OSC and Battelle Celebrate 20 Years of Collaboration p. 16 Filling a Global Need, Creating Local Demand p. 22

SPRING 2015 Obio Source of the Ohio Source of the O

# Miami County Couple Named ASA/DuPont Young Leaders p. 6

TIJOA9-NON 01A9 JJAT209 .2.U 4əttə J1, JAITNO9 4əttə J1, JAITNO9 25t TIMA39

OHIO SOYBEAN ASSOCIATION, 918 Proprietors Rd., Suite A, Worthington, OH 43085

# Eastern Corn Belt Performance



"Two years ago, I took nine seed companies and put each company side by side. Seed Consultants was the highest-yielding and best priced! I've had success planting Seed Consultants ever since!" Bill Bauman.

Bill Bauman, Hancock County, Ohio

"Seed Consultants has quality seed products with reasonable pricing; backed by service I can trust year after year." Lucas Farms, Hudson, Kentucky





Simply, the Best Value in the Seed Industry<sup>™</sup> SEED CONSULTANTS, INC. *Call Today!* 800-708-CORN www.seedconsultants.com

®,™ trademarks of Seed Consultants, Inc. © 2015 Seed Consultants, Inc.

# Ohio Spring 2015 • Vol. 5, No. 2 Spring 2015 • Vol. 5, No. 2

	4	Perspective: A Letter from the Chairman
	6	Miami County Couple Named ASA/DuPont Young Leaders
	10	Adam Agle of Clark County Named Beck's Young Farm Leader
	12	A Letter from the Ohio Soybean Association President—Ohio Farmers Cannot Afford to Sit Idle on Water Quality
	13	STC Study Examines Impact of Heavier Semis
1	14	Ohio Weed Management Strategies
	16	OSC and Battelle Celebrate 20 Years of Collaboration
1	17	South of the Border, Top of the Exports
	18	UAV Use and Popularity Soaring
2	20	More Vehicle Options Mean More Biodiesel Use
	21	Soy Stats: Ohio by the Numbers
2	22	Filling a Global Need, Creating Local Demand
	23	Soybean Checkoff Helps Commercialize 33 New Soy-Based Products



The Tradition Continues ... Tune in to listen to Dale Minyo, Ohio's most recognized farm broadcaster. www.ohioagnet.com



Ohio Soybean News—3

Spring 2015

## Perspective



**Jerry Bambauer** Ohio Soybean Association Chairman Auglaize County soybean farmer

## A Letter from the Chairman

t's often hard to believe that over half of all soybeans grown in the United States and Ohio are exported overseas. This

statistic alone shows the importance of efficient rivers, rails and roads so that soybeans can make it to international customers in a timely manner.

The Port of Greater Cincinnati Development Authority and the Northern Kentucky Port Authority announced final approval by the United States Army Corps of Engineers to re-designate the Port Of Cincinnati boundaries. Approximately 12,000,000 tons of cargo, including soybeans, moved through the 26-mile corridor. The port district will now include a 226.5 mile reach of the Ohio River, including a 7-mile reach of the Licking River, in 15 counties.

This expansion is important because Ohio has the ability to promote our regional assets collaboratively to a national and global audience of manufactures. Re-designating the port boundary to include 38,000,000 tons has the potential to raise the port's national ranking, which was listed in 2012 as 51st in the United States Army Corps statistical reporting.

The Ohio Soybean Association (OSA) has worked collaboratively with its sister organization, the Ohio Soybean Council, for several years to educate industry affiliates on the importance of our river system and supports this recent expansion. OSA strongly believes anything that makes our river systems more competitive is a good thing for Ohio farmers. Just like farming, the transportation system is a business and should maintain a differentiating factor to link to local, national and global opportunities.

Jerry Bambaner



#### President

Tommie Price, Putnam County First Vice President Adam Graham, Logan County

Vice President Jeff Roehm, Highland County

Treasurer Todd Hesterman, Henry County Secretary

Allen Armstrong, Clark County **Chairman** Jerry Bambauer, Auglaize County

#### Trustees

Jeff Adams, Champaign County John Buck, Marion County Amy Sigg Davis, Warren County Bret Davis, Delaware County Dave Dotterer, Wayne County James Heimerl, Licking County Scott Metzger, Ross County Ryan Rhoades, Marion County Bruce Simmons, Medina County Jeff Sollars, Fayette County Andy Stickel, Wood County Kerrick Wilson, Preble County

#### **Industry Affiliates**

Caitlyn Heimerl, Licking County Jerry Meyer, Cargill

American Soybean Association Board Representatives Bret Davis Jerry Bambauer Jeff Sollars

#### Staff Credits

Adam Ward – Publisher Jennifer Coleman – Editor Katie Bauer – Assistant Editor Jacqi Fisher – Production Manager Carol Locker – Designer

*Ohio Soybean News* is published six times a year by the Ohio Soybean Association, 918 Proprietors Rd., Suite A, Worthington, OH 43085 Phone: 614-476-3100. For address corrections contact Ohio Soybean News at 918 Proprietors Road, Suite A, Worthington, Ohio 43085.

Web address: www.soyohio.org E-mail: cdeboard@soyohio.org

Comments and statewide news articles should be sent to the above address. Advertising space reservations must be made by the first of the month preceding publication. In consideration of the acceptance of advertisement, the agency and the advertiser must, in respect of the contents of the advertiser must, indemnify and save the publisher harmless against any expense arising from claims or actions against the publisher because of the publication of the content of the advertisement.

## NO MATTER HOW YOU SLICE IT, WE'RE RAISING DEMAND FOR YOUR BEANS.

From promoting biodiesel that's used in city busses and home heating fuel, to feeding livestock halfway around the world, the Ohio Soybean Council (OSC) is laser focused on investing your checkoff dollars wisely. We're creating demand for soybean products that didn't even exist 10 years ago and raising soybean profitability in the process.

# **\$15 BILLION** INCREASE IN SOYBEAN OIL REVENUES BETWEEN 2006 AND 2012 BECAUSE OF BIODIESEL.

Total gallons of biodiesel produced from soybeans in 2013 hit a record 2 billion. Over this same time period, the value of soybeans increased by 74 cents per bushel.

## **2 BILLION GALLONS** IN 2013



International Energy Agency data shows global biofuels production has cut consumption of crude oil by 1 million barrels a day, offering savings of \$120 million a day.

