal and soybean oil earlier this year in a factory where pistons were once manufactured. The Dunklin County company is owned by a group of seven investor-farmers, all of whom produce non-GMO soybeans.



Increased consumer demand for non-GMO products is hard to deny. According to Mintel, a global market intelligence agency, 15.7 percent of new products introduced in 2015 made “Non-GMO” or “GMO-free” claims. That number was just 2.8 percent in 2012, making non-GMO the fastest-growing food label claim.

“Agriculture is very much an industrial business, but we’re living in an information age,” McBroom says. “People want more information about their food. There’s a big push for non-GMO. As farmers, we have to recognize the way it’s moving and give consumers

**Kade McBroom on the floor of the \$2.2 million farmer-owned, non-GMO soybean crushing facility in southeastern Missouri.**

what they want. It's all about satisfying the market."

It's a market to which Missouri's soybean producers seem to be responding. Data from the U.S. Department of Agriculture's National Agricultural Statistics Service show that while the number of acres planted to genetically modified soybeans nationally remained at 94 percent between 2014 and 2015, the percentage in Missouri dropped — from 91 percent to 87 percent.

"We're not 'anti-' anything," McBroom continues. "We're pro-opportunity and feel like non-GMO is the best opportunity for our farmers."

Opportunities — and increased profits — from non-GMO soybeans were something McBroom recognized several years ago. Along with corn, rice and GMO soybeans, his family also raised a conventional soybean variety because it performed well on the farm.

For a time, the McBrooms received a premium for those beans, as did other producers in the area for whom Kade brokered specialty grain. Then, the premium went away. He and the farmers met for dinner at the Hickory Log, a popular barbecue restaurant in Dexter, to discuss the situation.

"I started researching the non-GMO market and knew it was growing, but the premium disappeared because the beans had to be shipped too far to be crushed," McBroom says. "So, at that one meal, we decided to build our own crush plant and solve the problem. We put together a business plan and a model, and now, more than four years later, my job is to move non-GMO soybeans at a premium."

### **Adding value**

Turning raw conventional soybeans into meal and oil is a relatively simple process. When a load of beans arrives at the Malden plant, it is weighed and tested for moisture, foreign material and, perhaps most importantly, GMO contamination, which must not exceed the threshold of 0.9 percent. Once accepted, the beans are placed in a holding bin to await crushing.

The crushing process begins by drying the beans to a moisture content of 10 percent. From the dryer, they enter a roller mill that removes the hulls (which are sold for livestock feed) and any foreign material. McBroom says that consistency in the condition of the beans leads directly to the consistency in the soybean meal.

"Soybean preparation is often overlooked, but it's one of the things we pride ourselves on," he says. "Removing the hulls also lowers the fiber and increases the protein in our meal."

The beans then enter the extruder, which uses a screw press to force the soy through a small hole. The combination of force and friction produces pressure and heat, which is maintained at about 325 degrees. The pressure bursts cell walls within the bean so that oil can be extracted more easily. The heat deactivates trypsin inhibitors, allowing the soy protein to become digestible.

Extrusion results in a chunky, hot soy "soup" that is pumped into one of two expeller presses, inside which the oil and meal are separated. Oil is transferred to a decanter, where any remaining solids are removed, then



**Kade and Shana McBroom**

placed in holding tanks. Meal is routed through a cooler to prevent loss of nutritional value before it is milled and stored.

McBroom says that while the industry average for expeller-pressed soybean meal is 44 percent protein, the meal they produce at Malden rarely is below 50 percent.

"We attribute it to a higher-quality soybean," he explains. "Since our investors are also our suppliers, we pick the varieties and control the quality from the ground up."

### **Growing markets**

Since the plant went online in late January, business has been booming for Malden Specialty Soy, which now employs nine. As of mid-June, actual sales were quadruple the company's original projections, though McBroom admits those projections were conservative. Soybeans currently are processed 24 hours a day, three to four days a week.



*Plant Manager, Devin, checking soybean meal moving through the extruder*

To make it easier for customers who must document the use of non-GMO ingredients, the company's products are verified by the Non-GMO Project, a non-profit organization. This third-party endorsement offers some of the business' customers peace of mind about the soy products they purchase.

"The feedback has been really positive, and it just seems to be growing every week," he says. "Our system is rated to do 2,400 bushels a day, but we're probably closer to 2,800 or 2,900 bushels. When we get more demand, we can double in size pretty quickly."

By far, soybean meal is the product that's driving demand, especially from specialty poultry and hog operations. Livestock producers in northern Arkansas and southern Missouri have purchased most of the meal, but McBroom says product also has been shipped to Kansas, Wisconsin and California.

