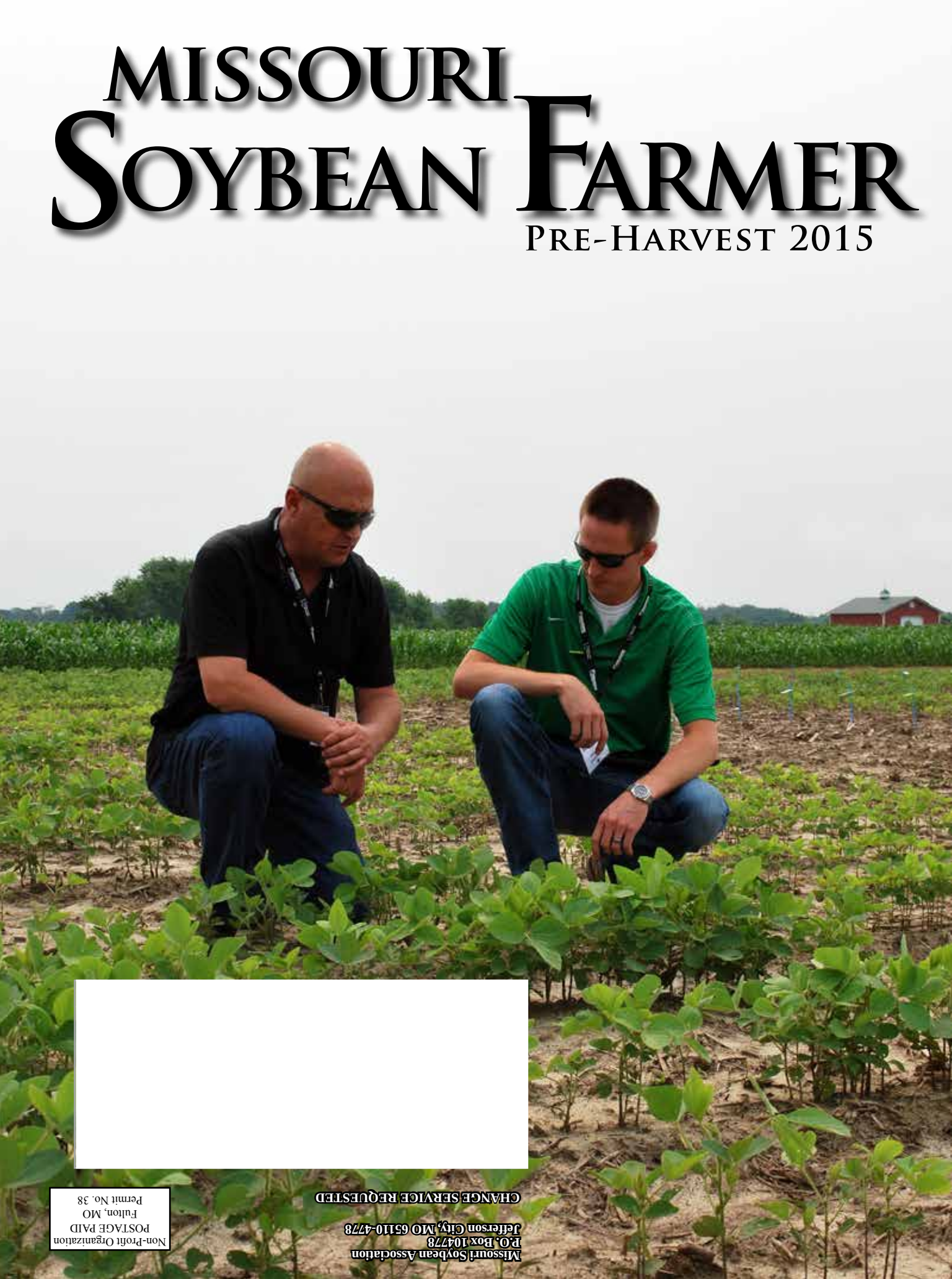
Missouri Soybean Farmer

Pre-Harvest 2015



Missouri Soybean Association
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Staff Contacts

Executive Director / CEO
Gary Wheeler
gwheeler@mosoy.org

Director of Communications & Public Relations
Christine Tew
ctew@mosoy.org

Director of Industry & Producer Relations
Dan Engemann
dengemann@mosoy.org

Director of Business Development & New Markets
Tony Stafford
tstafford@mosoy.org

Director of Accounting
Chris Schroeder
cschroeder@mosoy.org

Director of Compliance & Research Administration
Ebby Neuner
eneuner@mosoy.org

Office Manager
Mary Kever
mkever@mosoy.org

Accounting Manager
Jeff Bruemmer
jbruemmer@mosoy.org

Administrative Manager
Diana Coonce
dcoonce@mosoy.org

Missouri Soybean Programs
P.O. Box 104778
Jefferson City, MO 65110-4778
Phone: (573) 635-3819
http://www.mosoy.org

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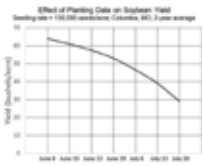
In this Issue



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FROM THE FIELD

Notes from Missouri Soybeans' leadership team

This year is just about to the point of feeling like that dream about the test we didn't study for has come to life. This winter, we had a new Farm Bill to wrestle with. The programs were new and there wasn't much beyond speculation to go on in making decisions that would directly affect us for the next several years. That's tough for anyone, regardless of how many growing seasons worth of lessons from the school of hard knocks they may have.

In June we learned from USDA that 96 percent of soybeans and 91 percent of corn went under Agriculture Risk Coverage (ARC), while rice and peanut producers overwhelmingly chose Price Loss Coverage (PLC). What remains to be seen is how this untested program will work with this nearly unprecedented planting season.

As soybean planting has stretched into July, we've all had to take a close look at the test questions this year is bringing. We're all looking at tough choices - whether we're staying the course, switching varieties or adjusting our plans for inputs. For me, it's been a mix of all three depending on when I first got into each field. It's certainly not what I had in mind last winter, but we're staying flexible and waiting to see how summer progresses.

Tom Raffety
Missouri Soybean Association President

We talk fairly often about the soybean research happening here in Missouri, and about the positive impact it has for soybean growers. Whether we're at a winter meeting or the State Fair, if we take some time to visit, we'll probably end up talking about how the soy checkoff provides for research directly benefiting growers, and how the Missouri Soybean Merchandising Council works with the University of Missouri and other partners in the research process.

However, chatting about the good work we're doing in research and then going on our way doesn't leave those of us growing soybeans with much to show at harvest time. The most effective research is that which doesn't end up in a binder on a dusty shelf – or filed away somewhere on your computer.

Recently, we've talked about research progress on flood and drought resistant soybean varieties from our breeding program in the bootheel, announced a patent for non-transgenic high oleic soybeans, and brought a Farm Journal Soybean College to Missouri for the first time. Those are all great things. When I put on my soybean farmer 'hat' however, I'm most proud of the soybean college, because that's where growers get to see the results of our research, to be out in the field and learning the things they can take home at the end of the day.

If you haven't already, I hope you'll join us for a field day soon. Whether it's at the Fisher Delta Research Center in Portageville, the Bay Farm Research Facility outside Columbia, or elsewhere in the state, please join us to see how your Missouri Soybean Merchandising Council is putting our checkoff to work.

David Lueck
Missouri Soybean Merchandising Council Chairman

MISSOURI SOYBEANS

Letter from the Executive Director

You may be familiar with biodiesel from any number of sources, whether you've visited a plant, used it in your vehicle, or sold your beans or oil for use in biodiesel processing. You might have also seen an ad or heard one of the radio spots playing during Cardinals and Tigers games talking about the power of biodiesel.

More recently, you may have seen news about the EPA's latest on the Renewable Fuel Standard that sets targets for production and use of advanced biofuels, like biodiesel, through 2017. The latest numbers gave a modest increase, but not enough to propel the industry forward the way we had hoped.

Gary Wheeler being interviewed for a U.S. Farm Report segment on the need for biodiesel infrastructure.

Missouri is home to nine biodiesel plants, although not all the plants are producing at commercial scale today. The oldest of those plants hasn't yet celebrated its 10th anniversary – the Mid-America Biofuels plant in Mexico was completed in 2006. Some of our younger plants continue to work toward commercial-scale production.

Since 2007, the Missouri biodiesel industry has added $1.17 billion in value-added benefit to Missouri's gross domestic product consisting of compensation to employees, taxes on production and business profit. The number of jobs supported each year has ranged from 481 in 2007 to 2,570 in 2014, according to the University of Missouri's commercial agriculture program.

With support from our regulatory agencies, organizations and the National Biodiesel Board – which we're proud to have based in Jefferson City – biodiesel quality is excellent, and all original engine manufacturers approve the use of biodiesel in consumer vehicles.

Those are key accomplishments of which we should all be very proud.

While Missouri's production continues to grow, this remains a young industry and challenges are ahead. Not only does growing the industry require production capacity, it requires investment in blending and storage across the private sector, in pump space and signage at the point of sale, among other things.

A lack of infrastructure is a bottleneck for increasing our biodiesel distribution. Simply put, it's limiting our ability to capitalize on the power biodiesel has to elevate the entire soybean value chain.

Standing up that infrastructure is a bit of that classic 'chicken and egg' situation. Without the voices of consumers asking for clean, local, renewable biodiesel, it's going to be a slow process to see our soy-based fuel become widely available across our state.

With that in mind, I hope that you'll join me in asking for biodiesel, whether for your truck or car, tractor or generator, where you buy fuel. The simple request, asking your local filling station or co-op to carry biodiesel, will help us continue to grow Missouri's biodiesel infrastructure.

This is an exciting time – we have the power to make a direct, noticeable impact in our state through a product that also directly improves the bottom line for soybean growers, livestock farmers and industry.

Let's make it happen!

Gary Wheeler
Executive Director / CEO
Missouri Soybean Association
Missouri Soybean Merchandising Council

High Oleic & Non-Transgenic

By Christine Tew

No where but in Missouri do the terms 'high oleic' and 'non-transgenic' go together. Years of research, supported in part by the soy checkoff, are paying off - and it's the growers who are set to benefit.

Missouri soybean farmers' efforts to support innovation and the future of the Show-Me State's top cash crop recently received a boost. In late May, U.S. Patent No. 9,035,129 was issued for a method to produce soybeans with high oleic acid content developed through soybean breeding. The patented process is the product of a partnership between the University of Missouri (MU), USDA, Missouri Soybean Merchandising Council and United Soybean Board.

Soybeans covered by U.S. Pat. No. 9,035,129 contain three to four times more oleic acid than conventional soybean varieties. Those beans' oil contains as much as 80 to 85 percent oleic acid, significantly exceeding the industry's 70 percent standard to be classified as high oleic. The Curators of the University of Missouri and the USDA Agricultural Research Service (ARS) are joint owners of the patent, and the Missouri Soybean Merchandising Council is the exclusive licensee.

