HERE’S HOW THE SOY CHECKOFF WORKS. The national soy checkoff was created as part of the 1990 Farm Bill. The Act & Order that created the soy checkoff requires that all soybean farmers pay into the soy checkoff at the first point of purchase. These funds are then used for promotion, research and education at both the state and national level.

1/2 of 1% of the total selling price collected per the national soybean act & order

0.5%

Half goes to the state checkoff for investment in areas that are a priority for that state.

Half goes to the national checkoff for investment in USB’s® long-range strategic plan.

ROI TO THE FARMER

Led by 73 volunteer soybean farmers, the United Soybean Board (USB) invests and leverages soy checkoff dollars to MAXIMIZE PROFIT OPPORTUNITIES for all U.S. soybean farmers.

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Influence the Influencers

A fundamental question our directors ponder about efforts of the Illinois Soybean Association (ISA) is whether our work should be about the producer or about the soybean. Put another way, how do we advance the financial viability of soybeans so producers want to plant them?

The critical answer to this question is to influence the influencers. We must identify the factors that affect our decision-making and then interact with influencers to make production desirable.

Influential factors can include infrastructure, quality and composition, production costs, policy and regulations, adaptability to incorporate more technology to get more for less, and the ability of producers to “ink out” more financial returns on the farm through better business and management practices. The list also includes attention to future competition for soybeans; not just from other global producers, but from other crops like corn, vegetables and even cannabis.

These are all influences ISA has targeted for input and leadership on behalf of the state’s soybean producers. And as we take ownership, we are responsible for positive outcomes.

In this issue of Soy Perspectives, our cover story explores the Illinois soybean industry and the influence it has in the state and beyond. Where are we on customer acceptance of soy for food, feed and fuel use? What benefits do we see from production at the local, national and global levels? What makes Illinois soybean production an attractive investment within the industry? Where might we be headed in the future in terms of advancement based upon this analysis?

We also break down in this issue some specific examples of the various applications for Illinois soy. For example, trade tensions with China have placed a big hole in soybean exports. In what ways can that damage be repaired and influence Illinois soy’s market position? How can the ISA checkoff program continue to be a leader on the biodiesel front?

As we look to the future and to the influencers who can help us succeed, we must keep in mind that fuel, food and feed opportunities for soybeans will continue to evolve. The 2019 soybean crop developing in our fields will be used in multiple ways. By remaining focused on our current uses and in touch with future needs, we can help direct our industry for the better.

“We must identify the factors that affect our decision-making and then interact with influencers to make production desirable.”

LYNN ROHRSCEIB | ISA Chairwoman
At the Crossroads of Influence

> BY MIKE LEVIN, Illinois Soybean Growers director of public policy and regulatory affairs

Producers are at a crossroads. On one hand, the race for innovation is at an all-time high as industries make rapid technology advancements. On the other hand, our world — including many decision makers — is growing further removed from agriculture, causing an ongoing concern about how feed, food and fuel are produced.

We all see this truth firsthand: the number of producers is declining. According to the U.S. Census, there were 6.8 million producers in 1935 and 2.7 million in 2017. At the same time, only two percent of any given population is likely to advocate for an issue. Picture it this way:

- 6.8 million producers x 2% = 136,000 producers willing to advocate in 1935
- 2.7 million producers x 2% = 54,000 producers willing to advocate in 2017
- 54,000 producers / 326 million Americans = 0.017% of the population

That means the producer’s voice in 2012 was roughly 0.017 percent of the population. That’s a very small representation of a very important group on which the world relies. So, this crossroads requires us to move, act, do. But can you affect change? How do you affect change?

INFLUENCE BY ADOPTION

Producers today have more knowledge, tools and resources than any other farming generation. Continuous innovation isn’t just a good thing; it’s essential. One way to ensure you keep your social license is to stay ahead of your industry by adopting best management practices and production technology to better your farm and the industry. They say consumers vote with their wallets. You can do the same: investing your resources, time and priorities into continuous farm business improvement is one way to influence change.

INFLUENCE BY EDUCATION

At a recent ISA checkoff program event, Illinois soybean producers engaged with legislators at the state capitol, talking about industry issues like biodiesel over a cup of coffee. Legislators remarked on how much they appreciated the opportunity to have an informative conversation about the issues versus a pointed, reactive discussion about specific bills. Influence can come in many forms, but one of the best ways is to be a well-informed, educated, readily available resource to your decision makers before a policy or bill hits the floor.

INFLUENCE BY ACTION

While we should do all we can to educate, it’s inevitable legislation or regulations that threaten social license will arise. When that happens, make sure you use our Voice for Soy legislative action network to make your voice heard. Voice for Soy is an easy, one-stop shop to track key issues, share information and mobilize quickly as necessary. Contacting your representative or other decision makers is as easy as a click of a button. Visit www.VoiceforSoy.org to learn more.

The 0.017 percentage is daunting. But it is reality. You can be intimidated and stay at the crossroads, or you can see influence as a responsibility and opportunity to move, act, do.
In any given year, at least 10 million acres — roughly a quarter of the area of Illinois — are planted to soybeans. Production hit a record 700 million bushels in 2018. And while once again reigning as the largest soybean producing state in the country, Illinois also outranks nearly every country in the world, except Brazil and Argentina, in production.

So how can Illinois soybean producers capitalize on this profound influence into the future? As societal changes occur, so must the industry to maintain its positive stature. That starts with keeping the informed, informed.