"The specialty meal products will travel

quite a ways, but the oil market is pretty tough," he adds. "For the most part, we're selling our non-GMO oil on the regular market while trying to develop new markets."

Part of that effort is developing products that use soybean oil as an ingredient. Because of its palatability and energy content, the oil is a great choice for combining in mineral feed supplements for both livestock and wildlife. McBroom says the company is in the process of creating a deer attractant that combines soybean oil and minerals that support antler growth.

"We're always experimenting with new things and trying to develop new products that move more agricultural goods out of southeast Missouri at a premium price," he says.

To date, the soybeans crushed at the Malden facility have been sourced from the company's farmer-investors. However, as business grows, more beans will be needed. The goal is to

crush 40,000 bushels a month starting with new-crop soybeans in September. Contracting for those beans began earlier in the summer.

"Last year, we averaged about \$1 premium per bushel for non-GMO beans," McBroom says. "Premiums are constantly changing, but they're typically around 10 percent of the commodity board cash price."

As more producers become interested in growing non-GMO soybeans, Malden Specialty Soy will be a full-service partner, McBroom says, helping them with seed selection, weed management and finding other premium opportunities — even if it's with other companies.

"We can argue about these niche markets, but if farmers want to do a value-added project, there's no better place," he says. "If we wanted to make regular soybean meal and compete with the bigger guys, we just couldn't do it. We're better off in niche markets any day of the week." ■

To learn more about Malden Specialty Soy, call (573) 276-7991 or visit [www.maldenspecialtysoy.com](http://www.maldenspecialtysoy.com).

# Missouri Soybean Farmers Prevail in Legal Action

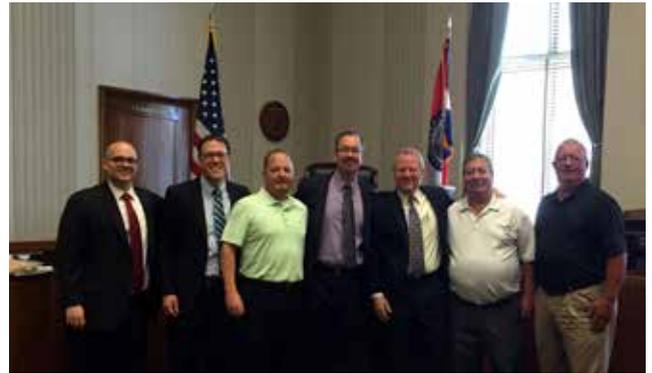
*Unanimous verdict in Circuit Court of Jackson County upholds protection for farmers' checkoff investments.*

In a case brought by the Missouri Soybean Merchandising Council (MSMC) and Mid-America Research and Development Foundation (MRDF) to protect Missouri soybean farmers' investments in soybean research under the soybean checkoff program, a unanimous jury recently returned a verdict and an award of \$602,945 in favor of MSMC and MRDF, and against AgBorn Genetics, LLC, in the case of Missouri Soybean Merchandising Council & Mid-America Research & Development Foundation v. AgBorn Genetics, LLC, Case No. 1416-CV12453, in the Circuit Court of Jackson County, Missouri, at Kansas City.

"This is such an important case for soybean farmers," said Missouri Soybean Merchandising Council chairman and Lafayette County soybean farmer David Lueck. "We take our responsibility to manage growers' soybean checkoff dollars very seriously and will continue to take any necessary steps to ensure farmers receive the benefit of their investments in the checkoff. There's no excuse for anything less."

The unanimous jury found that MSMC and MRDF were entitled to \$602,945, not including interest and costs, from AgBorn Genetics based on royalties owed for undisclosed and unreported sales of MSMC's soybean seed technologies and for unpaid and bounced royalty checks issued by AgBorn Genetics, signed by its general manager Alex Stemme. AgBorn Genetics was formed by Stemme and William J. Cook of Garden City, Missouri.

Earlier in the case, the Court granted summary judgment in favor of MSMC and MRDF on their claims to invalidate two agreements that AgBorn Genetics claimed to be valid contracts. The Court ruled that both alleged contracts were void and unenforceable. These rulings



**Missouri Soybean Merchandising Council representatives, including Gary Wheeler (third from left), and executive board members John Kelley and David Lueck (on right) with members of the legal team in Circuit Court in June.**

confirm that AgBorn Genetics has no rights to MSMC's soybean seed technologies. The Court also previously sanctioned AgBorn Genetics in the amount of \$59,167.61 for its "abuse of the discovery process and its violation of the Court's Orders."

