

AMERICAN WINTER 2020

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People. Policy. Profitability.

A PUBLICATION OF THE AMERICAN SOYBEAN ASSOCIATION

SOY FORWARD

Pork Producers Doing
More with Less

SOY FACES

A South Dakota Diversified
Crop and Livestock Story

The Global Rise of Protein **WORLDWIDE OPPORTUNITY FOR SOY**

INDUSTRY

PERPECTIVE

Using Basis for Better
Marketing Decisions

ISSUE UPDATE

Soy and the Health Claim



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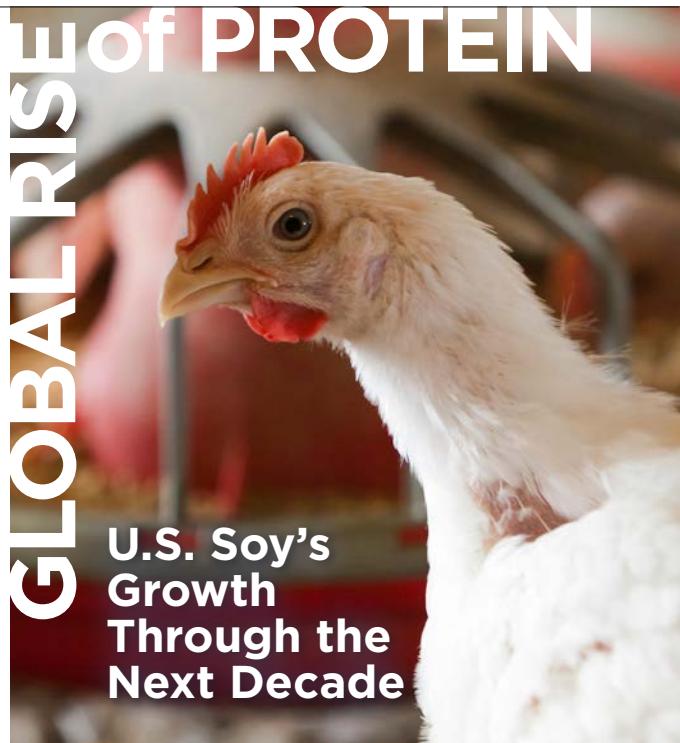
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of PROTEIN



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The American Soybean Association (ASA) represents U.S. soybean farmers on domestic and international policy issues important to the soybean industry. ASA has 26 affiliated state associations representing 30 states and more than 300,000 soybean farmers.

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ASA Leadership corner

To say 2019 was a rollercoaster of a year would be an understatement. From flooding and excessive rainfall to drought and back to excessive rainfall, this year has been a challenge. Weather wasn't the only reason 2019 will be memorable. Trade disruptions with China, USMCA, European Union and other areas have kept markets low. The introduction of African Swine Fever into China has resulted in catastrophic losses of the world's swine herd. All these issues seemed to culminate and hit soybean farmers at a time we couldn't afford. Through these challenges, the American Soybean Association (ASA) has been there for the American soybean farmer. Creating an even stronger and relevant team in Washington, D.C., has been a primary goal during 2019. Now, we will carry ASA's top policy priorities into the 2020 legislative session. And, we will move toward a more strategic fly-in action team model in 2020. These goals and priorities and others will be important as I move into the association president role in 2020.

Hello, my name is Bill Gordon, and I am a fourth-generation farmer from Worthington, Minnesota. I raise my kids, soybeans, and corn on a 2,000-acre farm in the southwest part of the state. 2020 has significant meaning to ASA and my farm as we both will be celebrating our 100-year anniversaries. These milestones have only been achieved because

of hard working, dedicated farmers and their families. I intend to continue that dedication by leading ASA and its members successfully into 2020. ASA will highlight its top priority issues—such as trade, infrastructure and biodiesel—by representing the country's soybean farmers on these and other policy issues in Washington D.C.

The welcome news of the forthcoming passage of USMCA, China (phase 1), and other trade agreements only highlights the need for a strong voice in Washington, D.C. The biodiesel tax credit is now signed into law, and it will bring needed relief to the biodiesel industry. As much as this is good news, we still have small refinery waivers to address,

Bill GORDON



Bill Gordon, ASA PRESIDENT

including the disconnect with EPA on how to reallocate those lost gallons. ASA will continue to push the Trump Administration to better allocate and fulfill the intent of the RFS and advocate for increases in biodiesel gallons for 2020 and the future.