Luke Worrell runs Worrell Land Services, a second-generation farm management and real estate company founded by his dad, Allan, based in Jacksonville, Illinois. He’s also the current president of the Illinois chapter of the Realtors’ Land Institute.

But even as a relative Illinois agricultural industry insider, he was surprised to hear the Illinois soybean industry’s impressive statistics while serving on a program last fall with Mike Levin, ISA director of public policy and regulatory affairs. “It was really interesting to hear someone share those statistics, basically the sheer number of soybeans we produce,” he says. “It was pretty astounding.”

Ag businesses like Worrell’s closely follow every new wrinkle that affects soybeans and soybean markets, because, “as the commodity goes, so goes our business,” he says.

Worrell has been following how low commodity prices correlate to softening land values. After peaking in 2013-2014, soybean prices have fallen about 40 percent.

“Illinois farmland peaked in value in 2013, and ever since we’ve seen gradual declines in the land market,” he adds. “We haven’t fallen off a cliff or anything like that, but I’d expect to see another decline of two to five percent this year in west central Illinois.”

The dip in land values has actually helped to reveal just how much Illinois corn and soybean acreage is coveted around the world, he asserts. “In the last year there’s been more chatter from investors outside the United States,” he says. “Food security is a huge issue for a lot of countries even though it’s something we take for granted here.”

While Chinese demand for the crop looms large — at one point it was estimated that two of every four rows of beans would be sent there — Worrell says other foreign interest in farmland is a worldwide phenomenon.

“I was on the phone with someone from Denmark last year. That’s never happened before,” he says. “Interest is coming from all over the globe, not just from China.”

INFLUENCE BEYOND AGRICULTURE

Illinois soybean producers need to keep waving the flag to the general public as well, even if soybeans are highly regarded, says Jason Bond, plant pathologist and director of the Illinois Soybean Center at Southern Illinois University Carbondale. SIUC is not an “ag school” in the traditional sense. It was founded in 1869 as a teacher’s college and now ranks among the highest in the nation in
numbers of international students and degree of ethnic diversity, with emphasis on social inclusivity, sustainability and the arts.

“I believe soybeans and soybean meal have high favorability among the most discerning of activists, even among those who tend to have the loudest voices about what’s safe in our food,” Bond says. “I think the plant itself and the meal we get from it, has a favorable, even outstanding, perception among the general public.

“You’ll notice, for example, that we don’t get the same complaints about biodiesel as the ethanol industry does. You just don’t see a lot of protests around that,” he explains.

As one of the nation’s largest biodiesel-producing states, Illinois has won over the American Lung Association with its clean air benefits and nearly two-dozen municipal fleets with its engine extending efficiencies, a story that advocates are now taking beyond Illinois to other states and even worldwide (see related story on page 14).

Meanwhile, soy food products, like milk, edamame and tofu, are getting easier to find in grocery stores, although there’s still room for more education among consumers. Brooke Bisping, a dietitian for a Hy-Vee store near Peoria, Illinois, where she conducts cooking demos, consultations and store tours to promote healthy eating, says most of her customers don’t realize that Illinois is a world leader in soybean production.

“When I do store tours, I take consumers to the freezer section and show them frozen edamame. They typically aren’t aware edamame are soybeans. So, I do think there is a disconnect when it comes to consumer knowledge about them,” she says. “Dietitians promote soy foods as a great source of fiber and protein that helps keep you fuller longer and an awesome alternative for people who choose not to eat meat or dairy.”

For the minority of customers who associate soybeans with being heavily processed or hormonally disruptive, Bisping says she debunks that notion and emphasizes their contribution to heart health and lower cholesterol. Shoppers also are generally unaware that the main use of soybeans is as feed for livestock.

Beth Peralta, registered dietitian and communications specialist for nutrition education programs at the University of Illinois Extension, says consumers are clamoring for recipe cards, fact sheets and reasonable advice that cuts through the informational clutter — another great opportunity for Illinois soybean producers to exert their influence.

“I’ve been in the field for more than 12 years, and I know that soy protein is getting brought up more frequently now,” she says. “There’s a big focus on eating more plant-based meals, and soybeans fit well with that trend.”

EXPANDING OUTREACH

Back at SIUC, Bond points out soybeans also address public concern with environmental sustainability. “I think you’d have to put them at the top of the list of crops that make you a good steward just by growing them,” he says, citing adaptability to no-till, plant vigor, nitrogen fixation activity and ability to shade out weeds.

SIUC’s soybean center is one of several in the Midwest. With help from the soybean industry, the centers have started working together in a more coordinated way to share ideas and resources. SIUC is also undertaking a strategic planning process to determine how the center can be most effective and better measure outcomes.

A key goal for Bond is expanding undergraduate training and research. SIUC currently hires around 40 students a year to fill research support positions.

“Three to five will go to the annual Crop Science Society of America meeting and actively compete,” he says. “To get them skilled in research methods and high-quality data and have them present at a national scientific forum is a big deal.”

While Bond wants to be sure students are aware of the opportunities available in soybean and crop-related research — he hopes to encourage many of them to go on to get jobs that will ultimately help soybean farmers — his intentions go beyond that. Often these students aren’t from the agronomy department, or even the college of agriculture, making them well positioned to interact with and influence nonfarm audiences.

“Have we measured the impact we’ve made on the views and attitudes of these students? That hasn’t been done, but that’s something we’d like to look at going forward,” he says. “And then how do we take that to the next level? That’s an area we need to explore.”
Is Big Better?

