MARCH 2025

Illinois Field & Bean

A PUBLICATION OF THE ILLINOIS SOYBEAN ASSOCIATION

READY
TO ROLL

Get the most out of your hay season with John Deere 1 Series Round Balers. See real-time weight and moisture data while you work to ensure high-quality feed. Plus, store it all in John Deere Operations Center™ to make informed decisions, cutting after cutting. The 1 Series works harder for your herd.

STAY READY AT JOHNDEERE.COM/ROUNDBALERS

JOHN DEERE

CONTENTS

March 2025 Volume 5 Issue 5

DEPARTMENTS

Visit us online at www.ilsoy.org/newsroom/illinois-field-bean/.

PRINTED WITH SOY INK

COVER: Happy Birthday, ISA Soy Innovation Center! In this issue of Illinois Field & Bean, readers will learn more about the revolutionary programs and projects we've been working on over the past year and discover how we're disrupting the commercial industry by replacing products and ingredients with soy-based inputs.

STAFF CREDITS
Editor in Chief | Betsy Osman
Assistant Editor | Olivia Key
Staff Contributor | Brynna Sentel

OTHER ISA STAFF
Chief Executive Officer | John Lumpe
Director of Illinois Soybean Foundation | Suellen Burns
Executive Employee Relations | Nicole Butler
Director of Government Relations & Strategy | Andrew Larson
Director of Market Development | Todd Main
Director of Marketing Communications | Betsy Osman
Director of Finance | Kati Owen
Director of Agronomy | Abigail Peterson
Director of Operations | Dustin Scott

Illinois Soybean Growers (ISG) is owner of Illinois Field & Bean, a publication for Illinois soybean farmers, designed and written to provide timely and useful industry information. Illinois Field & Bean is published by the Illinois Soybean Association, 1108 Trinity Lane, Bloomington, IL, 61704. For address corrections, contact Illinois Field & Bean at 1108 Trinity Lane, Bloomington, IL, 61704. Phone 309-663-7692. Web address: www.ilsoy.org. Email: ilsoy@ilsoy.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 advertisement, 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.

FOR ADVERTISING INFORMATION
Betsy Osman
Editor in Chief
Email: betsy.osman@ilsoy.org

EMILY LOVELADY | DISTRICT 17 DIRECTOR | ILLINOIS SOYBEAN ASSOCIATION

Seeds of Success

Hello, ***Illinois Field & Bean*** readers! I'm Emily Lovelady, a third-generation farmer from southern Illinois, where I grow corn, soybeans, wheat and cover crops. I'm also a seed dealer and a proud mother of two daughters. I'm excited to join the Illinois Soybean Association (ISA) Board of Directors and share my perspective on farming, the seed business and the importance of innovation and sustainability as we look ahead to the growing season.

Looking back, my younger self would never have imagined a future in the seed business. Although I grew up on a grain and livestock farm, I always planned to become a teacher. But that quickly changed as I became more involved in FFA and 4-H, where my passion for agriculture truly took root.

Since then, I've earned a bachelor's degree in agribusiness economics, worked as a location manager at a local co-op, partnered with my husband to run our family farm and, for the past 14 years, successfully managed my own seed business.

Today, I'm excited to continue my ag journey as ISA's District 17 Director, where I hope to bring insights from my experience in the seed business and continue to provide a voice for farmers in southern Illinois.

Looking ahead to the 2025 growing season, I believe innovation and adaptability will play critical roles. The seed industry is advancing rapidly with innovations such as embryo rescue and trait introgression, providing growers with new tools to improve efficiency and yields. However, these advancements often come with a higher price tag, raising the question: How much can growers realistically bear? With commodity prices trending lower and input costs staying high, finding a balance between affordability and progress is a growing challenge.

One thing I've learned as a seed dealer is the importance of helping farmers start the season strong. A good start with the right seed can make all the difference, and it's my job to guide growers in selecting the best options for their operations. That means attending every meeting I can to stay informed about new varieties and hybrids, learning from the research my seed company conducts and being ready to adapt to the unexpected.

Farming is full of surprises—whether it's a wet spring that delays planting or a new disease in the region like tar spot. Over the years, I've learned to roll with the punches and emphasize patience, both as a dealer and a farmer. Planning is essential, but flexibility is just as critical. Sometimes, sticking with the plan pays off, even when the weather or market conditions tempt us to change course.

As I begin my tenure on the ISA board, I hope to bring a southern Illinois perspective and advocate for the needs and concerns of growers in our region. Illinois is diverse, with farmers facing unique challenges and opportunities depending on their location in the state. If we listen to farmers and stay engaged with the latest research and innovations, I'm confident we can navigate the challenges ahead and continue to build on the success of Illinois agriculture.

What More Can Illinois Soy Do?

JOHN LUMPE | CEO | ILLINOIS SOYBEAN ASSOCIATION

Congratulations, Illinois soybean farmers, you have set another record-breaking harvest in 2024, leading the entire nation in production! In 2024, Illinois' growers produced 688 million bushels of soybeans, surpassing the state's previous record of 666.75 million bushels in 2018. But growing more soybeans is only part of your story. The real opportunity lies in what comes next for ISA—finding new uses, creating new markets, advocating for you in Springfield and D.C., and driving innovation that makes Illinois soy more valuable. That's the driving force behind the Illinois Soybean Association's Soy Innovation Center, where we're asking one big question: What More Can Illinois Soy Do?

Innovation That Works for Farmers

The ISA Team understands that sustainability—both financial and environmental—is at the heart of long-term success for soybean farmers. Under the leadership of Market Development Committee Chairman Brady Holst, ISA Director of Market Development Todd Main and our entire volunteer Board of Directors, the Soy Innovation Center is bringing together researchers, manufacturers and companies to develop solutions that expand the reach of U.S. soy. The Center is studying cutting-edge bioplastics, advanced animal nutrition and much more. It's working to ensure soy isn't just a commodity, it's an indispensable ingredient for industries around the world.

One example of the Center's ongoing work is the It's Sustainably Soy program, a game-changer for companies looking for sustainably grown soybeans. This program provides collaborating companies a story to tell about how they are sourcing Illinois soybeans that are grown using stewardship-focused practices that prioritize soil health, water conservation and reduced environmental impact. You and your fellow Illinois farmers already use cutting-edge technology—precision ag, cover crops, reduced tillage—to do more with less. That's good for the land, good for your bottom line and good for the companies seeking transparent, sustainable sourcing.

Connecting Soybean Farmers to New Markets

Why do companies care? Because their customers care. Today's savvy consumers want to know where their products come from—whether it's the food on their plates, the fuel in their engines or the materials in their car seats. More than ever, companies are looking for sustainably sourced ingredients to meet customer expectations. The It's Sustainably Soy certification program provides a direct link between environmentally responsible farmers and businesses committed to sustainability. It's a win-win for the entire value chain: Farmers get stronger market demand, companies get a trusted supply and consumers get products they can feel good about. We are creating partnerships that push soy's potential even further, including:

- **Biobased Manufacturing:** Companies are using soy to create everything from adhesives to coatings to construction materials—offering sustainable alternatives to petroleum-based products.
- **Animal Nutrition Advancements:** With soy as a key protein source, research is improving feed efficiency and nutrition for livestock and aquaculture, strengthening demand for Illinois-grown soybeans.
- **Sustainable Infrastructure:** Soy-based road sealants and lubricants are proving that soy isn't just about food—it's about innovation in industries that impact everyday life.

(Even more exciting, we have several innovations currently in development that we're not able to discuss due to non-disclosure agreements. But we look forward to sharing those with you once they move to future commercialization!)

Leading Production and Possibility

Illinois farmers are already at the forefront of sustainability, and the work of the Soy Innovation Center is amplifying that leadership. Precision agriculture is advancing rapidly with tools such as GPS mapping and soil sensors. In the near future, it's likely we'll even see AI-powered analytics that help you maximize efficiency while reducing environmental impact.

With over 10 million acres of soybeans planted in Illinois each year, the impact of this work is massive, not just for our state but for industries and economies around the world. At ISA, we're committed to making Illinois soy the most sought-after, sustainable and innovative choice for companies worldwide. Whether through It's Sustainably Soy or groundbreaking research happening at the Soy Innovation Center, we're proving that Illinois soy isn't just leading in production—it's leading in possibility.