These judgments confirm MSMC's concerted and ongoing efforts to defend and enforce the Missouri soybean farmers' rights to all their soybean seed technologies developed through checkoff investments.

MSMC, headquartered in Jefferson City, Missouri, is a farmer-run organization dedicated to improving the profitability of the Missouri soybean farmer through a combination of marketing, research and commercialization programs, supported by the soybean checkoff paid by Missouri soybean farmers. MSMC and MRDF were represented at trial and throughout the case by Thompson Coburn LLP, with Todd A. Rowden and Christopher M. Hohn serving as lead trial counsel.

# HONOR WALL

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

## Biodiesel Gets Good Marks at Rockwood Summit

Congratulations are in order for the students and staff of the Rockwood Summit High School Biodiesel program. This summer, the students, led by chemistry teacher Darrin Peters, submitted their biodiesel for testing against national fuel standards by the American Society for Testing and Materials (ASTM).

The students received good news - their fuel passed all ASTM standards in every category but one. The one category in which it didn't pass, oxidation, was not a surprise given their use of waste vegetable oil from the school cafeteria in making their biodiesel.

Good results on the ASTM testing brought more good news for the program - a green light to fuel the diesel-powered lawn mower used to care for the school grounds.

Rockwood Summit's program has also added a rain barrel irrigation system this summer, allowing students and staff to water their soybean crop more efficiently. The students also maintain a Facebook page to share their work - find them on Facebook at Rockwood Summit Biodiesel Project and @RSHSBiodiesel.

The student club also has a GoFundMe account set up to raise funds for their programs and events. More information is available through the Rockwood Summit School District website, <http://www.rsdmo.org/>, or by visiting the GoFundMe page directly at <http://dt.gofund.me/nvzrj2fg&rcid=42df6e203d5211e6b795bc764e065880>.



*Biodiesel program students and volunteers with the school lawnmower, now powered by the biodiesel they produce*

## MU's Peter Scharf on FastTrack

Peter Scharf, professor of plant sciences, was one of three faculty members from the University of Missouri to be presented a FastTrack Funding Award from the UM System. Scharf studies the management and utilization of nitrogen and fertilizers by farmers. Funding will help devise and deploy drone and satellite imagery capabilities to better evaluate and predict corn loss due to nitrogen deficiency, thereby increasing yields to help feed a growing global population.

Scharf is a professor in the Division of Plant Sciences, within the College of Agriculture, Food and Natural Resources at the University of Missouri. He also has an appointment within the Cooperative Extension Service on nutrient management. Prior to coming to the University of Missouri, he studied biochemistry and genetics at the University of Wisconsin and agronomy at Virginia Tech University. He earned his Ph.D. in Crop and Soil Environmental Science from Virginia Tech University.

Learn more online at [cafnr.missouri.edu](http://cafnr.missouri.edu) and specifically through the Nutrient Management website, <http://plantsci.missouri.edu/nutrientmanagement/>.



*Peter Scharf*

# Fishing with Soy

Soy-based lubricants and biodiesel got a boost with a recent tournament win.



Missouri soybeans topped the leaderboard at the Bass Pro Shops Crappie Masters One Pole Ultimate Challenge fishing tournament at Truman Lake. Both sponsored teams finished in the top 15 during the Missouri tournament, raising awareness of biodiesel and soy-based lubricants along the way.

Congratulations are due to Charlie and Kevin Rogers in the Soy Smooth boat on a first place finish, and to Steve Perotti and Mike Wehde for finishing 13th in the Slick As Soy boat. The Rogers team boated 14 fish weighing a total of 19.16 pounds for the win, while Perotti and Wehde boated 14 fish weighing a total of 16.77 pounds.

Learn more about the soy-based products available for anglers and other outdoor activities online at [mosoy.org](http://mosoy.org), and see the full Crappie Masters schedule online at <http://www.crappiemasters.net/home/>.



## Meet the Missouri Soybean Interns

The Missouri Soybean Association and Merchandising Council has welcomed five interns for the summer of 2016. The students represent a range of education levels and backgrounds, and hail from the University of Missouri and Missouri State University.

**Samantha Gibson**, a graduate student in agricultural leadership, communication and education at the University of Missouri. Gibson, originally from Norborne, Mo., is working on biodiesel-focused outreach projects during her internship.

**Adam Kirby**, a sophomore studying agricultural business at the University of Missouri. Kirby, who is from Trenton, Mo., is working with grain elevators and other remitters of the soybean checkoff and on education projects this summer.

**Brittney McBride**, a senior at Missouri State University studying agricultural communications. McBride, originally from Centralia, Mo., is working on public relations and magazine projects.