Four Perspectives on the Future of Global Competitiveness

> BY RICK PURNELL

Illinois soybean producers are good at what they do. But the right combination of elements will be needed to keep U.S. production competitive and profitably efficient on the global scale. Four economists share varied perspectives on what that might look like in a perfect world.

1 Shifting Shares from Current Competitors

While Argentina, Brazil and the U.S. make up 75-80 percent of world soybean production, how that total percentage is allocated could change over time, says Michael Langemeier, agricultural economics professor at Purdue University.

“Brazil has the most opportunity to expand supply,” he says. “This won’t necessarily be accomplished with increased yields because their yields are similar to U.S. yields. They could quickly expand acreage, however, and we should be concerned. Any time you have a major supplier that is in a good situation to expand acreage, it is important to realize that once in production, it takes a pretty big shock to get those additional acres out of production.

“In the short term, increasing soybean supply would have a negative impact on world prices,” Langemeier adds. “But, as the world economy continues to grow, there is room for all three players because we’re looking at an expanding market overall.”

2 New Competitors into the Marketplace

He’s right that the market is growing, asserts Mark Ash, an agricultural economist with USDA’s Economic Research Service (ERS). He notes a dramatic, relatively recent increase in exports to Bangladesh, Pakistan and Sri Lanka. And, while the U.S. hasn’t sold many soybeans to India, Ash says it has potential to be a large market for U.S. soybeans in the future.

Of course, competition can increase, too.

“No new competition for U.S. soybean producers is starting to come from Ukraine and the surrounding region,” Ash says. “This has developed over the last decade. They’ll likely be exporters that ship into parts of the Northern Hemisphere and could compete with our trade. Canada has increased its production, too.”
“Technology has been the primary driver of this shift and it means a farmer or family farm manager can manage a lot more acres than was possible 30 or so years ago,” MacDonald says. “Equipment is bigger and faster, so you can cover more ground. Herbicide-tolerant soybeans and corn reduce the amount of time that’s needed for weed management on a per-acre basis.

“Looking to the future, I think the big question is going to be the impact of precision agriculture on farm size and that’s hard to predict,” he adds. “If it works out like other technologies have and allows farmers to cover more acreage in less time, we’ll likely see people use it to manage bigger farms. However, some predict precision ag may favor smaller operations so there is uncertainty.”

MacDonald notes that during the last 20 years, price signals moved a lot of acres into corn and soybeans. While some farms continued to grow in size, he believes U.S. soybean producers may have found optimum operating efficiencies that support current market conditions.

“By contrast, if you look at the hog business in the 1990s and early 2000s or dairy in the last couple of decades, there was a dramatic shift to much larger farms,” he says. “The indication was that large farms were more efficient and that by shifting production to them, overall production costs would go down. I don’t see the same sort of powerful forces in field crops.”

Amid the discussions, there is strong agreement that change, whether fast or slow, personal or technological, is a consistent element for soybean producers. These economists contend how change is managed on individual farms and as an industry is key to meeting domestic and international customer needs.
Illinois leads the nation in soybean production. By working with others in the food, feed and fuel industries, ISA helps solve the greatest challenges and helps create the best opportunities for producers with the United Nation’s (UN) Sustainable Development Goals in mind.

ISA is committed to leading collaborative efforts that bring innovative solutions that improve social, economic and environmental well-being, local to global. This circle illustrates some of the numbered UN goals and connects them to the areas where ISA is working.

Numbers correspond with the UN’s sustainable goals.
ISA is taking several steps to support the UN’s Sustainable Development Goals, including these five general efforts that help drive five ISA initiatives within the goals.

ISA supports ongoing improvement in Illinois producers’ abilities to sustainably grow soybeans. That includes taking care of the land. Without it, there are no farms, no homes, no livelihoods.

Current soil conservation practices allow Illinois producers to save an average of nearly 2.7 tons of soil per acre per year, compared with the early 1980s. In 2017, 81 percent of soybeans were produced under conservation tillage systems including no-till, mulch-till and reduced-till. •

Numbers correspond with the UN’s sustainable goals.
From steel and soybeans to airplanes and technology, the global trade landscape dramatically has shifted the last year. The trade dispute between the U.S. and China has caused most disruption, but European Union (EU) and North American country discussions have added to the challenges.

“As China implemented an import tariff on U.S.-origin soybeans, Chinese crushers turned to South America to cover their needs. As a result, U.S. soybeans became very competitive to the rest of the world,” says Paul Smolen, Agri Networks Management marketing consultant. “That changed many shipping and trade patterns related to soybeans.”

From June 2018 through January 2019, soybean shipments to the rest of the world increased 13.7 million metric tons (MMT), compared to that time period the previous year, offsetting the decline of 23.3 MMT less sent to China. Smolen says leading destinations with increases were Europe, which imported 4.7 MMT over the previous year, North Africa – primarily Egypt – buying 1.5 MMT more, and South Asia, which increased 1.1 MMT. Argentina imported 2.2 million metric tons of U.S. soybeans for crushers to replace soybeans shipped to China.

Smolen says the shift in destinations from China to the rest of the world creates a disproportionate impact on shipments and soybeans from the Pacific Northwest. Shipments from the Gulf of Mexico most efficiently reach new and expanded markets.

“These changes hurt U.S. prices, but they also introduced opportunities to work with new customers, build long-term relationships and facilitate efficient end-to-end trade flow,” he adds.