"Obtaining this patent was an important step toward scaling Missouri's varieties up from research quantities and making these non-transgenic high oleic soybeans available to our soybean farmers," said Gary Wheeler, CEO and executive director for the Missouri Soybean Merchandising Council.

"This is a testament to the strong partnerships we have built in Missouri, and the outstanding investments our soybean farmers are making in their future. We are excited for the potential high oleic has to add value to our growers' crops, and look forward to developing plans to make high oleic soybeans available for future planting seasons."

The technology included in U.S. Pat. No. 9,035,129 was developed by University of Missouri professor emeritus of soybean genetics and breeding Grover Shannon, and USDA-ARS research molecular biologist Kristin Bilyeu.

This patent is the first for Missouri-bred soybeans with high oleic acid content.

High oleic soybean oil has market potential in cooking and baking, with high-heat stability and a neutral taste. High oleic soybean oil also has potential for a strong domestic supply based on current growth projections. According to the United Soybean Board, meeting the domestic demand for high oleic soybean oil will require 18 million acres of those high oleic soybean varieties within the next eight to 10 years.

High oleic soybean oil from the University of Missouri.

Internationally, organizations like the United Soybean Board, Missouri Soybean Merchandising Council, as well as seed companies and other groups, are working to ensure the necessary infrastructure, processes and approvals are in place to support the shipment and processing of high oleic soybeans. Those approvals are key to long-term success given that the majority of U.S. soybeans are currently exported.

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. To learn more, visit the Missouri Soybean Merchandising Council online at MoSoy.org or explore the United Soybean Board website at UnitedSoybean.org.

The Missouri Soybean Merchandising Council, United Soybean Board and other organizations are working to raise awareness of the benefits of high oleic through a variety of avenues, including these ads from the United Soybean Board.

Christine Tew is the communications director for the Missouri Soybean Association and Merchandising Council.

2015 Soybean Yield Contest

New categories and prizes available, deadline to enter is September 1

By Christine Tew

The Missouri Soybean Association's annual yield contest is back for 2015 – with new regional competitions, new prizes and new partners. Growers have until September 1 to get their entry forms to the Missouri Soybean office in Jefferson City.

The annual competition recognizes those producers across the state who truly excel in soybean production based on their crop yields. Past winners have finished harvest with plot yields of 99 or more bushels per acre, including in years with tough growing conditions.

For the 2015 yield contest, the Missouri Soybean Association is introducing regional competitions, in addition to the statewide contest. Growers within each of the Association's seven districts will compete against one another on yields – giving farmers the opportunity to show their skills against others' growing in similar soils and under similar weather conditions.

Winners in the district-level competitions will then go on to compete for statewide recognition and additional prizes.

Yield contest winners at the district and state level will enjoy a new package of prizes for 2015, as well. Thanks to the partnership of the Missouri Soybean Merchandising Council and industry, top growers can receive a trip to the 2016 Commodity Classic in New Orleans, their own UAV – drone – and accessories, gift cards to Cabela's and for biodiesel, as well as cash prizes.

The contest will continue to recognize winners in separate categories for irrigated and no-till growing methods. Entries must be from fields 10 acres or larger in size and located within the State of Missouri, and all participants must be at least 18 years of age.

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 2016. Winners will also be recognized online and in *Missouri Soybean Farmer* magazine.

Entry forms, rules and details are online at mosoy.org, or growers can request a copy by calling the Missouri Soybean office at (573) 635-3819.

Get your entry forms for the 2015 Missouri Soybean Yield Contest online at mosoy.org. The deadline to enter is September 1, 2015 and each entry must have it's own completed form to be eligible for prizes and recognition.

Yield Contest Prizes

Prizes will be given to winners of each category in each district. The top yield in each category determines the winner. The first place winners from each district category will compete in the statewide non-irrigated contest.

District Winners in each category will receive their choice of $750 in biodiesel or $750 in Cabela's gift cards.

The overall statewide winner for irrigated and non-irrigated categories will each receive:

- **1st place: All expenses paid trip for two to next year's Commodity Classic in New Orleans plus $750 spending cash (Approx. $3875 value)**
- **2nd place: DJI Phantom II UAV with accessories ($2000 value)**
- **3rd place: Choice of $1250 in biodiesel or $1250 in Cabela's gift cards**

MISSOURI SOYBEANS

Soil Health in Action

By Adam Buckallew

Members of the Delta Soil Health Alliance during their July 1 meeting.

Soil health is a hot topic in Southeastern Missouri these days thanks to the efforts of local farmers who formed the Missouri Delta Soil Health Alliance. The purpose of the alliance is to promote the benefits cover crops and no-till practices can deliver to farmers and their soil. Peter Rost Jr., one of the new organization's founding members, says he is very encouraged by the enthusiasm he's seen from farmers in the surrounding area.

"We had our first meeting with the public last fall and the response has been awesome," Rost says. "We held a cover crop tour in March and had 75 people show up for that despite it being a cold and rainy day. I think that shows how much interest there is in improving soil health."

The attendees of the tour visited Rost's farm in New Madrid and two additional farms belonging to members of the alliance where they heard how cover crops have been integrated into their farming operations.

Rost is challenging Missouri soybean growers to add no-till acres on their farming operations and to give cover crops a try. He's confident the results will speak for themselves.

"Soil is any farm's most valuable asset and we need to do a better job of prioritizing it," says Rost, who also serves as a board member on the Missouri Soybean Association. "You can have the best planter, seed and other inputs, but without good soil you won't get far. It all starts with healthy soil."

A Soil Health Revelation

The summer of 2012 was challenging for many farmers throughout the country as a historic drought affecting about 80 percent of U.S. farmland damaged millions of acres of crops. The drought was so devastating that the U.S. Department of Agriculture (USDA) designated more 2,000 counties as disaster areas. It was during this time that Johnny Hunter, who farms 2,500 acres of row crops near Avert, Mo., says he had a revelation that would change the way he farms.

"Even though we were irrigating our soybeans in 2012, we ended up with our worst crop we've ever produced," Hunter says. "We were pumping tons of water onto the beans but it wasn't helping as much as it should have because the water infiltration into the soil was poor. I knew after that season that we had issues with our soil and we needed to make changes on our farm."

Determined to find a way to improve the health of his soil, Hunter began researching cover crops, no-till farming methods and experts on these subjects. He attended a conference in the winter of 2013 put on by the Buffett Foundation where Howard G. Buffett told the audience, "Soil fertility has the single largest impact on production capacity." Buffet advocated for a "Brown Revolution" to improve soil quality and increase agricultural productivity.

Hunter came away from that experience with a realization that he wasn't doing everything he could to protect his farm's top resource. He also learned one other important lesson: real change and progress is easier to accomplish with a team.

"That was the moment that inspired the idea for the Missouri Delta Soil Health Alliance," Hunter says. "Working together with others makes any journey easier and I knew several friends and farmers who were interested in improving their soil health. Everyone was ready for this and we just needed a catalyst to get us working together."

Hunter now serves as president of the alliance which was officially founded in July of 2014. He and the other farmer-members of the alliance who helped to get the idea kick started are working with representatives from the University of Missouri and the Natural Resources Conservation Service (NRCS) to spread their message.

"If it was just one guy trying to educate people about soil health, people could look at him and say 'Oh, that guy's crazy,'" Hunter says. "Even two guys working together could be dismissed as a couple of crazy farmers. But when you've got several farmers working together with folks from NRCS and University of Missouri Extension that grants you a bit of credibility. People start to think your ideas might not be so crazy."

Adam Buckallew is a former Missouri Soybean staff member who currently resides in Kansas City.

Radishes are one of many cover crop options.

Cover Crops Improve Soil
Rost and Hunter say they choose the cover crops they plant based on the objectives they have for their next crop. Rost, who is in his first year of testing cover crops, planted annual rye, hairy vetch, cereal rye and radishes on his farm. He plants a mix of cover crop species for the diverse benefits each plant type can provide.

This year is Hunter's second with cover crops. He's still experimenting through trial and error to find the right combination of cover crops and management techniques that best fit his goals, but the results he's seen thus far have proven he's on the right track.

"We had a no-till, dryland soybean field that was planted with cover crops that out-yielded a conventional tillage soybean field with irrigation last year," Hunter says. "The varieties were not the same, but I was still very impressed. The water holding capacity of the dryland field with the cover crops was surprising."

Soil scientists report that for every one percent of organic matter content, the soil can hold 16,500 gallons of plant-available water per acre of soil down to one foot deep. That is roughly 1.5 quarts of water per cubic foot of soil for each percent of organic matter.

Beyond improving soil water holding capacity, cover crops provide a wide array of benefits. Both Rost and Hunter forecast their inputs costs to be lower thanks to the cover crops they have incorporated into their farm management plans. Hunter had soil nitrate tests conducted on ground where he had used cover crops prior to corn and found the cover crops added the equivalent of 55 pounds of nitrogen on a per acre basis. The value of the nitrogen fixed into the soil by the cover crops equaled $29 per acre, which Hunter says means the cover crops essentially paid for themselves through the additional nitrogen they provided and that's not counting the other benefits he sees.

"We're using less water for irrigation because the soil is holding more that is made available to our crops," Hunter says. "The cover crops and no-till practices have reduced erosion, lowered the amount of fertilizers we need to apply, and drastically reduced the amount of equipment we use – which leads to lower fuel costs and fewer man-hours needed to run the equipment."

Results from Long-Term Testing
University of Missouri Extension and the USDA Agricultural Research Service (ARS) have used cover crops in a corn-soybean-wheat rotation at a farm near Centralia, Mo., since 1991. Newell Kitchen, an ARS soil scientist and MU Extension associate professor, says they have accumulated enough data to observe the benefits cover crops offer growers.

"In 2012, it was a really hot year, a dry year, and cover crops helped keep soil temperatures down," Kitchen says. "We were able to preserve soil moisture a little bit longer and saw a two to three bushel per acre increase in soybeans because of that."

With 20 years of continuous cover crop research, Kitchen says they can compare cropping systems with and without cover crops.

"We see better soil quality with cover crops on corn and soybean fields that are tilled as well as no-till," Kitchen says. "But there is a much greater benefit by including cover crops with no-till."

The cover crop tested fields resulted in reduced runoff, higher levels of organic matter and improved soil stability. "There are some tremendous ecological benefits from using cover crops," Kitchen says. "They may have an important role for sustaining agricultural soils as we go forward."

Getting Started with Cover Crops
Beginning cover croppers are encouraged to start small and work their way up to larger acreages.

"Try a field of 40-50 acres the first year," Rost suggests. "You can add more acres as you get more comfortable growing cover crops."

University of Missouri Extension has a cover crop cost-return budget growers can use to run scenarios and estimate expenses. Cover crop costs can also be defrayed by Environmental Quality Incentive Programs (EQIP) provided by NRCS. Check with your local NRCS office for more details.

"Once you start incorporating cover crops and no-till practices into your farm you'll begin to notice gains in efficiency, productivity and profitability due to improved soil health," Hunter says. "It's taken us generations to degrade our soil, but with the changes we've made on our farm, I think I can fix it in my lifetime. My only regret is that I didn't start doing this 10 years ago."