**BIODIESEL GENERATES AT LEAST \$3 BILLION FOR THE U.S.** ECONOMY RATHER THAN SPENDING ON FOREIGN OIL.

## 750,000 LBS. **OF HIGH-OLEIC SOYBEAN OIL**

CONVERTED INTO OLEIC ACID AND OTHER PRODUCTS. AN OSC STUDY WITH EMERY OLEOCHEMICALS SHOWED THAT HIGH-OLEIC SOYBEAN OIL CAN BE USED NOT ONLY FOR FOOD-GRADE PURPOSES, BUT ALSO FOR INDUSTRIAL USES, FOR EXAMPLE, A SOY-BASED POLYMER THAT CAN **REPLACE UP TO 40% OF THE PETROLEUM USED IN PLASTICS.** 

# **INCREASE IN SOYBEAN OIL**

## **NEW EXPORT** MARKETS

Over the years, OSC has developed partnerships in at least 10 countries. Korea, Taiwan, Japan, China and Mexico are among the countries who look to Ohio soybean farmers for both high-quality, food-grade soybeans as well as soybean meal for livestock.

## THE OHIO SOYBEAN CHECKOFF

supported soybean and product prices by an average of 5% ABOVE what they would have been without the checkoff. • Boosted the level of soybean, soybean meal and soy oil exports by 5%, 15% and 24%, respectively. • Reduced the severity of market downturns in bad years and added growth and profitability in good years.

UP 5%

## SOYBEAN EXPORTS

#### SOYBEAN MEAL EXPORTS SOYBEAN OIL EXPORTS UP15% #### **UP 24% IIIII**

OSC was founded in 1991 to manage the Soybean Promotion and Research Program — more commonly known as the soybean checkoff. OSC is governed by a volunteer farmer board, which directs the investments of the checkoff. The program's primary goal is to improve soybean profitability by targeting research and development, and education and promotion projects.



#### **Building Membership and Grassroots Advocacy**



# Miami County Couple Named ASA/DuPont Young Leaders



IIIIIJOHN DEERE

gricultural advocates and community leaders are essential to the future of agriculture. The American Soybean Association(ASA) DuPont Young Leader Program strives to identify new and aspiring leaders and provide them with opportunities to enhance their skills and network with fellow growers. The current class brings together representatives from 23 states and Canada including an Ohio farm couple, Dan and Cindy Sturgill of Miami County.

"The Ohio Soybean Association (OSA) is proud to have Dan and Cindy representing Ohio," said Tommie Price, OSA president and soybean farmer from Putnam County. "The ASA DuPont Young Leader Program strengthens our industry and provides agricultural leaders with the training to enhance their leadership skills. Congratulations to all the winners of



this year's program."

The Dupont Young Leader program consists of two multi-day workshops that focus on educational and skill-building opportunities. While both Dan and Cindy have full time jobs off the farm, they find time to take on leadership roles and participate in these programs because they believe farmers should be the ones to speak for farmers.

"The media training has really stuck out in my mind that you should be thinking about your message ahead of time and always bringing that question back to resonate with our core message while also addressing their question," said Dan.

The Sturgills learned about the program from a past participant during their trip to the Commodity Classic conference last year. This year they returned to the conference during the second session of the ASA/DuPont Young Leader Program.

"We learned about it last year at Commodity Classic and it seemed like a good opportunity. It's a great way to network and learn more about issues that are facing agriculture today. For new participants it may be eye-opening to realize how much we need to step up and give a voice to agriculture," said Cindy.

"Young farmers need to show policy makers that we are the next generation. We're concerned about many of the things that our friends and colleagues outside of farms are concerned with as well. That's why we all need to be involved and work together," said Dan.

Off the farm, Dan works at Proctor & Gamble in a research role while Cindy is employed at Heritage Cooperative and runs her own photography business. The acreage they farm was his grandfather's. Through high school and college, he worked closely with his grandfather on the farm and later returned home to take on more of a management role.

"My grandfather farmed, when I came back from college I wanted to take over management of the land, that's where we're at now, it's all family owned. It's been a blessing to do that and grow with it, it would be nice to be at a point to be able to farm full time and be more involved within agriculture and the community," said Dan.

Being very proactive in efficiency and environmental responsibility, Dan has slowly upgraded the equipment line to take advantage of current technologies and allow for more precision in their practices.

"Technology today is a must, in my opinion. It's going to get more precise moving forward than where we're at now with using larger management zones for fertilizer and herbicide application. The zones could be down to less than three feet by three feet areas that allow us to change the seeding rate or amount of nitrogen applied. I think the technology is there to drive that," said Dan.

Dan recognizes many challenges the industry faces such as delivering a quality product while looking at the variety of end uses for soybeans. Protein and oil content continue to be a focus and he believes that can be an advantage the United States has and maintains in the market. In fact, being analytical by nature, he has taken the initiative to run several test plots over the years to collect data on performance of soybeans in different conditions and under different practices.

The data collected from the test plots fuels the decisions they make on the farm, but there is also a goal to one day host a field day and share the findings to encourage other farmers to evaluate what they are doing and potentially make a change.

"When you're looking to get into the industry, don't be afraid to fail. Part of growing and learning is trying - try new things on a small scale and adapt," said Dan. "It's easy to fall into that rut of how it's always been done instead of evaluating things and coming up with a scenario maybe no one has thought of."

The Sturgills are very grateful for the opportunity to be involved in the ASA/DuPont Young Leader Program. They recognize that the relationships they are forming with other participants today will be influential down the road as they continue to collaborate with others and provide leadership within the industry.

"Agriculture faces many challenges and opportunities as American farmers work to help meet the growing global demand for food," said Randy Wanke, senior manager of Industry Relations, DuPont Pioneer. "We are proud to support the young leader program, which is developing the future growers needed to capture those opportunities and meet those challenges."

# **INVESTING IN THE FUTURE:** RESEARCH DRIVES OHIO SOYBEANS



THE OHIO SOYBEAN COUNCIL (OSC) AND SOYBEAN CHECKOFF ESTABLISHED THE SOYBEAN REWARDS PROGRAM TO HELP OHIO'S SOYBEAN FARMERS INCREASE PRODUCTIVITY, YIELDS AND PROFITABILITY.

By using checkoff funds for research into new varieties, disease and pest management strategies and conservation practices, OSC provides farmers with the most critical information about the latest technologies and trends to ensure their operations flourish.

# RESEARCH NOW MEANS FARMER SUCCESS LATER

**OSCWORKS HAND IN HAND** WITH OHIO STATE UNIVERSITY (OSU) RESEARCHERS TO BRING GROWERS CRITICAL INFORMATION. OSC IS CURRENTLY FUNDING STUDIES BY DR. LAURA LINDSEY AND DR. ELIZABETH DAYTON.

Lindsey's area of focus is how nutrient management plays into increasing soybean yields. Specifically, she is looking into how to balance the amount of applied phosphorus so it doesn't limit yields but not over-applying and thus causing runoff.

Meanwhile, Dayton is working on another issue related to phosphorous (P). She is updating the

Ohio P Risk Index to make it more accurate, adding best management practices for farmers and creating an interactive, web-based tool for farmers to easily calculate their P Risk Index scores so they can better manage it while reducing runoff.

