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Soy Power
Current food trends have soy uniquely in the sweet spot. And if farmers play their cards right, the end result could be more demand for consumer food applications.

A New Soy Gold Mine?
Innovative biodiesel use could help reduce harmful emissions attributed to ship operations.

Harness Tomorrow’s Technology
Ag technologies are accelerating at a mind-boggling pace, as a new generation of smart farming, sensors, big data, robotics and machine learning is on the horizon and poised to revamp the entire food chain.

Crop Adviser Comments
CCA Soy Envos are monitoring soybean conditions statewide this season and share here their observations from various regions.

Big Company Profitability and Sustainability
Leading companies from around the world are proving sustainability can reduce costs, and in some cases, increase revenue.

GETTING TO KNOW
Anthony Kingsley
As local and sustainable product lead for US Foods, Anthony Kingsley helps customers achieve sustainability goals every day.
Let’s Embrace Innovation

I am challenging Illinois soybean farmers this summer to look at our livelihood from a fresh perspective. As the leading soybean state, it is our responsibility to push the envelope to be the most knowledgeable, sustainable and profitable farmers in the global marketplace.

We can take on this challenge of thinking differently by being willing to step out and embrace innovation. We must become outliers. Stand apart from others. Be mavericks.

Why is this a priority? According to Brook Cunningham, managing director of Lazard’s Global Agribusiness and Nutrition practice, the supply and demand equation underlying our global food system is increasingly out of balance. The issues and their solutions are highly complex.

Cunningham says the ag industry is moving in the right direction, led by the digitization of the farm, but there is still much to be done. Three key trends are driving farmers into this new phase of the agriculture technology revolution: further enhancements in on-farm technology to support data-driven decision-making; the shift toward “outcome-based” solutions for farmers; and an increase in strategic collaboration across the agribusiness value chain.

Beginning with this issue of Illinois Field & Bean, we will deviate off the well-worn path of traditional agriculture to delve into topics like these that may not have previously been on our radar. We will explore topics we hope will encourage you to think outside of the box about how you might enhance your plans to produce soybeans more profitably and sustainably.

For starters, our cover story looks at consumer food trends. Within this topic, we can find several opportunities for soybean farmers to capitalize on such value-added interests as meatless protein and more protein demand, self-care and food as a source of health and wellness; and food experiences in terms of where foods are obtained, consumed or blended. Food specialists are just beginning to explore what these trends may offer soybean farmers.

This issue also explores how we might take lessons learned in industries outside of agriculture to address similar existing challenges within ag. Large, consumer-focused companies are finding ways to enhance their sustainability, and we offer some mini case studies that might be applied to agriculture. We also contemplate biodiesel’s sustainability advantages and contributions.

For Illinois soybean farmers to succeed, we still need to be the best producers we can be. We will share in the pages ahead information about technology that might help you farm smarter and more profitably for the long term, as well as practical information that may help you boost yields or reduce input costs during the remainder of the current season.

Join me in embracing innovation. Drop me an email at ilsoy@ilsoy.org with your bold ideas.

“This issue explores how we might take lessons learned in industries outside of agriculture to address similar existing challenges within ag.”

LYNN ROHRSCHEIB 1 ISA Chairwoman
Data-Driven Farming can Help Transform the Agricultural Supply Chain

> BY ASHLEY STIRRUP

How can we meet the world’s food needs while respecting the environment? With the population set to grow to more than nine billion by 2050, answering the question is becoming more urgent.

Arable land is decreasing by 100,000 hectares per year, and global agricultural production needs to double in the next 30 years to cope with demand. Add to this the impact of climate change and mass urbanization and it is clear the agricultural sector faces a monumental challenge.

Technology and data can open new opportunities and help solve problems with production, traceability and natural resources preservation. Despite its traditional image, agriculture is adopting new technological innovations and leveraging the cloud, big data and the Internet of Things (IoT) to increase productivity while protecting our environment.

From 2013 to 2015, use of professional agricultural mobile applications jumped by 110 percent; a sign the sector was adopting digital technology and seeing the benefits. Today, precision farming allows more accurate, efficient crop monitoring through rationalization of plot management. This makes it possible to optimize yields, taking into account different environmental factors that can affect growth, such as soil pH, irrigation, fertilizer and sunshine. There also is the guarantee of increased food safety and better respect for the environment.

Data is at the heart of this technique. IoT, satellite and drone imagery, weather data and historical yield data together can inform and speed decision-making to make farming more efficient. It doesn’t just make the product better for the farmer; it makes the product better for the consumer and reduces farming’s environmental impact.

This would not be possible without support from government and agriculture. In the United Kingdom as part of the UK’s industrial strategy, the government announced funding to help British farmers capitalize on developments in agritech with AI, robotics and satellite-powered earth observation. The government hopes this will help agriculture realize benefits of innovations such as the CROPROYTECT app, which helps farmers prevent pest-related crop damage, and the Ordnance Survey’s use of satellite imagery and digital data collection to map farmland.

Data collection and analysis can offer solutions to food production and consumption issues. Cloud-based data collection and real-time analysis can improve product traceability. Traders benefit from better allocation planning, simplifying logistics. Cooperatives have the information to monitor and advise farmers from production to point of sale to accurately calculate losses.

The approach also can improve quality. Food safety and consumer information will be enhanced with a detailed insight into the journey of each food product until it reaches shelves. Carbon footprint, quantities of pesticides or water used are all elements that can be communicated and will make the entire chain more responsible by enabling consumers to make informed choices.