**REMOVING TRADE BARRIERS**

As the trade landscape changes, soybean producers could benefit from more open trade, or the removal of trade restrictions between the U.S. and other countries.

“Open markets promote specialization that benefits everyone and provide global stability. Countries that trade together are less likely to go to war against each other,” says President Gary Blumenthal of World Perspectives, Inc., an ag market and policy analysis consulting firm.

“Open trade allows comparative advantage to work. Everyone does what they can do best and most efficiently, and wealth is derived from productivity,” he continues. “Soybean production is one strength for the U.S. In fact, global open trade policy would allow the U.S., Brazil and Argentina to all produce and export more soy.”

Many countries have the mindset to avoid imports and increase exports, but according to Blumenthal, that economic approach distorts markets.

“Most countries practice selective free trade in areas that benefit them,” he says. “They maximize economic opportunities in some areas with open trade policy, while using trade barriers to protect politically strong groups that might not be competitive.”
Many countries impose import barriers like quotas and tariffs on U.S. products. Non-reciprocal agreements protect or benefit just one party, like the Generalized System of Preferences (GSP), which puts zero tariffs on imports from countries with that status, or self-declared special and differential treatment sanctioned by the World Trade Organization, which allows countries to erect trade barriers. Blumenthal observes still that open markets eventually prevail.

“Subsidies and other barriers tend to shrink over time because they are political constructs that distort markets,” he says. “As barriers are removed between the U.S. and countries like Chile, Mexico and Japan, both partners better specialize productivity and reap net economic benefits.”

**OPENING NEW MARKETS**

As countries demand higher-quality protein in their diets, new soybean markets develop to supply the animal feed needed for livestock and poultry. It’s in these countries where a more open trade policy can most benefit efficient U.S. soybean producers.

Blumenthal says animal protein consumption rises based on income and demand from young people who need quality nutrients as they grow and mature.

“The formula for potential soybean market growth is to identify markets that have large youthful populations with rising incomes,” he says.

“However, many such countries have barriers that stifle imports. Markets like India have great potential for growth in protein demand, which translates to a need for quality feed in the poultry industry. That’s an example of where we want to promote open trade policies and remove barriers. Other potential growth markets include Indonesia, Pakistan and Bangladesh,” he says.

Smolen adds that customer interest in U.S. soy is developing in emerging markets in South and Southeast Asia, as well as West Africa. As soy markets emerge in these countries, these experts agree that minimizing trade barriers will allow the entire global soy supply chain to prosper.

Reciprocal trade agreements can help reduce barriers and move toward more open trade. Efforts that could lay the foundation for mutually beneficial trade agreements include changes to non-reciprocal agreements like GSP, strengthening relationships with stakeholders in emerging markets and demonstrating the value specialization in the global economy.

U.S. soybean exports to Indonesian ports like Cigading Port, Cilegon, increased more than three-fold from 2017 to 2018, with more opportunity in the next two years. The Illinois Soybean Association consistently strengthens relationships with Indonesian soybean customers through visits to the country and coordination with the Indonesian consulate in Chicago.
CASE STUDY

Tale of Two Cities

ISA’s Chicago Impact Looks Both Inward and Outward

> BY JOY BENNING

Since calling Chicago its "second home" in 2016, the ISA checkoff program has been building relationships — and influence — to ensure soybean producers have a seat at the table with stakeholders ranging from tech companies to consulates. The snapshots below provide a look at the leadership ISA is using to influence tech and trade scenes — and what that means for Illinois soybean producers.

BRINGING AGTECH HOME

For the last decade, the agtech landscape has exploded from a niche investment to a legitimate class of its own. To support this expansion, the ISA checkoff program is playing the role of connector: ensuring the producer voice is well represented in talks from development to use on the farm.

“Innovations and new technologies are surging in the ag industry,” says Linda Kull, ISA director of ag innovations and tech transfer. “Entrepreneurial leaders are moving at an accelerated pace, and industry and value chain disruptions are described as being key metrics of success. It’s imperative to participate in this movement and lead with a strong voice for our Illinois producers.”

One way ISA is promoting agtech advancement in Illinois is as exclusive executive sponsor for the 2019 AgTech Nexus USA conference. The event in July in Chicago features data-driven farm management tools, advances in genetics, robotics, blockchain and predictive agriculture and AI platforms.

ISA is co-hosting the premier event with Global AgInvesting (GAI). Attendees will include investors, agribusiness executives, agtech entrepreneurs, university startups and researchers. And since this is the only national agtech conference of its kind specifically scheduled around planting and harvest, soybean producers also can, and are encouraged, to participate. As co-host, ISA will facilitate panel discussions and farm visits, matching ag innovators with leading agtech adopters.

“This is one of many opportunities we’re supporting to build ties between producers and tech companies,” says Kull. “Ultimately, we intend to better influence tech development and adoption to ensure the best innovations make it to those charged with producing feed, food and fuel for the world.”

BUILDING A FOOTPRINT ABROAD

One constant of trade is that the global environment is always changing. Amid that change is a continued growth in protein consumption, which offers Illinois producers the chance to do more with soy than ever before. Given this challenge and opportunity, ISA is steadily building relationships in downtown Chicago with trade influencers just a few blocks from the office — and half way around the globe.