**Ben Travlos**, an undergraduate studying agricultural business at Missouri State University. Travlos, who is from Ashland, Mo., is working on policy outreach to producers this summer.

**Yia Yang**, a junior studying plant sciences at the University of Missouri. Yang is working on research and development during his internship, based at the Bay Farm Research Facility. He is from Wheaton, Mo.



Adam Kirby and Brittney McBride



Yia Yang

Internships with the Missouri Soybean Merchandising Council and Missouri Soybean Association offer a broad range of hands-on opportunities to be involved along the soybean value chain. Students interested in internships with Missouri Soybean can visit [mosoy.org](http://mosoy.org) for more information, and may send their cover letter explaining what they hope to learn with Missouri Soybean and their resume to Christine Tew, [ctew@mosoy.org](mailto:ctew@mosoy.org) to apply.

# They Started at Soybean

*In addition to investing soybean checkoff dollars in research, promotion and consumer education related to soybeans, the Missouri Soybean Merchandising Council also invests in the future of agriculture in Missouri with a variety of internship opportunities.*

By **Brittney McBride**

**A**s an agricultural education major, Amanda Smith focused on the classroom during much of her time at the University of Missouri. While working with Missouri Soybean in 2014, Smith was an education and promotion intern with a broad range of responsibilities outside the classroom.

During the SEMO fair, one of the larger fairs in Missouri, one of Smith's main responsibilities was planning and executing the agriculture set-up for children. She partnered with a public relations agency to develop educational coloring books for the participants and planned out what both the youth and their families would see inside AgriLand.

Smith explained that her responsibilities revolved around spreading the word of agriculture and providing educational materials for the public. As Smith met more Missouri farmers, the value she placed on advocating for agriculture became much stronger.

"I was able to meet people who, if I would not have interned with Missouri Soy, I never would have crossed paths with," Smith said.

In May 2016, Smith graduated with an agricultural education degree from the University of Missouri. This fall, she begins her career teaching agriculture in Columbia Public Schools.

"When I went to college, I had a mindset that I'm going to be an agriculture teacher, so I needed to be involved in both the agricultural education and business industries," Smith said. "I was hoping to connect with more students, which is what brought me to Missouri Soy."

Smith believes that the experience



**Amanda Smith**

she gained and people she met while interning for Missouri Soybean will aid in her career as an agricultural instructor. As a result of her experience, she has several pieces of advice she is eager to share with her students.

"Try everything. Don't be afraid to fail. It is an important step in anyone's life and it's how you learn to fix problems," Smith said. "I also think being organized, having a calendar and being professional is also really important."

She described relationship building as another necessary quality gained during her internship. Her relationship with board members and the atmosphere of meetings were among her favorite experiences during the summer.

"Thank you to Missouri Soybean for giving me the opportunity to be involved in another side of agriculture," Smith said of the variety in her internship.

She credits her internship experience with showing her agriculture beyond the classroom and helping her make connections that will help her be a better educator.

Smith currently resides in Columbia, where in addition to teaching, she is training to run her second half-marathon in October.

Todd Gerlt landed an internship with the Missouri Soybean Association in 2002, hoping to gain a further understanding of agribusiness. He knew he had an interest in agricultural finance, and was also looking for a broad experience.

During Gerlt's soybean internship, he focused on developing relationships with agribusinesses and improving market opportunities for Missouri soybean farmers.

"This internship forced me to work hard, which was something I was accustomed to because of the farm I grew up on," Gerlt said.

He remembers researching companies who were working with non-GMO soybean varieties and spending time getting to know the people involved. He also remembers attending the Missouri State Fair and talking to fairgoers on behalf of soybean farmers.

"My internship was a great experience because I was able to find ways to create demand within the state and increase the value of Missouri soy," Gerlt said.

*"I learned through my experience at the Missouri Soybean Association that commodities are an inelastic product and a shift in the demand curve can have a significant impact on price."*

-Todd Gerlt

During his internship, he collaborated with other interns and reported back to the full-time staff.

"It was nice to have a team of interns to work with," Gerlt said. "We all had

our own projects, but we helped each other when someone needed it."

Gerlt's interest in agricultural financing led him to his commercial lending career at US Bank shortly after

college graduation. He is still employed at US Bank, where he has applied many of the things he learned during his summer with the Missouri Soybean Association and Merchandising Council, and continued to take on additional responsibilities. He's now the market president for the Sedalia area.

"I learned through my experience at the Missouri Soybean Association that commodities are an inelastic product and a shift in the demand curve can have a significant impact on price," Gerlt said.