Precision farming is expected to contribute 30 percent of the growth needed in agricultural production to feed the world by 2050. The potential gain is tremendous. Technologies such as artificial intelligence should give a new impulse to intelligent crop management in the coming years; IoT will increasingly invade the fields; and drones will monitor land and crops in hard-to-reach places. This revolution will awaken new vocations, particularly among the digitally literate generations. For a sector still perceived as very traditional, technological innovation will profoundly affect it and make it possible to solve food supply challenges of the 21st century.

Beyond investments and the political will to support it, part of the solution lies in the digital transformation of the entire agricultural supply chain.

Beyond investments and the political will to support it, part of the solution lies in the digital transformation of the entire agricultural supply chain.

Talend is a global leader in cloud and big data integration solutions that helps companies turn data into a strategic asset that delivers real-time, organization-wide insight into customers, partners and operations. Ashley Stirrup as chief marketing officer is responsible for driving market leadership, global awareness, product management and demand generation.
Look in the shopping cart or at the restaurant plate of today’s consumers. You’re likely to find more plant-based, protein-rich foods that promote health and make eating an experience. When consumers learn those foods fit their definition of sustainable production, even better.

While this is a shift from the meat-and-potatoes generation, soy is still part of the food equation. In fact, today’s food trends may open new doors for soybeans, if farmers play their cards right.

“Clean eating with all natural, recognizable ingredients and accountability of farmers is becoming more important. Soy is a star among the many available ingredients,” says Linda Funk, executive director, The Soyfoods Council. “Soy is a simple ingredient that fits into all of today’s trends, and farmers can capitalize on that by talking about their sustainability.”

The 2018 International Food Information Council (IFIC) Foundation Food & Health Survey released in May shows taste and price remain key drivers for consumer purchases. Familiarity (a new survey addition) is also significant, outpacing healthfulness, convenience and sustainability.

“One of the driving consumer trends is heightened awareness and demand for quality protein particularly at breakfast and snacks. This is reinforced by the desire for self-care. Consumers are looking to protein to power and energize their day,” says Pam Smith, R.D.N, nutritionist and industry culinary consultant. Smith provides menu innovation and insight for such groups as The Culinary Institute of America, Disney and Epcot International Food & Wine Festival.

“The restaurant industry is innovating around menu items that provide quality, healthful plant-based proteins, creating dishes that are craveable, delicious and nutritious,” she says. “Giving food global flavors and adventure adds a compelling reason to try a new dish.”

PROTEIN, PROTEIN, PROTEIN

Going forward, expect more plant-based foods and derivatives in practically every aisle of the supermarket, says Kantha Shelke, Ph.D., food scientist and principal at Corvus Blue in Chicago. She also is an adjunct professor of food safety regulations for Johns Hopkins University.

“People are looking for plant-derived versions of their favorite foods that were traditionally made from animal-based ingredients, such as eggs, milk, cheese and meat. Grains, legumes, seeds and nuts offer good-tasting proteins that can enhance the taste of the other ingredients while also being a powerhouse of nutrients,” says Shelke.

Consumers view protein from plant sources as more healthful than protein from animals, finds the IFIC Foundation survey, and consumers are intrigued with meatless protein grown in labs. Vivera, a Dutch company, recently launched in Europe a steak made with wheat and soy protein.

“Scientifically engineered foods are a bit of a paradox,” says Shelke. “They are sought by people concerned about ingredients derived from animal sources because of the amount of land, water and energy animal production requires. Acceptance of unique, plant-based sources seems like an environmentally conscious one. On the other hand, acceptance of meat grown from self-reproducing animal cells by consumers who shun highly processed foods is baffling considering the amount of processing to which these foods are subjected.”

SOY SWEET SPOT. Expect to see healthier, environmentally friendlier versions of every animal-based consumer favorite, predicts Kantha Shelke, Ph.D., food scientist and principal at Corvus Blue in Chicago. Linda Funk, executive director, The Soyfoods Council, observes millennials, especially, are interested in having plant and animal protein on the same plate – a flexitarian approach – giving soy two opportunities for use as both a food and as animal feed for meat production.

“Soy is a preferred plant protein, so we must talk about it that way to increase demand. It is a complete and versatile food. You can customize or add protein to other foods through soy,” she says. “More consumers also enjoy soy as a side dish when not eating plant-based protein.”
SELF-CARE FOODS

Shelke identifies people worldwide seeking food that is good for health as another overarching trend. People are looking for minimally processed ingredients that are sourced and produced in a way that does not harm the environment and that are intrinsically wholesome.

“Demand for healthy foods, in conjunction with the growing appeal of intrinsically wholesome foods, presents the opportunity to identify and combine these foods for a new taste and health boost,” she says. “Dried fruits, seeds like chia, flax and pumpkin, and even edamame, are preferred over highly fabricated foods consumers cannot associate with anything in nature.”

SOY SWEET SPOT. Soy is no stranger to health benefits. Linda Funk, executive director, The Soyfoods Council, notes evidence unequivocally shows that calcium absorption from soymilk and cow’s milk are similar, and iron absorption from soy is excellent. There also is no evidence soyfoods cause mineral deficiencies. When it comes to cancer, the American Cancer Society says breast cancer patients can safely consume up to three servings of traditional soyfoods per day, and soyfoods are protective against prostate cancer. More than 20 clinical studies have shown soy does not cause thyroid problems.