Infrastructure is a key component in every aspect of the farm economy. With aging locks and dams, roads and bridges, and river and port depth issues, we have a lot of work to do to guarantee a reliable transportation network in the future. This is a key priority for ASA, and we look to push this issue in the 2020 legislative session.

As we wrap up a very eventful 2019, we look to the future in 2020—and we have hope. Hope for better weather, prices, trade deals, infrastructure, and biofuels markets. These will be ASA's priorities for 2020, and we look forward to the challenges to come.



ASA President Bill Gordon at the White House for the U.S.-China Phase 1 Trade Deal signing in early January.

Study Finds Soy Farmers Committed to Conservation

The American Soybean Association (ASA) recently released results of a soil health and conservation study conducted through third-party surveys and focus groups in 2019. The key finding of the work is that soybean farmers are active conservationists with a desire to do more.

"ASA is committed to helping soybean farmers bring conservation practices to their farms. And this study demonstrates their receptiveness and commitment to advancing those efforts," said Brad Doyle, ASA secretary and member of its Conservation Committee.

In the research study conducted to assess soybean farmers' attitudes and experiences with conservation programs and practices, 73% of farmers surveyed said they would implement more measures if they thought it would be profitable to do so.

The research also found that growers have, on average, 14 longstanding conservation practices in place, recently have added new ones, and intend to implement more—despite the average grower having to pay for all conservation measures, with average expenditures totaling more than \$15,000 per year. Most farmers (78%) manage rental land the same as land they own, paying conservation expenditures even on rented land, which means the positive practices put in place by farmers extend to all the land they farm.

For ASA, there is other bright news: Grower organizations and land grant universities were

identified as the most trusted sources of information for farmers.

ASA CEO Ryan Findlay responded, "Even with a soft agricultural economy, we have learned farmers are focused on conservation. Knowing ASA is in a key position to lead and promote implementation of additional conservation practices is great." Connecting the pieces of the study, Findlay added, "That nearly three quarters of farmers are open to economically-feasible conservation measures means there is a world of potential for ASA, our state affiliates, and other partners to aid growers with these initiatives."

The study found that farmers trust other farmers the most, meaning ASA networking events and educational shows like Commodity Classic, which ASA co-hosts annually, are opportune times for farmers to connect. Sharing success stories was shown to be the most appealing way to spread information.

Doyle commented, "When ASA was founded 100 years ago, our focus was on being committed to development and networking opportunities to introduce the new soybean plant. It's great to know we can build on that legacy today by devoting even more of an effort to help farmers learn from each other when it comes to conservation practices."

The study also identified that farmers need better information—not better communications—to set up their conservation efforts for success, another area in which ASA can assist by disseminating useful information and resources.

With support from the Walton Family Foundation, ASA conducted four focus groups and a quantitative survey among ASA members and boards in 13 states surrounding the Mississippi River basin. Data was collected from December 2018 to July 2019. Millennium Research, Inc., conducted the survey and focus groups. Full study results can be requested from ASA.



ASA in action

ASA Board Elects 2020 Governing Committee

The American Soybean Association (ASA) Board of Directors elected the leaders who will guide the organization through its 100th year during its annual meeting in St. Louis in December.

Bill Gordon (MN) will serve as 2020 ASA president. Gordon previously served as vice president and treasurer of ASA and has been a national director since 2012. He is a fourth-generation farmer who, with his father, grows 50/50 soybeans and corn across 2,000 acres, including 250 acres of buffer strips and wetlands. Gordon is also the owner of Worthington Tax and Business Services, a full-service business including farm analysis and planning.

Immediate Past President Davie Stephens (KY) moves to the role of ASA chairman. Former chairman John Heisdorffer (IA) rotates off the nine-member ASA Governing Committee but remains on the ASA board.

The ASA Board also elected Kevin Scott (SD) to serve as vice president, a position that places him in line to serve as the association's president in 2021.

In addition, the board voted to elect Brad Doyle (AR) as secretary; Brad Kremer (WI) as treasurer; and Bret Davis (OH), Josh Gackle (ND), Daryl Cates (IL) and Stan Born (IL) as at-large members of the governing committee.

New members beginning their nine-year terms on the ASA board are John Comegys (DE); Steph Essick (IA); Mauricio Garcia (TX); James Hereford (AL); Brad Macauley (NY); Matt McCrate (MO); Phil Ramsey (IN); Justin Rivers (SC) Dave Walton (IA); Casey Youngerman (TN) and Andrew Moore (GA).