365 Days of the Soy Innovation Center

Commercialization of new soy-based products underpins year-old ISA initiative

Heightened marketplace interest in sustainable products, including a push to replace petroleum with renewable ingredients, means opportunity for Illinois soybean farmers. As the Soy Innovation Center (SIC) overseen by Illinois Soybean Association (ISA) marks its one-year anniversary in March 2025, those closest to the initiative say there are plenty of reasons to be optimistic about the economic potential for meeting that demand.

"Overall, if we look at the last 50 years of soybean demand, first was naturally the meal. It was the driver for livestock, and the oil was kind of a leftover product," explains Steve Pitstick, an ISA Board Director and farmer who grows 6,000 acres of corn and soybeans about an hour west of Chicago with his son, Dale. Now soy oil, "through ingenuity and work with the different associations, got things going."

If favorable rules and tax incentives keep pushing oil demand for fuel, for instance, it could be that meal becomes the soy product in need of new buyers. The SIC will help Illinois soybean farmers pivot to meet the market by exploring opportunities across all soy products, "working with innovators within the industry, ag tech firms, startups, the U.S. Department of Agriculture lab in Peoria [see page 14 for complete details]," Pitstick explains.

From Insight to Innovation

The idea that led to the founding of the SIC—which is made up of experts and research labs instead of having a physical headquarters—came from Pitstick, a farmer who's worked in ag tech and has a patent related to agronomic processes. Those experiences exposed him to the value of bringing talented experts and researchers together to innovate new products.

"I kept thinking, 'We need to search out people at the universities, people in industry, people in labs, wherever, and show them what we have,'" Pitstick recalls. "We have this product, soybean meal and soybean oil. 'What can you do with it?' They may not be familiar with it. It might not be on their scope of thought."

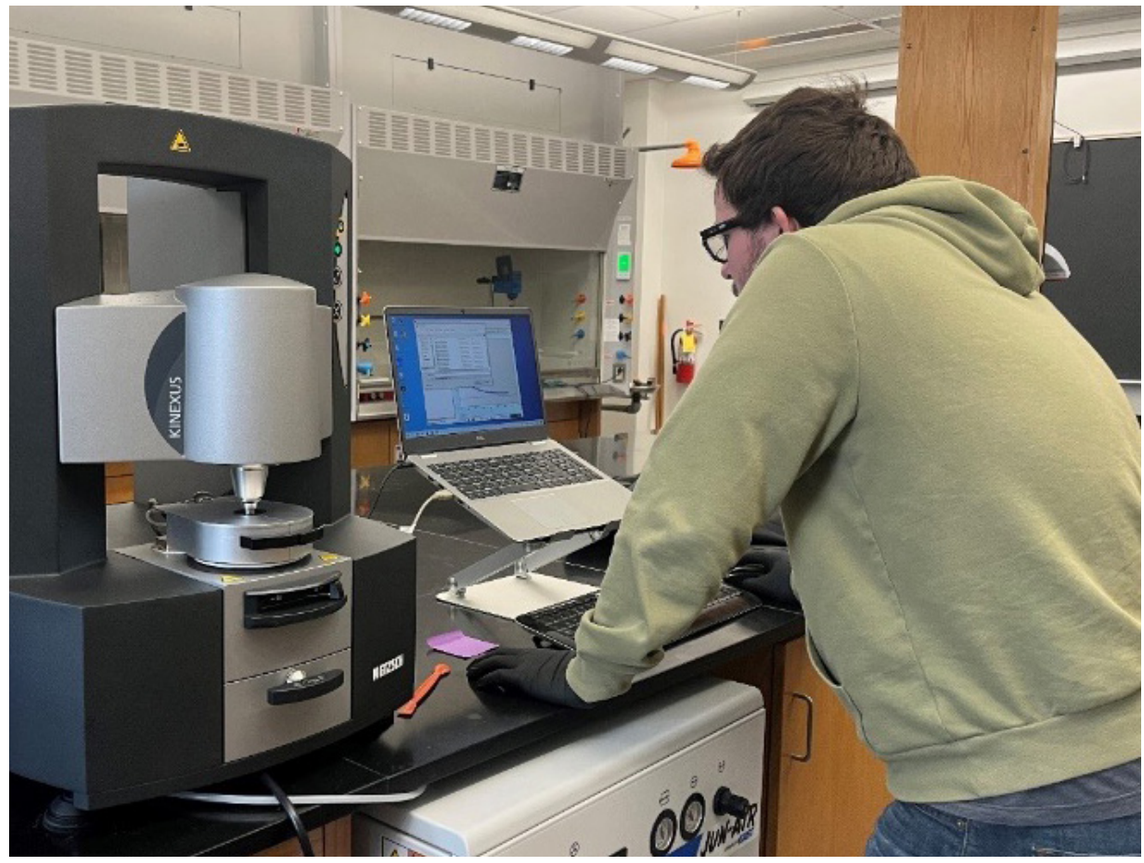
At the time, Pitstick served as ISA's Chairman.

"The startup was approved for fiscal year 2024, and we began work in September," explains ISA Director of Market Development Todd Main. "The SIC was formally launched in March, and we completed our first successful research and development work on a soy-based biolubricant for use in heavy machinery in the fall of 2024."

Now, Pitstick and Main are among a large network of ag professionals collaborating with partners such as Airable Research Lab to unlock new demand for Illinois soybeans and for the crop broadly across the U.S.

"The SIC is dedicated largely to the commercialization and widespread adoption of soy-based materials and technologies, providing both consulting and financial support to the innovators behind those products," explains Founder and Chief Laboratory Officer Barry McGraw of Airable, a soybean R&D laboratory started roughly five years ago by the Ohio Soybean Council. It is currently funded by seven soybean state checkoff organizations and is working closely to advance the SIC's mission. "The SIC acts as something of a hub, using its extensive resources—facilities, a trained workforce, access to funding, and other stakeholder contacts—to spur every stage of innovation."

(See 365 Days of the Soy Innovation Center, page 8)



An Airable scientist determines the melting parameters of a soy-based monomer at the company's Ohio headquarters. Photo credit: Airable Research Lab

365 Days of the Soy Innovation Center

(continued from page 7)

Rise of the Biobased Economy

Interest in biobased products has emerged over the past several decades, McGraw says. For many years, government agencies in the U.S. and globally have helped nudge the soybean industry in that direction.

"Governments have tried to regulate the economy into sustainability, and although that's not the most efficient or effective approach, it does encourage industry to start making preparations," he says. "The government has also invested significant resources into greener products and processes, helping to set the stage for the transition away from substances that are unhealthy for our planet and our people."

Yet the biggest factor directing soy to explore new commercial opportunities is the demand of people who live in those countries.

"At the end of the day, companies answer to consumers, and consumers are becoming more environmentally conscious and willing to pay a little more for sustainable products," McGraw points out. "They see the issues with relying on petrochemicals and other feedstocks that have wildly varying availability and pricing. They're ready to put their dollars toward greener, cleaner solutions that support the farmers right here at home. And of course, as biobased products enter the market, more consumers become aware of them and their benefits, and it becomes an upward spiral."

For industry, that means it's time to get in on the action or risk being left behind.

"Now that the market is opening up, all those years of preparation are paying off, as technology breakthroughs are making it possible to develop and produce biobased products cost-effectively—products that are just as good as, if not better than, their petroleum-based counterparts," McGraw says.

Emerging Soy Use Cases

Of particular interest to researchers affiliated with the SIC are five soy-based product categories: plastics; lubricants; textiles; PFAS alternatives; and polymers, enzymes and resins.

Already, there have been significant wins.