In his career, he reviews marketing plans created by farmers and identifies the change in prices within a given year. Gerlt said he sees that biofuels and other programs that expand the use for soybeans considerably impact the soybean

market.

He also remembers a piece of advice that was given to him as an intern and stuck with him through his career in the



**The Gerlt Family**

financial industry.

"There will always be people that are smarter than you. However, you can often get ahead by having a willingness to outwork them and put more time in," Gerlt said.

"The biggest piece of advice I have been given is to accept and act upon criticism. There is always a way to improve. Criticism is there to help you, so don't take it personally," he added.

Gerlt grew up in Latham, Mo. on a row crop, cattle and hog operation. He took that first-hand experience in agriculture with him as he joined the Tipton FFA Chapter during high school and studied agriculture at the University of Missouri.

At Mizzou, he participated in many student organizations, including the Ag Econ Club, Honor's College, Reformed University Fellowship (RUF) and the Agriculture Future of America (AFA).

Today, he and his wife, Jessica, reside outside Sedalia with their three children, daughters Ashlyn and Makenna, and son, Caden. ■

# Growing Soybean Demand

*With Missouri's gubernatorial election on the horizon, the Missouri Soybean Association is focusing on key issues and ensuring our members and soybean farmers statewide have the opportunity to hear from the candidates. In this issue, the topic is soybean demand - specifically, continuing to grow opportunities for soybean processing and use in Missouri.*

**Missouri ranks second in the nation in biodiesel production. What will you do as governor to not only maintain that ranking but to continue to grow the industry?**

John Brunner: As Governor, I will use my experience as a businessman to expand the market for our biodiesel products. I will also push back against opponents to the biodiesel industry and the EPA to ensure that there is no cap or blend wall on our products.

Eric Greitens: No answer received.

Catherine Hanaway: Cultivating and growing our biodiesel industry is essential both to positioning Missouri as a national agribusiness leader and also to developing safe, domestic energy sources to power our nation. Although I am generally opposed to tax credits, I do support funding for the Biodiesel Producer Incentive Fund in addition to other similar programs that encourage bringing new plants online or more biofuels into the marketplace. I am also open to increasing existing state support for alternative fueling infrastructure.

Peter Kinder: Henry Ford once said you can't build a reputation on what you are going to do, and I think my record on supporting Missouri fuels and Missouri Agriculture in general is clear, from support for the Missouri Qualified Biodiesel Producer Incentive Fund, to passing a bill expanding Grower Districts, to voting for and championing tax incentives for the necessary infrastructure for Missouri Fuels to thrive.

Chris Koster: I support the Missouri Alternative Fuel Infrastructure Tax Credit and the Missouri Qualified Fuel Ethanol Producer and Qualified Biodiesel Producer Incentive Funds. And I will

encourage new soybean crushing capacity to build upon our already strong biodiesel production and create jobs in rural Missouri.

**Do you support a future statewide biodiesel standard?**

John Brunner: I would support any standard that allows for the increased opportunity and free market efficiency to maximize the economic growth of our agricultural products.

Eric Greitens: This is another area where the career politicians in Jefferson City have failed Missouri's farmers. Missouri is a national leader in biodiesel, ranking fourth in biodiesel production capacity and second in production. Eight Missouri biodiesel plants produce roughly 200 million gallons of the renewable fuel per year. Biodiesel is a cheap, biodegradable and renewable energy source that can be produced domestically. Unfortunately, the Biodiesel Qualified Producer Incentive Fund that the state set up has been very slow to pay out, and still has over \$9.6 million in deferred payments still owed to qualified biodiesel producers across the state. Any biodiesel incentive fund agreed to under a Greitens administration will be paid off in a timely and appropriate manner, and as governor I will support the production of biodiesel in Missouri.

Catherine Hanaway: I support maintaining the existing biodiesel use requirement for MoDOT vehicles and would consider expanding the requirement to cover all state vehicles if practicable. I am open to the idea of a state biodiesel standard, along the lines of Washington's fuel standard or Minnesota's blend requirements.

Peter Kinder: The best thing Missouri



can do for agriculture is to get government out of the way. I am opposed to government regulation, like Obama's ridiculous 'Waters of the United States' federal mandate on our family farmers, or inflated health insurance that hurts our small agribusinesses. I will work to create an environment that will continue to support this next-generation fuel to the point where its value is clear to Missouri consumers by investing in research and development funding, eliminating regulation, and creating tax incentives.

Chris Koster: I would support a statewide B5 standard as a first step in encouraging greater use of biodiesel. Additionally, I support increasing the usage of biodiesel throughout the state's vehicle fleet.