'A robust, functioning Ohio P Risk Index will give farmers a better tool to manage field scale P transport, while sustaining agricultural productivity and protecting surface water quality ... The tremendous support we have received from Ohio agribusiness demonstrates their commitment to good stewardship and to being part of the solution," says Dayton.



# **OHIO'S TOP 10 YIELD BUSTERS**

ACCORDING TO OSU'S DR. ANNE DORRANCE, AN INTERNATIONALLY RECOGNIZED EXPERT IN SOYBEAN DISEASES, THE TOP 10 CROP DISEASES IN THE STATE ARE:

- Phytophthora sojae P. sojae is a killer, plain and simple. When susceptible varieties are planted and infected, it means a total loss. Checkoff-funded research has found that growers should look for varieties with very high levels of partial resistance (tolerance or field resistance) combined with Rps genes 1c, 1k, 3a, 6, or 8.
- Soybean cyst nematode More and more fields in Ohio now have this pest. Losses can reach up to 50 percent when susceptible and resistant soybeans are grown side by side. Closely monitoring these populations will help keep them low.
- Seedling pathogens Currently in Ohio, there are more than 20 different water molds contributing to poor stands. A seed treatment with multiple active ingredients is required to take out this complex of species.

For the rest of this list, please go to www.soybeanrewards.org or for more information, please contact Dr. Dorrance at dorrance.1@osu.edu.

# FUN FACTS ABOUT PESKY PESTS

OSC IS ALSO FUNDING A STUDY BY DR. ANDY MICHEL TO DEVELOP APHID RESISTANT SOYBEAN VARIETIES FOR OHIO'S UNIQUE GROWING CONDITIONS. HERE ARE EIGHT LITTLE KNOWN FACTS ABOUT FIELD CROP PESTS:



Slugs are not insects and therefore common insecticides have no efficacy.



Some insects overwinter in homes or crop residue so cold weather doesn't impact all insects in the same manner. 3

Bt toxins in corn don't affect piercing/sucking insects like aphids and stink bugs and, to date, there are no naturally occurring Bt toxins for those pests.

For the rest of this list, please go to www.soybeanrewards.org or for more information, please contact Dr. Michel at michel.70@osu.edu.



The Ohio Soybean Council (OSC) was founded in 1991 to manage the Soybean Promotion and Research Program – more commonly known as the soybean checkoff. OSC is governed by a volunteer farmer board, which directs the investments of the checkoff. The program's primary goal is to improve soybean profitability by targeting research and development, education and promotion projects.



# Adam Agle of Clark County Named Beck's Young Farm Leader



Routh generation farmer, Adam Agle is no stranger to the long days and hard work it takes to be a successful farmer. The Clark County native has been farming since 1999 when he was just 18 years-old; and has since built up his own farm on the backside of the original family farm where he works along with his dad and

uncle to raise row crops on a combined 3000 acres.

Many young farmers are often challenged with the demands of the occupation and raising a growing family. Some, like Adam, find the time to take advantage of opportunities to get involved in their communities and take the initiative to stay abreast of agricultural trends. Those traits have led Adam to be recognized as the first quarter 2015 Beck's Young Farm Leader, a program that recognizes young Ohio farmers who are actively engaged in their communities and the agricultural industry.

"Farmers are the face of agriculture in their community," said Bruce Kettler, Director of Public Relations at Beck's



Hybrids. "Beck's wants to support the efforts of young farmers like Adam who seek to be educated agriculturalists and maintain best practices for their farm and the environment."

Adam's community involvement has included nine years on the Clark County Soil & Water Conservation District Board of Supervisors, six years on the county Farm Bureau Board of Trustees, continued involvement in the Plattsburg United Church of Christ and assisting the local 4-H club as needed.

Recently, Adam joined Ohio Top Farmers; a statewide group that meets a few times throughout the year to hear from industry experts on current topics in agriculture. He utilizes the information from these opportunities and available technology to determine the best practices for his farm.

"We keep changing our chemical program to stay ahead of weed resistance on our operation. My sprayer is set up with an AccuBoom and GPS system to prevent putting too many chemicals on that aren't needed," said Adam. "We also use our yield data for fertilizer applications the following year; we variable rate all of our fertilizer and we're planting with auto steer."

"I think it's all very interesting. I think the variable rate technology is only going to increase – the seeding, the chemical used, the fertilizer – all the data that is becoming available is going to make all those processes work so much easier," said Adam.

Looking to the future, Adam hopes to continually grow his operation, but recognizes it will be hard with current challenges facing the industry such as input cost and land prices.

"I want to grow, find more land, and build on what I have now. I would hope one of the kids would want to farm. They love to be out there now, but it's a long time down the road," said

## 2015 Beck's Young Farm Leader Program

One farmer each quarter will be chosen by a selection committee consisting of OSA and Beck's Hybrids representatives. One of the Beck's Young Farm Leaders will be selected as the 2015 Beck's Young Farm Leader of the Year and receive a trip for two (\$2,000 value) to the 2016 Commodity Classic in New Orleans, Louisiana. Visit www.soyohio.org/ becksyoungfarmleader for details.

#### **Program Deadlines:**

- April 17, 2015: 2nd Quarter Applications Due
- July 29, 2015: 3rd Quarter Applications Due
- October 5, 2015: 4th Quarter Applications Due

## Application Guidelines:

- Growers must be between the ages of 21 and 45.
- Any soybean grower may apply for the program; selected participants are required to have a current Ohio Soybean Association membership
- Applicants are not required to grow Beck's Hybrids products to be eligible to win.
- Applicants should demonstrate an interest in pursuing leadership roles within the soybean industry.

Adam. "The perception of the average person of what agriculture is all about is going to become a bigger challenge. Most people don't realize the steps we go through to do what's right for the environment."

"You have to be dedicated, it's not easy and there's a lot of challenges. If your heart's not in it, it doesn't matter how the numbers work out. You have to want to be out here," said Adam.

Looking at his resume of service, leadership and the educational opportunities Adam has taken advantage of, it is apparent he wants to be in agriculture and ensure that the future is bright for the next generation. "I'm excited to see Adam chosen as a Beck's Young Farm Leader," said Tommie Price, Ohio Soybean Association (OSA) President and soybean farmer from Putnam County. "OSA is committed to advocating on behalf of Ohio soybean farmers and is proud to have farmers like Adam actively engaged in the industry and serving as a face for agriculture. OSA is proud to recognize young Ohio farmers and encourages other farmers to apply or nominate someone for the Beck's Young Farm Leader program."