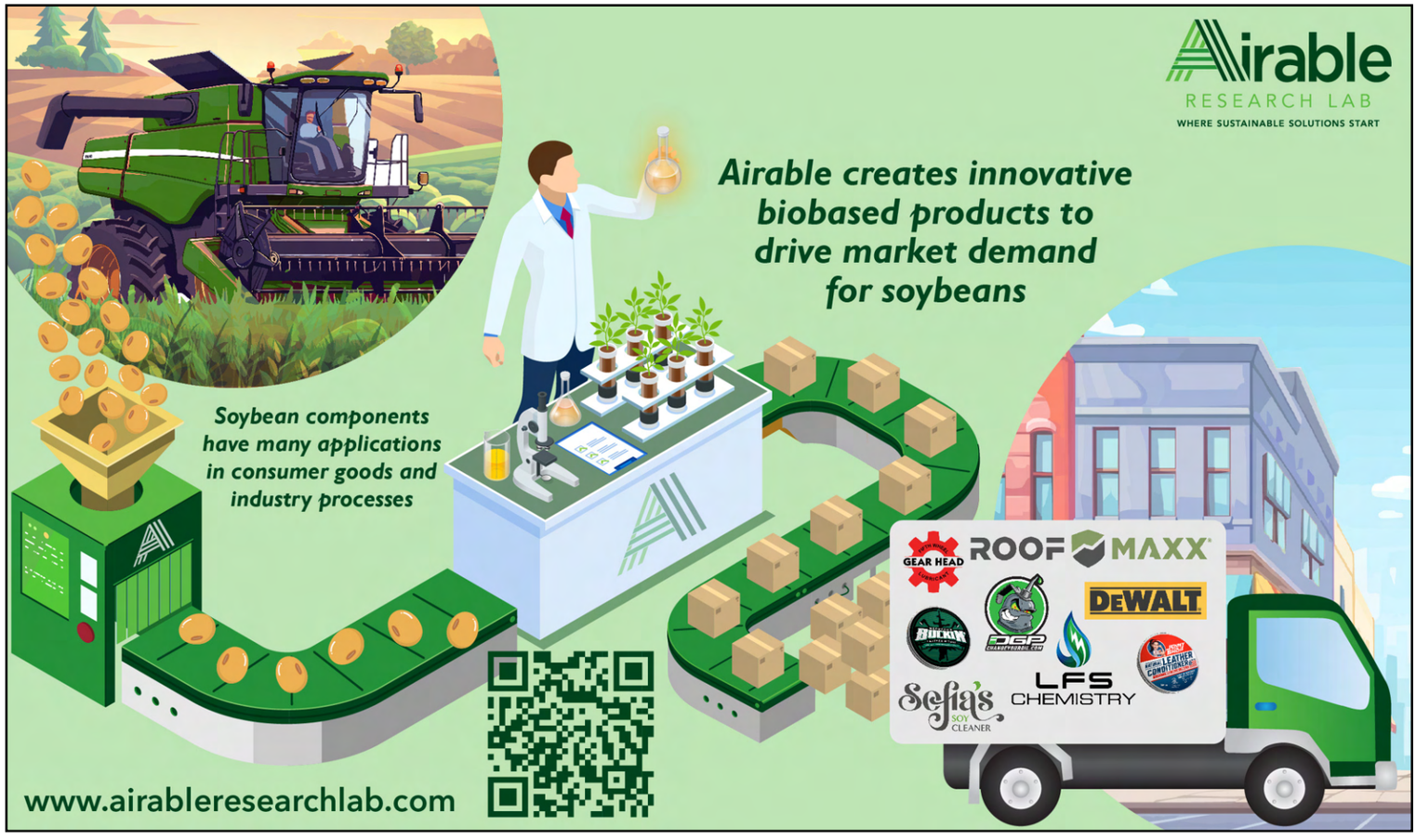
For instance, ISA and Airable have developed a soy-based grease designed to function smoothly in harsh conditions involving extreme temperatures, corrosion and chemicals.

"The formulation meets requirements for both severe-duty wheel bearing and severe-duty chassis applications," McGraw says. "The biobased formulation can displace petroleum-based oils and similar synthetic fluids and meets USDA BioPreferred® specifications.

Rough-and-tumble use cases for soy-based industrial applications extend beyond big machines to handheld ones, too. Outside of its work with the SIC, Airable partnered with Dynamic Green Products and DeWalt to successfully develop a more environmentally friendly bar and chain oil for the tool manufacturer. Before introducing a soy-based product, customers wanting a petroleum alternative had experimented with vegetable oil. That tended to go solid and gum up power tools.

As for the soy-based alternative? The sales numbers speak for themselves.

"DeWalt's bar and chain oil is now No. 1 overall on Amazon's best-selling bar and chain oil list," McGraw says. "It's available and selling well in 1,500 Home Depot stores nationwide, as well as other online platforms and brick-and-mortar locations. In its



inaugural year, we project that a single product will generate a demand of 55,000 bushels."

Those success stories speak to the fact that soy innovation is only beginning.

"Soy is a remarkable commodity that can be used for a wide variety of applications," Main says. "Our partnerships with leading research facilities in Illinois, universities and financial institutions position us well as we work to make Illinois a center of the emerging ag tech economy."

What's Ahead for the SIC

In 2025, the SIC will be managed out of ISA's Lombard offices and staffed by members of the Market Development team, Main explains. Funding for its operations comes from ISA and other partners.

Diverse collaborations will explore commercialization opportunities from every angle.

"We are working with a wide range of partners including the USDA Agricultural Research Service lab in Peoria, the Illinois Innovation Network of state universities, and private-sector companies," Main says. "They are contributing to the research and development of products in the five areas we are focusing on."

In spring 2025, several big milestones are expected at the SIC. Among other priorities, Main says, ISA and its partners will:

- Launch a new research competition
- License the SIC's biolubricant for commercial development
- Complete R&D on two more commercially viable products

"The SIC is a great example of the vision and leadership that Illinois soybean farmers bring to the table," Main says. "As the No. 1 soybean-producing state, we need to continually look for ways to innovate and diversify. Our goal is to grow new markets and support the efforts of the world's most successful agricultural producers."

Airable's McGraw similarly sees the SIC as a hub for centralizing all Illinois soybean stakeholders and research resources for future growth of the industry.

"I fully expect that Airable and the Center, in parallel and in collaboration, will continue earning and growing our reputation as leaders in soy-based innovation," McGraw says. "That recognition will attract more collaborators and more resources, which will lead not only to more soy-based products but also to the elevation of soy as an optimal alternative to incumbent feedstocks. Soy sales will rise, demand will rise and it all goes back to the farmer. Perhaps one day, soy as a feedstock will become its own industry, bringing additional economic benefits to rural areas."

Pitstick acknowledges that not all of the SIC's benefits will be apparent overnight. Instead, he and other Illinois soybean farmers can view the effort as an investment in the present and future of the soy economy.

"It's not an instant gratification," he says. "Some of the stuff might take two to five years. But if we can create demand for 10 million bushels, that's huge. As a soy checkoff and association, we need to find that 10-million-bushel growth every year just to keep up with supply."

Pitstick encourages Illinois farmers to get involved in participating on the ISA board and in other volunteer opportunities so their ideas can be heard and put to work.

"The farmer boards of 20 years ago were mostly retired farmers," Pitstick recalls. "The boards of today are much younger and sometimes have off-farm experience. Bringing all that knowledge together really builds a much more dynamic board because of that level of education."

With the support of Illinois farmers and a deep bench of other experts and partners, the Center is poised to play an exciting role at the forefront of soy product commercialization for years to come.

Funded by the Illinois Soybean Checkoff

Sustainable Solutions: The Rise of Soy-Based Plastics

By Dylan Karis, Lead Chemist, Airable Research Lab

Making plastics from crops isn't anything new. Henry Ford—who once had a suit made from soy material—used soybeans in his vehicles from the very beginning. Between molded plastic parts and paint, the Model T at one point incorporated 60 pounds of soybeans per vehicle, and in 1941, Ford debuted a car made of soy plastic. (Sadly, when World War II suspended auto production, the soy plastic car fell by the wayside.)

But Ford has continued to incorporate sustainable innovations with soy. In 2003, the company's Model U concept also featured soy-based seat cushions and a soy-based resin composite tailgate.

Since 2008, Ford Motor Company has used soy-based polyurethane flexible foam in vehicle seats. That they started with a sports car—the Mustang—was no accident. They knew using the product in the Mustang would make a statement, that its success would set the stage for more biobased adoption.

And it worked. Since 2011, every North American-built Ford product uses soy-based foam in its seat backs, seat cushions and headrests. Just six years later, the company estimated that 18.5 million Ford vehicles used the soy-based foam, converting 578 billion soybeans into an alternative to petroleum-based foam.

Today, soy-based plastics developments haven't slowed; on the contrary, they're ramping back up again, with no signs of waning.

At Airable Research Lab, recent developments include a degradable soy-based ester polyol, a soy epoxy hardener and soybean hull-reinforced polymers. Applications range from automotive and aircraft coatings to adhesives and water bottles.