Research Results: Rotation Yield Boost

By Bill Wiebold

Missouri farmers produce a set of crops unique among all Midwestern states. In southeastern Missouri, southern crops such as cotton and rice are common. Tall fescue and other forage crops are produced throughout Missouri, but especially in regions where soils do not support grain crop production. But, in Missouri soybean is king. Missouri's soybean acreage is larger than the sum of the acreages of all other grain and fiber crops. The ratio of soybean acres to corn acres is 1.7. No other Midwestern state has a soybean to corn ratio greater than 1.0. In Iowa and Illinois the ratio is 0.7 or less. Soybean holds a level of importance to our state's economy that is not matched in any other state.

Soybean has not always been popular in Missouri. Like in other Midwestern states, soybean acreage did not expand in Missouri after WWII. But unlike other states, soybean became Missouri's number one crop in the mid-1960s. Soybean acreage first equaled corn acreage in 1966, and the soybean to corn ratio has remained above 1.0 for the past 50 years.

The popularity of soybean reflects our unique soil and weather characteristics. But, the dominance of soybean limits the number of rotation partners for soybean. Wheat acreage has decreased by 65 percent since 1990. Grain sorghum was once planted on over a million Missouri acres, but now occupies fewer than 80,000 acres. Corn acreage has increased 27 percent since 2000, but soybean acreage has increased by 14 percent in the same time frame. In all Midwestern states, two crops, soybean and corn, account for over 90 percent of the land area planted to grain crops. But, only in Missouri is soybean acreage larger than corn acreage.

The dependence on planting soybean and the few alternatives to soybean lead to a cropping system in which soybean often follows soybean. When I arrived at the University of Missouri in 1990, approximately 20 percent of Missouri's soybeans were planted after soybean. Some fields had been in continuous soybean for more than 10 years. I was sure that this limited soybean yield potential.

With funding from the Missouri Soybean Merchandising Council, I began a study in 1991 to investigate the impact of continuous soybean production on soybean yield. The experiment had two cropping system treatments, continuous soybean and soybean rotated with corn. Plots have been left in those treatments ever since. The experiment was established at the Bradford Research Center near Columbia, Mo.

My data shows the value of long-term research when trying to understand a complex management practice such as crop rotation. Soil health and its effects on soybean yield involve complicated changes in chemical, physical, and biological characteristics. These characteristics change over time, and their effects on yield interact with weather. So, studying crop rotation over many years helps us gain an understanding that 2-and 3-year studies cannot.

Averaged over all years, the rotation advantage to soybean yield was 7.4 percent. Yield of soybean rotated with corn exceeded continuous soybean yield in all but one year. But, the magnitude of the yield differences varied among years. In about one-third of the years, the rotation advantage was relatively small – less than 5 percent. In 2005 and 2007 we found very large rotation effects – greater than 20 percent. Since the mid-1990s I have used a soybean variety with PI88788 as the source of SCN resistance. By 2005, the SCN population overcame that source of resistance. We

Bill Weibold is Missouri's State Soybean Extension Specialist.

Soybeans rotated after corn in a Missouri field.

found low SCN egg numbers in the rotated plots, but large egg counts in the continuous soybean plots. SCN decreased yield in the continuous soybean plots and exaggerated the "normal" effect of rotation on yield. For the past several years, I've used a soybean variety with Peking resistance and SCN egg numbers are similar between the two treatments.

I was not the first person to find a yield advantage from rotating soybean with corn. But, only several other experiments have followed yield trends for as long as my experiment. No one completely understands the rotation effect. I've described what happened to SCN and a build-up of other diseases surely occurs with continuous soybean. But, this explains only a small portion of the rotation advantage.

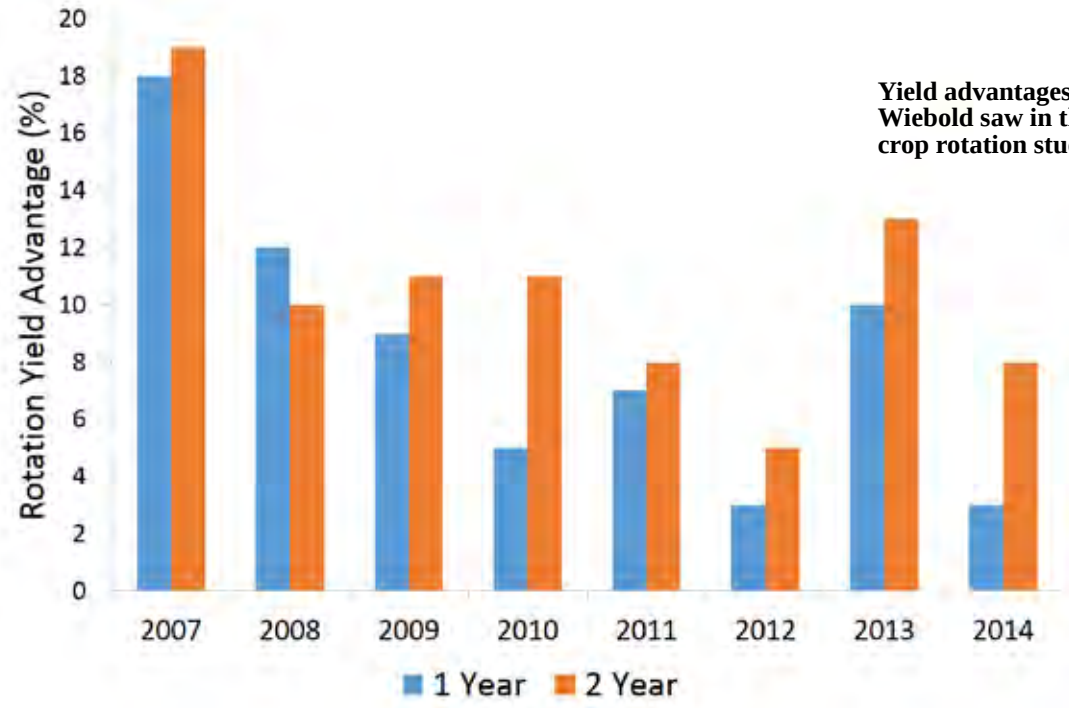
For the past several years my graduate student has monitored the plots for amount of residue and several components of soil health. The soybean-corn rotation produced over 1500 pounds more residue than continuous soybean. Over the life of the experiment, soil organic matter increased from 2.5 percent to 2.9 percent. However, we found little difference among the two treatments for biological activity (estimated by measuring carbon dioxide evolution). We still do not have a clear understanding of how rotation affects soybean yield. But, we know the effect is real.

In 2006, I began another long-term rotation study. In this experiment we added additional rotation treatments including corn-corn-soybean and corn-soybean-soybean. The primary purpose of this experiment was to determine if the rotation effect could be modified by adding an additional year of either corn or soybean. Once again, I found a real and significant rotation effect. Averaged over eight years, the corn-soybean rotation yielded 8.5 percent more than continuous soybean. Yields for soybean following two years of corn were significantly greater than soybean following one year of corn in only two of the eight years. But, there may be a trend in the last several years for an increased difference between the 1-year and 2-year corn treatments.

I've been able to document real and measurable yield advantages for rotation, but in many ways the rotation effect remains a mystery. Beyond yield, rotation spreads out planting and harvesting workload. Rotation offers some weather stability and buffers some of the price fluctuations of a single commodity. Perhaps, just as important is the effect of crop rotation on reducing soil erosion. Unfortunately, Missouri experiences more soil erosion than many of its neighbors. Soybean plants produce sparse residue when compared to corn plants. Soybean plants produce about 50 pounds of residue for each bushel of yield. This means a 50-bushel/acre yield results in just 2500 pounds of residue/acre. It takes 2000 pounds of residue to cover 30 percent the soil surface – a minimum for soil conservation purposes. Even with little or no tillage, soybean residue needs help to protect our most precious resource from erosion. Adding corn and or cover crops adds significant amounts of residue to the cropping system.

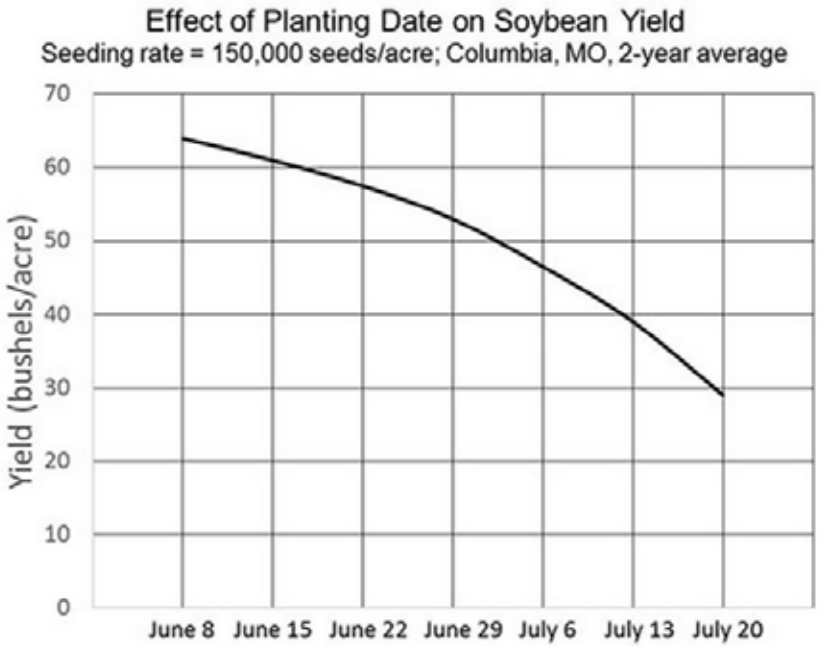
I understand that economic forces affect crop choice. But, part of the economic calculation should include yield differences between rotated and continuous soybean. The economics of other rotation benefits may not be easy to calculate, but they are important considerations.

I very much appreciate the support of the Missouri Soybean Merchandising Council for long-term, practical research. No one is more impatient than I, but studying soybean management over the range of weather conditions Missouri helps us gain a better understanding. And, that makes us wiser so we make better soybean management decisions.



Yield advantages for soybeans Wiebold saw in the long-term crop rotation study.

Managing Ultra-Late Planting



By Bill Wiebold

Sometimes it is difficult to find silver linings on clouds, and the clouds we've seen in Missouri recently have hidden those linings quite well. Missouri farmers are faced with soggy soil and over 2 million acres of bare fields where soybean plants should be flowering. So, what I offer is more like tin than silver.

Because Missouri lies further south than many of its Midwestern neighbors, we have a longer growing season. Later fall freeze occurrences gives us options if we decide to plant soybean on dates that I'll call ultra-late – after July 1.

Many Missouri farmers have experience with double cropped soybean after wheat harvest, so we know that plants will often mature before fall frost and profitable soybean yields are possible. But, as planting continues to be delayed, risks from freezing temperatures and less than profitable soybean yields increase.