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ASA in Action

USMCA



(From left) ASA Executive Director of Government Affairs Christy Seyfert and ASA grower-leaders Daryl Cates (IL), Joel Schreurs (MN) and Bret Davis (OH) advocate for passage of USMCA at the Capitol in November.

TRADE WAR



ASA President Bill Gordon (MN) (second from right) participates in a Farmers for Free Trade panel discussion on the mounting costs of tariffs and the U.S.-China trade war at an event in Kansas City in November.



(From right) ASA Director Kendall Culp (IN) and ASA Executive Director of Government Affairs Christy Seyfert talk advocacy on a panel with NCGA Director Denny Maple and NCGA Vice President of Public Policy Brooke Appleton. Photo Credit: Indiana Soybean Alliance



ASA Chairman Davie Stephens (KY) presents an overview of U.S. soybean production, growing conditions and 2020 planting intentions during the U.S. Soy Buyers Outlook Conference in Japan. The USSEC program helps Japanese buyers gain better understanding of U.S. soybean production and the supply and demand situation, while also encouraging more purchases of U.S. soybeans and soy products. Photo Credit: USSEC



ASA President Bill Gordon (MN) along with ASA Biobased & Infrastructure Advocacy Team Chairman Rob Shaffer (IL) and ASA Directors on the team Willard Jack (MS), Morey Hill (IA), Chris Hill (MN), Ken Boswell (NE) and Matt Stutzman (MI), meet with USDA Secretary Sonny Perdue to reiterate the importance of biodiesel markets to soybean farmers and express appreciation for his ongoing efforts to address the damage being done by the RFS waivers granted by EPA.



Attendees use their phones to answer ASA trivia questions during the 100th anniversary kickoff reception and dinner in St. Louis during the December board meeting. ASA is planning a yearlong celebration of its soy century.



ASA Director of International Trade Policy Hanna Abou-El-Seoud participates in a roundtable to discuss the opportunities and challenges of passing the U.S.-Mexico-Canada Agreement (USMCA) before the end of 2019. Agri-Pulse, in coordination with the National Association of Wheat Growers, hosted the briefing at the Capitol, which drew congressional staff, media and representatives of other major trade associations. Photo Credit: Agri-Pulse



ASA Director John Heisdorffer (IA) (fourth from left) demonstrates the U.S. soy industry's commitment to food security and safety on a USSEC trip to China, where he had the chance to meet with customers in Shanghai and Guangzhou. Photo Credit: USSEC



ASA President Bill Gordon (MN) (right) and ASA Director Ronnie Russell (MO) (left) talk with ag reporters about China trade and tariffs, USMCA, biodiesel and the RFS, transportation and other policy issues facing soybean farmers while attending NAFB in Kansas City.



ASA Executive Director of Government Affairs Christy Seyfert chats with Senate Ag Chairman Pat Roberts during a reception honoring the ag committee at the Capitol.



ASA President Bill Gordon (MN) (end of table on the right), along with ASA Directors Willard Jack (MS), Chris Hill (MN) and Morey Hill (IA) join NBB representatives and biodiesel producers for a roundtable in D.C. to field questions from trade and other interested media, including Bloomberg, Reuters, Agri-Pulse, E&E, DTN/The Progressive Farmer, Argus and OPIS.



ASA/National Biodiesel Board (NBB) Director Rob Shaffer (second from right), ASA CEO Ryan Findlay (right) and NBB Director/past ASA President Ron Heck (left) join biodiesel industry partners in a meeting with Commerce Secretary Wilbur Ross to discuss biodiesel trade issues in October.



The 2020 Young Leaders kick off the 26th class with: Caper & Alison Robinson (AR); Jesse Patrick (GA); Brady Holst (IL); James Ramsey (IN); Eric Schwenke (IN); Noah & Anna Fedders (IA); Ryan & Kristin Oberbroeckling (IA); Jeremy Olson (KS); Houston & Kathryn (Katy) Howlett (KY); Nathan Engelhard (MI); Allison Morse (MI); Mike & Dawn Kunerth (MN); Ryan Mackenthun (MN); Garrett & Cara Riekhof (MO); Josh England (NE); Lucas & Becky Miller (NE); Trey & Rebecca Liverman (NC); Justin Sherlock (ND); Justin & Emily Esselburn (OH); Scott Ruck (OH); Jesse & Emily King (SD); Drew Peterson (SD); Casey Youngerman (TN); Adam & Brittany Davis (VA); Matt Rehberg (WI); Chris & Rachel Renwick (Canada).