To apply or nominate someone, visit www.soyohio.org/ becksyoungfarmleader. ◆



# A Letter from the Ohio Soybean Association President Ohio Farmers Cannot Afford to Sit Idle on Water Quality



Since last August, I doubt there is one Ohio farmer that has not read, watched or heard something about the Toledo drinking water crisis and how it might impact how Ohio farmers conduct their business. The Ohio Soybean Association (OSA) knew that it needed to be ready and it didn't take long before the legislature began drafting water quality

legislation.

The agricultural community had already seen the passage of a nutrient application certification program that requires all farmers who apply phosphorus to be certified. After Toledo, House Bill (HB) 490 was introduced in October and contained additional restrictions and rules, some of which would have been both unnecessary and overly burdensome to Ohio family farmers. OSA and other agricultural organizations immediately began discussions with legislators and lobbied strongly on your behalf. While OSA was pleased with the changes made to HB 490, other completely unrelated regulations were attached to it at the last minute that effectively caused the legislature to kill it.

HB 490 was an immediate reaction by legislators to address major concerns and issues with water quality, especially in the Lake Erie Watershed. Unfortunately, because it did not pass, this new session brings with it a renewed effort by legislators to address water quality and it's coming at us from multiple fronts. We are seeing efforts in the



legislature to bring back many of the rules that were in HB 490, but with more stringent and far-reaching implications. Additionally, Gov. John Kasich is considering options in this budget cycle that will impact how Ohio farmers apply nutrients.

Long story short – this issue is not going away and the fight to keep regulations science-based and not overly burdensome on Ohio farmers has only just begun. Public pressure, Toledo and the algae blooms are pushing the legislature to act and they will. Change is coming. The big question for Ohio farmers now is what will this change look like?

Water quality legislation has been OSA's top priority and that will continue in 2015. As the organization that operates with member dues and NOT checkoff dollars (which by law cannot be used for lobbying), we have the freedom to lobby on your behalf and tell our representatives in Columbus just how much farmers are committed to action. That was demonstrated when hundreds of farmers attended the very first nutrient application certification training session last year. Yet, while we take every opportunity to show farmers' commitment and concern, we are ready to stand up to legislators and tell them when these bills go too far.

How can you help us? Get certified to apply nutrients on your farm as soon as possible, or ensure whoever applies nutrients for you are following all recommended guidelines. Research is being conducted to learn more about which practices best reduce runoff, but until that is complete, there are still things you can implement on your farm today. These include following the 4Rs (right rate, right nutrient, right time and right place) when applying any nutrient to your fields, as well as utilizing cover crops and conservation tillage. Ask your local extension representative for additional tips.

We cannot ignore what is happening around us on water quality, but we can help direct it toward common sense, science-based, long-term solutions that work. Let's show legislators and our neighbors that farmers WILL step up and do their part to keep our waterways clean.

> Sincerely, Tommie Price President Ohio Soybean Association

of Heavier Semis

**STC Examines Impact** 

# PHOTO: VITPHO/ISTOCK/THINKSTOCK

The Soy Transportation Coalition (STC) is disseminating the results of a research project, "Heavier Semis: A Good Idea?" — a study analyzing the likely results of expanding semi weight limits over the federal highway system.

The study is an update of an earlier 2009 report that analyzes the impact of increasing semi weight limits on federal roads and bridges from an 80,000 lbs., five axle configuration to a 97,000 lbs., six axle configuration on:

1.) Motorist safety;

2.) Infrastructure wear and tear; and

3.) Potential cost savings and efficiency gains for agriculture and the U.S. economy.

According to the U.S. Department of Transportation, the volume of freight demand by all modes of transportation— truck, rail, maritime, and air — is expected to increase from 18.5 billion tons in 2010 to more than 27.5 billion tons in 2040, a 48 percent increase. Demand for trucking is expected to increase from 12.5 billion tons in 2010 to 18.5 billion in 2040 — an increase of 6 billion tons or 67percentof the total growth in freight demand.

While demand for trucking continues to increase, trucking capacity has been challenged by insufficient investment in road and bridge capacity, a widespread and persistent shortage of truck drivers, and recent declines in rail service that have required trucks to accommodate more freight. "Demand for trucking is projected to increase, but supply of trucking is not keeping pace," says Scott Gauslow, chairman of the Soy Transportation Coalition. "It is, therefore, important to explore opportunities to increase trucking capacity without endangering fellow motorists or damaging our roads and bridges."

The study highlights that adding an additional sixth axle to a semi weighing 97,000 lbs. will create additional braking capacity so that stopping distances will be the same as a five axle, 80,000 lbs. truck.

Moreover, allowing six axle, 97,000 lbs. semis will result in fewer semis on the road compared to maintaining an 80,000 lbs. weight limit, which will result in fewer accidents and injuries. The study projects such an approach will result in 98 fewer motorist fatalities by 2022.

"Motorist safety is more of a function of the number of semis on the road and less a function of the weight of individual semis," explains Mike Steenhoek, executive director of the Soy Transportation Coalition.

"We can respond to the increased demand for trucking by either maintaining the status quo, which will result in a higher density of semis per mile, or entertaining options such as allowing six axle, 97,000 lbs. semis. The research indicates such an increase in semi weight limits will lower the potential for injuries and fatalities, providing a safer system for fellow motorists."

The study further highlights how a six

axle, 97,000 lbs. semi will result in a reduction of weight per tire of 35 lbs. compared to a five axle, 80,000 lbs. semi, reducing wear and tear on the nation's roads.

For transporting soybeans and soy products, allowing six axle, 97,000 lbs. semis will result in 1.2 million fewer truck trips, 5.5 million fewer gallons of fuel consumed, 56 thousand fewer tons of carbon dioxide emissions, and between \$11 million-\$28 million in reduced fuel costs. The use of a six axle, 97,000 lbs. semi will enable a farmer to transport at minimum an additional 183 bushels of soybeans per load. By 2022, this will annually save soybean farmers 602,000 truck trips, 1.7 million gallons of fuel, and between \$4 million-\$8 million in reduced fuel costs.

"While increasing semi weight limits clearly would result in greater efficiency of moving agricultural products, farmers are also concerned with motorist safety and the quality of the road system," says Gauslow. "In reality, those living in rural areas often experience a greater probability of encountering heavy semis than those living in urban areas. The last thing farmers would want to promote is a system that would result in greater danger to themselves and their families and greater damage to the transportation system they depend on. We, therefore, believe farmers have a lot of credibility on this important issue."

The full study, "Heavier Semis: A Good Idea?" can be accessed at www.soytransportation.org. ◆



# **Ohio Weed Management Strategies**

By the time spring is in the air, a weed management plan should be decided and ready to put into action. However, issues that arise throughout the growing season may require some tweaks and a new plan for the next growing season. Mark Loux, a weed scientist at The Ohio State University, offers advice on managing the weed situation on any farm.