In addition to Ford, many companies are using soy-based plastics commercially for products such as mattresses, garden pots, ink, carpet backing and more.

Replacing or partially replacing petroleum-based ingredients such as polyols and polyurethane helps reduce the product's carbon footprint, and it contributes to reducing emissions, reducing renewable energy use and helping reduce costs by decreasing the requirement for other ingredients. Companies are realizing the benefits of soy-based plastics.

Activities stemming from Airable Research Lab, the USDA's Biopreferred® Program, USB-funded research and the Illinois Soybean Association's Soy Innovation Center are spurring development and breaking down the barriers to commercial availability of soy-based or infused products.

And it's working. The Biodegradable Products Institute (BPI), which tests and certifies biodegradable and compostable goods, reports 10,000 BPI-certified products are now on the market including compostable bags, foodservice items, resins and certified packaging materials. That number more than doubled in just a three-year period.

So what's next? Let's take a look.

Plastics 101

Before we jump into some of the newest soy-based plastic options, we need to understand plastics themselves. Plastics are polymers—substances made of many repeating units. For plastics such as polyethylene (PE, LDPE, HDPE), polypropylene (PP) and polystyrene (PS), those units are hydrocarbons, which most

(See Sustainable Solutions: The Rise of Soy-Based Plastics, page 8)

Photo Credit: Airable Research Lab

Sustainable Solutions: The Rise of Soy-Based Plastics

(continued from page 11)

often come from petroleum. When we fractionate hydrocarbons and combine them with other ingredients, we can make plastics.

The word *plastic* derives from the Greek word meaning "capable of being shaped or molded." And that is what makes plastics so useful: they can be pressed, molded or extruded into many different shapes and forms.

Some of the most common are polyethylene terephthalate (PET) used for water bottles, polystyrene used for insulated food containers and polyvinyl chloride (PVC) used for flexible applications such as garden hoses. Often, industrial plastics are referred to as resins, commodity or specialty.

Many plastics are low-cost and single-use, but when we talk about plastics, we're using it as an umbrella term that also includes foams, coatings, adhesives, binders and other industrial components. Because petroleum-based plastic products usually aren't biodegradable, they end up in landfills. That's where soy-based plastics come in, as a sustainable, biodegradable solution.

Why Does Soy Make Good Plastic?

Soy is abundant; it is accessible; it is a renewable resource.

Because soy is more flexible, it is good for thermoplastic elastomers, which can be used in elastic coatings that withstand a lot of impact.

As a renewable resource, soy is economical and biodegradable, and its potential for many different applications makes it appealing for the plastics industry.

Interest in bioplastics, which includes soy-based plastics, has skyrocketed in the recent past, and in turn, much development and commercialization has followed. The past decade has seen intensive research in the segment, with solutions that allow industrial producers to reduce dependence on petroleum without sacrificing performance. We could spend the entire issue covering bioplastics, but for now, let's hone in on some of the most significant in the market today.

Cargill Priplast™, Pripol™, Priacid™ and Priamine™

Cargill offers a line of what it calls "smarter" products for coatings and adhesives that can be used in a wide range of applications. These building blocks make it possible for manufacturers to reduce their carbon footprint and improve their products' in-use sustainability.

Cargill offers a wide-ranging line of industrial ingredients. Its soybean-based polyols can replace petroleum-based polyols, with applications including bedding, furniture and automotive seats. With its polyester polyol products, manufacturers can replace and modify any polyurethane application, such as automotive, electronics and sporting goods.

Cargill's polyamides and polyimides make a flexible water barrier, much like nylon, used as a hardener for epoxy adhesives and protective coatings. By using the company's specialty dimer fatty acids, azelaic acid and dimer diols to modify polymers, industrial designers can reduce polymer density in lightweight applications such as food packaging.

This biobased product line's advantages are in its ability to deliver strength, stability and flexibility while allowing formulators to adjust to their specific application and product needs.

Emery Oleochemicals

Ohio-based manufacturer Emery Oleochemicals uses natural oils and fats to produce azelaic acids, pelargonic acids, stearic acids, oleic acids, tallow fatty acids, vegetable fatty acids, refined and technical grade glycerin and general-purpose esters caters.

Their dimer acids are an exciting development. Textile manufacturers can use them in polyesters and other fabrics.

They also have great potential to replace PETs in water bottles, packaging and other plastics.

PHAs or Polyhydroxyalkanoates

Water-bottle innovation using renewable ingredients doesn't stop there. For example, we're seeing a great deal of development in PHAs, or polyhydroxyalkanoates. They have many of the same properties as two of the most widely used plastics, polypropylene and polyethylene. Not only can PHAs be used for injection molding, they also have a low water permeation rating for better shelf stability and are fully biodegradable.

PHAs offer stability and versatility that appeals to industrial engineers and manufacturers. These biobased polymers are being widely used as a direct replacement for PETs, and they can also be used in any food packaging as an alternative to synthetic plastics.

In fact, food packaging and

biomedical applications are two of the main areas toward which research is being directed. PHAs are ideal for food packaging. They can prevent spoilage and have characteristics including nontoxicity, thermoplasticity (moldable when heated, solid when cooled), hydrophobicity (ability to repel water) and superior barrier properties.

Other applications for PHAs include as a replacement for metal parts, in 3D printing, in cosmetic packaging, as cleaning material and as a flame retardant. The potential for PHAs continues to evolve.

The Future

In the future, soy proteins are a category to watch, as they can be denatured to make bioplastic. Soy protein is inhomogeneous and hard to control, but research is promising. We are seeing more interest in research into proteins and meal and how to make them into bioplastic, with a goal of better degradability and better sustainability.

Dylan Karis is Lead Chemist for Airable Research Lab, which provides early-stage soy-based materials research, reducing the financial risk for industrial and consumer partners.

For more information visit ***www.airableresearchlab.com.***

Airable
RESEARCH LAB
WHERE SUSTAINABLE SOLUTIONS START

Funded by the Illinois Soybean Checkoff

Soy Utilization Accelerator

Illinois soybean farmers can expect breakthrough innovations and brand-new commercial products from an emerging partnership between Illinois Soybean Association (ISA) and the Peoria-based National Center for Agricultural Utilization (NCAUR) in Peoria, Ill.

The 270,000-sq.-ft. research facility, part of the Agricultural Research Service (ARS) at the U.S. Department of Agriculture (USDA), employs nearly 200 people including 75 Ph.D. scientists and highly trained technical support staff. They've been studying soybean use cases extensively for 60 years.

"Research at NCAUR is designed to address issues that are important to soybean farmers and everyone in the soy value-chain," explains Dr. Todd Ward, NCAUR director. "The partnership with the ISA is a perfect fit for us because we share the same mission, developing and commercializing new value-added uses for soy. The goal is to increase economic opportunities for farmers and rural communities while providing sustainable biobased products and technologies to meet market needs."

The lab's successful track record and reputation makes it an ideal partner as ISA continues to investigate demand pathways as Illinois soybean production rises.

"This is one of the leading research facilities in the state and will be an important partner moving forward with our mission of developing new markets for Illinois soy," says ISA Director of Market Development Todd Main.

New Product Opportunities

One of the partnership's first research projects is to explore soy-based alternatives to PFAS, sometimes called forever chemicals. "PFAS has a $28-billion-plus market value," Ward says, "yet manufacturers are eager to find alternative products amid persistent health and environmental concerns."

"The true cost of PFAS, including water and environmental remediation and health care costs associated with PFAS exposure are estimated to be trillions of dollars," Ward explains. "We are therefore planning to use soybean oil to produce renewable, nontoxic, and biodegradable PFAS replacements for food packaging and coatings applications."

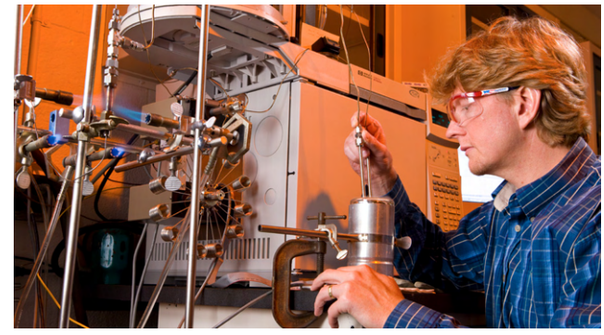
"Soy-based solutions could also support products as diverse as textiles, cookware, cosmetics and firefighting foams," he adds.