**Providing feed for livestock is the top use for soybeans in our state and a leading goal for the Missouri Soybean Association is to grow feed demand. What will you do to promote a fair and equitable regulatory environment for our agricultural producers and ensure regulations do not stifle growth in Missouri's animal agriculture sector?**

**John Brunner:** As Governor, I will be a stalwart ally of Missouri agriculture. I will work through whatever mediums available to me to push back against the EPA and the Army Corps of Engineers whenever they propose onerous regulations.

**Eric Greitens:** Agriculture is one of the most important industries in our state, but it is under attack from federal over-regulation. Things have gotten so bad in Missouri that as the first drop of sweat falls from a farmer's brow, an army of Washington bureaucrats are standing there, ready to regulate it once it hits the ground. The real issue here is simple: the federal government thinks that without a bureaucrat on our farms, we'll ruin our land, kill our livestock, and destroy our crops. Ninety-nine percent of the acreage in Missouri is now subject to federal regulation-- whether that's the EPA, Army Corps of Engineers, or other bureaucrats with a radical agenda. Farming and ranching have been a way of life for generations of Missouri families, but that way of life has become too expensive and too difficult thanks to costly and unnecessary restrictions. Things have gotten worse under the watch of career politicians, who stand by and watch as our farmers are targeted by Washington regulators. We need to have a fighter who's going to fight to get the federal government off the backs of our farmers and ranchers. And that's what you're going to have from me as a governor. Someone who actually fights for our farmers and ranchers and gets results and wins for us.

**Catherine Hanaway:** I was a strong supporter of our state's Right to Farm amendment and will continue to oppose any and all efforts by HSUS and other radical environmentalist groups to dictate to farmers how to raise their livestock or grow their crops. Two of the other most significant threats to our animal agriculture producers in this state are overly intrusive government regulation and a tort system that allows trial lawyers to receive lottery jackpot paydays by bringing needless lawsuits against hardworking Missourians and their farms and businesses. As Governor, I will freeze all nonemergency regulations on day one and will launch a comprehensive review of state regulations so that we can eliminate the unnecessary ones that just drive up the cost of doing business, especially for farmers. I will also fight the federal government and its unconstitutional power grabs like the Waters of the United States rule. I will order all state departments and agencies to refuse to participate in the enforcement of federal rules that I believe are unconstitutional or illegal. It is time to get federal regulators out of our fields and barns! I am also committed to bringing about comprehensive tort reform and judicial selection reform in this state, to ensure that our courtrooms are places of true justice. We need punitive damage caps, restrictions on nuisance lawsuits against farmers, and judicial selection reform to ensure that Missouri farmers cannot be sued into bankruptcy just because pigs stink or dogs bark. Peter Kinder: You'll never see me side with the Humane Society and other radical groups whose sole purpose is to destroy animal agriculture in Missouri and America. I didn't wait until the Right-to-Farm constitutional amendment and WOTUS to join Missouri's farmers and ranchers in this fight against the radical environmentalists. I stood with our ranchers in the Proposition B fight and with Missouri agriculture in every major fight we've faced from the outside since entering public service. I will fight any regulatory effort that stifles our produc-

tion; be it county nuisance ordinances, CAFO restrictions, or anything that hurts the profitability of the family ranch and farm. I will foster a new era of increased cooperation between our row-crop farmers and ranchers in Missouri and ensure we are adding every dollar of value to these in-state products that we can. I will connect Missouri's cotton growers' seed to our struggling dairy industry. I'd like to see incentives that connect Missouri's abundant grain production to Missouri ranchers so that we can retain and feed-out more livestock, earning maximum price at the sale barn.

**Chris Koster:** As a member of the Missouri Senate, I sponsored the CAFO bill, seeking a single statewide standard in order to prevent county health ordinances from creating a patchwork regulatory environment for Missouri's livestock industry. In the Arrow Rock case, I fought and won a judgement so district court judges cannot establish buffer zones around CAFOs. If local judges had the power draw their own buffer zones around individual farms, we could have eventually reached a point where no land in our state is permitted for agricultural operations. As Attorney General, I've been active in fighting U.S. Environmental Protection Agency overreach in federal court. First, I successfully fought the EPA to block the mercury rule. I then fought their overreach in the Chesapeake Bay watershed case, and won. Perhaps, most importantly, I then sued the EPA over the Waters of the United States rule, and won, stopping the rule from being applied in Missouri.