#### It Starts in the Fall

Fall is a good time to scout new fields or ones that have not been looked at in a while. Taking notice of what has emerged and any large areas of vegetation or tough weeds is an important step to making sure the selected program is going to work. Weeds to look for in the fall are marestail, thistle, poison hemlock and wild carrot which are harder to control going into spring and will provide an idea of which fields to treat with a fall burndown.

"Especially in soybeans, we've moved to trying to get herbicides on in mid to late fall. That's the first step, and about 30% of a good marestail program. It opens the door to have an easier program in the spring," said Loux.

#### **Comprehensive Programs**

Any no-till soybean field needs a burn down with several different herbicide sights of action and a broad spectrum residual. Some of them need fall applications and weeds that are coming back post emergence will determine the best post treatment to be used.

"Over 80 percent of our soybean acres are getting a residual pre-emergence herbicide. With more than 90 percent of beans being no-till, a fall application is a good step and everything you do needs to have diversity. It's not just glyphosate, it needs to be a combination and the spring burndown needs to be diverse too," said Loux.

"We've learned the hard way, the whole country has, that if you over simplify your approach to weed management you create an opportunity for certain weeds to establish and become really problematic. The weeds we're battling – palmer amaranth, water hemp, giant ragweed and marestail – have a more complex biology in addition to the herbicide resistance so an approach that's less than comprehensive won't work," said Loux.

It is also important to be adaptable; getting across the fields at the right time can be challenging. The plan that is in place should be adaptable on the follow through as delays in application may lead to larger more developed weeds than the program can handle.

#### **Controlling the Seeds**

New weeds don't just come out of nowhere, they must be introduced. This can happen in a number of ways including harvesting equipment. If a specific field has a significant weed problem it should be harvested last and extra care taken to clean combines and trucks used to haul the grain.

Weeds such as palmer amaranth have also been brought in with cover crops because they are not considered a noxious weed in areas where cover crop seeds are produced. Some seed lots have become contaminated so the Ohio Department of Agriculture is providing free seed screenings to look for palmer amaranth.

"The other major source – we have at least one area that started this way – is the animal agriculture industry. Some byproducts from the south that are used for feed have been contaminated with palmer. It's been trucked up here and used in dairies which provides two ways for transfer: the manure from the dairy and also the outfit that was trucking it - once they unloaded, they had some stuff left in their truck and they were dumping that in the corner of fields," said Loux.

## Weeds to Watch: Marestail & Giant Ragweed

Marestail has become a major resistance problem in Ohio that needs to be taken care of with a burndown and a residual as it is very difficult to deal with post emergence. New soybean varieties, such as Liberty Link, are also a good fit for marestail and giant ragweed control.

"Another strategy is to do a really good job with a weed management program in corn and follow that up with Liberty Link beans," said Loux. "Some of the other

> weeds get more complex, like giant ragweed. We have populations that are resistant to a couple different types of herbicide so it requires a pretty comprehensive approach. That may mean modi-

Marestail (aka horseweed) has two primary periods of emergence - from late summer into fall, and from late March through June. Spring-emerging marestail has been the most problematic to manage in the southern half of Ohio and Indiana, especially the plants that emerge in May and June.



fying a post emergence application to make sure you're getting control."

#### Weeds to Watch: Palmer Ameranth

"Palmer amaranth has gotten started in about ten sites we've identified in the state, so we're still in pretty good shape. The number one thing is it has to be kept from going to seed. We have a tendency to see a new weed and think it's only a patch, I'll take care of it next year," said Loux. "Palmer amaranth has more capacity to overtake a field faster than any other weed we've ever dealt with. We're really trying to encourage people when they see it in mid to late summer to pull it out before it produces seed."

To get rid of palmer amaranth, it has to be pulled or dug up and taken out of the field, most of the time it is burnt after that. If left in the field it will re-root, even if the root is cut off. While there are some herbicides that can help with control it has largely doubled the cost of herbicide programs in the south. There is new technology coming that may help ease, but will not cure, the problem. It requires a very comprehensive program. To be controlled effectively post emergence it has to be less than three inches tall. Since it emerges all year and can grow over an inch a day with the right conditions, it becomes very problematic.

"We are still largely in a preventative mode, I know of one area in the state where it's starting to move out a little bit, the rest are usually individual fields or a field with a few plants," said Loux

#### New Traits and Stewardship

Over the next four to five years a lot of new technology is set to hit the market providing more options for weed management and controlling resistant weeds. Along with new technology comes the responsibility to manage it correctly.

"We're a little bit concerned about how some of these new technologies are going to be used to make sure we don't develop more resistance. Our fear is that people will go backwards and over-simplify their programs again. Some of that will happen, but

### **Control of Marestail in No-till Soybeans**

#### Marestail Biology

- Marestail (aka horseweed) has two primary periods of emergence - from late summer into fall, and from late March through June. Spring-emerging marestail has been the most problematic to manage in the southern half of Ohio and Indiana, especially the plants that emerge in May and June.
- Marestail plants overwinter in the rosette stage, and remain in this low-growing stage through late April, followed by stem elongation (bolting) and growth to an eventual height of 3 to 6 feet.
  Plants that emerge the previous fall will start stem elongation earlier than spring-emerging plants.
- Marestail is most easily controlled when in the seedling or rosette stage, and burndown herbicides should be applied prior to stem elongation.
- Marestail competes with the soybeans throughout the growing season, and reduces crop yield. Marestail matures in late summer or early fall, and large mature plants can interfere with soybean harvest.
  - Marestail plants can produce up to 200,000 seed that are transported by wind, providing for effective spread of herbicide-resistant populations.

#### Soybean yield loss due to marestail





- Herbicide programs must consist of: 1) fall and spring burndown treatments (or two spring treatments - early spring and at plant) to ensure that the field is free of marestail at the time of soybean planting, and 2) spring-applied residual (PRE) herbicides to control marestail for another 6 to 8 weeks after planting.
- Failure to follow these guidelines can result in poor control and reduced soybean yield. We observed the following soybean yields in a 2010 OSU marestail study:

51 bu/A - the burndown treatment failed to control emerged plants 57 bu/A - the burndown treatment was effective, but there was no residual herbicide 65 bu/A - the burndown was effective and effective residual herbicides were used

Produced and prepared by Purdue University and The Ohio State University Extension Weed Science

hopefully we learned well enough and will use those in the right system," said Loux.

"I think the key thing will be trying to think about how do we manage those appropriately and have the right stewardship," said Loux. "The other thing is you have to make sure you're in the right field with the right herbicide. When you have Roundup Ready, Liberty Link, and other varieties resistant to 2,4-D and Dicamba, you start to have a situation with more potential to pull into the wrong field with the wrong mix and kill a lot of soybeans."