The Global RISE of PROTEIN

U.S. Soy's Growth Through the Next Decade

By Kayla Hedrick

Protein. It's an essential part of diets worldwide.

Whether you're focused on keto, Whole 30® or you're just a regular ole steak-and-potato-eating, red-blooded American, your nutrition depends on protein.

And as the world's population continues to grow, healthy demand for all protein will remain front and center in food conversations and on kitchen tables. In fact, all signs point to significant growth in protein demand, a trajectory already occurring over the last decade and predicted to continue through 2030. This added demand for meat, poultry, fish and other protein sources in the next 10 years puts U.S. soybean growers in a great position to be a preferred provider at home and abroad.

While populations depend on protein to build muscle, repair tissue, build hormones and enzymes, and make antibodies, the global food production system relies on soy to be a consistent source of protein. Every bushel of soybeans comes packed with this nutrient-dense essential. Soy is already a leading protein source for animal feed because of its favorable composition of amino acids. Livestock and poultry have long driven soy's demand and subsequent expansion globally. But, as an aside, the favorable composition and all its attributes apply to human diets, as well.

Soy provides the only plant-based protein with all nine essential amino acids—or the ones our bodies don't produce naturally.

"Protein plays an essential role in global nutrition, regardless if it's animal- or plant-based consumption," said Keenan McRoberts, vice president of meal strategy for the United Soybean Board. "All sources of protein need to be at the table to feed the rising population in a sustainable manner, and U.S. soy is committed to meeting those needs in both animal agriculture and with partners in the plant space."

The meaty American appetite

Arby's was onto something in 2014 when they switched their slogan to "We have the meats.®" Americans still strongly prefer the taste of meat. Poultry and red meat consumption continue to rise. Fact: Americans are projected to eat 225.6 lbs. per capita in 2020. According to the U.S. Department of Agriculture, that's a 6 lb. per capita annual increase compared to 15 short years ago.

These trends indicate positive news for the U.S. poultry and livestock sectors and their protein supplier, U.S. soybean growers. As Americans consume more meat, poultry and livestock, consumption of soybean meal follows suit.



Topping soybean meal consumption in the U.S. is poultry. Yes, poultry. Broiler demand for soybeans has increased significantly in the last several decades. Today, poultry makes up nearly 60% of soybean meal that is consumed domestically.

The soybean industry hasn't just seen an increase in total volume, but an increase in the percent of the feed ration going to soybean meal, as well. As consumer preferences push for changes from the poultry industry, soybeans are filling a gap. McRoberts said there are several factors contributing to an increased percentage of soy in a broiler ration.

"We're seeing soybeans make a very strong case in broiler diets, especially as there is a bigger push for vegetarian-fed and antibiotic-free meat on the consumer front," he said. "Poultry producers need an ingredient that promotes health and growth, and soybean meal can deliver on both of those fronts."

Overcoming challenges, adding new opportunities

Challenges still exist in the poultry and livestock industries when it comes to competitive feedstocks within the United States. The top threats to U.S. soybean demand are distiller's dried grains with solubles, or DDGS, and synthetic amino acids. With those alternatives for feed come myths surrounding energy and amino acids that the soybean industry must overcome.

Soybeans remain a critical ingredient in swine diets. However, soybeans have lost some footing in recent years when examining the share of the diet represented. DDGS, as a by-product of ethanol production, create a cheap energy source for pork diets and have made a dent in the amount of soy included per ration. However, that trend could be changing, thanks in part to some research funded by the soy checkoff and conducted at Kansas State University (KSU).

Preliminary data from the study showed that soy has a much higher energy content in pork diets than originally assumed, making the case for using higher quantities of soy to deliver better feed efficiency. Bob Goodband, the KSU researcher overseeing the study, said in a press release that, historically, soy has been thought to hold 78% of the energy value that corn does. However, Goodband's research found soy to possess between 105% and 121% energy value compared to corn, making a significant case for soy's presence in swine diets.

"Our findings will allow nutritionists to have a better understanding of the energy content of the complete diet, and therefore make the appropriate adjustments to the other nutrients



Some of the biggest increases in consumption of U.S. soy over the past few years have been in Egypt and Pakistan broiler rations. Photo Credit: United Soybean Board

in the diet," Goodband said.