My record of supporting agriculture is unrivaled in this race. No other candidate can come close to the depth and breadth of my support for the Ag community in this state. As Attorney General, I've provided funding to make sure these research centers continue their important mission. As Governor, I will be a strong advocate for Missouri agriculture in the face of burdensome regulations. ■



*Dan Engemann 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

State-level policy work has largely been focused on legislation from Missouri's spring session.

Governor Nixon took action on agricultural legislation in late June. At a bill signing ceremony at the Missouri State Fairgrounds in Sedalia, the governor signed the following bills, which all benefit soybean growers and the biodiesel industry:

SB 665 (Parson) reauthorizes for five years the New Generation Cooperative Incentive, Ag Product Utilization Contributor and Qualified Beef tax credit programs. Further, the bill allows the

Missouri Department of Agriculture to increase its per-barrel motor fuel inspection fee from the current 2.5 cent cap to 5 cents per barrel by 2022, to keep pace with equipment needs and other maintenance within its motor fuel lab.

SB 657 (Munzlinger) contains several provisions relating to motor vehicles, but most notably it removes liability for handlers of motor fuel meeting the state's quality and labeling laws in which a consumer fills their tank with an incompatible ethanol or other renewable fuel product.

SB 664 (Parson) revises the state's

corporate farm registration reporting requirements by removing the annual reporting requirement with the Secretary of State's office so long as no changes have taken place in the information required by the report in the farm's articles of incorporation or since its last annual report.



The governor signed SB 655 (Munzlinger), which establishes the Fertilizer Control Board, separately, giving farmers authority to oversee operation of the Fertilizer Control Service at the University of Missouri. This legislation allows board members to appropriately set and invest the self-imposed tonnage fee paid by farmers and ag retailers into fertilizer research and education.

Governor Nixon also separately vetoed HB 1713 (Remole) specifying that at least two members of the Missouri Clean Water Commission shall be representatives of agriculture, industry or mining. The governor also vetoed SB 641 (Schatz) which would create a state income tax deduction for payments received as part of a federal disaster program.

### Federal Policy

One of the most visible pieces of agricultural policy moving this summer has been GMO labeling. A compromise on a national GMO labeling solution was reached on June 23 between Senate Ag Chairman Pat Roberts and Ranking Member Debbie Stabenow. The compromise language passed an initial test vote in the Senate June 29 with both Senators Blunt and McCaskill voting in favor. The vote in that test was 68-29.

The compromise language preempts state labeling laws like the one in Vermont effective immediately upon signature into law and sets three mandatory options for medium and large food manufacturers, including on-pack language, on-pack symbol, or QR code accompanied with the text “Scan here for more food information.” It provides small food manufacturers the additional options of either an 800-number or website to put forth additional consumer information. Further, the compromise language exempts GMO-fed meat, dairy and eggs from requiring a label.

Biodiesel continues to be a focus area as well, with EPA taking comments on its proposed rule for 2018 biomass-based diesel volumes through July 11. MSA, along with fellow soybean organizations and the National Biodiesel Board, has called on the EPA to increase volumes from 2.1 billion gallons to at least 2.5 billion gallons, a level the biodiesel industry currently has the production capacity to meet.

HR 5240, which extends and reforms the biodiesel tax credit has been introduced by Rep. Kristi Noem (R-SD). Missouri’s Rep. Jason Smith has signed on to be an original cosponsor and MSA is grateful for his support. Prior to the July 4 holiday, a Missouri delegation of farmers and staff traveled to Washington D.C. to meet with House and Senate staff to encourage support for this legislation.

HR 5240 includes provisions that prohibit foreign biodiesel producers from qualifying for the credit. Protecting Missouri producers is a key component of the Soybean Association’s

legislative priorities for the year, and all members are encouraged to call their Congressional delegation in support of this bill.

In WOTUS news, at the end of May the U.S. Supreme Court unanimously ruled that landowners do not have to wait for the U.S. Army Corps of Engineer’s permit process to be completed or an enforcement action taken before they can take legal recourse on a jurisdictional wetland determination, striking a major victory on this issue. As far the larger WOTUS issue, the U.S. 6th Circuit Court of Appeals set its briefing schedule, pushing WOTUS arguments into February of next year and into the next administration.

The Water Resources Development Act (WRDA) has been marked up by both the House and the Senate. Of note is that lockage fees as part of public-private partnerships, or P3s, have been prohibited in both bills over major opposition by the towing industry. Soybean groups have been discussing this issue as a potential funding solution to our nations aging lock and dam infrastructure.