There is also talk of stacked traits within the same soybean to help overcome some of those issues, but all of these new developments put more responsibility on everyone involved in the industry.

"It puts responsibility on the companies to have programs in place to help people prevent resistance, growers and applicators as well; and I think it puts responsibility back on the university to fill in the gaps," said Loux. ◆

#### For more information visit http://agcrops.osu.edu/specialists/weeds



# OSC and Battelle Celebrate 20 Years of Collaboration

ver the last 20 years, numerous soy biobased products have been developed through a strategic partnership between the Ohio Soybean Council (OSC) and Battelle Memorial Institute – a private not for profit, applied science and technology development company headquartered in Columbus, Ohio.

A recent focus of the partnership has been education and awareness of biobased technologies that have been developed as a result. Therefore, a display inside Battelle was created and features a combination of success stories of soy biobased projects as well as new technologies that are available for commercialization. Developed with the

#### GROWING NEW PRODUCTS

Efforts from Battelle and its partners like the Ohio Soybean Council have led to sustainable, renewable resource materials that are used by companies and consumers overy day. From toner cartridges to durable foams and from solvents to lubricants, bio-based oroducts are making our lives greener.



future in mind, the selected products are interchangeable and can easily be updated to remain relevant or target the interests of specific groups that may be visiting the building.

"Our focus for this project was to develop a display that showcases the success of the partnership and the great strides we have made for the Ohio soybean market," said Patrick Knouff, OSC chairman and soybean farmer from Shelby County. "Being able to

put these products on display at Battelle is an ideal way to get them in front of a variety of audiences that may be looking for the unique benefits a soy biobased product has to offer."

OSC and Battelle have had many product success stories arise from the collaboration, including a suite of products that have won R&D 100 Awards,





Products currently on display at Battelle include Polyols-a polyurethane foam, soy biobased toner, soy biobased composites as well as three new technologies which include powder coatings, lubricants and hydrogels.

which identify and celebrate the top technology products of the year.

"We have anyone from school age children on tours trying to figure out what science is all about to companies that are interested in licensing specific technologies. The display really highlights the different technologies the collaboration has created," said Megan Moore, program manager at Battelle who manages their materialsfocused biobased initiatives including the projects conducted in partnership with OSC. "Through the history of almost 20 years we've been able to stay relevant and maintain a strong partnership for products that are still commercially viable and desirable today."

Many companies that adopt the soybased products are looking for a more environmentally friendly and ecologically sustainable product. Often times it is a result of consumer demand, but there is frequently an additional performance benefit or cost savings over a petroleum-based product.

"Historically, the products created have focused on industrial products that go into everyday household items such as polyurethane foams that might go into structures in your refrigerator or flexible foam in the seats of your vehicle. The personal care market is also evolving as people tend to like soy biobased and agriculturally derived products when things are close to their bodies, so cosmetics and similar products are an emerging market," said Moore.

Looking at the big picture, any successful product from this relationship has the potential to grow value for Ohio soybean farmers by increasing the viable uses and demand for soybeans.



Aquaculture Educational Opportunity participants at Pacifico Aquaculture, Isla Todos Santos, Mexico

# South of the Border, Top of the Exports

t is no secret that U.S. soybeans are in demand around the globe with one quarter of U.S. soybean production being exported overseas to China. However, the number two customer for U.S. soy is a lot closer to home.

In the 2013/2014 marketing year, Mexico was reported as the number two consumer of whole soybeans as well as the number one consumer for both soybean meal and soybean oil. Mexico imported 124 million bushels of whole soybeans, meal from 68 million bushels and oil from 36 million bushels, making up a significant portion of the U.S. export market.

The demand for U.S. soybeans and soy products in Mexico is due in part to the efforts of the U.S. Soybean Export Council (USSEC). USSEC has taken on many projects to promote U.S. soy in various sectors, most recently working in the food processing and aquaculture industries.

A public cooking class was recently held in Mexico City to inform and educate citizens about soybean products and their health benefits with event sponsors providing product samples to those in attendance. Additionally, USSEC has participated in several tradeshows and expos throughout Mexico geared toward the retail and food service industries. At these events, USSEC assists companies that consume U.S. soy in promoting their products and making new contacts to increase their market reach and, in turn, their need for soybeans.

Adding to direct consumption, according to USSEC, the Mexican aquaculture industry will produce close to 120,000 metric tons and will demand more than 70,000 metric tons of soybean meal from the U.S. in the upcoming year. This market has good potential for continued growth in the next several years.

Partnering with two research groups for fish feeding demonstrations last year, the USSEC is hoping to increase knowledge on the benefits of including U.S. manufactured soy protein concentrate in feeds manufactured in Mexico. Using red snapper and common snook fish, the trials offer a close look at the benefit of using U.S. soy products in aquaculture feeds and a chance to increase indirect soy consumption.

"With 2013 numbers that show 62 percent of U.S. soybeans were exported and increased production reported for 2014, it is important for organizations like USSEC to assist in the growth of these markets to maintain a high demand for U.S. soy," said Jeff Magyar, Ohio Soybean Council board member and soybean farmer from Ashtabula County.

USSEC is made up of representatives from the United Soybean Board, American Soybean Association as well as other trade and allied industries and state organizations. They are funded in part by soybean checkoff dollars and strive to optimize the utilization and value of U.S. soy in international markets by meeting the needs of stakeholders and global customers.



# UAV Use and Popularity Soaring

I nmanned aerial vehicles (UAVs), or drones, have been gaining attention in the mainstream media in recent years as hobbyists, researchers and entrepreneurs push to find the best uses and legal practices for the now popular devices. The concept has been around for nearly a century, and it seems the technology, affordability and demand have finally come together, piquing the interest of many model plane hobbyists and specialty tech companies looking to create a niche in the industry.

Jim Love works at Beck's Hybrids and has been involved in key technology projects over his 25 year tenure. His experience flying model airplanes as a kid made him take notice of an UAV at a farm show last year and triggered his interest in seeing where the UAV industry is going and how it can be applicable to agriculture.

"I saw the plane at a farm show and thought it could solve a lot of timeliness problems we have had with remote sensing and be a dependable platform," said Love. "I came back to the organization and told them UAVs may have finally matured into a setup we should start studying."

Choosing several seemingly reputable companies, they started intensely looking at the products and found a great deal of difference in quality and capabilities of available UAVs on the market. For now, agricultural uses generally fit into either a simple or complex information gathering category. Simple UAVs, being compared to a flying camera, gather aerial images of fields to see obvious issues that could likely be found by scouting the fields on foot. The more advanced, or higher tech UAVs can gather a very detailed georeferenced image or a map image based on the Normalized Difference Vegetative Index (NDVI).