For several years after the wet spring of 2008, I conducted an experiment that focused on yield potential of soybean planted in July. The experiment also included seeding rate and row width components. The data have been averaged over two years and two row spacings (15-inch and 30-inch). Because seeding rate affects yield response to planting date I selected data from only the 150,000 seeds/acre rate. The latest planting dates in the study were July 16 and July 20 (2009 and 2010). The variety I used was late MG III for maturity.

In both years, plants matured before frost. The Columbia area did not experience a hard freeze (under 28°F) until October 18 in 2009 and October 29 in 2010. Yield potential averaged over the two years decreased by about 55 percent from June 1 through the July 20. But, average yield was still about 30 bushels/acre when planted after mid-July.

Remember I'm an agronomist and not an economist, so you need to determine profit or benefits from your insurance program. And, my yield information is from a small data set. Finally, weather in late August and early September will greatly affect ultra-late planted soybean yields, and weather is difficult to predict.

Putting Research into Practice

University of Missouri Extension has produced a new website that will help farmers determine chances for fall freezes. Information can be found at http://ipm.missouri.edu/FrostFreezeGuide/index.cfm.

I normally use 28°F as a killing frost. Plant leaves do not freeze at 32°F, but temperatures near 32°F will affect plant growth and may negatively impact tender plant and cell parts. Note that the 30-year average for first occurrence for 32°F is about two weeks earlier than for 28°F. Use the probability number to match your acceptable risk. Most average freeze dates use 50 percent, but that means that in half of the years a freeze event would occur before the date. Using dates associated with 10 percent or 30 percent would decrease the risk of freeze injury to plants.

Soybean yield is protected from frost if the plants have reached R7 or physiological maturity. At R7, seed moisture is about 60 percent and some green color is still present in

Bill Weibold is Missouri's State Soybean Extension Specialist.

in Soybeans

During a late planting season, thinking about harvest is critical to crop success. July is important, but so is October - maybe even moreso.

seeds. If a killing frost occurs before R7, leaves will remain on the plant making harvest more difficult. Soybean seeds will not change from green to normal yellow color, and green beans are often docked at point of sale. This green color may fade with storage, but a change in color is surely not guaranteed.

I have a limited data set in which I determined R7 dates for soybean plants that differ for planting date. Rules of thumb can be misleading, but in general, a three day delay in planting will delay R7 by one day. This is because photoperiod strongly influences soybean maturity. Maturity groups differ for R7 date about eight to ten days. Please be careful how you apply these rules of thumb.

In north Missouri, I determined R7 for three mid MGIII varieties planted on June 6 at Albany for just one year. Average R7 date was September 22. I'm reluctant to extrapolate one-year data or use my rule of thumb for later plantings. But, this is at least some indication that soybean could mature before frost if planted in late June.

In central Missouri, I have two years of data from a study in which I planted four MG III and four MG IV varieties in late June (approximating double cropped date). Averaged R7 date was October 4 and October 11 for MG III and MG IV.

A Note of Caution
In central Missouri, I do not recommend switching soybean variety maturity unless planting is delayed past July 12. Exchanging soybean seed at seed dealers is difficult and carrying over soybean seed to next spring while maintaining vigor is nearly impossible.

Varieties that mature earlier than varieties adapted to a location usually yield less than adapted varieties because they are shorter and produce less leaf area. For ultra-late planted soybean, quickly developing leaf area to capture available sunlight is key to success. But, any decision on what variety to plant or if planting is warranted must be made in consideration of the plants having enough time to mature before killing frost this fall. To improve yield potential, plant in rows as narrow as possible and increase seeding rate at least 30,000 seeds/acre.

Soggy Bottom Blues, Killing the Green

By Linda Geist

The type and location of flooding determines damage to planted crops, says University of Missouri Extension agronomy specialist Bill Wiebold. An understanding of flooding can help farmers consider options and risks.

According to Wiebold, three factors determine how flooding affects plants: water temperature, water motion and flood duration.

First, temperature is related to the speed of respiration. Warm water speeds respiration, so oxygen is depleted sooner.

Second, fast-moving water creates turbulence, which oxygenates the water slightly. This decreases the impact of flooding, but only slightly.

Third, duration of the flood is important because many of the effects of low oxygen on plants are reversible to a point. Plants generally tolerate flooding for two to three days, Wiebold says, but that's not to say they go undamaged. Corn tolerates flooding better than soybean, except when plants are young. In young corn plants, the growing point is near the soil surface, making it likely to be submersed longer. The growing point of the soybean plant is at the tip of the stem and may remain above water.

Flood effects may last long after the water recedes. Soybean plants may turn yellow because nitrogen fixation stops.

Thick claypan soils in northeastern Missouri face the worst drainage problems. The high clay content restricts or prevents the water from moving through the soil, Wiebold says. Only dry days move the water out of the soil.

Prolonged heavy rainfall can cause rivers to rise and block runoff from fields. Rivers and backed-up streams remain above flood stage until water drains through the system. Low areas in fields with slow or poor drainage experience ponding, even if separated from rivers and streams, he says. Ponding usually lasts longer than flash floods because ponded water moves slowly or not at all.

Most damage to plants from flooding or ponding comes from oxygen deprivation. Water in soil (waterlogging) or above the soil surface (flooding) means there is less oxygen for plants to use. Without enough oxygen, the plant grows poorly or dies. In oxygen-deprived crops, changes in respiration can produce several chemicals harmful to the plants.

A soybean crop planted after floodwaters recede can still be profitable, although yields will be lower, Wiebold says. Farmers who plant in July are gambling on a late frost this year. If frosted early, soybean remain green rather than turn a normal yellow. Buyers dock green soybean.

Early Season Soybean Damage

What to Watch For Now

By Laura Sweets

This is another interesting year for soybean production and early season soybean diseases in Missouri. According to the Missouri Agricultural Statistics Service as of May 26, 2015, "soybeans were 20 percent planted, compared to 57 percent for the previous year and 43 percent for the 5-year average". Emergence appears to be slow and uneven in the few planted fields due to cool, wet conditions.

Because weather is a key factor this season, soil-borne pathogens may be contributing to some of the uneven stands and poor vigor in seedlings and may continue to be a problem. A heavy rain event and slow emergence due to compaction could have given Pythium species an opportunity to attack developing seedlings. Plants which are struggling to send out roots and to survive could be targets for Rhizoctonia or Fusarium species. Plants with comprised root systems were more prone to desiccation from warm, drying winds during the recent spell of higher than normal temperatures. Some marginal browning of leaflets, wilting of plants and even premature death of plants may occur in drier areas of fields or across large areas of fields. Thus far this season Rhizoctonia seems to be the most prevalent problem.

Soybean seedling blights have the potential to cause losses in Missouri soybean fields every year. The specific seedling blights that occur and their severity vary with the environmental conditions each season. When checking stands this season, it is important to take into account soil conditions and environmental stress as well as checking for seedling diseases.

Pythium and Phytophthora are favored by wet conditions and are more likely to be serious problems when wet conditions exist at or just after planting. Rhizoctonia and Fusarium are not as restricted by soil moistures and soil temperatures but still need some moisture to initiate infection. Macrophomina phaseolina grows best at temperatures between 82-95°F. Infection of seedlings with Macrophomina is most likely to occur if conditions of high soil temperatures and low soil moisture exist during the first two to three weeks after planting.

Symptoms of Pythium damping-off range from seed rot or preemergence damping-off to early postemergence damping-off. Affected tissue develops a soft, watery brown rot. Pythium damping-off is most likely to occur in cool (50-55 degrees Farenheit), wet soils.

Proper disease identification is key.

Phytophthora can cause seed rot, preemergence damping-off and early postemergence damping-off. Initially affected tissue develops a soft, watery brown rot. Within several days the affected plant parts may dry out and shrivel up becoming dark, dry and brittle. This early stage Phytophthora is difficult to distinguish from Pythium damping-off. Phytophthora can also cause a seedling blight in which established seedlings turn yellow, wilt and die. Generally the entire seedling is affected and roots may be poorly developed and rotted. Phytophthora root rot is more likely to occur in heavy, wet soils, low areas or compacted areas, but it may occur in light soils or better drained areas if heavy rains occur after planting.

Rhizoctonia can cause seedling blight and root rot of soybean. Affected stands may have an uneven appearance and seedlings appear pale green in color and stunted in growth. The identifying feature of this disease is a small, reddish lesion on one side of the stem at or just below the soil line. This lesion develops into a sunken, cankered area at the point of infection. Sometimes the lesion will expand to completely girdle the stem. On severely infected seedlings, the entire hypocotyl may be discolored and shriveled into a dry, stringy or wiry stem.

Fusarium can also cause root rot of soybean. Infection is usually confined to roots and lower stems. The lower part of the taproot and the lateral root system may be discolored, deteriorated or completely destroyed. General roots show a nondescript brown discoloration and a dry, shrunken rot. Above ground portions of plants may appear off-color and stunted. Plants with severe Fusarium root rot may die prematurely.

Once the crop has been planted, there is little that can be done to reduce incidence or severity of soybean seedling diseases. Additional stress from poor growing conditions, herbicide injury or other factors may compound problems with soybean seedling diseases. Prior to planting it is important to consider variety selection (especially in fields with a history of Phytophthora), fungicide seed treatment, crop rotation, seedbed preparation and conditions at planting.

Laura Sweets is an extension association professor in plant pathology at the University of Missouri. She is a member of the Integrated Pest Management team and works with the Commercial Agriculture Program.

Measuring the impact of checkoff investments includes ensuring the farmers' voices continue to define success.

Checking on the Checkoff

By Austin Smith

Jim Palmer was the first administrator for the United Soybean Board (USB), serving as the acting administrator, financial director and the executive director in the course of establishing USB in St. Louis following the passage of the 1990 Farm Bill. In March 2013, Jim Palmer received an Outstanding Achievement Award from the national organization he helped found in Missouri. He was recognized not only for his leadership of the national checkoff, but also for his service to several state soybean boards and other agricultural organizations.

Now, as we look back on the 25 years of the soy checkoff, there are many ways to measure the impact of Palmer's leadership during the early years of the USB. If you were to ask him, he'd say that success depended upon coming together.

Today, the United Soybean Board and the soy checkoff are led by a group of 70 volunteer farmer-directors under the objective of investing farmers' dollars in ways that maximize profit opportunities for all U.S. soybean growers. Half the funds paid into the soy checkoff are administered by USB, the other half of the funds go to state-specific programs. In Missouri, the checkoff is overseen by the Missouri Soybean Merchandising Council (MSMC) and a thirteen-member board of directors.

When Palmer began working toward a National soy checkoff program in 1989, the soybean industry looked much different than it does today. At that time, the industry was not generating enough financial resources for investment, he said. So, he and other industry leaders set out to develop a system to provide for investments in new uses for soybeans, in research on new varieties and genetics, and in market promotion and education.

The average return on investment for the soy checkoff has grown over the years since its inception. Currently, every dollar paid into the soy checkoff generates a $5.20 return on investment in the form of market prices, new public soybean varieties and many other avenues – all directly impacting growers' bottom line.