“Plants offer a rich foundation for a wide range of ingredients with an even wider range of health benefits,” says Kantha Shelke, Ph.D., food scientist and principal at Corvus Blue in Chicago. “Ancient medicine presents opportunity for commodity producers to grow crops for foods, supplements, cosmetics and personal care products. An equally rich bounty awaits with white biotechnology and emerging genetic engineering technologies. Combine the two with a pinch of education and transparency and producers can take advantage of a booming, multi-billion-dollar global market for holistic medicine, home remedies and therapeutic foods.”

FOOD EXPERIENCES

Food customization can be gotten through several experiences including food halls, where consumers build meals to personal taste, and from food trucks. Customization caters to allergies and allows adventurous eaters to try the next global cuisine or underexplored regional food.

Shelke notes protein-rich crops like lentils, mung bean and soybeans offer a range of tastes and textures and functionalities to produce an analog of practically every consumer favorite.

Another food experience trend is the “bowl” concept for breakfast, grains, vegetables and salad, according to Smith. “Soyfoods bring a delightful contrast of flavors and textures, and a high quality, nutrient-rich protein into play,” she says. “An extension of bowls is mason jar meals of overnight oats soaked in soymilk for a quality protein that other plant-based milks lack.”

The IFIC Foundation survey concludes context is key in how consumers perceive healthfulness of two products with otherwise identical nutritional content. When asked to identify the healthier of two products with the same Nutrition Facts Panel, 40 percent perceived one labeled “non-GMO” as healthier versus less than 20 percent for that same product made with genetically engineered ingredients. More than one-third believed a product with a shorter ingredient list was healthier than one with more ingredients, compared to less than 20 percent for a nutritionally identical product with a shorter ingredients list.
FARMERS AND FOOD TRENDS

So how can Illinois soybean farmers capitalize on these food trends? By proactively discussing sustainable practices in play on their soybean farms.

The IFIC Foundation survey finds sustainable food production looms large with 59 percent of consumers saying it’s important for what they purchase and consume. Other data regarding food purchases show 22 percent said it was very important to know where food comes from, 16 percent said it was very important to understand how the food was produced and 16 percent said it was very important to be able to access information about how the food was produced.

“Millennials and centennials want to know what’s in their food, where it comes from and how it’s grown. They want to celebrate the U.S. farmer and sustainability,” says Smith. “In this marketplace, environmentally friendly, locally sourced foods like soy are attracting attention.” ■

SOY SWEET SPOT.

Soybeans are the king of plant proteins, and emerging technologies are addressing every undesirable trait, says Kantha Shelke, Ph.D., food scientist and principal at Corvus Blue in Chicago.

“If you can make something with nuts, legumes or grains, you can make it from soybeans, easier, more cost-effectively and without harming the environment,” she says. “The key to success lies in developing soybeans that address every need without sacrificing safety, health or taste.”

Fried food is the next indulgence trend Linda Funk, executive director, The Soyfoods Council, sees, providing high oleic oil with another market.

“High oleic soybean oil is a cooking oil with a nutritional profile mirroring oils high in monounsaturated fats, such as olive oil. In addition, high oleic soybean shortening is an excellent high-stability oil solution for baking and frying needs,” says Pam Smith, R.D.N., nutritionist and industry culinary consultant.

WORKS TEN TIMES HARDER FOR A WHOLE LOT LONGER

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Customers prefer U.S. soy because it’s sustainable. But demands for sustainability continue rising. Carefully managing crop protection technologies increases their long-term effectiveness and decreases your need for additional pest control. Adopting this practice is another step forward in improving your sustainable footprint. Show your commitment to sustainability with a free truck magnet available at unitedsoybean.org/sustainability
Soybeans headed to market via ships may also help support ship operations with less environmental impact, thanks to recent action by the global shipping industry. Experts say innovative biodiesel use could help reduce harmful emissions attributed to shipping.

The United Nations International Maritime Organization (IMO) earlier this year adopted a strategy to cut maritime greenhouse gas (GHG) emissions in half by 2050 – an ambitious undertaking, considering that cargo ships collectively generate three percent of the world’s GHG emissions. IMO’s new GHG goals are on top of previously announced limits on sulfur content in marine fuel that go into effect in January 2020. Biodiesel may help meet these goals.

“Biodiesel works well in marine applications,” says Steve Howell, president of Marc IV Consulting and chairman of the ASTM task force on U.S. biodiesel standards. “In fact, marine fuel was one of the initial target markets for the early biodiesel industry in the 1990s. Biodiesel appealed to recreational boaters because it reduced odor from fuel exhausts that enter the water.”

Biodiesel applications have since expanded to nearly everywhere diesel fuel is used. With an ultra-low sulfur level and low carbon and particulate matter emissions, biodiesel is successfully improving air quality in communities nationwide. With marine-specific research and new technologies, Howell says the benefits could translate to maritime operations.

Transparency Market Research (TMR) valued the global bunker fuel market at 372.3 million tons in 2013, and estimates the market will reach 460 million tons by the end of 2020, rising at a compound annual growth rate of 3.1 percent between 2014 and 2020. That’s equal to about 12 billion gallons of fuel. If 10 percent of that market was biodiesel, or 1.2 billion gallons, it would represent a potential use for 9.24 billion pounds of soybean oil.

Near-Shore and Onboard Use

“Biodiesel often is a low-cost option to reduce the carbon footprint,” he says. In preliminary talks with biodiesel and marine industry personnel, he uncovered two potential opportunities for maritime biodiesel use; near-shore vessel operation and onboard electrical generation.