For example, the Taipei Economic and Cultural Office (TECO) in Chicago represents Taiwan’s interests in the Midwest, facilitating trade and investment between the country and seven states, including Illinois. The Taiwan Agricultural Trade Goodwill Mission, organized every two years, is one way TECO promotes bilateral cooperation.

“A special focus of that mission is to purchase soybeans, which ISA helps facilitate,” says Eric Huang, director general of TECO in Chicago. “Beyond this mission, ISA is instrumental in showcasing Illinois soybean characteristics to Taiwanese importers, hosting delegations and assisting with high-quality Illinois soybean purchases. In turn, we help ISA explore the Taiwanese market and potential opportunities. It’s a win-win situation.”

TECO is one of many organizations ISA partners with to expand trade opportunities. Later this month, ISA will host more than 100 attendees at the Chicago office for the annual Illinois Export Conference, sponsored by the Illinois Chamber’s International Business Council. In August, about 500 global soy buyers and U.S. value chain representatives will attend the U.S. Soy Global Trade Exchange in Chicago. And, ISA will welcome trade delegations this spring and summer in Chicago and throughout the state.

Since calling Chicago its "second home" in 2016, the ISA checkoff program has been building relationships — and influence — to ensure soybean producers have a seat at the table with stakeholders ranging from tech companies to consulates. The snapshots below provide a look at the leadership ISA is using to influence tech and trade scenes — and what that means for Illinois soybean producers.
Imagine biodiesel growth potential if fleets ran on B100. That’s the motivation behind a cutting-edge project funded by the ISA checkoff program that could ultimately increase biodiesel blends.

The pilot project is underway at the Chicago Park District (CPD) using an innovative fuel system from Optimus Technologies, a company focused on high-performance biodiesel solutions for medium- and heavy-duty trucks. With this technology, fleet operators can use B100 in existing diesel vehicles to lower harmful particulates and reduce greenhouse gases.

In fall of 2018, the CPD installed the Optimus system on two of its refuse trucks, allowing them to run on B100 for much of the workday without any interaction by drivers. The refuse haulers help maintain the park system, and the telematics units track several key engine parameters of interest to fleet managers—fuel economy and diesel particulate filter (DPF) performance.

Refuse trucks typically operate in a low-speed environment with frequent stops. This type of duty cycle makes it tough for the DPF to operate efficiently, which can cause maintenance headaches for mechanics. The pilot project will demonstrate how using biodiesel affects DPFs and help organizers understand how trucks perform on higher biodiesel blends.

The project stems from CPD’s membership in the B20 Club, a partnership between ISA and American Lung Association supporting Illinois-based fleets devoted to 20 percent biodiesel use.

“The Chicago Park District is strongly committed to vehicle sustainability and has pushed the envelope for biodiesel blends in municipal fleets,” says Pete Probst of Indigenous Energy, a contractor working on the biodiesel program. “Diesel vehicles, from lawn mowers to log loaders, receive up to 50 percent biodiesel throughout the year. We’re excited to work with Optimus Technologies to achieve blends up to 100 percent biodiesel.”

**LEADING BY BIODIESEL EXAMPLE**

Funding the CPD project is just one example of ISA’s biodiesel leadership. Since the mid-1990s, ISA has invested significant funds, time and expertise to build the industry from the ground up.

“The relationship between ISA and biodiesel is a great story,” says Rebecca Richardson, who has worked on ISA’s biodiesel initiatives for more than 20 years. “Illinois farmer-leaders had a vision from the beginning.”

The key, according to Richardson, is an unflinching courage and willingness to tackle “non-sexy” challenges. One example is the early Environmental Protection Agency (EPA) testing to prove biodiesel’s positive health effects. “In the early days, no single company could afford to do that research, and ISA stepped in to help get it done,” says Richardson.

More recently, ISA secured a research firm to conduct a soon-to-be-completed study on the potential for increased biodiesel use in the maritime industry. With new International Maritime Organization regulations taking effect in January 2020, tens of thousands of ocean-going vessels will need to rethink their current fuel use in favor of options with lower sulfur emissions, such as biodiesel. When completed, the study will determine the economic feasibility of and most promising pathways to introduce biodiesel into the global maritime industry.

“ISA has a reputation for taking the lead by investing in new opportunities for soybeans that might be overlooked. Maritime fuel is a perfect example. It’s not a slam dunk, but that’s exactly where we excel as an organization—looking at opportunities no one else is thinking about,” says Mark Albertson, ISA director of strategic market development. ■
NO EITHER/OR PROPOSITION

Soy Protein Influences Consumer Diets in Multiple Ways

> BY BARB BAYLOR ANDERSON

It’s no secret global demand for protein to feed people and animals will continue to expand as the world’s middle class and income grow. While traditional uses of soybeans in animal feed rations is expected to go up, so also are innovative uses of soybeans for plant-based proteins.

“There are a number of options to choose from when it comes to protein sources — beef, pork, poultry, fish, alternative meats and plant-based proteins. To compete and partner with existing, emerging and alternative protein sources, we need to view the broader protein industry,” says Austin Rincker, ISA director and producer from Moweaqua, Illinois.

The Illinois Soybean Association (ISA) checkoff program is proactively leading that conversation with those along the food value chain, addressing the opportunities, challenges and implications of protein sources. To further the discussion, ISA in 2020 will host a “Feeding the Future — Macro and Micro Views of the Protein Industry” event in Chicago.

RISING PLANT-BASED PROTEIN POPULARITY

Discussion will include the push for more plant-based proteins. Soybeans are considered a complete nutritional protein source for humans because they contain all nine essential amino acids.