Measuring the success of the soy checkoff continues to rely on Palmer's early guidance that making an impact depends on coming together behind common goals. Each year, the United Soybean Board surveys soybean farmers, asking questions about the checkoff – from its effectiveness in their community, state and region, to their awareness of specific checkoff programs. Survey questions also explored overall support for the checkoff model and left room for growers to share their thoughts on future priority areas.

Early this year, about 400 Missouri soybean farmers were surveyed as part of that process. The results show strong support for the soy checkoff in Missouri. Many farmers also reported seeing a positive impact on their bottom line as a result of checkoff-funded efforts.

Survey questions followed the priority areas the USB farmer-directors set during their annual and long-term planning processes, focusing on the soybean value chain for meal and oil, on ensuring that producers continue to have the freedom to operate on the farm and across industry, and on producing soy that meets the needs of a broad customer base.

Advancements in production techniques are a significant area of focus. The survey asked farmers about the greatest threat to continuing to farm in the same manner. Nearly a third of Missouri soybean farmers indicated increasing input costs as their highest concern and highlighted increased efficiency as one of the keys to combating rising input costs.

Checkoff-supported research has been key in addressing those concerns. Of the farmers surveyed, improved production practices were the top response for how the checkoff has been helpful. Advancements in yield, weed and pest control, disease resistance, and compositional seed traits were among some of the most prevalent responses growers see making an impact on their bottom line.

The Missouri Soybean Merchandising Council has set research as a high priority for checkoff investments. This

Austin Smith is a student at the University of Missouri, where he is studying agricultural economics and has already completed a degree in agricultural education. Smith is from East Prairie, Mo.

Jim Palmer receiving his Outstanding Achievement Award at Commodity Classic.

year, the MSMC board of directors has funded more than 40 state-specific research projects, focused on soybean breeding, non-transgenic varieties, flood and drought tolerance, as well as resistance to diseases and pests – including Soybean Cyst Nematode.

Missouri's research program has seen some big wins this year, including the recent announcement about a new high oleic variety (see page six for more details). In May, research by USDA and the University of Missouri, supported by checkoff dollars, led to a patent for a new non-transgenic soybean variety that exceeds the industry standards for high oleic acid content. Oil from high oleic soybeans has a neutral taste and remains stable at high temperatures, making the oil more suited for cooking, baking, and industrial use. It also helps to address concerns about trans-fats across the food industry, potentially opening new markets for soybean oil.

Soybean oil has been one of the success stories of the soy checkoff in Missouri and nationwide. Survey results reflected that, as growers recognize biodiesel as a primary market for oil from Missouri-grown soybeans. Missouri's on-road biodiesel usage is roughly one billion gallons per year, according to figures from the U.S. Energy Information Administration. Nine Missouri biodiesel plants are reporting production numbers to the National Biodiesel Board (NBB) and biodiesel production in Missouri was just under 200 million gallons last year, according to the most recent data available from the NBB.

Historically, the soybean oil market was not as strong as it is today. The soy checkoff has had a lot to do with its growth, according to Palmer. In fact, prior to the formation of the checkoff, one of the suggested uses for soybean oil published in this magazine, Missouri Soybean Farmer, was dust control on gravel roads. New and expanded uses for soybean oil have increased demand 85 percent over the last decade – and created far more opportunities for producers to add value by marketing soybean oil.

Modern biodiesel research began as a partnership between the University of Missouri and the MSMC in the early 1990s, followed by the formation of NBB in 1992. Since that time, biodiesel has grown into a 1.75 billion gallon industry in the U.S. Missouri biodiesel plants contributed nearly 200 million gallons to that total. A past study led by USB found that 74 cents of the price for every bushel of soybeans sold between 2006 and 2012 was a direct result of the increased demand for biodiesel.

Beyond biodiesel, the USB survey asked growers to identify other uses for U.S. soybeans. Responses included inks, health food products, and plastics. Soyfoam automotive seats were also a popular response from soybean farmers – likely in part because of the decision by Ford Motor Company to use soyfoam in all 2015 model vehicles. The reach of the checkoff programs goes beyond those accomplishments, however. Before the creation of the soy checkoff, Palmer and many of his counterparts viewed the lack of international marketing as a major threat to the industry, he said. Twenty-five years later, the United States is the top supplier of the world's soybean demand, exporting over 1.7 billion bushels in 2014. Many of the farmers surveyed said that they have seen that development and expansion of international markets with 81 percent indicating that the soy checkoff was a significant contributing factor.

The Chinese market for U.S. soybeans was the most noted area of growth due to checkoff funds. Other areas of growth indicated by the survey were Japan, Korea, Taiwan, as well as other Asian countries. While Asia dominates the market for U.S. soybeans, the continued efforts of the soy checkoff have also garnered considerable market growth in other regions of the world.

According to the USDA, the soybean industry has grown from a total value of $11 billion in the first year of the checkoff to a $40 billion value in 2014. This program has helped develop advanced seed genetics and better production practices, which increases efficiency and lessens the impact of input costs. The checkoff has also advanced the use of soy-based products through promotional activities and outreach programs. Their promotions have also developed foreign and domestic markets providing outlets for soybean farmers in Missouri and across the nation. This is something that Palmer takes pride in knowing.

"I am extremely proud of what we were able to accomplish, but always remember that it starts with the farmers," he said.

Survey Highlights

When farmers were asked about threats to continuing to farm in the same manner:
- **33% said input costs**
- **21% said governmental regulations**
- **20% said increasing threats from weeds and pests.**

81% of those surveyed believe that the checkoff has helped expand or develop international markets.

59% of respondents said they view China as the most expanded market as a result of the checkoff.

67% of respondents reported having herbicide resistant weeds in their fields.

62% of farmers said they would support a price-based system for improving the protein and oil content.

Tearing Up Ground

Feral hogs are more than a nusiance - these pigs can cause major damage to crops, waterways and fences. Small stature does not mean small impact with these animals.

By Tim Kavan and Christine Tew

The average feral hog weighs in at 110 to 130 pounds and stands about three feet tall at the shoulder. The largest can grow to weigh up to 400 pounds with a thick coat of coarse, bristly hair along their spines and two pairs of tusks that grow continuously throughout the animals' lives.

Even at just over a hundredweight, feral hogs are more than capable of wreaking havoc on farmland, creeks and streams, other wildlife and crops ranging from soybeans and corn to forages and backyard gardens. It's that ability that makes feral hogs a serious concern for farmers, outdoor enthusiasts, landowners and biologists – and that makes eradicating feral hogs a priority for the Missouri Department of Conservation (MDC) and its partners.

It has been determined that the majority of feral hogs in Missouri are mutts with genetic combinations that include Russian or Eurasian wild boar (razorbacks), an assortment of domestic varieties such as Yorkshire, Hampshire or Duroc and even pot-bellied pigs. They are opportunistic omnivores, meaning they eat whatever plant and animal matter is available. They'll consume eggs of ground-nesting birds like northern bobwhite quail and wild turkey, calves, fawns, lambs, goats, small mammals, roots, bulbs and even their own young.

Feral hogs' rooting and feeding behavior also contributes to soil erosion, reduced water quality, and damage to cropland, pasture and hayfields. They root up large areas of soil and fields in search of food. They seek out moist areas to wallow in the cooler soil to keep cool because they do not sweat. They also promote contamination of streams via erosion and with their feces.

Not only do feral hogs earn the credit for physical damage to land and waterways, they also have potential to spread disease and parasites to people, pets, livestock and wildlife. Missouri's pork industry is especially susceptible to diseases carried by feral hogs, including Brucellosis, which was eradicated from Missouri's pork industry more than 20 years ago, according to the Missouri Department of Agriculture.

Tracking and Trapping

Meeting the challenge of eradicating feral hogs is no small feat. In Missouri, establishing partnerships with landowners has been key. Hog hunting is not an effective method of controlling feral hog populations due to their prolific breeding and tendency for a group of hogs, also known as a sounder, to scatter and move to new areas when pressured. There are currently no toxicants, fertility agents or biological control chemicals registered for the control of hogs in the United States.

Trapping feral hogs has been effective and is the preferred method for MDC and many of their landowner partners. Success with managing populations by trapping feral hogs typically outpaces hunting as a hunter may take only one or two hogs. The objective in trapping is to remove the entire sounder.

In 2012, the Missouri Department of Conservation, Missouri Conservation Heritage Foundation (MCHF), Missouri Soybean Merchandising Council (MSMC) and the Pemiscot County Soil and Water Conservation District (SWCD) came together in a joint effort to provide funds to purchase specialized traps, cameras, and a UTV to assist MDC staff and private landowners with eradication efforts. The partnership proved to be a huge success by removing 26 feral hogs in a couple of months as compared to 28 hogs being removed in the previous two years.

Trapping assistance can be obtained by contacting MDC, U.S. Department of Agriculture-Animal and Plant Health Inspection Service-Wildlife Services (USDA-APHIS-WS), or the U.S. Forest Service. These agencies work with private landowners toward the eradication of feral hogs by loaning trap gates, providing technical assistance, or putting up snares in some locations.

Putting It Into Practice – Trapping Feral Hogs

While trapping is the most common and efficient method for catching hogs, selecting a good location and properly

Tim Kavan is a private land conservationist with the Missouri Department of Conservation, based in New Madrid, Mo.
Christine Tew is an employee of the Missouri Soybean Association and Merchandising Council, originally from Scott County, Mo.

setting the trap can greatly increase its effectiveness. In this situation, success begins with scouting. Begin with an aerial overview of the property showing how resources – from forest areas to crops to waterways - are distributed across the landscape. Photos can be obtained through the U.S. Department of Agriculture or software such as Google Earth. After reviewing the aerial photos, dirtying a pair of boots is the next step. On site scouting for damage caused by rooting and other feral hog behaviors is necessary for effective trap placement. A popular approach often recommended to landowners is to place traps along trails to and from rooting areas, ideally where feral hogs are entering the property, and to use existing landscape features to conceal the trap as much as possible.

Feral hogs' rooting behavior can result in significant damage to land, crops and waterways, as well as damage to on-farm structures like fences.

When trapping feral hogs it is important to pre-bait prior to any trap installation. Pre-baiting will attract animals and acclimate them to entering the trap itself. Start by soaking corn in water for one week causing it to sour. The sour corn's strong odor should largely deter other animals from feeding on it. Place the bait in the predetermined trap location and install a game camera for monitoring purposes. As the hogs begin to routinely come to the bait site, construct the trap without the gate and continue pre-baiting inside the gate opening and inside the trap until the entire sounder is comfortable entering the trap. When trapping, place bait all the way back to the trigger. Do not scatter bait directly along the trip wire, as this may cause the hogs to trigger the gate before all of the animal's enter the trap. The objective in a trapping operation is to not spring the trap or otherwise close the gate until the entire sounder of feral hogs is inside the trap.