Large, ocean-going vessels typically carry two types of fuel, Howell explains. While at sea, large ships run mostly on No. 6 oil, often referred to as “bunker fuel.” The thick, viscous fuel often generates toxic fumes as it runs huge, car-sized pistons that power massive ship engines. In some areas, including North America, emission control standards require ships to switch to a different, less toxic fuel when they reach waters within 200 nautical miles of shore.

“Ships can face engine issues when switching from bunker fuel to a thinner fuel like diesel,” he says. “Biodiesel’s added lubricity could help ease the switchover while cutting emissions.”

Ships often use diesel fuel in large onboard generators for electricity and refrigeration, too, and Howell says biodiesel could potentially replace some of that fuel for more sustainable operation.

Port Pollution Control

Ports could present another potential use for biodiesel, says Lorenz Bauer, Ph.D., a consultant with Lee Enterprising Consulting, who has researched fossil and renewable fuels for 30 years. He says reducing pollutants from diesel engines is a significant concern for ports and nearby communities. Diesel-powered marine vessels, as well as cargo-moving equipment and trucks, release significant carbon dioxide, particulate matter, sulfur oxide and other toxins.

Momentum is growing within the port sector to develop air quality improvements. “Because of the high fuel quantity needed to propel vessels at sea, the impact of biodiesel on the oceangoing fuel market may be limited. There could be a positive impact on in-shore vessels, such as pilot boats that lead ships out to sea, especially in ports looking for low or zero emissions,” he says.

Future Efforts

Realizing biodiesel’s potential in shipping will depend on multiple factors, including economics, engine design, fuel availability and air quality regulations.

“More study is needed to capitalize on opportunities for biodiesel in the maritime shipping industry,” says Rebecca Richardson, ISA biodiesel lead. “Illinois has extensive experience with higher biodiesel blends. By sharing our expertise, we may be able to help the industry find innovative pathways to reducing greenhouse gas emissions globally.”

Biodiesel’s Marine Match

1. **Non-toxic.** Tests show spilled biodiesel won’t harm marine life.
2. **Reduced Odor.** Boat owners and workers notice less exhaust odor and no eye irritation.
3. **Biodegradable.** University of Idaho tests show biodiesel degrades four times faster than regular diesel.
4. **Protects Sensitive Waterways.** Given fewer harmful emissions.
5. **Less Flammable.** Biodiesel has a higher flash point for safer operations.
6. **Flexible Uses.** Biodiesel works in diesel-powered engines without modifications.
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Innovation is changing the face of modern farming. In fact, ag technologies are accelerating at a mind-boggling pace, as a new generation of smart farming, sensors, big data, robotics and machine learning is on the horizon and poised to revamp the entire food chain.

While much of this transformative technology comes from established ag players, increasingly, smaller tech companies and nimble start-ups are entering the ag tech space. At the same time, big-name tech companies, including Microsoft, Accenture and SAP, are developing solutions to help farmers connect with data for smarter, more efficient decision-making across operations.

The trend is capturing interest from outside investors, such as AgFunder, an online investment marketplace that connects emerging ag tech companies to individual and institutional investors. As technology accelerates, the ISA checkoff program is working to connect growers with the best information, tools and resources to help farmers stay competitive.

“Venture capitalists and private equity groups are turning their sights on ag technology, helping bring more solutions to farmers more quickly than ever. ISA is engaging with these groups to help farmers understand and leverage exciting new developments to improve yields, boost profits and reduce our impact on our communities and our world,” says Craig Ratajczyk, ISA CEO.

Harness Tomorrow’s Technology

> BY MARK INGBRITSON

Agren (www.agrentools.com), in Ames, Iowa, provides sustainability solutions to agriculture with more than 20 years of experience in environmental consulting and conservation planning. Agren’s web-based software solutions, the first to convert LiDAR elevation data, dramatically reduce planning time. Farmers, consultants and landowners may evaluate multiple layers of management decisions, customized to the needs of each farm field.

A comprehensive ConservationAnalyzer will allow users to quickly evaluate conservation alternatives and determine which provides the biggest bang for the buck. The system looks at various management practices alone and in combination, layering in soil type, field slope and other data to produce maps. The maps indicate areas for improvement and how various management practices will affect soil loss, soil health and even return on investment.

“You generally know where your most productive areas are,” says Tom Buman, Agren founder and CEO. “The maps help farmers and landowners understand where their biggest nutrient- and/or soil-loss issues occur, using real numbers for their farms based on solid scientific data and then make appropriate management decisions based on their goals.”

Agren partners with service providers—including retailers such as Land O’ Lakes SUSTAIN program and the Illinois Corn Growers’ Precision Conservation Management program—to provide customized precision technology tools to farmers. Growers and consultants can try out a beta version of Agren’s ConservationAnalyzer online at http://carto.yourdatsmarter.com/agren/conservation-analyzer/index.html.

Pivot Bio (pivotbio.com), based in Silicon Valley, is pioneering a new approach to crop nutrition to promote better yields and healthier soils. Their ON Technology uses naturally occurring microbes to deliver nitrogen in a timely and efficient manner for more productive, predictable crop yields without nutrient degradation, leaching or runoff into waterways.

Although ON Technology is not yet commercially available, a field-scale beta testing program is underway for farmers in major corn-producing states across the Corn Belt.

“Our approach to re-igniting nitrogen production in naturally occurring plant microbes has been thoroughly tested over five growing seasons,” says Karsten Temme, CEO and co-founder of Pivot Bio. “I anticipate additional key findings collected this growing season will confirm the already encouraging results we’ve seen, including increased yields and a decreased need for conventional fertilizer.”