Nick Fereday, executive director, RaboResearch Food & Agribusiness, says their “We Didn’t See That Coming” food trends survey of industry professionals shows growth in this area.

“Breakneck advancement of plant-based food and beverages was easily the biggest surprise,” says Fereday, citing industry statistics of plant-based meat alternative retail sales rising by almost one-quarter to $770 million in the year ending August 2018. Plant-based alternatives to animal foods was up 17 percent to $4.1 billion compared to $200 billion in U.S. meat retail sales. “Equally impressive are the number of new entrants and players in the new protein landscape.”

Soy will play a prominent role, says Dr. Erin Rees Clayton, scientific foundations liaison, The Good Food Institute (GFI). “While we are witnessing increased diversity of plant-based proteins in foods, soy dominates,” she confirms. “Given predicted market growth and potential to innovate new tastes and products, I anticipate soy protein will play an important role in the many types of plant-based meat products, including poultry and seafood.”

For example, Impossible Foods, which offers a vegan meat alternative, has switched their plant-based meats formulation from wheat to soy. Other companies are developing plant-based meats from lab-grown meat muscle, referred to as cell-based or clean meat. Market watchers anticipate broad-scale success if products attain wide appeal to average consumers at competitive prices.

Clayton says soy could become even more attractive as plant breeders develop soybean varieties with protein that can be extracted to maintain full functionality with no unwanted additives or antinutrients. She says soy-based meats will need the aroma, taste and texture consumers desire.

“...
CONTINUED ANIMAL PROTEIN CONSUMPTION

While meat alternatives may become more mainstream, they likely will not eliminate consumer demand for traditional meat and poultry products. And nearly 97 percent of the soybean meal used in the U.S. goes into feed rations for various species, including pigs.

“Soybean meal is an important part of the pig’s diet,” says Jarrod Sutton, vice president of domestic marketing, National Pork Board. “We anticipate demand for U.S. pork to continue to grow, both domestically and internationally.”

Sutton quotes industry statistics that show bacon is featured on more than 70 percent of U.S. menus and has grown four percent since 2014. “Continued growth speaks to consumer demand for pork products while dining away from home,” he says.

Fresh pork products consumed at home are also trending higher. According to Nielsen, the fresh pork category gained 0.5 percent in total U.S. grocery sales in 2018. Overseas, Sutton says growth in Asia and Latin America present tremendous opportunities for U.S. pork.

“Global consumer trends suggest more people are interested in the food production story. U.S. pig farmers use 75 percent less land and 25 percent less water to produce a pound of pork compared to 60 years ago,” says Sutton. “Pork is the top consumed protein in the world. The U.S. is well positioned to meet growing needs in a responsible, sustainable way.”

“Pork is the top consumed protein in the world. The U.S. is well positioned to meet growing needs in a responsible, sustainable way.”

JARROD SUTTON | vice president of domestic marketing, National Pork Board
ASA Honors Long-Time Illinois Soybean Leader Ron Moore

Ron Moore, soybean farmer from Roseville, Ill., was honored by the American Soybean Association (ASA) during Commodity Classic in Orlando, Fla. Moore received ASA’s Distinguished Leadership Award, which annually honors a visionary leader with at least five years of notable state or national leadership service. Moore served as an at-large director for ISA for several years, in addition to serving as chairman from 2009-2011. Most recently, he has served as one of the Illinois directors for ASA, and was chairman of that organization.

“I've been very fortunate to serve the soybean industry and I'm honored to achieve such an award,” says Moore. “The opportunities I've had have allowed me to work with the best in the business, and I look forward to continuing to advocate on behalf of the U.S. soybean industry.”

ISA Leadership Facilitates Sustainable Tuna Production

A collaborative effort is developing sustainable solutions to bolster the global tuna supply. A new grant from the Foundation for Food and Agriculture Research (FFAR) augments ongoing support from the ISA checkoff program that will allow Ichthus Unlimited, LLC to establish a tuna hatchery in the San Diego Bay area. This will be the first tuna hatchery in North America and the third bluefin hatchery in the world. ISA-funded research has developed sustainable soy-based diets for tuna that are nutritionally dense and improve feed conversion rates, reduce waste and improve meat quality. The formulated diet decreases the feed conversion ratio from 28:1 with wild-caught sardines to 4:1, and reduces the amount of fishmeal and fish oil in feed by tenfold. To learn more about the project, watch the video "Feeding Bluefin" on the ISA website.

Producers Save July 16 for Tech Connect

An all-new ISA checkoff program event this summer will give Illinois soybean producers an in-depth look at promising new technologies and an opportunity to learn best practices for evaluating profit potential. Tech Connect will be held July 16 at the iHotel and Conference Center in Champaign, Illinois, with an agenda built with the business-focused farmer in mind. The one-day workshop includes a keynote speaker, breakout sessions devoted to real-world examination of technologies, and a farmer panel discussing agtech lessons from the farm.

“Tech Connect will highlight farm-ready technology options in the areas of inputs and planning, marketing and integrated farm platforms,” says Jayma Appleby, ISA director of industry relations. “Tech Connect focuses not only on a review of fast-changing technologies available to today’s producers, but also on best practices for evaluating and adopting those technologies.”

The free event includes lunch. Due to the workshop format, space is limited to the first 75 registrants. Watch for registration information soon. For questions, email ilsoy@ilsoy.org.