Trapping tips:

- Build or use large traps; the bigger the better.
- Avoid leaving human scent in and around traps.
- If possible, check the traps from a distance.
- Share gates with your neighbors. Install the gate only after the ALL the hogs respond to pre-baiting.
- Trapping feral hogs is a process, not a single event. Be persistent!
- If successful, shoot and remove hogs as soon as possible and begin the re-baiting process as soon as possible. It might take several weeks for hogs to return to the trap.

Want to know more? The Missouri Department of Conservation has a field guide to feral hogs online at http://mdc.mo.gov/discover-nature/field-guide/feral-hog.

How Did Feral Hogs Become a Problem for Missouri?

Feral hogs have been roaming the countryside in the southern part of the state since early settlement. These populations were isolated and kept in check by area farmers and local hunting efforts. Populations began to rise during the 1990s, when recreational hog hunting began to gain popularity. Some individuals started raising European wild boars as a form of alternative agriculture and for hunting on licensed shooting areas. Unfortunately, it was not long before some of these hogs escaped or were intentionally released on public and private lands.

Feral hog populations are now established in more than 30 southern Missouri counties. In general, feral hog numbers are relatively small and limited to southern Missouri.. However, larger populations can be found on public and private lands in the Ozarks and southeast regions. Feral hogs are very prolific breeders. Sows begin breeding at six months of age and can potentially produce up to two litters of four to 10 piglets every 12 to 15 months. Given their high reproductive potential, the feral hog population can double in about four months. Feral hogs also have no natural predators on the landscape. An occasional piglet might be predated by a coyote or bobcat but once they reach 15-20 pounds they are pretty well able to fend off any attempt to be eaten. These survivability attributes contribute to increased populations and heighten the challenge of eradicating hogs in Missouri. Feral hogs are able to maintain a stable population even with 70 percent yearly population loss.

The Changing Face of Farming

Women and minorities continue to become more involved on the farm, the need for young farmers remains a hot topic. Now's a great time to get involved!

Agriculture has evolved over the last 10 years in many facets, including technology, equipment and best practices. Another way that it has changed is the number of farmers from different backgrounds who are now the main decision makers in their operations.

Women farmers are one of the most rapidly growing segments of the nation's changing agricultural landscape. According to the U.S. Department of Agriculture's Economic Research Service, the number of woman-operated farms more than doubled between 1982 and 2012. Add primary and secondary operators, and nearly 1 million women are farming, accounting for 30 percent of U.S. farmers.

Furthermore, 14 percent of the nation's 2.1 million farms and 22 percent of its 369,332 oilseed farms had a female principal operator in 2012.

According to the U.S. Department of Agriculture's National Agriculture Statistics Services, the number of minority and young farmers is also increasing, with African American and Hispanic farmers increasing by 12 and 21 percent, respectively, from 2007 to 2012. In that same time frame, the number of American Indian farmers increased by 5 percent.

The average age for farmers in Missouri, and across the U.S. has continued to increase, however. Addressing the need for new farmers, as well as the growing numbers of women and minorities in agriculture, is a priority.

The United Soybean Board, along with the 31 states and regional soy checkoff boards, is working closely with USDA to engage more farmers from diverse backgrounds in the soy checkoff family.

Women and minority farmers are part of the resurgence in agriculture that is bringing renewed spirit to communities and the economy, creating jobs and forging strong connections among farmers, businesses and consumers.

It's important to the farmer-leaders of the soy checkoff to continue to represent the farmers they serve, and that means continuing to focus on diversity at the local, state and national levels.

Interested in getting involved with your Missouri Association and Merchandising Council? Contact your local board member or the Missouri Soybean office online at mosoy.org or by calling (573) 635-3819.

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 and get involved today, or visit www.UnitedSoybean.org/GetInvolved.

Our Soy Checkoff
Progress Powered by U.S. Farmers

Missouri Soybeans

Missouri Soybean, Corn Investing in Stewardship, Sustainability

Two of Missouri's agricultural organizations, Missouri Soybean and Missouri Corn, are growing their involvement in environmental and sustainability programs with the addition of a shared team member focused on those and other stewardship programs.

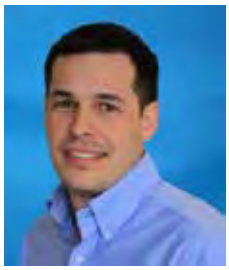
Darrick Steen, a lifelong Missourian, began work full time in July on behalf of farmers raising the state's top crops.

In his role as the director of environmental programs, Steen will represent Missouri's soybean and corn growers on important issues, oversee stewardship programs and serve as a technical resource. He'll work closely with other state and national agricultural organizations to ensure Missouri's producers continue to be actively engaged in discussions about best management practices, water quality and soil health programs and other stewardship activities.

"We're continuing to build the team to best serve our growers," said Gary Wheeler, executive director and CEO for the Missouri Soybean Association and Merchandising Council. "Darrick's combination of personal and professional experience makes him a great asset to Missouri agriculture and the farmers will benefit from having him as both their advocate and resource."

Steen, along with his wife Courtney and their children, owns and operates a farm in Miller County in addition to his work on behalf of Missouri farmers. He is a graduate of the University of Missouri, from which he earned a degree in agricultural engineering.

Prior to joining the teams at Missouri Soybean and Missouri Corn, Steen worked on agricultural regulatory, permitting and environmental impact issues for the Missouri Department of Natural Resources and Barr Engineering Co. He is a licensed professional engineer.



Darrick Steen

To learn more about stewardship, sustainability and environmental programs from Missouri Soybean and Missouri Corn, visit the organizations online at MoSoy.org and MoCorn.org, or contact Darrick Steen at DSteen@MoSoy.org.

At MoSoy, Interns Learn by Doing

The Missouri Soybean Merchandising Council has three interns to assist with projects and programs this summer. Charlotte Burgess began her internship in May, Lindsey Robinson and Austin Smith started in June.

All three are based in Jefferson City, but will be visiting growers and industry partners across the state throughout the summer. They'll also represent Missouri Soybean during the 2015 Missouri State Fair in Sedalia.

Charlotte Burgess, of Owensville, will be focused on policy and membership projects this summer. She'll be traveling with the Industry & Producer Relations staff, meeting with growers and checkoff remitters. Charlotte is entering her senior year at the University of Missouri, where she will be completing a degree in plant science with an emphasis in greenhouse production.

Lindsey Robinson, of Wellsville, will be focused on communications, social media and education projects this summer. She'll work on developing biographies for all board members, preparing magazine content and youth programs. Lindsey just finished her freshman year at the University of Missouri, where she is studying science and agriculture journalism.

Lindsey Robinson, Austin Smith and Charlotte Burgess

Austin Smith, of East Prairie, will be focused on communications, outreach and administrative projects for the summer. He'll work primarily on data analysis and preparing talking points, handouts, etc. Austin has completed a degree in agriculture education from the University of Missouri and is currently finishing a degree in agriculture economics.

Honor Wall

Good news from those working on behalf of Missouri soybean farmers

Soybean Board Election Results

Election results are in for the Missouri Soybean Merchandising Council board of directors. Thank you to all who took time to vote and congratulations to the winners. Re-elected to the Council are District 1 Director Cecil Demott of Rockport, District 3 Director Tim Gottman of Monroe City and District 7 Director Pat Hobbs of Dudley. New to the Council is Kyle Durham, representing District 2. Durham takes the place of Rex Wood, Meadville, who is retiring due to term limits.

Rex Wood

In addition, Missouri Soybean Association held several director elections at regional winter meetings, which spanned from January to March. Re-elected to the board were: District 1, C. Brooks Hurst, Tarkio; District 2, E.L. Reed, Chillicothe, District 3, Matt Wright, Emden; District 4, Neal Bredehoeft, Alma and District 6, Warren Stemme, Chesterfield. Peter Rost, Jr, of New Madrid has been newly elected to represent District 7, replacing Cindy Faulkner who retired from the board earlier this year.

Recognized for Visibility

Two CAFNR faculty members honored for research involving soybeans

Two University of Missouri faculty members, both in the College of Agriculture, Food and Natural Resources, were recognized by the American Society of Plant Biologists as authors of the most highly cited papers published between 2009 and 2013 in Plant Cell and Plant Physiology, two top journals in plant biology.

Gary Stacey

Included in the prestigious list are Gary Stacey, Curators Professor of Plant Sciences, Joint Curators Professor of Biochemistry, associate director of the National Center for Soybean Biotechnology, and researcher in the Bond Life Sciences Center; and Shuqun Zhang, professor of biochemistry and researcher in the Bond Life Sciences Center. In all, 24 researchers from North America made the list.

"Few institutions have two faculty members in the list of most cited," said Gerald Hazelbauer, director of the Division of Biochemistry. "We are proud of Drs. Stacey and Zhang for their far-reaching contributions to their fields."

The ASPB Top Authors list includes 13 papers authored by Stacey. His research focuses generally on molecular aspects of plant–microbe interactions, including studies of the beneficial legume–rhizobium symbiosis and plant–fungal pathogen interactions. He has also been instrumental in the development of genomic resources for the study of soybean.

Shugun Zhang

"This ranking was based on the number of citations that my papers received, which is a rough measure of whether people are reading my papers and finding them useful in their own research," Stacey said. "Hence, it is gratifying to learn that people are making note of the work that we are doing."

Zhang had five papers in the ASPB Top Authors list. Shuqun's primary research is aimed at understanding, at molecular and cellular levels, how mitogen-activated protein kinase (MAPK) signaling cascades regulate plant growth, development and immunity downstream of cellular receptors/sensors.

To learn more, visit the University of Missouri's College of Agriculture, Food and Natural Resources online at cafnr.missouri.edu.

Missouri FFA Award

Payden Thompson of Stewartsville, Mo., won the Missouri FFA Fiber and/or Oil Crop Production Entrepreneurship and Placement Proficiency Award at the 87th Missouri FFA Convention. The recognition was sponsored by the Missouri Soybean Merchandising Council, and Trina Stumpe was on hand to present the award.

Trina Stumpe and Payden Thompson

Thompson grew up as a seventh generation farmer. Thompson's supervised agricultural experience consists of planting, spraying and harvesting his crops with the equipment he rents from his father.

Thompson plans to study agribusiness at Northwest Missouri State University in Maryville, Mo. He hopes to eventually purchase land and start his own farm.

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 Entrepreneurship and Placement Combined is one of 50 proficiency award areas recognized at the state level.

Engemann joins MRRIC

Congratulations to Dan Engemann of the Missouri Soybean Association and Missouri Soybean Merchandising Council. Engemann has joined the Missouri River Recovery Implementation Committee, also known as MRRIC. He joins leaders from states adjacent to the river in addressing federal actions on the river, from projects involving pallid sturgeon to flow alterations.

Big honor for Study of Little Pest

Melissa Mitchum, associate professor of plant sciences in the MU College of Agriculture, Food and Natural Resources, has received the American Phytopathological Society's 2015 Syngenta Award for outstanding contributions to teaching, research or extension in plant pathology.

Melissa Mitchum

The awards banquet for this honor will be August 1 at the APS meeting in Pasadena, Calif. Mitchum will receive an engraved award and a $1,500 honorarium from Syngenta Crop Protection.