Beta testing began with spring planting. In-season evaluations will continue this summer, culminating in data collection during harvest, with final reporting by the end of 2018.
Blue River’s See & Spray robot uses computer vision and machine learning to identify weeds within crop rows, and then sprays small amounts of herbicide directly targeted to the weeds. Blue River says it can reduce herbicide use by 10 times, with significant impact on the bottom line for farmers, but also on sustainability metrics.

“Using computer vision and artificial intelligence, our smart machines can detect, identify and make management decisions about every single plant in the field,” says Ted Mayfield, Blue River marketing product manager. “If a farmer can go from $100,000 on over-the-top applied chemicals to about $10,000, that’s a huge change.”

Blue River, which was acquired by John Deere in 2017, is testing See & Spray in cotton fields. Plans are to make the product widely available to corn and soybean farmers in four to five years through Deere’s network of equipment dealers. Eventually, the company hopes its camera and sensors will be able to identify nutrient deficiencies and pest issues, then deliver the optimum spray to maximize each plant’s productivity.

UAV (www.american-robotics.com), an industrial UAV developer specializing in agricultural automation, has launched a fully autonomous product called Scout. Flight planning and flying, data management and transfer, and even docking and charging are all performed automatically and autonomously without extra user input.

“Because so much time and cost are needed just to operate a UAV, growers and agronomists are unlikely to utilize it more than once a month, if at all,” says Reese Mozer, co-founder and CEO of American Robotics. “Full automation is a key ingredient in the future of precision farming, and we’re eager and excited to finally deliver this capability to our customers.”

When not in use, UAV Scout “parks” in the field, within a closed weatherproof hub or station. The hub houses the UAV and takes care of charging, data processing and data transfer. It’s turn-key package includes an autonomous UAV with visual and multispectral cameras. After installation, the system needs no manual intervention.

The company released Scout to selected farmers in 2018 and expects full global availability by 2019. For field trial details, visit www.american-robotics.com/customer-request.

Look for more technology-related coverage in upcoming issues of Illinois Field & Bean and visit the ILSoyAdvisor management blog for more about the rapid expansion of ag technology.
No-till soybean seedlings in the unifoliate stage (V1) in Will County near Manhattan. Nice, even emergence with no issues at this point. Planted at the same time as the grower’s corn this year.

The “early soybean planting” message came through loud and clear and is making an impact. I’ve seen growers planting soybeans either before or at the same time as corn. There is still some apprehension about the practice, but more people are trying to get beans in early. It’s interesting to hear the concerns of those watching from the sidelines as their neighbors put a new spin on their planting regimen. Sometimes we are skeptical of new practices, even while others are experiencing success.

Early planting can be a relative term. This spring our area experienced cold and snow well into April. Planting didn’t get seriously started until the third week of the month. This is a little later than usual, yet growers were starting corn and soybeans at the same time. What’s typical one year may be early another. We are programmed to remember what happened the previous year.

KEVIN NELSON
Precision Agronomist, CCA 4R NMS
@WKevinNelson

NORTHERN CCA SOY ENVOY

“Early” – It’s All Relative

In south central Illinois, one thing growers are adopting across the board is plant tissue testing. In the past few years it seems that most are out to achieve the highest possible yield they can, instead of saving their way to prosperity.

To better help my customers understand what their crops are trying to tell them in-season, we have started a new tradition; pulling plant tissue tests. Pulling tissue samples throughout the growing season can help growers identify what their crop is lacking, and then use the data to benchmark what they need to apply for a certain sidedress pass or foliar feed. Tissue testing helps growers capture another set of data that can be kept year to year and field by field. The cost of tissue testing can add up if many samples are sent in during the season. In my opinion, it’s a marginal cost for growers who want to know what it takes to raise the bar.

AARON PRINS
Sales Agronomist, The Equity

SOUTH CENTRAL CCA SOY ENVOY

Tissue Testing Becomes Tradition

The slow spring delayed planting, but also delayed cover crop growth ahead of planting. This allowed for timely termination of cover crops. Farmers were patient in waiting for the cover crop to begin growing with several warm days above 50 degrees before attempting to terminate. After experiencing wet springs the past few years, farmers were able to no-till into ideal soil conditions in cover crops. Many already are planning to expand use of covers this fall after a good planting experience this spring.

Farmers who are utilizing cover crops as part of their conservation cropping system are building a more resilient soil while also meeting the goals they set by planting covers. The soil surface is protected from wind and water erosion and the residue will provide additional moisture- and water-holding capacity for the growing crop throughout the summer months.

KRIS REYNOLDS
Midwest Deputy Director, American Farmland Trust
@Kris_Reynolds

SOUTH CENTRAL CCA SOY ENVOY

Slow Spring Means Timely Termination
The CCA Soy Envoy program is a partnership between the ISA checkoff program and Illinois Certified Crop Advisers to provide local, in-season recommendations for producers. Visit the ILSoyAdvisor blog for more updates and perspective during this season.

Leveraging Tech to Fight Resistance

KELLI BASSETT
Agronomist, Bassett Farm and Seed Pioneer Sales Representative
@kelli_bassett

SOUTH CENTRAL CCA SOY ENVOY

Soybean planting was delayed until late May in portions of south central Illinois with drier-than-normal planting conditions. Despite conditions, growers continued to utilize more soil-applied residual herbicides as part of their season-long weed control program instead of relying entirely on post-applied herbicides.