Another area of focus for the partnership will be continued diversification of soy meal applications.

"Expanding markets for soybean oil will drive the need for research to develop high-volume and value-added applications for soybean meal components," Ward says. "Our plant polymer team is particularly interested in this area of research, and they are developing new research programs designed to address this specific issue."

Beyond research, NCAUR researchers seek to learn more from ISA about soybean industry needs, markets and commercialization barriers. The facility can then adapt its research focus to address those emerging opportunities and challenges.

"This is an important and valuable asset for developing new markets for soy," Main



Dr. David Compton, a researcher in NCAUR's Renewable Product Technology Research Unit, processes modified soybean oil into sunscreen.

Dr. Kenneth Doll, formerly of the Bio-Oils Research Unit, measures the properties of modified soybean oil at NCAUR.

says.

Expertise and Equipment

"What sets the NCAUR facility apart from other research labs is its deep bench of expert talent committed to advancing ag to address issues of national and international importance," says Ward, who has a background in genetics and microbiology. Before directing the lab, he worked for 20 years as a USDA researcher improving food safety and crop production.

An array of technical equipment also helps researchers conduct deep studies and even pilot new products that can be scaled and commercialized by industrial partners.

"These include equipment for melt extrusion for producing bioplastic, biocomposite, and foamed bioplastic samples; industrial-scale injection and compression molding equipment; and microfluidizer equipment for producing nanocellulose from agricultural materials and wastes," Ward explains. "Additionally, NCAUR contains specialized equipment for the determination of fuel, lubricant, surfactant and polymer properties of soybean materials."

The facility's researchers have led multiple breakthroughs over the decades, a pattern the ISA partnership will advance.

"In the 1950s, NCAUR scientists were already doing research on soybean proteins and were among the first to establish the composition, structure, nutritional quality and functional properties of soybean proteins," Ward says. "They also developed bench-scale methods to extract the protein and produce protein concentrate."

Innovation Horizon

Looking ahead, Ward is energized about several of the lab's additional ongoing areas of study focused on soybean market diversification, particularly in value-added soy oil applications.

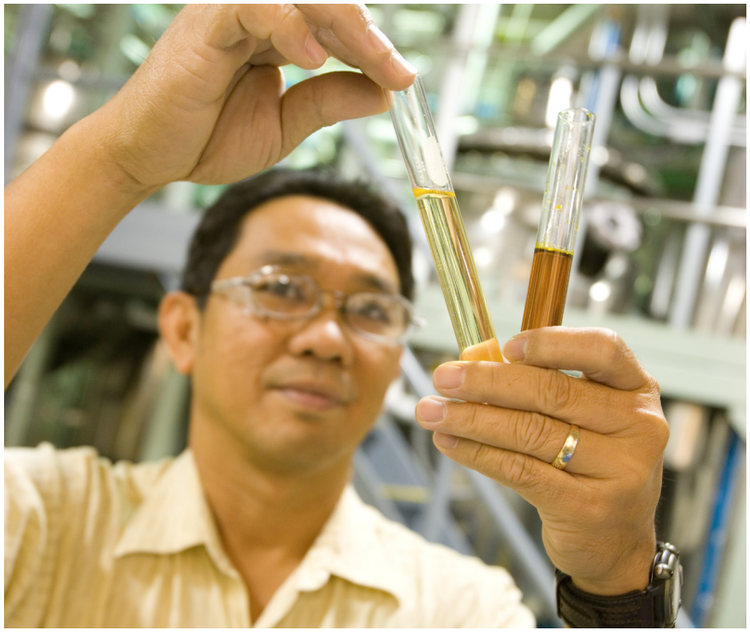
Among the applications he highlights:

- **Renewable Monomers:** By 2031, the global monomer market is expected to reach more than $58 billion. Monomers are the building blocks for polymers, which make up textiles, plastics, adhesives, coatings, paints and packaging materials. Petroleum and natural gas are used almost exclusively as polymer feedstocks today, a key opportunity for soy.
- **Composites:** "Food packaging is a $360 billion market and is expected to grow 5.7% through at least 2030," Ward says. It provides extended shelf life, handles high moisture levels, resists grease and ensures food safety. Biodegradable soy oil could increasingly replace packaging materials that are currently single-use and nonrenewable.
- **Epoxy Resins:** These materials go into adhesives, paints and coatings, providing them with high strength, stiffness, top-notch electrical performance and high chemical resistance. They represent a combined market of $261 million that's anticipated to grow between 6% and 7% annually through 2030. Yet today, most are petroleum-based and contain bisphenol A (BPA), which is toxic and does not biodegrade. Soy could provide comparable or superior performance.
- **Hydroxy Fatty Acids:** Castor oil from Brazil, China and India can be synthesized for use in lubricants, grease, cosmetics and polymers. The market for one such hydroxy fatty acid, ricinoleic acid, is anticipated to grow from $2.2 billion in 2023 to more than $3.8 billion by 2032, yet poses agronomic and human-health problems. Thus, the lab has developed a system that creates these acids from soy oil at a competitive price to castor oil.

All these and other research opportunities will continue to benefit from close collaboration with Illinois soybean farmers and the broader ag community.

"The ISA partnership is a major benefit to us because it provides us with information that will help us develop research programs that have a direct and positive impact on the soybean industry," Ward says. "USDA research programs are responsive to stakeholder input, and I encourage Illinois soybean producers and the ISA to continue to make their priorities known to USDA scientists and leadership."

Photos credit: BAUER Photographics, Inc.



Dr. Roque Evangelista, a researcher in NCAUR's Bio-Oils Research Unit, compares soybean oil with wild pennycress oil in the NCAUR Bio-Oils Pilot Lab.

ISA's Sustainably Certified Companies

The **It's Sustainably Soy** program is one of many forward-thinking initiatives housed within the Illinois Soybean Association's Soybean Innovation Center, a hub dedicated to driving new markets for sustainable soy-based products. It's Sustainably Soy helps businesses demonstrate their commitment to renewable, soy-based solutions.

It's Sustainably Soy launched in August 2023. Less than two years later, the program boasts more than 63 Sustainably Certified products, each of which must meet the standards outlined by the USDA's BioPreferred® Program. To be certified, the percentage of soy used in the company's products must be comparable to the minimum standards outlined in the BioPreferred® Program.

Farmers can play a key role in growing this movement by inviting companies to explore It's Sustainably Soy certification. If you know a business that could benefit from this program, encourage them to learn more and apply at ***www.ilsoy.org/soycertification/.***

Learn more about the 15 Sustainably Certified companies and the products they offer.

Al Warren Oil Co. Inc.

Al Warren Oil incorporates soy-based lubricants into its product lines. These soy-based products are derived from renewable soybean oil and are part of the Sustainably Certified product lineup:

- Engine Oils: High-performance lubricants suitable for various engine types, providing superior wear protection and improved fuel economy.
- Hydraulic Fluids: Eco-friendly alternatives for hydraulic systems, ensuring efficient operation and reduced environmental impact.
- Gear Oils: Lubricants designed for gearboxes and other machinery, offering excellent friction reduction and durability.
- Greases: Multi-purpose greases that provide long-lasting lubrication for various applications, enhancing equipment longevity and performance.

Learn more at ***www.alwarrenoil.com***.

Ashland Inc.

Ashland's transformed vegetable oil (TVO) innovation platform offers new options to the world of soybean oil-based additives. All TVO products are biodegradable, nature-derived, non-GMO, vegan and non-microplastic, offering sustainable solutions for personal care applications.

Ashland's Sustainably Certified products include:

- Antaron™ soja glyceride is a film former with water resistance, SPF boosting, pigment wetting and long-wear transfer resistance for use in sun care and cosmetics.
- Softhance™ mr conditioning agent is a conditioning agent with an excellent deposition profile from rinse-off hand, body and facial cleansers that provides skin moisture retention and consumer-perceivable skin softness.
- Gantrez™ soja delivery system is a delivery that is substantive to oral mucosa and enamel to retain oral care activities in the mouth for long-lasting benefits.
- TVO products offer flexibility in the use of vegetable oils, allowing for environmentally and socially conscious decisions with respect to the sourcing of oils.

"We are proud to partner with the Illinois Soybean Association, whose recognition of our innovative soy-based solutions speaks to our commitment to sustainable progress. Sustainably certifying our products strengthens our commitment to Environmental, Social and Governance (ESG) innovation. Soy-based products, when responsibly sourced, support this vital initiative and contribute to a healthier lifestyle for future generations."