"This will hopefully be a potential benefit for producers by making pigs more efficient. Now that we know exactly how much energy is in soybean meal, we can adjust our diets accordingly and hopefully see improvements in gain and efficiency."

Outside of energy, soybeans also have other benefits to health in swine diets. In fact, soy isoflavones—which originally were documented as showing positive health impacts in humans—create positive results for pigs experiencing sickness, as well. Soy isn't just another protein alternative, according

to Dr. Dean Boyd, a technical director and nutritionist who worked for the Hanor Company: There's an opportunity to promote its recently-discovered health benefits in livestock, as well. "When pigs are undergoing flu symptoms or challenges like *Haemophilus parasuis* (a bacterial infection also known as Glasser's Disease), we found that using high levels of synthetic amino acids does not work in that case," Boyd said. "Using a higher level of soybean meal is more costly upfront but actually gives a better outcome resulting in better cost gain."

(continues on page 12)



According to recent research, soy possesses between 105% and 121% energy value compared to corn, making a significant case for soy's presence in swine diets. Photo Credit: United Soybean Board

(continued from page II)

While both Boyd's research and the KSU study are relatively new, they both shed light on positive selling points to put U.S. soy into conversations regarding animal feed in the U.S. and worldwide.

The U.S. soy difference

The popularity of soy as a feed ingredient isn't limited to the borders of the United States, and neither is the rise of meat consumption. Pork and poultry are both on the rise as the global population continues to push toward 9 billion people. Developing countries show the biggest opportunity for growth for U.S. soy—both direct to humans and as an animal feed source. Their populations are growing, but also their appetite for animal-based protein. Similar to trends seen in China years ago, other developing countries are showing promise for markets for U.S. soy and meat.

"As economies start to come online, poultry is the first animal protein to see growth because it's a more affordable protein," added USB's McRoberts. "Some of the biggest increases we've seen in consumption of U.S. soy, in light of trade challenges with China, have been in Egypt and Pakistan. Those increases are going into broiler rations, so the growth is definitely happening on the poultry side."

The U.S. soy industry approaches these markets in a number of ways to help differentiate U.S. soy from the competition. On a global scale, the competition isn't just DDGS and synthetic amino acids. Rather, U.S. soy is competing with other soybean-sourcing countries, including Brazil.

The U.S. soybean industry works through organizations like the U.S. Soybean Export Council

(continues on page 20)

CHALLENGES TO ANIMAL PROTEIN PRODUCTION AND DEMAND

The U.S. soybean industry relies heavily on strong pork and poultry industries in the U.S. and abroad. Here is a breakdown of key happenings that impact the future of the meat industry:

■ **Trade:** It's no secret that the U.S. soybean industry depends on trade. U.S. animal agriculture does, as well. Uncertainty in trade policies can impact demand for pork and poultry in the United States. While trade with China, Canada and Mexico were all hot button issues for soybean farmers during 2019, the pork and poultry industries were also feeling the pressure. In fact, Canada and Mexico made up 40% of pork exports in 2018—a trend that the U.S. pork industry would like to see continue moving into the future. Chinese imports have been a mixed bag. U.S. pork exports to China—due to African Swine Fever—have increased steadily over the last 12 months. While China's appetite for poultry is also increasing, the demand is driving increased production more so in Thailand and Brazil due to ongoing issues with Avian influenza.

■ **Nuisance Lawsuits:** Nuisance lawsuits have been rearing their head for the U.S. meat and poultry industries. North Carolina saw an influx in nuisance lawsuits in the last several years, with Smithfield-owned Murphy Brown being the biggest target. These lawsuits took on larger issues than past nuisance lawsuits, including claims related to health, fear of future illness and other ailments more closely aligned with personal-injury law. The suits were not one-off claims between neighbors but

included multiple plaintiffs against Murphy Brown. In fact, several lawsuits combined to have more than 500 plaintiffs. This approach to lawsuits has challenged those within major livestock and poultry producing states to reexamine their state's "Right to Farm" laws and plan for potential crises related to these types of initiatives in the future.

■ **African Swine Fever:** African Swine Fever (ASF) is a deadly animal disease affecting pigs and wild boars in at least 11 countries, including China, Vietnam, the Philippines and Korea—all Top 10 Pork producing countries. According to the USDA's Foreign Agricultural Service, ASF has likely impacted China more than any other country. Their herd population in August 2019 was nearly 40% less than August 2018. And, pork demand also has taken a hit, even though ASF poses no threat to human health.