"This award is important to me because it is an award from my colleagues," Mitchum said. "I've been blessed to have fantastic mentors, wonderful and supportive colleagues, and outstanding staff, students and post-docs throughout my career. None of these research discoveries would have been possible without them."

The major focus of research in Mitchum's lab is the molecular basis of plant-nematode interactions with an emphasis on the interaction between the soybean cyst nematode and its host plant, soybean. Soybean cyst nematode is consistently the most damaging U.S. soybean pest, causing more than $1 billion in crop losses annually.

Mitchum received a B.S. degree in biology from the University of Puget Sound in 1993, an M.S. degree in plant pathology from the University of Nebraska in 1995, and a Ph.D. degree in plant pathology from North Carolina State University in 2001. She then spent two years as a post-doctoral research associate at Duke University before being hired as an assistant professor at the University of Missouri in 2003 to develop a program in plant nematology. Nematology is the study of nematodes, or roundworms. She is a faculty member in the Division of Plant Sciences and the Bond Life Sciences Center.

APS' announcement of the Syngenta honor recognizes Mitchum's "multiple significant discoveries that have resulted in seminal publications within the discipline of plant nematology — they represent exceptional professional achievements for an individual at this stage of her career."

They Started at Soybean

Many students have gained valuable experience as college interns with the Missouri Soybean Merchandising Council and Missouri Soybean Association. This feature follows some of those outstanding people who are now making a difference for agriculture as young professionals.

By Lindsey Robinson

Experiences in 4-H and FFA lead many students to choose a career in agriculture. Former Missouri Soybean intern, Kelly Christopherson, knew she wanted to work in agriculture after being active in her local 4-H and FFA Chapter. With an interest in public relations, she says the internship at Missouri Soybean was exactly what she was looking for to gain experience.

Christopherson grew up around agriculture on her family's pecan growing operation in Waverly, Mo., where they have 150 irrigated pecan trees. Her family harvests and sells pecans to local farmer's markets and grocery stores. In high school she served as the Santa Fe FFA Chapter President and was an Area officer her senior year.

"I began at Northwest Missouri State University where I started out thinking I wanted to be an ag teacher and went that route," she said. "However after gaining more experience, when I transferred to Mizzou I decided Agriculture Education-Leadership was a better fit where I could focus on public relations, writing, and marketing."

When Christopherson started college at the University of Missouri, she joined the Independent Aggies and served in officer positions leading up to vice president. Throughout her junior and senior years, she worked to involve the club with the Sale of Champions at the Missouri State Fair supporting youth in agriculture. Christopherson graduated from the University of Missouri in December 2007 with a degree in agricultural education.

During the Fall 2006 semester, she worked as the public relations intern under the direction of then-communications director Haley Wansing. While she was an intern, Christopherson wrote several articles for Missouri Soybean Farmer magazine. One of the main projects she worked on was helping with the Mid America BioFuels grand opening in Mexico, Mo.

"During my internship the Missouri Soybean Association (MSA) and Merchandising Council was just kicking off the effort to start the sale of biofuels. At the time it was a brand new idea," Christopherson said.

She also worked with the startup of the fundraising efforts for Paseo BioFuels in Kansas City.

Overall, she says the highlight of her internship was interviewing Kip Cullers right after it was announced that he had broken the yield record for soybeans.

Kelly Christopherson

"To be the first to talk to him about his insights on what he had done differently and how he reached record breaking yields and his plan on how he was going to go even farther was interesting," says Christopherson. "Then I got to watch every year and see his plan be put to work, expand, and really see it grow."

Currently, she works for Cargill Ag Horizons in Kansas City as a crop insurance agent using some of the public relations skills learned at Missouri Soybean. She says she wanted to be close to agriculture and producers and found her way to a career in crop insurance. While initially she didn't know much about crop insurance, after a long year of hard work learning about the business, she's never looked back.

"It's what I'm good at, you're helping a producer and you're talking to guys everyday about operations on their farms," said Christopherson.

From her days as a Missouri Soybean intern, Christopherson has come full circle as she now works with farmers who sell grain to the soybean crushing facility adjacent to Paseo Biofuels. She says she really enjoyed working with the staff at the Soybean Association who made it fun to come to work each day.

"It was a really exciting time to work at MSA as we worked to kick off biofuel and biodiesel and really get rolling with it."

Today, Christopherson lives close to home in Lexington, Mo. and tries to get back home regularly to help her parents with their pecan growing operation, Chris' Pecans.

Lindsey Robinson is an intern with the Missouri Soybean Association and Merchandising Council. She is from Wellsvile, Mo., and is studying science and agriculture journalism at the University of Missouri.

Internships at the Missouri Soybean Association and Missouri Soybean Merchandising Council give students experience they need to be prepared for careers in their chosen field. By working with Missouri farmers and helping them get the most out of their soybeans, students have an opportunity to make an impact in the agriculture industry. For Cara Riekhof, the skills and relationships she formed as an intern through Missouri Soybean stayed with her over the years. Today, she puts them to work in Lafayette County with her husband, Garrett, on their family farming operation, GR Farms.

Cara Riekhof and her family

Raised on a diversified crop and livestock farm in Higginsville, Mo., Riekhof discovered a passion for agriculture as a member of 4-H and FFA, showing cattle throughout the Midwest and participating in speaking contests. Riekhof attributes the success she has today to a solid foundation she built growing up in the agriculture industry and through experiences in high school and college.

Riekhof found the perfect fit at the University of Missouri in the agricultural journalism program after realizing her passion for speaking to groups and working with agriculture. At Mizzou, she became involved in numerous student activities serving as the College of Agriculture, Food and Natural Resources (CAFNR) Student Council President her senior year of college. Through programs within the College of Agriculture, Food and Natural Resources, she was able to gain firsthand experience with agriculture in other states and countries, as well as in Missouri.

During the 2002 school year, Riekhof served as the public relations intern for the Missouri Soybean Association and Merchandising Council under then-communications director Stephanie Gable.

"I met Stephanie Gable through working at Mizzou and she introduced me to the internship program they had at Missouri Soybeans," says Riekhof. "At the time, I was the Missouri State 4-H President and Dale Ludwig, former CEO/Executive Director, was on the 4-H Foundation board, so I had become familiar with the work the Association did."

Throughout the school year, Riekhof wrote newsletters, press releases, and attended farmer meetings across the state. She also had the opportunity to work with the Missouri Department of Elementary and Secondary Education's Lisa Evans on education curriculum to promote soybeans and their byproducts to consumers.

"I was just trying to get my feet wet with marketing and public relations," says Riekhof. "Missouri Soybean was a place I felt I could get a good experience from as a membership based program with their ability to reach multiple areas of the industry."

One of the stand out memories that Riekhof had of her time at Missouri Soybean was the huge three ring binder that Gable used to hold all of her business cards and contact information. Noting that we don't even need the three ring binder anymore, Riekhof says it shows how times are changing and advancements being made in agriculture and other sectors are making many more efficiencies.

After graduation, Riekhof used the public relations skills she learned at MSA and joined KMZU radio as farm director and was on the air for three years. She went on to serve as the dealer development manager for HeartLand Farm and Lawn before deciding to dedicate more time to her family. In 2008, Riekhof joined the family business, Crop Insurance Solutions, where she works as an agent and office manager alongside her in-laws serving farmers in Western Missouri and Eastern Kansas with crop insurance products. Riekhof says she enjoys working in the family business and also helping at home with the farming operation.

"While I still work with my in-laws at the agency, the farming operation Garrett and I run is unique because we have made the full generational transition from father to son whereas a lot of farmers who return home work alongside the previous generation," Riekhof says. "Still, today as a farmer I use some of the network and skills I learned during my internship."

Riekhof currently lives in Higginsville, Mo. with her husband and two daughters. The couple is expecting their third child in September.

Finding Our CommonGround

As planting season gives way to summer, Missouri's CommonGround volunteers are making a point to share their on-farm experiences with consumers across the state. Outside Rolla, the Brown family has been making hay while the sun shines and mom Laura found a great way to get the word out about safety on the road. In a Facebook post, she asked everyone to remember that it's her husband and sons in that slow moving equipment. Volunteer Kristi Sutton talked about the way recent wet weather has impacted her family cattle operation, including requiring special attention to ensure their cows and calves remain healthy and have safe footing. In northern Missouri, Brookfield-area mom Kate Lambert opened up about her family, their farm and their choices about raising crops and livestock in the June issue of *Missouri Life* magazine. Volunteer Kelly Marshall of Maysville has been talking about the challenges their multi-generation family farm has faced this planting season as well. Check out her blog online at DaddysTractor.com.

Want to know more? Visit us online at findourcommonground.com, on Facebook at Missouri CommonGround or on Twitter by following @MoCommonGround.

CommonGround is a grassroots movement made up of farm women, creating conversations about farming and food. Volunteers address animal care, GMOs, farm safety, family farms, food prices, antibiotic use, hormones and more through their experiences, connecting with those who otherwise might not have such a personal experience with agriculture.

Kids' Corner

Like what you see in this section? Have ideas? Let us know!

Activities are also available in the Missouri Soybean Merchandising Council's activity booklet. Request a copy by calling (573) 635-3819 or via email to ctew@mosoy.org.

Make Your Own: Soy Smoothie

Work with an adult to try soymilk using this sweet recipe.

Ingredients
1 cup Vanilla Soymilk
1 cup Frozen Berries
1 Bananna (sliced)
1/2 cup Ice Cubes
1 tsp. Honey

Directions
Puree all ingredients in a blender on high until smooth. Enjoy immediately.

Recipe courtesy of the United Soybean Board.

ATTORNEY GENERAL CHRIS KOSTER SUES EPA, ARMY CORPS OF ENGINEERS

The new rule would expand the scope of clean water regulations to lands that are dry much of the year, and increase the federal government's authority to control land use in Missouri.

Missouri Attorney General Chris Koster has joined with 12 other states to sue the Environmental Protection Agency (EPA) and the Army Corps of Engineers (Corps) over the EPA's new rule defining "Waters of the United States" under the Clean Water Act.

Missouri Attorney General Chris Koster

In the lawsuit, filed June 29--the same day the rule was published in the Federal Register--the states contend the new definition of "Waters of the United States" violates provisions of the Clean Water Act, the National Environmental Policy Act, and the United States Constitution. The suit seeks to declare the rule unlawful and to prohibit the agencies from implementing it. Koster said that without such a ruling, the law would take effect 60 days after the rule was published.

The states assert that the EPA's rule wrongly broadens federal authority by placing a majority of water and land resources management in the hands of the federal government. Congress and the courts have repeatedly affirmed the states have primary responsibility for the protection of intrastate waters and land management, according to Koster. In the lawsuit, the states argue that the burdens created by the new EPA requirements on waters and lands are harmful to the states and will negatively affect farmers, developers, and landowners.