Waterhemp is a growing weed problem in conventional and no-till soybeans, leading more growers to change herbicide technologies. Adoption of dicamba-resistant soybeans has increased alongside Liberty Link soybeans. Used properly, the technology offers an additional means of controlling problematic weeds with resistance to older herbicides like glyphosate. We encourage growers to follow label directions for successful use of dicamba technology.

RRXTEND SPRAY APP

SUCCESSFUL APPLICATION STARTS RIGHT HERE.

The RRxtend Spray App is a farmer- and applicator-focused digital tool that provides location-specific weather forecasts, digital record-keeping capabilities and education resources related to the Roundup Ready® Xtend Crop System.

Stay out in front with the consistent performance of Asgrow®. Offering the profit potential you want and the weed control you need. Ask your dealer how much farther you can grow when Asgrow leads the way.

RRxtend Spray App is a digital tool that provides location-specific weather forecasts, digital record-keeping capabilities and education resources related to the Roundup Ready® Xtend Crop System.
More than two billion bushels of whole soybeans are exported from the United States each year. Free trade agreements (FTAs) are one of the tools that facilitate those sales. The USDA Foreign Agricultural Service notes FTAs help expand foreign markets by reducing trade barriers, fostering a more stable, transparent environment for trade and enhancing the rule of law.

The United States has FTAs with some 20 countries that include primarily bilateral agreements but also two multilateral agreements – the North American Free Trade Agreement with Canada and Mexico and the Central America FTA – Dominican Republic, which includes six countries. These FTAs cover more than 40 percent of U.S. ag exports, including soybeans and products.

While economics and politics can enter into trade decisions, the U.S. enjoys an export advantage over South America in Central America, the Caribbean Basin, Mexico, Canada and Colombia due to CAFTA-DR and NAFTA which reduce tariffs on U.S. imports. The U.S also has federal programs that provide credit to finance U.S. ag exports to developing countries.

**THE MECHANICS OF THE TRANSACTION**

1. A foreign buyer contacts a trader representing an exporter to seek offers to buy soybeans.

2. The buyer negotiates price and contract specifications. Some countries issue a tender instead to many companies with quantity, quality and shipping date specs for the buyer to accept or reject.

3. An agreement is signed and a letter of credit to cover the purchase is issued.
#4
The chosen exporter acquires the soybeans from elevators and takes a short position in the futures market to cover financial risk. The exporter makes transportation arrangements.

#5
The exporter files a customs declaration that details cargo, quantity, value, destination country and final port. That data is used by the U.S. Census Bureau to compile official sales statistics.

#6
Sometimes a sale will initially be reported as unknown in U.S. official export data, which generally represents a sale to a company with multiple operations in different countries or to a foreign firm that did not reveal destination. The destination must be reported at time of export.

#7
At the point of sale, the buyer is usually responsible for all costs incurred to move the soybeans to the destination market, including testing, transportation costs, insurance and timely delivery.

#8
A buyer who wants to cancel a purchase must work out an arrangement with the exporter to cover any loss the exporter will incur or risk never getting another company to offer a sale.

#9
Once the product arrives at the destination port specified on the contract, the buyer will test the product on the vessel and be responsible for delivery to its own facility for distribution.
Sustainability efforts and profitability haven’t always gone hand-in-hand. Companies have fought governments for years on the topic. The common thought is that it costs money to be environmentally friendly, and those costs cut into profit margins.

But leading companies from around the world are proving sustainability can reduce costs, and in some cases, increase revenue. According to Tensie Whelan, director of the Center for Sustainable Business at New York University’s Stern School of Business, companies that adopt sustainable practices become more innovative in how they conduct business.

“Companies shift away from traditional mindsets and start looking at their operations in new ways,” says Whelan. “This new approach can create innovative new products or create operational efficiencies through better management of resources.”

She says customers also like to buy from sustainable businesses. “Companies that make sustainable commitments want to buy from sustainable sources,” says Whelan. “As more businesses make the commitment, traditional sources get closed out of a market.”

Here’s a look at how companies are putting sustainable technologies to use, including three leading companies using technology in their own unique ways.

**FEDEX REPLACES OLDER AIRCRAFT**

In 2009, FedEx says it was using four million gallons of fuel per day to service its fleet of 700 aircraft and 44,000 vehicles worldwide. Fuel costs were continuing to rise, and FedEx says it was looking for ways to reduce the amount of fuel it used.

The company says it began replacing its older aircraft with newer Boeing 757s in order to save on fuel costs. Once all of the aircraft are in operation, FedEx says the initiative will reduce overall fuel consumption by 36 percent and increase cargo capacity by 20 percent.

The company says it also is adding Boeing 777s to its fleet, which will reduce overall fuel consumption by another 18 percent. In 2017 alone, FedEx saved $285.5 million on jet fuel from these efforts.
FedEx now is turning its attention to alternative fuel sources, according to the company. Starting in 2017, FedEx says it began using 48 million gallons of aviation fuel blended with biofuels. According to the company’s website, the partnership with Red Rock Biofuels uses forest waste, including discarded branches, bark and pine needles, to create the fuel. By 2030, FedEx says it hopes to obtain 30 percent of its jet fuel from alternative fuel sources.

“In 2017, we avoided more than 2.3 million metric tons of CO2 emissions across the enterprise. This is the equivalent to the emissions from more than half a million passenger cars in one year,” says Frederick W. Smith, chairman and CEO of FedEx.