The more basic images can provide simple visual information about the state of plants and are more subjective to the individual who is viewing them. Complex images based on the NDVI provide more extensive quantitative data that can be more easily compared and assessed by multiple users as it is a standardized system. The georeferenced images are more expensive to obtain and there are fewer people who do them well, but once in the growers hand they can become a valuable tool and one piece of the "big data" that is out there today.

"There are a lot of hobbyists trying to turn it into a job. Typically they are good at taking a picture, but they're not getting a georeferenced image nor anything quantitative like a NDVI image," said Love. "Everyone thinks you're paying for the hardware, but The original Phantom, made by DJI, is a basic UAV well suited for obtaining aerial photos and video.

111

you're paying for the intellectual property, the hardware is a miniscule part. Once people wrap their mind around that, then they get it - what I'm really paying for is what these people know and what they can do."

"That georeferenced data can be loaded into a computer and a grower can spot anomalies within the image and walk right to that spot to confirm it. Or in theory, if you had an integrated system, you could fly it with your small airplane, build your map and tell your small device to go out and look at the field, zoom in and get a really close picture of it from that point," said Love. "Nobody has that system combined yet, but there are some companies that are very capable; it's just a matter of them putting it all together."

With georeferenced images, nutrient deficiencies often show up with nitrogen misapplication being the easiest to spot. Combining images and maps derived from UAVs with other data gathering devices such as yield monitors could allow for additional advancements in variable rate technology with herbicide, fertilizer and seeding practices.

The UAVs themselves have proved

useful in other aspects such as herbicide or pesticide application in other parts

of the world, such as spraying rice paddies in Japan. Here in the United States, UAVs are still illegal for commercial use without an exemption from the Federal Aviation Administration (FAA).

"Rice is flooded so it's typically sprayed with aerial equipment, but the paddies are so small that they can't spray them with a full sized plane so they use an unmanned helicopter," said Love. "Here, with the vineyards being so oddly shaped, and the ones in California that are on hillsides, they can't use full sized planes and it's difficult to do with a tractor. They are wanting to use UAVs, but it's not legal."

The legal battle with UAVs is being staged against the FAA, one company at a time; and the FAA has started to grant exemptions. Of the hundreds of applications for exemption they have seen, in the last six months, less than 50 have been approved. Several of the exemptions granted deal with precision technology applications in agriculture.

While they are taking steps towards more open use of UAVs in the marketplace, it is a difficult sector to navigate without extensive regulation. There have been a considerable amount of mainstream news stories where UAVs are misused or used for illegal activities. Fortunately, many of the companies who manufacture the devices and develop the software are responding with modifications to self-regulate the use.

"They are very proactive, when something goes wrong they usually go in and manipulate their software. All of those devices are flying off of a computer, so they are able to tell the software: don't fly here, don't fly above this height. It basically takes a hacker to unlock it, so that helps the government. Instead of having to come up with all kinds of crazy rules they can't enforce anyway, if the manufacturer will build fail safes in that will help the government in their quest to keep the airspace safe," said Love.

FAA exemptions come with conditions that typically include having a licensed pilot and a visual observer present, maintaining a line of sight, staying below 400 feet and not operating within 500 feet of any person or structure.

> The Ebee Ag is specialized for agricultural uses and with certain upgrades can provide NDVI maps.





**Investing Checkoff Dollars** 

# More Vehicle Options Mean More Biodiesel Use

ptions for vehicles that can be found on Ohio roads running on biodiesel continue to expand which is good news for soybean farmers who earn an extra 74 cents per bushel due to biodiesel's impact on soybean oil demand.

Automakers gave a sneak peek to attendees at the 2015 National Biodiesel Conference as to what is currently available and will be available soon.

Volkswagen was an early adopter of the diesel engine in their models and plans to continue that commitment. A representative from Volkswagen was at the Biodiesel Vehicle Showcase standing next to a red VW Beetle convertible to say that their strategy is to have a diesel engine in all of their models available in North America. This commitment extends to their other



luxury brands as well.

"These modern diesel engines are so refined that they fit in a luxury car very well," says Stuart Johnson from Volkswagen.

The automakers are also excited about the National Biodiesel Board's commitment to quality through the BQ-9000 retailer program which ensures biodiesel quality through the entire process. Volkswagen is supportive of using biodiesel in their vehicles now that they have programs in

place to ensure that the fuel performs well in their diesel engines. The Ford Motor Company is equally excited about using green fuel in their vehicles.

Ford has been working with biodiesel for 20 years and will be producing F-650s and 750s this summer that will be biodiesel compatible. Additionally, they launched

## **Fueling Soy Demand**

The biodiesel industry was built from the ground up – and much of that ground is planted with soybeans. Using more than 5.5 billion pounds of U.S. soybean oil last year, more than any other feedstock, the biodiesel industry is a significant customer for U.S. soybean farmers.

That figure is expected to grow, says Alan Weber of the National Biodiesel Board (NBB).

"The biodiesel industry wants to produce 10 percent of transportation diesel on the market by 2022," explains Weber,

NBB's feedstock development program manager. "The industry will have to consume greater volumes of fats and oils in order to reach that level of production."

That means an even larger customer for U.S. soy that is well on its way to achieving the ambitious goal.

"The biodiesel industry proved its capacity by producing at the highest annual volume last year," says NBB

CEO Joe Jobe. "Those rates would amount to nearly 5 percent of the diesel fuel supply, utilizing the soybean oil from one-fourth of the domestic crush."

Weber says it's no coincidence that biodiesel producers depend on soybean oil. Demand for the fuel has a direct impact on soybean prices, and those prices drive the number of soybean acres planted and overall supply.

"Soybean supply is able to respond to demand, and not all biodiesel fuel sources are able to do that. Future growth in the biodiesel industry will come in part from soybeans because of the additional supply required."

> a new transit van this year that can run on a number of different fuel types including biodiesel.

"The plumber, the florists, the bakers, and the guys who fix your air conditioning, they need to be able to use biodiesel, too," says Jon Coleman, a sustainability and technology manager with Ford.  $\blacklozenge$ 







## SOY STATS: OHIO by the NUMBERS 2014



## RANKED 7TH

IN SOYBEAN PRODUCTION ACROSS THE UNITED STATES

PRODUCED MORE THAN 254 MILLION BUSHELS

OF SOYBEANS THAT YIELDED AN AVERAGE OF

## **52.5 BUSHELS**

PER ACRE



ource: National Agricultural Statistics Service http://quickstats.nass.usda.gov/

### **5TH BEST YIELD**

PER ACRE IN THE NATION



ABOVE THE NATIONAL AVERAGE OF 47.8

Our Soy Checkoff gress Powered by U.S. Farmers

nitedsoybean.org



# Filling a Global Need, Creating Local Demand

ears ago, a grain and livestock farmer may have simply raised crops to feed their livestock and taken the animals to market. Today's marketplace is much more complex for farmers; such as Ryan McClure, whose family owns and operates a farm in Paulding County, Ohio. Ryan and his family remain active in the Ohio agriculture community as Ryan serves on the Ohio Pork Producers Board of Trustees and his dad, Terry, serves on the Ohio Soybean Council Board of Trustees.