Conservative estimates put one-fifth of China's production equivalent to all U.S. pork production. Regardless of lower consumption, China still needs to fill gaps in its supply chain. The unfortunate circumstances regarding ASF for China can be a short-term positive for U.S. pork. As China looks to increase breeding and production, it will rely heavily on imports from other reliable suppliers, including the United States.

With 97% of the soybean meal used in the United States going to feed the livestock and poultry industry, U.S. soybean growers and their policy advocates in Washington and at the state level can continue to play an active role in helping animal agriculture. The American Soybean Association, along with state soybean associations, actively monitor challenges in the livestock and poultry industries and provide assistance where needed.



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KEEPING THE FUTURE OF SOYBEANS BRIGHT

From researching new uses for soybeans to identifying new markets for U.S. soy, the soy checkoff is working behind the scenes to create new opportunities and increase profits for soybean farmers. We're looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And it's helping make a valuable impact for soybean farmers like you.

See more ways the soy checkoff is maximizing profit opportunities for soybean farmers at unitedsoybean.org

Here Fishy, Fishy, Fishy

U.S. soybean farmers know that poultry and livestock eat a lot of soy. But with the growing aquaculture sector, they may hear a lot more about carp, salmon, tilapia and other aquatic species.

Each species of fish requires a specialized feed formulation, and soybean meal, a more sustainable alternative to fishmeal, offers an excellent protein source that can meet the unique needs of each variety.

To better acquaint farmers with this fast-growing customer base, *Beyond the Bean* (a publication of the United Soybean Board) reeled in information on five popular species commonly raised in aquaculture operations that have developed quite a taste for U.S. soy.

Carp

Carp is the common name for a large group of freshwater fish native to Europe and Asia. Aquaculture operations involving the species in those continents date back thousands of years. Commonly farmed varieties include grass carp, which accounts for over 20% of Chinese freshwater production, and common carp (pictured), which can live to be 38 years old.

Soy meal often composes 50 to 60% of the total feed formulation for carp because of its palatability and excellent nutritional value for the species, including high levels of crude protein, complementary amino acid profile and relatively high nutrient digestibility.

AQUACULTURE



Fried carp is a common dish in Europe. And many people in Asia, China in particular, use the fish for dumplings. Carp curry is also popular in India.

Tilapia

Almost one hundred species of fish are considered tilapia. Unable to survive in water below 70 degrees Fahrenheit, most tilapia are produced in tropical or temperate climates.

Various feeding trials have shown that tilapia respond well when fishmeal is replaced with soy meal as a protein source.

Tilapia is widely consumed around the world, including in the United States, Mediterranean countries and Africa.

Catfish

Catfish include a variety of bottom feeders that range dramatically in size. The smallest reach maturity at less than a half-inch long while others can weigh around 120 pounds. All species have the long trademark barbels, or organs they use to find food in murky water, that resemble cat whiskers. Channel catfish is a popular species raised in aquaculture operations.

According to Terry Hanson, PhD, Auburn University, soy meal typically makes up 41 to 47% of catfish feed because of soy meal's high levels of crude protein, amino acid profile and relatively high nutrient digestibility.

People around the world enjoy catfish in a myriad of ways. Americans often batter the fish with cornmeal before frying it. Some in Central Europe and Asia include the species in delicacy dishes.

Photo courtesy of United Soybean Board

Beef Bulking Up with Soy

Salmon

Salmon is a very popular food. The fish is commonly cut into steaks, used for burgers or cured to create lox. Chefs also use salmon in some sushi dishes. Salmon are intensively farm raised in many parts of the world. Because of the rising price in fishmeal, which composes a higher-than-average amount of salmon feed, a sustainable salmon supply demands the use of alternative protein sources like soybean meal.

Shrimp

Shrimp consist of thousands of crustacean species found on the bottoms of lakes, rivers and oceans throughout the world. Around twenty varieties are commercially significant and imported primarily by the European Union, Japan and the United States. Shrimp typically vary in size from one to 10 inches long, with the term prawn used to describe the larger species. Asian countries like China produce the majority of farmed shrimp.

One of the most popular seafood items, shrimp is used in a variety of dishes. In the United States and Europe, shrimp is fried or broiled and served in appetizer dishes. Shrimp is also used in Asia and Latin America to make condiments, soups and noodles.