Rep. Blaine Luetkemeyer filed Rep. Blaine Luetkemeyer filed H.R. 5281, the Endangered Species Self-Determination Act in May. Sen. Rand Paul has since introduced companion legislation (S. 855) which would require approval of a joint resolution in Congress for new species to be added to the federal endangered species list and require governors of each state in which an endangered species is present to consent to the decision to list that species, amongst many other reforms.

### Hosting Events

MSA is planning to host a series of “Soybean Shop Talks” with members of Congress during their August recess. Information about the events will be posted on [mosoy.org](http://mosoy.org) as it becomes available. As always, please don’t hesitate to contact me with your questions, concerns and feedback at [dengemann@mosoy.org](mailto:dengemann@mosoy.org) or (573) 635-3819.



## Upcoming Events & Activities

- August 2** *Farm Journal Soybean College - Columbia*
- August 4-6** *Soybean Festival - Norborne*
- August 9** *Greenley Research Center Field Day - Novelty*
- August 11-21** *Missouri State Fair - Sedalia*
- August 23** *Graves-Chapple Research Center Field Day - Rock Port*
- August 23** *Hundley-Whaley Research Center Field Day - Albany*
- September 2** *Fisher Delta Research Center Field Day - Portageville*

*Our apologies - the SOYPAC golf tournament planned for August 5 in Mexico, Mo. has been canceled.*

## Want More?

Visit us at [mosoy.org](http://mosoy.org) to learn more!

"Like" us on Facebook and follow us on Twitter.



Spots are limited - register by July 25 at [mosoy.org](http://mosoy.org).



**YOUR PERSPECTIVE IS WORTH GROWING**

**The soy checkoff is looking for farmers** from diverse backgrounds to get involved in the United Soybean Board or Missouri Soybean Merchandising Council. There are a variety of opportunities to serve, and your talent and input can make a difference.

Help to lead the U.S. soybean industry into the future. Contact the Missouri Soybean Merchandising Council at [www.MOsoy.org](http://www.MOsoy.org) and get involved today, or visit [www.UnitedSoybean.org/GetInvolved](http://www.UnitedSoybean.org/GetInvolved).



MISSOURI SOYBEAN YIELD CONTEST  
Entry Forms Available Now

[Learn More](#)

# Soybean Yield Contest

*Entry deadline is September 1 - now's the time to select your top plots.*

The Missouri Soybean Association is proud to host the 2016 Soybean Yield Contest, sponsored by the Missouri Soybean Merchandising Council and industry partners. The annual competition recognizes those producers across the state who truly excel in soybean production based on their crop yields. Growers have until September 1 to complete their entry forms. Forms and rules are available online at [mosoy.org](http://mosoy.org) by clicking on the graphic at the top of this page, as well as by contacting the Missouri Soybean office at (573) 635-3819.

Entries must be from fields 10 acres or larger and located within the State of Missouri, and all participants must be at least 18 years of age. Each entry must

be submitted on a separate form and accompanied by the \$10 entry fee.

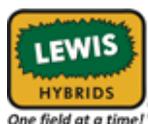
Thanks to the partnership of the Missouri Soybean Merchandising Council, soybean checkoff and industry, top growers can receive a trip to the 2017 Commodity Classic in San Antonio, their own UAV – drone – and accessories, gift cards to Cabela's and for biodiesel, as well as cash prizes. Growers with yields of 100 bushels per acre or more receive additional prizes as well. The highest yield above 100 bushels per acre will receive \$1,000 in biodiesel or a \$1,000 gift card to Cabela's. All other entries topping the 100 bushel mark will receive \$500 in biodiesel or a \$500 gift card to Cabela's.

The contest will continue to recognize winners in separate categories for irrigated and no-till growing methods. The overall winner of the irrigated contest will be selected from all entrants who used irrigation on their crop, regardless of tillage practice. The overall winner of the non-irrigated contest will be selected from among district winner(s) of the No-tillage and Tilled categories combined.

Prizes will be awarded during the Missouri Soybean Association's annual meeting in early 2017.

Winners will also be recognized online and in Missouri Soybean Farmer magazine.

## 2016 Contest Sponsors



A photograph of a red tractor on a gravel road next to power lines. The tractor is positioned on the right side of the road, facing away from the camera. The road is made of gravel and curves to the left. Several utility poles with power lines are visible along the right side of the road. The background shows a line of trees with some autumn-colored leaves under a clear blue sky.

# Drive safely.

**You may not encounter many traffic hazards when operating farm machinery, but driving safely should still be your first priority. Especially when equipment is near power lines.**

Any contact between farm machines and electric lines is potentially lethal. Plan your path to be sure you will clear power lines by at least 10 feet, especially when making turns and when entering and leaving the job site.



Missouri's Electric Cooperatives