Learn more at ***www.ashland.com.***

Clean City Innovations LLC

"Being a Sustainably Certified company is important as it reinforces our core value of providing highly effective solutions while protecting people and the environment. Clean City Pro offers highly effective next-generation soy-based eco-friendly graffiti removers. We seek to eliminate the trade-off between product effectiveness and safety. We are committed to bringing the best, safest and most effective innovative green graffiti removers to transit agencies, public works, school districts, park districts, property management and more."

Clean City Innovations LLC's Sustainably Certified products include:

- Clean City Pro Red Label Heavy Duty Graffiti Remover
- Clean City Pro Blue Label Gel Heavy Duty Graffiti Remover

Learn more at ***www.cleancitypro.com***.

Cottage Goods

Cottage Goods began making its own soy candles to reduce soot and toxins in the home in 2000. Twenty-five years later, they continue to expand their offerings and explore natural alternatives for products that are used in people's homes and on their skin.

Cottage Goods' Sustainably Certified products include:

- Hand-poured Soy Candles and Melts (to use in warmers)
- Natural lotions

Learn more at ***www.cottagegoods.com***.

EDEN Concept Fill

"We're privileged to be included as a Sustainably Certified company. We created Cellyfill as a fully sustainable cushion material which can be easily made from soy hulls. Cellyfill is scalable because it's cellulose-based, is a byproduct of soy, and therefore has worldwide implications for converting a waste product to cushion fill. In other words, this is an extremely high-value use of a soy byproduct, leading to great economies of scale for the entire soy industry."

EDEN Cellyfill offers the following Sustainably Certified product:

- Cellyfill

Learn more at ***www.eden-cellyfill.com***.

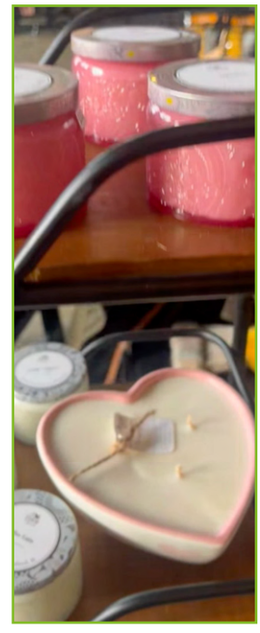
Farm to Wick LLC

"We choose soy wax for its obvious health benefits and its friendliness to our environment. But, deeper than that, we have deep roots in the farming industry and wanted a product that would support our local farmers and the agricultural industry. Knowing our products are Sustainably Certified shows our clients we care about creating high-quality products that are deemed top of the market and proves our dedication to keeping our customers healthy and safe."

Farm to Wick's Sustainably Certified products include:

- Candles
- Wax melts
- Lip balm

Learn more at ***www.farmtowick.com***.



(continued on page 18)

ISA's Sustainably Certified Companies

(continued from page 17)

Franmar Inc.

"Franmar was interested in the It's Sustainably Soy certification because the program aligns with our core values. For 40 years, we have developed products that rely on American-grown soybeans rather than harsh, dangerous chemicals. We want people to be able to undertake cleaning and restoration projects without risking their health or harming the environment. Receiving this recognition from the ISA is a way of reinforcing those values. As consumers demand more environmentally friendly practices and products, being Sustainably Certified helps Franmar stand out in support of those principles in a crowded, competitive marketplace."

Franmar's Sustainably Certified products include:

- BLUE BEAR Soy Gel
- BLUE BEAR Soy Gel Spray
- BLUE BEAR Soy Gel 600GL
- BLUE BEAR Soy Gel Spray 610GL
- BLUE BEAR Hard Surface Graffiti Remover
- BLUE BEAR Porous Surface Graffiti Remover
- BLUE BEAR Hard Surface Graffiti Remover 680HS
- BLUE BEAR Porous Surface Graffiti Remover 682PS
- BLUE BEAR Bean Mastic Remover
- BLUE BEAR Bean 500MR Mastic Remover
- BLUE BEAR Ickee Stickee Unstuck Adhesive Remover
- BLUE BEAR Ickee Stickee Unstuck 740AD Adhesive Remover
- Franmar Ickee Stickee Unstuck Adhesive Remover
- BLUE BEAR BEAN Asphalt Remover
- BLUE BEAR BEAN 300RE Asphalt Remover
- BLUE BEAR BEAN 360AR Asphalt Release
- BLUE BEAR Concrete Form Release 800GP
- Franmar BEAN Plastisol Ink Remover
- Franmar Greeneway Ink Remover
- Franmar UV Ink Remover
- Franmar Wash Away Solvent Ink Remover
- Franmar D Haze; Franmar D Haze Gel
- Franmar Haze Remover ES

Learn more at ***www.franmar.com***.

HempWood

HempWood offers sustainable flooring and lumber to its customers. Its products are made with soy flour adhesives, which are a natural replacement for formaldehyde and phenol-based resins.

"By having our flooring and lumber Sustainably Certified, we provide our customers with even more transparency and in return, our customers can feel confident in selecting the right materials for their home."

HempWood's Sustainably Certified products include:

- HempWood Lumber
- HempWood Natural Flooring

Learn more at ***www.hempwood.com***.

Lilaque

"As the first and only soy-based nail polish brand, obtaining sustainability certification was a natural step for Lilaque. This achievement aligns perfectly with our mission to provide eco-friendly solutions for consumers who care about both the environment and their well-being."

Lilaque is proud to offer the following Sustainably Certified product:

- Gel nail polish

Learn more at ***www.lilaquenails.com***.

Low Mu Tech

"We are glad to be representing American soybean farmers in the production and development of innovative technologies that are soy protein-based. The products we offer provide the opportunity for increased net revenue per acre for all farmers who choose to use a cleaner, safer soy product represented by NewFields Ag. Our products allow the soybean farmer to touch their checkoff dollars at work–and not have to eat a graphite sandwich while planting. One of the many benefits to our planter-box products is the products having a soy protein foundation, which gives the farmer using our product the flexibility to treat seed months ahead of time, knowing the biology will still be strong and effective when the seed is planted.

Low Mu Tech is proud to offer the following Sustainably Certified product:

- Low Mu Tech DUST

Learn more at ***www.lowmutech.com***.

Natural Soy Products

Grown and engineered in the heartland, Natural Soy Products offers renewable, reliable non-toxic lubricants and cleaners.

Their Sustainably Certified products include:

- Graffiti remover/paint stripper
  - California DOT Approved Product
- Gearhead 5th wheel grease pads
- Gearhead penetration lubrication oil
- Asphalt remover
- Adhesive remover
- Concrete form oil
- Railroad rail lubrication stick

Learn more at ***www.natsoy.com***.

Solvent Systems International Inc.

As a Sustainably Certified company, Solvent Systems International (SSI) believes that using soy-based products encourages innovation in the market for more sustainable products and opens doors to new markets and customers. Using soy enhances its trust with customers and employees.

SSI's Sustainably Certified products include:

- Aqua Soy Water Dilutable De
- Soy Methyl Ester
- Soy Graffiti Remover
- Soy Ultrasolve Degreaser
- Soy Crude Glycerin
- Soy Refined Glycerin
- Soy Glycerin Dust Control
- Soy Glycerin Ice Melt
- Soy Mastic Remover

Learn more at ***www.solvent-systems.com***.

Vertec BioSolvents, Inc.

Vertec is a manufacturer of sustainable, safe, biobased green solvents and solvent blends. The VertecBio Gold® product line is ideal for paint strippers, graffiti removers, heavy asphalt cleaners and degreasers.

Their Sustainably Certified products include:

- VertecBio Gold #1EG
- VertecBio Gold #2EG
- VertecBio Gold #3EG
- VertecBio Gold #4EG

Learn more at ***www.vertecbiosolvents.com***.

Wax Buffalo LLC

Wax Buffalo is a woman-owned home goods brand nestled in the heart of the Midwest. They use 100% domestically sourced soy wax to create their candles.

Wax Buffalo offers the following Sustainably Certified products:

- Pure soy wax candles

Learn more at ***www.waxbuffalo.com***.