APPLE INCREASES RENEWABLE ENERGY
According to a 2017 study by the Department of Energy Lawrence Berkeley National Laboratory, U.S. data centers use approximately 70 billion kilowatt-hours (kWh) of energy annually. Apple is confronting the problem by making its data centers run on 100 percent renewable energy.

According to the company, most of the renewable energy comes from solar and wind projects that Apple created itself. In fact, Apple says that 66 percent of its renewable programs were developed in-house with the rest coming from partnerships with local power companies.

For example, in Maiden, N.C., Apple says its data center is supported by projects that create 244 million kWh of renewable energy per year. That’s the equivalent to the energy used by 17,906 homes, according to the company.

Apple says it has similar projects around the world where the company works with local communities to achieve its goal. For instance, in Singapore where land is scarce, the company says it built its renewable energy on 800 rooftops.

According to Apple, it reached its goal of making its data centers run on 100 percent renewable energy in 2014 and is now turning its attention to the rest of its operations.

Recently, Apple implemented energy efficiency efforts in more than nine million square feet of its facilities that used a combined 300 million kWh annually. The result has been an energy savings of roughly five percent, or 15 million kWh, estimates the company.

UNILEVER REDUCES PACKAGING WASTE
Unilever says it is working to make the company simpler, faster and more connected with its customers. Through operating efficiencies from this effort, Unilever states that it saw a savings of $5.83 billion in 2017.

Unilever says it is now focusing on packaging, currently purchasing more than two million tons of packaging a year, according to the company website. Unilever says it has already begun to reduce the weight of its packaging and hopes to reduce it by a total of one-third by 2020.

A large part of the packaging consists of plastics, Unilever states. Billions of single-use plastic packages, called sachets, are sold each year, but only 14 percent are recycled globally.

To combat the issue, Unilever says it wants to create a circular economy where used products are returned to the company for recycling. The company says it has invested in the CreaSolv Process that can extract plastics from used sachets.

“There is a clear economic case for delivering this,” says David Blanchard, chief R&D officer. ”We know globally $80-120 billion is lost to the economy through failing to properly recycle plastics each year. Finding a solution represents a huge opportunity.”

The company says it opened a pilot plant in Indonesia in late 2017 to test the long-term commercial viability of the new technology.

MAKING GREEN BY GOING GREEN
What can farmers learn from these examples to make their operations more sustainable and profitable? Start by looking at the farm as a whole and find the highest cost centers, advises Whelan. Farmers spending a lot on fertilizers to replenish the soil could adopt different techniques to conserve the soil and increase productivity while reducing input costs.

“If the highest cost is energy, farmers could add wind or solar power to reduce costs and make money by selling excess power back to the grid, depending on their geographic location,” says Whelan. “I have seen firsthand that once farmers institute the first successful change, their mindset will shift. They will see other areas of their operations that could be more efficient.”
ISA Talks Gene Editing and Consumer Acceptance at CRISPRcon

ISA representatives recently attended CRISPRcon, an annual event bringing together the science community to dialogue about gene editing technologies like CRISPR and how to transition those to society at large. Along with the National Pork Board, ISA hosted a roundtable discussion to generate conversation around using CRISPR in agriculture. Highlights of the conversation included how building consumer acceptance starts with building trust, and that trust is based on transparency. The table also discussed the importance of storytelling and how leading with the ‘why’ instead of the ‘what’ or ‘how’ is more conducive to consumers.

Aside from talking, ISA heard from the crowd just how important listening is as well. When it comes to new technologies like CRISPR, agriculture can learn from consumers’ concerns and find ways to align with those values. ISA is excited about the future of working with innovative technologies like CRISPR that will allow soybean farmers to transform the food system.

U.S. Army Corps of Engineers Commends ISA for Illinois Waterway Work

U.S. Army Colonel Craig Baumgartner recently signed a letter recognizing ISA’s efforts in educating and informing key stakeholders about the importance of inland navigation, specifically the Illinois Waterway. The letter states that “engaging with your organization to support inland navigation efforts has been especially informative in the subject matter areas of transportation, economics, agriculture, finance and communications.” ISA will continue to work closely with the Corps to find innovative solutions to tough inland waterway challenges.

Medill Journalism Students Participate in ISA Farm Tour

ISA Communications Director and Northwestern University Medill School of Journalism alumna Amy Roady welcomed the opportunity this spring to introduce business journalism students to Illinois soybeans and ag production. A group of eight students and Professor Desiree Hanford toured several stops in central Illinois, including Advance Trading, Bloomington; Dolly Farms, farm of ISA director Jenny Mennenga in Le Roy; Wentworth Farms, Downs; and Roanoke Farmers Association in Roanoke. Topics ranged from soybean futures trading to seed selection and grain storage to infrastructure challenges and needs. This was the first time on a farm for many of the students and a chance for ISA to showcase its leadership and knowledge.

Illinois Soybeans Have Come a Long Way

The Illinois Soybean Association has roots going back to the mid-1960s. Previously, ISA operated as the umbrella organization for both the Illinois soybean checkoff and Land of Lincoln Soybean Association (LOLSA). LOLSA was part of a membership campaign to establish an association that “generally, is designed to help growers help themselves by supporting programs designed to develop new markets and expand existing markets for soybeans. Much emphasis is placed on finding new overseas markets for soybeans. Other activities of the soybean association concern research and providing members with information on improved production methods.” Pictured are 1968 officers – LaVerne Workman, Chatham, president, seated; Harold Kuehn, Du Quoin, vice president, left; and Carl E. Thorp, Clinton, treasurer.