Koster said that he is concerned that the agencies' definition of "waters of the United States" goes far beyond what a reasonable person would consider to be a waterway. Koster noted, for example, that the new rule defines tributaries to include ponds, streams that flow only briefly during or after rainstorms, and channels that are usually dry. The definition extends to lands within a 100-year floodplain – even if they are dry 99 out of 100 years.

> **"Missouri farmers will be particularly harmed by the federal government's restrictions on how their land can be used."**
> **--Missouri Attorney General Chris Koster**

"The EPA and the Army Corps have exceeded their legal authority in defining what constitutes U.S. waterways," Koster said. "If this change becomes law, thousands of acres of privately owned land in Missouri will suddenly be subject to federal water regulation. Missouri farmers will be particularly harmed by the federal government's restrictions on how their land can be used."

The lawsuit was filed in the United States District Court for the District of North Dakota. In addition to Missouri, the other states jointly filing the lawsuit are Alaska, Arizona, Arkansas, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, South Dakota and Wyoming.

Chris Koster is Missouri's 41st Attorney General. He was sworn into his second term in that office in 2013. Prior to serving as Missouri's Attorney General, Koster served in the Missouri Senate and as the Cass County Prosecuting Attorney.

Soybean Update: State & Federal Policy

By Dan Engemann

When Missouri's legislative session wrapped up and members of the 98th General Assembly returned to their districts, they took good news for soybean growers with them. That good news included more than $5.9 million to support biodiesel infrastructure, $1.3 million for soybean research, and a 10 percent increase in hauling limits. The legislation behind those accomplishments would not have been possible without your support of the Missouri Soybean Association's work here in Jefferson City.

The funding for biodiesel production and soybean research is especially impactful, as it supports Missouri's place as a leader in both soybean production and processing. Seeing through the commitments made to our state's grower-owned biodiesel plants through the Missouri Qualified Biodiesel Producer Incentive Fund was a high priority, and the $5.975 million appropriation moves us considerably closer to the finish line. The $1.3 million directed toward soybean research through the Missouri Technology Corporation, $800,000 for soybean production research and $500,000 for soybean commercialization research, further supports Missouri's position as a top state in the U.S. and an international destination for the best research and development talent in our field.

The passage of Senate Bill 12 was another win for soybean growers and all of agriculture. It included a 10 percent increase in harvest hauling limits for grain and grain co-products for all highways except Interstates. The bill enables you to haul 10 percent above the Gross Vehicle Weight Rating (GVWR) during harvest, without a permit or other special requirements. According to University of Missouri Extension, this provision will create savings of as much as $20 million and nearly 86,000 fewer loads on the road, according to University of Missouri Extension.

Those successes are especially significant given the events of this already challenging legislative session in which we lost our State Auditor and a member of his senior staff, saw the House speaker resign and the Senate all but shut down during a four-day filibuster. The 98th General Assembly passed 150 of 2,113 bills filed, or roughly seven percent. That doesn't account for situations in which the final version of a bill might include language from several other bills, but it does include the 19 mandatory budget bills and required bills assigning names to roads and bridges.

Several agriculture bills were among the legislation that didn't make it across the finish line this session, including provisions to support livestock producers, agriculture-friendly counties and beginning farmers. Efforts to create an income tax deduction for livestock producers receiving payments as part of a disaster program and to establish an "Agri-Ready County" designation program to promote agriculture as an economic development tool were part of Senate Bill 131, which was halted by the Senate shutdown the last week of session. The creation of a new tax deduction for beginning farmers and replacing the current advisory board of University of Missouri's Fertilizer Control Program with a new Fertilizer Control Board were similarly stopped.

Several of the agriculture bills that didn't make it this session are likely to return in one form or another when the legislature reconvenes. Transportation funding will most certainly continue to be a hot topic for legislation, and your Missouri Soybean Association will be part of the conversation. Several ideas came to the House and Senate in the final months of this session, from tolling to flat tax increases on gasoline and diesel fuel. Each of those options had discussion on the Senate floor in the final weeks, but no consensus was gained.

There has been a flurry of legislative and regulatory activity affecting agriculture coming from Washington, D.C. this summer. Your Missouri Soybean Association has been active on many federal policy issues that impact your bottom line.

EPA released a final version of its Waters of the US (WOTUS) rule May 27. This rule which EPA now calls its 'Clean Water Rule', will become effective 60 days after it's published in the Federal Register. While we are still understanding the full impacts of the rule, the final language appears to be no better and possibly worse than EPA's proposed rule. The federal reach of rule has not changed and in fact it has likely expanded. A few examples include: the exemption for ditches is very limited and most ditches in Missouri will face federal jurisdiction, which could mean increased permit requirements to maintain those ditches. While erosional features are specifically exempted, the rule contains a caveat that may still bring erosional features into jurisdiction if they function like a tributary. There is considerable legal uncertainty about pesticide and fertilizer application to farmland located within 100-year floodplains or within 4,000 feet of a tributary, which is an area we are concerned environmental groups will exploit in the future.

As EPA and the US Army Corps implement this rule, one outcome is certain; it will raise the level of uncertainty for agricultural producers. While the Missouri Soybean Association is concerned about the increased federal jurisdiction and the resulting permitting implications that it may create, we are equally or more concerned about the increased legal exposure growers may face from citizen activist lawsuits. National agricultural groups are currently contemplating their next steps that could include both a legal challenge to the rule as well as stepping up pressure on Congress to act on one of several bills being debated that would block or otherwise minimize the impacts of this rule.

Congress is currently acting on WOTUS on two fronts: the first being stand-alone legislation forcing EPA to scrap the rule and start over after consulting with state and local regulatory officials. Secondly, House and Senate Appropriations Committees have both approved legislation to block funding required to implement the rule.

EPA also announced biodiesel volume requirements within the Renewable Fuel Standard. The rule, which becomes final on Nov. 30, places biodiesel volumes for 2014 at 1.63 billion gallons, a measure that reflects actual production, 1.7 billion gallons for 2015, 1.8 billion gallons for 2016 and 1.9 billion gallons for 2017. While certainly a good step forward, we join the National Biodiesel Board in calling for increased volumes for 2016 and 2017.

Missouri Soybean Association board member Ronnie Russell and I attended a board meeting of the National Biodiesel Board held in Washington, D.C. June 15-17, where we met with members of the Missouri Congressional delegation to discuss increasing the volume requirements proposed by EPA as well as extension of the biodiesel tax credit. Our meetings were very successful and we should be thankful for the strong support our biodiesel industry has among our federal legislators.

Soybean farmer Ronnie Russell and Dan Engemann following a meeting with Congressman Blaine Luetkemeyer in Washington D.C. this summer.

Trade Promotion Authority (TPA), a top priority for our industry, has been the center of attention in Washington, D.C. as of late. The legislation giving the president the authority to negotiate new trade deals, such as those with our customers in Southeast Asia and Europe, passed the Senate twice. Senators Blunt & McCaskill voted in favor of TPA both times.

TPA also had strong support in the House from our Missouri members, with Reps. Graves, Hartzler, Long, Luetkemeyer, Smith, Wagner all voting in favor. Passage and signature of TPA is a huge victory for soybean growers and we are thankful to our members of Congress who helped get it to the president's desk.

In other important action affecting trade, the House quickly passed legislation to repeal the Country or Origin Labeling law, better known as COOL, after the WTO ruled against the law again and gave Canada and Mexico permission to level retaliatory tariffs against U.S. ag exports. Voting yes were Reps. Cleaver, Graves, Hartzler, Long, Luetkemeyer, Smith and Wagner.

Thank you to everyone who took time away from field preparation and planting to contact your federal legislators. Keep it up, and stay in touch with your Missouri Soybean Association staff on the issues most important to you.

Please send your comments, questions and ideas to me at dengemann@mosoy.org or (573) 635-3819.

Missouri Soybeans

Upcoming Events & Activities

Pest Management Field Day
Bradford Research Center, Columbia
July 16

Crop Injury and Diagnostic Clinic
Bradford Research Center, Columbia
July 28-29

Greenley Research Center Field Day
Greenley Memorial Research Center, Novelty
August 4

Missouri State Fair
State Fairgrounds, Sedalia
August 12-23

Graves-Chapple Field Day
Graves-Chapple Research Center, Rock Port
August 25

Ag-Mazing 500
St. Louis Agribusiness Club, St. Louis
August 26-28

Hundley-Whaley Research Center Field Day
Hundley-Whaley Research Center, Albany
August 26

Farm Progress Show
Decatur, Illinois
September 1-3

Fisher Delta Research Center Field Day
Rone Hall, Portageville
September 2

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

Going to Soybean School

While Farm Journal is based in Mexico, Mo., the popular Soybean College program had never been held in Missouri. This summer, your checkoff farmer leaders changed that.

By Christine Tew

The Soybean College programs put on each summer by Farm Journal are widely known for offering producers hands-on experience in test plots and with technology they can take home and apply directly on their farms. At the end of June, the Missouri Soybean Merchandising Council hosted Missouri's first Farm Journal Soybean College at the Bay Farm Research Facility outside Columbia.

The day included sessions on planting and agronomy from the father-son team of Ken and Issac Ferrie, where they broke down management practices and input options from planting through harvest. Weed control was a popular topic throughout the day, as producers were able to take advantage of field tours across the Bay Farm's soybean plots and question and answer sessions with the presenters. Growers also learned about disease management and the latest non-transgenic soybean varieties – and their yield potential.

University of Missouri soybean experts Andrew Scaboo and Bill Wiebold also hosted breakout sessions for the more than 125 attendees. Scaboo, a soybean breeder, focused on variety trials and the available options for producers considering non-GMO soybeans. Wiebold led discussions on new technology – including drones – for scouting soybean fields, especially when wet conditions make getting into planted fields or down farm roads difficult.

Missouri's Soybean College included a taping of the U.S. Farm Report.

Issac Ferrie discusses root development while in a soybean plot with College attendees.

The day also included a presentation from Greg Peterson – Machinery Pete. He shared his insights into the used equipment market now and for the forseeable future, based on thousands of data points he's collected from machinery auctions across the U.S. and around the world.

Missouri's Soybean College concluded with a taping of the U.S. Farm Report, hosted by Missouri native Tyne Morgan. Morgan and her guests spoke to soybean markets and risk management for this growing season, based on its challenging start in Missouri and across the Midwest.

To learn more about the Farm Journal Soybean College program, visit agweb.com. Plans are underway to bring Soybean College back to Missouri for 2016 – watch mosoy.org for updates.

I will know my weeds. When they grow. When they pollinate. And I will stop them before they go to seed.

I will take action in the field and do whatever it takes to give my crops the upper hand against weeds.

I will take action with careful herbicide management and use multiple herbicide sites of action, because every action counts.

I will take action because it's my bottom line. It's not about this year or the next. It's about the long term.

I will take action. This time. For all time.

Now is the time to take action against herbicide-resistant weeds. Visit www.TakeActionOnWeeds.com to learn how you can prevent herbicide-resistant weeds from spreading.

Take ACTION
HERBICIDE-RESISTANCE MANAGEMENT

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