The soybeans they grow are not even being processed domestically, rather, they are part of the growing demand for soybean exports. In the 2013/2014 marketing year, U.S. soybean exports accounted for 62 percent of U.S. soy production.

"We grow more than 1500 acres of soybeans each year, and in recent years, our soybeans have been non-GMO commodity soybeans to fill part of that niche market," said McClure. "Most of them will go down to the Ohio River and are eventually shipped out of New Orleans."

While the soybeans they grow are being exported, the hogs they raise are consuming soybean meal and creating a demand for soybeans produced by fellow farmers across the state.



Ryan McClure, pictured with his son Drew, helps manage the daily care for more than 8,500 hogs on their farm in Paulding County.

"We got into contract hog finishing in the past 10 years. We handle the day to day care and management of more than 8,500 hogs. The quality of the feed source, water source and environment are the top three factors to consider when raising livestock," said McClure.

"With a few products that come from soybeans, such



as oil or biodiesel, you have a tremendous amount of meal left, which is a great source of protein, and the number one use for that is livestock feed," said McClure.

Animal agriculture is, and has been, the number one customer of our nation's soybean farmers, using nearly 97 percent of soybean meal produced. In the U.S. alone, swine consume 7.7 million metric tons of the meal from 343 million bushels.

And with many countries around the globe experiencing economic growth, those numbers may only climb higher as the demand for high quality protein, such as pork, continues to rise.

"In my opinion, when you look at the different animal proteins, pork is a higher grade protein, but comes in at a more reasonable rate than beef. It's a quality product at a good price," said McClure.

Whether it's the local need for quality feed, or the indirect consumption of soybean meal through pork exports, animal agriculture plays a vital economic role for Ohio soybean farmers.

Caleb (left) and Drew McClure are growing up as the next generation of farmers at McClure Family Farms.



# Soybean Checkoff Helps Commercialize 33 New Soy-Based Products

Farmer-funded projects drive innovations in soy chemistry, keep industrial demand growing

hat does foam that keeps floors from squeaking have in common with NASCAR racing tires? Both contain soybean oil. Both are on the list of 33 new products commercialized in 2014 with soy checkoff support. And both are driving demand for U.S. soybeans.

All together, more than 800 soy-based products have been developed with checkoff support since 1990. Dale Profit, Ohio Soybean Council board member and United Soybean Board Director from Van Wert County has seen many advancements firsthand and anticipates even more soybased product development in the future.

"Some new uses, like biodiesel, are high-volume," said Profit. "Other products, like carpet backing, paint and concreterelease forms, may use smaller amounts of soy, but have higher value. The market for ingredients like soy polyols keeps increasing in industries ranging from automotive to furniture manufacturers, which increases the demand for U.S. soy at home and abroad."

Checkoff-funded research continues to pay dividends as manufacturers look for ways to displace industry standards like petroleum, latex, mineral oil and other possibly carcinogenic materials in their products. Raw materials from sustainable soy provide environmental benefits and have been proven to perform as well as the ingredients they replace in a wide range of products, at a comparable cost. In fact, some perform even better. New soy-based products and ingredients introduced in 2014 as a result of checkoff support include:

#### PLASTICS

- Eco Ultimate Silencer™ Foam underlayment and carpet cushion by Foam Products Corp.
- Eco Silencer HD FOF™ A high-densityfoam underlayment for floors by Foam Products Corp.
- BETAFOAM™ Renue Sound-deadening foam by Dow Chemical that is used in cars
- Automotive seating for GM cars – Foam made with soy polyols by Lear Corporation
- TSE EcoWIND™ A polyurethane resin with soy oil for filament winding by TSE Industries, Inc.



#### AW-130SB™, AW-140SB™, AW-150SB™ Source and

– Soy wax emulsions for paper and packaging applications by A&W Products

PAPER

 PSA50MA™ and A5060™ – Binders for paper and paperboard made by Applied Protein Systems

#### SOLVENTS

- Elevance Clean™ 1200 Zero-VOC metal degreaser made by Elevance Renewable Sciences
- ECO-300<sup>™</sup> and MFS-Green<sup>™</sup> Oilstorage-tank cleaners made by FloTek industries

#### LUBRICANTS

GEOlube SCO™
– Oil-well-drilling
lubricants by
GEO Specialty
Chemicals



 Concert™ GC-350 – A greaseprocessing aid made by Elevance Renewable Sciences

#### EMERGING INDUSTRIAL OPPORTUNITIES

- StimOil® FBA M, StimOil® FBA Plus, StimOil® EC, and StimOil® EN – Downhole crude oil recovery aides by FloTek industries
- Azelaic acid A soy-derived product by Emery Oleochemicals that is used in Nylon 6.9 and greases
- Pelargonic acid A soy-derived product used in paints, inks and greases by Emery Oleochemicals

#### WAX

- Soy-based candles Bennington Candle Company
- Soy-based candles Coyer Candle Company
- Soy-based candles Prize Candle Company

PHOTOS: UNITED SOYBEAN BOARD

 NASCAR Racing Tires – Soybean oil used in rubber compounds by Goodyear Tire & Rubber

#### **COATINGS / PRINTING INKS**

- Avicor® 384 and Avicor® 385 – Low-VOC architectural latex paints by Celanese
- Beckosol AQ® 400 Traffic line paint by Reichhold

#### ADHESIVES

- Liquamelt® A new adhesive system for wood by H.B. Fuller
- CedarSafe® 4'x8' flakeboard panels used to make cedar closets made with Soyad® soy-based adhesive by Giles & Kendall, Inc.
- Hardwood plywood panels Made with Soyad® soy-based adhesive by States Industries, LLC, and available in homeimprovement stores
- Pangua PureGlue™ Plywood with Soyad® soy-based adhesive made by Panguaneta S.P.A.
- NU GREEN® Particleboard and thermofused laminates by Uniboard Canada that replace formaldehyde with Soyad® soy-based adhesive

My Escalate<sup>™</sup> treated seed has great coverage, looks uniform, and it comes that way in the bag.

There are a lot of unknowns with farming. You can only control so many of those. With Escalate, I know I have the best seed treatment possible. That is one less thing I have to worry about.

"



I've replanted less acres since I started planting with Beck's Escalate.

77



Watch the interview at www.BecksHybrids.com/OnTrackFarming

Escalate is a registered trademark of Beck's Superior Hybrids, Inc.