Study Reveals Critical Role of Food and Ag in Feeding Economy

A recent nationwide economic impact study found that more than one-fifth of the nation's economy is linked, either directly or indirectly, to the food and agriculture sectors. Further, it found that more than one-fourth of all U.S. jobs are similarly connected. The research, available at www.FeedingTheEconomy.com, was commissioned by a group of 23 food and agriculture organizations, including ASA.

Among the most important findings were total jobs: 45,582,086; total wages: $2.06 trillion; total taxes: $913.13 billion; exports: $154.4 billion; and total food and industry economic impact: $7.06 trillion.
ISA Supports AgTech in Illinois

The ISA checkoff program and Global AgInvesting (GAI) have formed a strategic alliance in support of GAI’s annual AgTech Nexus USA conference. AgTech Nexus USA is the preeminent industry event for showcasing innovations and investment opportunities in the burgeoning agtech sector. The alliance will allow ISA to explore, examine and adopt the next generation of tech solutions that promise economic value, as well as make a sustainable, quantifiable difference in the sector as a whole. The conference will be held in Chicago at the Standard Club, July 22-23.

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SAVE IT!
• Collect it - Download all your data regularly into one place. Keep it in the original file format.
• Organize it - Make your data easy to find when you need it later. Divide by year, season stage and field.

SECURE IT!
• Back it up - Save your organized files on another local hard drive as well as off the farm in an Internet-based cloud.
• Lock it up - Ensure your files are password protected and your storage devices are in a fireproof safe each and every night.

SHARE IT!
• Make it efficient - Establish who you want or need to share your data with and what type of files they will need. Then develop a standard operating procedure for sharing data each time.
• Keep track of it - Know the service provider’s terms and conditions. Ask who has access to your data. Ask what happens to your data if you choose to terminate that service.

For more tips and resources, visit unitedsoybean.org/techtoolshed

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Calendar of Events

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The Borlaug Hypothesis

Modern Farm Practices, Increased Production, Less Land, Fewer Inputs

> BY MARTY MATLOCK

Our cousins in Europe are tangled up in a debate over the merits of modern ag practices. Some have adopted the notion that “ecological agriculture” is the way to achieve their bucolic vision of small-scale agrarian surfs producing local food in adequate amounts to feed the world. Their position is that this so-called new notion of production, where small plots produce multiple crop species, usually hand-tilled, cultivated and harvested, is the only way to sustain soil health.

This form of integrated production is, of course, not a new concept. My Cherokee ancestors practiced this form of agriculture 400 years ago in the southern woodlands of this continent. It required significant labor and land to reliably produce enough food to support their villages through the winter. Modern producers have learned good lessons from those before us; the wisdom of soil health management is critical to today’s U.S. farmer. Good agricultural practices utilize ecological principles to focus on building and maintaining healthy soils, using integrated pest management strategies to break insect and weed cycles without pesticides, promote water infiltration through conservation tillage, and maximize yields from the land.

The real agenda of the ecological agriculture movement is to promote small-scale ag as good, and large-scale, intensive ag as bad. My mentor, Norman Borlaug, never saw this as an either-or option. He believed sustainable prosperity from the land can come from many production models and strategies. He proposed the way humans can expand global food production to meet the nutritional demands of 10 billion people is to intensify yield in the most productive regions and to set aside less productive areas for habitat, especially endangered species.

Thus, the Borlaug Hypothesis states modern tech practices that increase yield on an area of land will result in improved conservation of wildlife through preservation of critical habitats.

Farmers know producing more crops with fewer inputs is the goal of modern agriculture. Tech advances have allowed remarkable increases in productivity the past 20 years. Some of those have been through increased input use, like fertilizers and pesticides, that economists call partial factor productivity (PFP). However, improved genetics have allowed for many productivity gains to occur with the same or even fewer inputs overall, called total factor productivity (TFP).

U.S. soybean yields in 2018 averaged 52.1 bushels per acre. This is nearly double the average yields less than 40 years ago. Producers achieved this using both PFP and TFP strategies. Improved soil fertility management meant managing phosphorus and soil pH more carefully, a PFP strategy. Improved genetics allowed for broad-scale adoption of conservation tillage, which reduced fuel inputs and significantly reduced pesticides applied, a TFP strategy.

Realizing the promise of the Borlaug Hypothesis requires an integration of technology and ecosystem solutions. For modern producers, inputs have already been optimized for production strategies, so TFP is the most desirable and promising approach to continue to increase yields. Technological innovations in crop genetics, fertilizer application and release methods, and post-harvest loss reductions will be critical. However, we will also need to focus on ecological mechanisms of pest control, improved nutrient cycle management through use of green manures and comprehensive adoption of conservation tillage, cover crops and other soil health management strategies. U.S. farmers are setting the standard for increasing production on less land with less input. This is the model for demonstrating the truth of the Borlaug Hypothesis.

Marty D. Matlock, PhD, PE, BCEE, was recipient of the 2018 CAST Borlaug Ag Communication Award. He is a professor in the University of Arkansas Biological and Agricultural Engineering Department and is executive director for the university’s Resiliency Center.
THE HISTORY OF THE SHIPPING CONTAINER

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“The best way for us to perhaps influence others is to instead focus on ourselves by doing our best; then others will be influenced from our leadership by example.”