Celebrating Soy-Based Solutions

By Jaidyn Miller, Domestic Markets Coordinator, Illinois Soybean Association

In an era where sustainability and environmental consciousness are at the forefront of global discussions, soy-based solutions have emerged as a powerful and eco-friendly alternative to traditional products. As the world seeks innovative ways to reduce environmental impact, soy is proving to be a game-changer, offering a renewable, biodegradable and nontoxic alternative to harmful chemicals.

Although soy is often thought of primarily as a food ingredient or as a substitute for meat and dairy, its applications now extend far beyond the kitchen. From industrial uses to innovative consumer products, soy-based materials are driving sustainable advancements across industries, proving its versatility as a key component in building a greener, more sustainable future.

ISA's Role in Leading Soy's Revolution

The Illinois Soybean Association (ISA) is supporting soy's revolution in several ways, including championing the adoption of soy-based solutions through the It's Sustainably Soy certification program. This initiative is just one of the ways ISA is amplifying soy's impact, ensuring it becomes a vital part of the global sustainability narrative.

Background: Bridging the Gap in Sustainability

Despite the availability of various sustainability certifications, the soy industry faced challenges in creating a clear, unified and consumer-friendly program that could bring together environmental, social and economic sustainability into one cohesive standard. Recognizing this gap, ISA's Market Development Team collaborated to create a comprehensive framework that addresses these needs. The result was the It's Sustainably Soy certification program.

This program goes beyond farming practices to include the entire soy supply chain, from cultivation and processing to packaging and distribution. By providing a clear standard, it helps companies and consumers make informed choices, fostering greater trust in soy-based products.

What began as an idea to acknowledge organizations incorporating soy-based products into their daily operations has evolved into a far-reaching initiative with a much broader impact. Today, the program not only recognizes organizations that actively use soy-based products but also highlights the companies and manufacturers who produce and market these innovative solu-

tions. By expanding its focus, the program fosters collaboration across the entire soy value chain, driving awareness, adoption and innovation in sustainable soy-based products.

ISA's Sustainably Certified Companies and Products

Since its launch alongside the Soy Innovation Center in March 2024, ISA's It's Sustainably Soy certification program has made remarkable progress, certifying 13 companies and more than 60 products to date. These certified products span a wide range of industries and applications, showcasing the incredible versatility of soy. The program has certified everyday consumer items like candles, lip balms, hand lotions and nail polish as well as industrial solutions such as lumber, engine oils, greases, and graffiti or adhesive removers. It's Sustainably Soy highlights soy's potential to transform virtually any market or industry.

Why Choose Soy?

With numerous alternative raw ingredients available, many may wonder: Why soy? The answer lies in its sustainability and versatility. Soy-based products are rooted in environmentally friendly farming practices. Unlike petroleum- or mineral-based inputs, soy crops are renewable, abundant and return each season without depleting natural resources.

Using soy-based and other biobased inputs in products helps support the agricultural economy in Illinois and nationwide. When companies and organizations make the switch to soy- and biobased inputs, they're not just supporting the environment, they're supporting the hardworking farmers and farming families across Illinois.

Looking to the Future

As research and innovation continue to push the boundaries of what soy can achieve, the potential applications for this versatile crop are endless. Because soy can be used in bioplastics, textiles, biolubricants, medicines, renewable energy sources and more, the crop is poised to redefine sustainability in ways we are only beginning to imagine.

This shift is not just about individual choices; it's about a collective movement toward environmentally responsible industries, sustainable farming practices and cleaner, healthier living. As more companies and consumers embrace soy, eco-friendly solutions will increasingly become the norm rather than the exception.

Through initiatives such as It's Sustainably Soy, ISA is leading the charge, demonstrating how collaboration and innovation can unlock soy's full potential. As we continue to explore new uses and applications, it's clear that the future of sustainability is rich with possibilities.

Interested in joining our more than 60 It's Sustainably Soy Certified products and projects? Apply for certification today at ***www.ilsoy.org/its-sustainably-soy-application/***. Have questions about what it takes to become certified? Contact me at ***jaidyn.miller@ilsoy.org.***

Illinois Agriculture Faces Tax Uncertainty

By Collin Cisco, Public Policy Manager, Illinois Soybean Association

The Tax Cuts and Jobs Act (TCJA) of 2017 introduced several tax provisions that provided significant benefits to U.S. farmers, including soybean producers in Illinois. However, many of these provisions are set to expire at the end of 2025, potentially raising tax liabilities and complicating farm succession planning. Understanding the impact of these changes—particularly the estate tax, Section 199A deductions, and the stepped-up basis rule—is crucial for Illinois farmers who aim to safeguard their financial future and secure their ability to continue farming.

Estate Tax Implications

One of the most impactful provisions of the TCJA for farmers was the temporary doubling of the federal estate tax exemption. In 2025, the exemption will increase to approximately $13.99 million per individual, but this will revert to pre-TCJA levels in 2026, estimated to be around $7 million per individual, adjusted for inflation. This rollback will subject more farm estates to federal estate tax, placing a significant financial burden on farm families.

Illinois also has its own estate tax with an exemption threshold of $4 million—substantially lower than the federal exemption. This means that even if a farm estate isn't subject to federal estate tax, it could still face Illinois estate taxes. Recent legislative efforts, such as HB2368, aim to extend the estate tax threshold and reform tax provisions, potentially reducing the burden on farmers. However, unless this bill passes, many Illinois farm families might be forced to sell land or equipment to cover estate tax liabilities.

The consequences of a reduced estate tax exemption could be severe. Illinois soybean farmers often operate on land that has appreciated significantly in value over generations, making their estates vulnerable to taxation, even if their cash flow remains modest. Without careful planning, a reduced exemption could force heirs to sell farmland to pay estate taxes, disrupting multi-generational farm operations.

Section 199A Deduction and Income Tax Changes

The Section 199A deduction, also known as the qualified business income (QBI) deduction, allows pass-through entities—such as sole proprietorships, partnerships, and S corporations—to deduct up to 20% of their qualified business income.

This deduction has been a valuable source of tax relief for farmers, reducing their effective tax rates and allowing them to reinvest in their operations.

However, with Section 199A set to expire in 2025, many farmers will face higher taxable income and, consequently, higher federal tax liabilities. This could be particularly challenging for small and mid-sized farms operating under pass-through structures. Without the deduction, these farms will need to explore other tax-planning strategies to mitigate the increased tax burden.

In addition, individual tax rate reductions implemented under the TCJA will expire, reverting to higher pre-2018 rates. This could further increase tax burdens for farm families who file jointly or as sole proprietors, reducing available capital for investment and expansion.

Stepped-Up Basis and Capital Gains Taxes

The stepped-up basis provision plays a crucial role for farm families seeking to transfer land and assets to the next generation. This rule allows heirs to reset the tax basis of inherited assets to their fair market value at the time of the original owner's death, minimizing capital gains taxes if the assets are later sold.

Although the stepped-up basis is not explicitly set to change with the expiration of the TCJA, it has been the subject of ongoing debate in Congress. Some lawmakers view changes to the stepped-up basis as a potential source of funding for other legislation. Any future attempts to alter or eliminate this provision could impose a significant tax burden on heirs, potentially forcing them to sell inherited farmland to cover capital gains taxes. This would further jeopardize the continuity of family farming operations in Illinois and across the nation.

Impact on Illinois Soybean Farmers

The expiration of these TCJA provisions will have far-reaching consequences for Illinois soybean farmers, including:

1. Higher Estate Taxes: More farm estates will become taxable at both federal and state levels, placing additional financial pressure on families inheriting farmland.

2. Increased Income Taxes: The expiration of the Section 199A deduction will increase taxable income for many farmers, reducing profitability.

3. Uncertainty in Farm Succession: Changes in the tax code will complicate estate and succession planning, making it harder for farm families to pass operations to the next generation.

4. Potential Land Sales: Higher taxes may force some farmers to sell portions of their land or assets, reducing farm size and potentially losing family-owned farms to larger corporate operations.

To mitigate these impending tax increases and protect the future of their farms, Illinois Soybean Growers is working with state and federal legislators to advocate for policies that ensure farmers can continue working and thriving in Illinois.

The expiration of key TCJA provisions poses a significant challenge to Illinois soybean farmers, threatening their financial stability and their ability to pass farms down to future generations. By proactively addressing these changes through careful estate planning, tax mitigation strategies and legislative advocacy, farmers can protect their operations and preserve their freedom to farm. As movement on these provisions approaches, staying informed and taking early action will be essential to ensuring the long-term viability of family-owned farms in Illinois.