Calendar of Events

ISA Board Meeting
> July 31 - August 3 · Champaign, Ill.

Ag Day at Illinois State Fair
> August 14 · Springfield, Ill.

University of Illinois Agronomy Day
> August 16 · Urbana, Ill.
It pays to have the right connections.

SoybeanPremiums.org

Want to make more profit off your soybeans? Have your people connect with our people! SoybeanPremiums.org makes it easy for soybean growers to find premium programs and buyers. So take a look at the latest program opportunities in your area – food-grade, identity-preserved, non-GMO and watch your profits grow.
ISG Continues Infrastructure Investment Push

BY MIKE LEVIN, Illinois Soybean Growers director of issues management and analysis

Over the past several months, President Trump’s infrastructure investment plan has been in a holding pattern, as issues like federal budget discussions take priority.

Since the focus is now on the midterm election, Illinois Soybean Growers (ISG) anticipates a completed piece of legislation may not occur this year to address infrastructure funding.

While ISG awaits more details on the infrastructure investment plan, farmer leaders remain hopeful it will provide the momentum needed to help rebuild the nation’s infrastructure. In its current condition, one thing is for sure: Infrastructure continues to deteriorate each day. Before long, Illinois farmers will head into harvest with our state’s key transportation modes in more disrepair than last year. ISG is stressing that this can’t keep happening.

Where to from here?

Consider inland waterways. The United States Army Corps of Engineers estimates there are more than $1 billion in backlogged maintenance costs for locks and dams on the Mississippi and Illinois rivers. The resources the Corps receives only allow for operation with a “fix as fail” system. There is no time for unplanned repairs that can take days, weeks or months. ISG believes funding is needed now for a proactive approach to the necessary repairs.

What is ISG doing?

ISG is active, keeping an eye on developments with the national infrastructure plan. The priority is to ensure the most efficient movement of soybeans from farm to market. This starts with a reliable infrastructure system. When we hear efficient product delivery is at risk, ISG engages.

Personal, face-to-face interactions happen regularly. Recently, we brought together stakeholders in Springfield and Washington, D.C., to gain consensus on inland waterway funding and discuss next steps to address this issue. ISG activates the Voice for Soy legislative action network when appropriate. Farmers can get involved by joining Voice for Soy efforts at www.VoiceforSoy.org.

Failing locks and dams, like this one in Lockport, Ill., are in critical need of repair. Water should not pour through the lock gate as pictured here, but rather it should be filling the lock chamber below the water’s surface.

PHOTO BY ISA
There are many variations but I think what really underpins everyone’s definition is a common thread of providing for the needs of today without jeopardizing the needs of tomorrow. There’s not a silver bullet definition that will solve the sustainability challenge in every category. What we can do is continue to learn from each other, share best practices and collaborate.

WHAT IS AN EXAMPLE OF US FOOD’S WORK WITH SUSTAINABILITY?

Our Serve Good program launched with 24 products in 2016, and now features more than 300 versatile products that fall into one of several categories, including sustainable seafood, organic, non-GMO, animal care responsible disposables or waste reduction. Many of these products come with the reassurance of verification by third party certifiers. Products in the Serve Good program also have packaging standards that help reduce waste and utilize recycled materials.

WHY DO YOU WORK IN SUSTAINABILITY?

I love working in sustainability. I’m very passionate about it, particularly within the food industry, because it’s such an important part of life and something we all enjoy every day. My role provides the opportunity to work with many people across the food supply chain – farmers, ranchers, chefs, merchants, restaurateurs and diners – and every one of those groups has such a passion for food. Working for a distributor like US Foods, I get to engage across the spectrum, encourage dialogue and be a part of a better future for food.

WHAT DO YOU THINK MODERN CONSUMERS EXPECT FROM OUR FOOD SYSTEM?

Consumers still desire great flavor and great quality. Now we also are seeing more consumers with a strong demand for local and sustainable dishes. Customers are becoming increasingly more aware of the pressures on our natural resources and they want to feel like they have a connection back to the food they are eating. They want to understand the process and the food system better. Recent industry research notes that 80 percent of consumers want to know more about their food source and we are seeing consumers put more emphasis on the idea of transparency. They also want to know where the food on their plate is coming from, and this is starting to become a standard expectation. Those of us in the food industry are really beginning to embrace this opportunity and share that positive narrative of the food that we produce.

HOW CAN FARMERS BETTER CONNECT THEIR SUSTAINABILITY EFFORTS BACK TO CONSUMERS?

Being able to share the story about your product is key. At no other time have consumers wanted to be more engaged with their food. That’s exciting for all of us. As farmers and ranchers, or as food manufacturers, when we talk sustainability, we need to communicate our hard work and the best practices we use. From our standpoint at US Foods, we serve as the conduit between producers and consumers. Anything that the farmer can provide us, we can help prepare that message and deliver it to our restaurateurs, who in turn, deliver that in their establishments.

Anthony Kingsley is the local and sustainable product lead for US Foods, a food service distributor in Rosemont, Ill. US Foods is committed to helping their customers achieve sustainability goals as they add to their sustainable food offerings through Serve Good.
Customers prefer U.S. soy because it’s sustainable. But demands for sustainability continue rising. Carefully managing crop protection technologies increases their long-term effectiveness and decreases your need for additional pest control. Adopting this practice is another step forward in improving your sustainable footprint. Show your commitment to sustainability with a free truck magnet available at unitedsoybean.org/sustainability