LISA KARDOS | Ph.D. and author of the Optimize Your Life Series

“The higher you want to climb, the more you need leadership. The greater the impact you want to make, the greater your influence needs to be...If you can’t influence people, then they will not follow you. And if people won’t follow, you are not a leader. That’s the Law of Influence.”

JOHN C. MAXWELL | author and leadership thinker

“In order to address the social and cultural factors impacting farm transition, it is important to recognize the demographic, social, and cultural differences among producers and examine how well current policies and programs respond to these differences. American farmers and ranchers may operate large, medium or small farms; they may be multi-generation or first-generation producers...A producer’s cultural and historical legacy influences broader motivations and values which can directly influence how a farm is structured and how transition decisions are made. Likewise, social issues such as the cost of health care and the cost of child care influence farm household economics that directly impact the farm business.”

SHOSHANAH INWOOD | "Social Forces and Cultural Factors Influencing Farm Transition, Choices, 2013

“Agricultural robots, sometimes known as agribots, are seen as one of the key trends that will deeply influence agriculture in 2019...They will help farmers address the issue of a dwindling workforce and allow them to work more efficiently while saving money on labor. Advanced robotic systems will also take care of and harvest plants, as well as carry out on-farm data collection, increasing crop yields. Several robots that can carry out some of these operations are already available, while many others will hit the market soon. As ag robots become a permanent fixture on many farms, the value of the market is expected to reach $12.8 billion by 2022.”

RICHARD VAN HOOIJDONK | December 20, 2018, Robotics Business Review

“Once opinion leaders approve and adopt innovation, it influences others in the group who adopt the innovation to maintain a social and economic status among the social system. Leaders are important determinants of rapid and sustained change, as diffusion happens faster when it is initiated by them. They are considered the bridge between farmers and sources of innovations.”

TALAL SAEED HAMEED AND BARBARA SAWICKA | University of Life Sciences in Lublin, Scientific World Journal, June 2017

“Leadership and influence are not interchangeable...Influence is about producing results and creating change. It’s the capacity to have an effect on the character, development or behavior of someone or something...Although the brain is a very important part of influence, the brain only validates what the heart believes. As a leader, you can gain more influence by tapping into the ‘heart’ of those you want to affect.”

MICHELLE BRADEN | MSBCoach CEO, Forbes Coaches Council, June 15, 2018

“Demand for agricultural commodities is rising rapidly as the world’s population grows. Agriculture’s deep connections to the world economy, human societies and biodiversity make it one of the most important frontiers for conservation around the globe.”

WORLD WILDLIFE FUND | www.worldwildlife.org/industries/sustainable-agriculture
focus on the systems of food production and environmental practices in cities. One cannot understand agriculture today without recognizing the vast majority of the profession now sits within a globalized and metropolitan context.

Are there soft or hard skills students should seek to be most attractive to the hiring public?

While students can develop amazing technical skills in classrooms, if those same students are not armed with human skills they will not be as successful in today’s marketplace as candidates for employment. Perhaps more important than any other human skill is the fundamental capacity to work as a productive team member. All of the challenges implied above will not be solved by a single individual who directs others to act, they will be solved by teams working together to achieve global scale change. Students need to know how to develop relationships with others — especially those that do not share their heritage or cultural background — and engage in productive work with them. Cross-cultural fluency and managing interpersonal conflict are especially important in this context. Lastly, healthy social media behaviors are an understated skill. As social media become further integrated into society and business, being able to intentionally manage one’s social media presence will be an increasingly valuable skill for all.

How can students identify and pursue programs that will be in demand in the future?

More important than choice of major/program is choice of institution. Does the university explicitly signal competencies they provide and show how they prepare students for careers that may not exist yet? Do they talk about how they have shifted focus to align with changing times, or do they focus on the same topics and skills as always? If the university is future-focused and innovative, prospective students can change their minds about majors and still be set up for success. Regardless of how much the world changes, we ask a lot of 17- and 18-year-olds to know what they want. Attending a university with a strong culture of innovation protects them from having to live with their choices or transfer if they change their minds. We do not see a lot of new majors — the best universities are innovating within current majors and programs.

What are the courses/programs most needed today to prepare students for ag careers?

The foundations of the science of agriculture are still the same, so an understanding of the basics of agronomy, animal sciences, ag mechanics and the physical sciences are just as important now as they were a generation ago. Where we see shifts is in the content of those courses. Increasing emphasis in technology and sustainable practices are driving a good portion of these shifts.

Have degree requirements changed as agriculture becomes more global and tech-driven?

We are seeing more courses that include international perspectives and computer programming. Two of our departments, Crop Sciences and Animal Sciences, offer degrees in “___ + Computer Science” in partnership with our College of Engineering. This is to ensure graduates in those fields are ready to dive into emerging jobs where computer programming and software development are just as important as knowledge of agriculture. We also see more international experiences. More than 33 percent of College of ACES students have a study abroad experience.

Are new fields of study emerging to help students be more competent or more prepared in careers to find solutions to global ag challenges?

We see traditional fields of study shift to embrace increased emphasis in globalism and systems thinking required to understand agriculture in a world context. The university offers a number of “Grand Challenge” courses targeted at first-year students to help them learn about and reflect on international systems. We are also developing a new major, “Metropolitan Food and Environmental Systems,” to

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**Dave Rosch** is interim associate dean of academic programs, University of Illinois College of ACES, and an associate professor for the ag education program. He explores ways to help high school and college students develop leadership skills to set themselves apart from peers and distinguish themselves as future leaders in the job market.
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