WISHH leverages partnerships
for U.S. Soy to help meet the protein needs of 8 billion consumers
ASA
American Soybean Association
WISHH
WORLD INITIATIVE FOR SOY IN HUMAN HEALTH
UNITED SOYBEAN BOARD
FLOWCODE
PRIVACY.FLOWCODE.COM
wishh.org

Reducing Fossil Fuel Reliance with Soy Innovation

TODD MAIN | DIRECTOR OF MARKET DEVELOPMENT | ILLINOIS SOYBEAN ASSOCIATION

Have you ever considered what's in the products we use daily? Or what impact they might have on us and our environment? If so, you're not alone. U.S. consumers increasingly are asking these questions and signaling their desire for renewable alternatives to harmful chemical compounds. Petroleum and other synthetic materials, including PFAS, are common feedstocks in products we buy every day. These non-renewable resources are commonly referred to as "forever chemicals" and can have serious effects on our health and the environment.

In this issue of ***Illinois Field & Bean***, you've read that soybeans are an abundant and sustainable alternative to many of these chemicals, offering significant economic, health and safety benefits for all parties involved. Through the Soy Innovation Center (SIC), the Illinois Soybean Association (ISA) is supporting the research, development and commercialization of sustainable, soy-based products.

Over the last year, the SIC has made several strides in the soy-based product space, including the successful development of a heavy equipment lubricant designed for on-farm use. Building on this momentum, we have evaluated the potential market opportunity and refined our focus to five scalable priority areas: additional biolubricant markets, bioplastics, PFAS alternatives, polymers and fermentation technologies, and biotextiles.

A recent ISA-funded study revealed that the global biolubricant market is projected to grow by nearly $10 billion by 2030, driven by increasing industry adoption. The study also predicts the soy-based biolubricant market will grow by over $100 million by 2030, providing the perfect opportunity for the nation's No. 1 soybean-producing state.

Traditional plastics have revolutionized daily life but have created significant environmental challenges. Plastic production is estimated to generate around 1.8 billion tons of greenhouse gas emissions each year, and plastic waste takes centuries to break down in landfills. In contrast, soy-based plastics are renewable and biodegradable. And as the demand for sustainable alternatives continues to grow, it drives increased demand for soybeans.

A 2023 market analysis by the United Soybean Board (USB) identified textiles as a major growth opportunity for soy, outpacing markets such as personal care and home improvement products. Soy-based textiles offer significant benefits, the primary being that they are made from soy protein and leftover hulls from soy oil and food production. This approach minimizes impact on existing food markets and brings soy closer to becoming a zero-waste resource.

Additionally, the SIC is exploring opportunities for soy-based polymers, which have been established as an excellent market for soy. The global market for monomers, which are used to produce a wide range of important polymers, is expected to grow from a value of $38 billion in 2022 to more than $58 billion in 2031. The SIC team is currently working with our partners at Airable Research Labs and the USDA ARS lab in Peoria to develop a process to use soybean meal as a feedstock for polymer production in textiles, plastics, adhesives, coatings, paints and packaging materials.

Illinois soybeans are uniquely positioned to meet the growing demand for sustainable, renewable solutions across various industries. From biolubricants and bioplastics to PFAS alternatives and biotextiles, soy-based innovations are paving the way for a more sustainable future. As ISA and the SIC continue to drive these advancements, we not only create economic opportunities for Illinois farmers but also address pressing environmental challenges. By investing in these scalable markets, we can ensure a brighter, greener future for all.

SOY innovation center

ANDREW LARSON | DIRECTOR OF GOVERNMENT RELATIONS & STRATEGY | ILLINOIS SOYBEAN ASSOCIATION

An Illinois Low Carbon Fuel Standard Will Diminish Soybean Markets

Over the last four to five years, biofuels have seen a dramatic increase in the role that they play in decarbonizing our transportation sector as a country. Specifically, the State of California enacted a Low Carbon Fuel Standard or LCFS with the intention of leading a zero-carbon transportation sector. You probably have seen announcements about California banning the sale of new liquid fuel-powered vehicles in the years to come. These programs are designed as political programs to achieve specific outcomes. For California, that means moving away completely from the use of fossil or any other liquid fuel.

The end game of California's LCFS is to eliminate all liquid fuels—even biofuels. The pathway to get there relies on the use of biofuels in the heavy transportation sector. For many passenger vehicles, this transition is happening quickly with the use of electric vehicles. However, in other industries such as long-haul trucking, intensive heavy machinery and several other industries that rely on diesel engines, the transition to electrification is not a simple or quick process. To reduce dependence on fossil fuels, California's LCFS program has increased the use of biodiesel and introduced the use of renewable diesel into their market. At the beginning stages, due to the availability of fuels and feedstocks, soybean oil had a short-term boom going into the California biodiesel market. That boom increased when California started incorporating renewable diesel. These products are often confused but are very different in their production and end use profiles. While biomass-based diesel has seen growth, soybean oil makes up less than 15% of the market today compared to over 50% a few years ago.

Unfortunately for soybean farmers, we've been led to believe that we would have a reliable, long-term market under the California LCFS to supply soybean oil-based biodiesel and renewable diesel. However, the California Air Resources Board (CARB), an unelected group of bureaucrats, have capped and limited soybean oil. It has been replaced by imported "waste" feed stocks usually coming from Southeast Asia and often favors these products over American-produced feedstocks.

It is undeniable that in the short-term, increased demand has been generated in California for soybean oil into their biofuel market, and it is only a matter of time until California looks to completely remove row crop agriculture-based biofuels from their markets.

Currently, Senate Bill 41 has been introduced here in Illinois that would seek to create a LCFS. Illinois Soybean Growers (ISG) has been lobbying and advocating to ensure this legislation does not have a harmful impact on our in-state market for biodiesel that uses over 300 million gallons of B100 annually. The oil from more than 100 million bushels of soybeans is used to make that fuel. There are many actors at the table in support of this legislation who are looking to provide better outcomes for agriculture than are found under the California program.

However, our organization remains deeply concerned with placing the power over our in-state market for biodiesel in the hands of an unelected bureaucratic entity. The Illinois Pollution Control Board would be authorized to exercise great administrative power to implement the legislation. This includes the use of modeling that penalizes Illinois farmers for the production practices of Brazilian farmers. The Argonne GREET model contains this penalty called "Indirect Land Use Change" or ILUC.

Our organization believes firmly in the current state policy that encourages blending to increase from B11 to B20 by April 2026. That trajectory for usage of biodiesel is in the best interest of our farmers, our economy and the people of the State of Illinois. In the coming months, we will continue to educate and engage farmers across the state to stand up and oppose this harmful legislation. To continue to learn more and to engage, visit ***www.ilsoy.org***.

THE POWER OF YOUR SOY INVESTMENT

UNITED SOYBEAN BOARD™

Global demand. Local return. The value of your state and national soy checkoff is stronger than ever. In the last 5 years, your investments have...

CREATED JOBS AND GROWN THE ECONOMY

$9.8B

added to the U.S. GDP

~$1B

generated in tax revenue in 2023 alone

$36M county | $244M state | $655M federal

30,932

U.S. jobs created

***$2.6B**

in U.S. employment income

DRIVEN DEMAND FOR U.S. SOY

***1.8B** *bushels*

or 18% increase in U.S. soybean exports

Increase in meal exports by 5.2M short tons and oil exports by 3.4B pounds

1B *bushels*

or 9% increase in domestic demand

Increase in meal demand by 10M short tons and oil demand by 4.6B pounds

DELIVERED VALUE TO YOUR FARM

$12.30

return for every $1 invested

AT LEAST 4.5-TO-1 RETURN ACROSS FOUR CATEGORIES:

1. *Export market development*
2. *Domestic demand-enhancing research*
3. *On-farm production research*
4. *Soybean promotion*

Learn more at unitedsoybean.org

*Export initiatives supported by United Soybean Board, Qualified State Soybean Boards, the U.S. Soybean Export Council and USDA Foreign Agricultural Service. Source: Kaiser, H.M. 2024. An Economic Analysis of the United Soybean Board and Qualified State Soybean Boards' Demand- and Supply-Enhancing Programs. Cornell University.

Sent to you compliments of:

Illinois Soybean Association
1108 Trinity Lane
Bloomington, IL. 61704