Source: United Soybean Board

While the poultry and swine sectors are the biggest users of U.S. soybean meal, the value of the beef industry for soybean farmers can be overlooked. Soybean meal is heavily used by poultry and hog producers, but beef producers can also benefit from adding soybean meal or even whole soybeans to their animal's diets.

According to research from the soybean checkoff, U.S. beef operations use over 1.3 million tons of soybean meal every year. That's the meal from about 55 million bushels of U.S. soybeans. One of those operators is Matt Widboom, from the southwestern corner of Minnesota.

"We have used soy meal as the protein supplement for our cattle since we started raising cattle in the 1930s," says Widboom. "The quality of the feed is very important to our product and using soy meal allows them to produce lean meat."

Grinding the soybeans into meal makes it easier on the cattle's digestive system. However, grinding also exposes the fat content inside the soybeans, making them spoil easier. With proper storage, soybean meal can be kept for up to three weeks after processing. After three weeks, the risk of mold increases beyond healthy levels.

There are options besides soybean meal when it comes to feeding soybeans to beef cattle. Widboom and his family also feed whole soy pellets and, when available, whole soybeans. The soy pellets are a biproduct from local crush plants and are used as a

natural source of fiber to offset the cattle's hay consumption.

"Whole soybeans are certainly a great source of protein and it's a locally grown source," Widboom adds. "It's a competitive industry to get them at times but it's a great source for us to use as beef producers."

Mature cattle can handle a diet of 6% whole soybeans, while still-maturing calves can handle less than 4%. Widboom mixes the soybeans with cracked corn, distiller's dried grains with solubles, molasses and a vitamin pack to keep his animals healthy.

Photo courtesy of United Soybean Board



The soybean usage doesn't stop at the beans for Widboom. After the soybean harvest, he bales the soybean straw and blends it with hay that is then added to the cattle's rations. Not much is left unused at the Widboom farm.

While pork and poultry may lead the way in soybean meal consumption, the beef industry is another valuable customer for U.S. soybean farmers.

Source: United Soybean Board

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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.



* 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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ISSUE update

By Bev Paul, ASA Washington Representative

Is Soy Good or Bad for Your Health?

It's no wonder shoppers are confused about soyfoods these days, and the constant drumbeat of bad press has spilled over into government policymaking. These headlines come from the first articles that appear in a Google search for "soy." Where once widely hailed for their many nutritional attributes, soy—like many other healthy foods—has been tarnished by bad news stories and shoddy scientific studies. The approval of one of the first Food and Drug Administration (FDA) "health claims" in 1999 was a point of pride for the American Soybean Association (ASA). The FDA health claim linking soy with heart disease reduction led to a soyfoods market boom. But soy's connection to trans fats and the eventual removal of all trans fats from the market was just the first in a series of policy challenges.

Today, ASA is working to maintain the FDA health claim, watching as legislators try to force soyfoods manufacturers to stop using terms like soymilk, soy cheese and soy yogurt; and trying to educate the U.S. Department of Defense (DoD) about the nutritional and functional attributes of soy protein and soybean oil.

Protecting the soy reputation is ever important, for soy is the only plant protein whose quality equals that of protein from animal foods (this comes straight from the National Institutes of Health). Soy can lower cholesterol and may reduce the risk for heart disease. Health benefits of soy products may be due to their high levels of polyunsaturated fats, fiber, minerals, vitamins and low saturated fat content.

ASA and other food and ag stakeholders were stunned by

a 2017 announcement from the Defense Logistics Agency that several ingredients deemed safe by the FDA would be prohibited from food products used by DoD. These ingredients included Textured Vegetable Protein (TVP), Isolated Soybean Protein (ISP), Soy Protein Concentrate (SPC), and Vegetable Protein Product (VPP) when used as meat protein extenders. The department's abrupt decision immediately reverberated through the food supply chain and made clear

SOY PROTEIN HEART HEALTH CLAIM

Thirteen Countries Have a Soy Protein Heart Health Claim



SOYFOODS ARE ONE OF THE FEW FOODS THAT CAN LOWER CHOLESTEROL

Making Them an Important Part of an Overall Heart Healthy Diet and Lifestyle

ASA is working to maintain the FDA health claim and protect soy's reputation. Graphic Credit: Soyfoods Association of North America



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that a transparent, science-based process must be applied when the department considers future ingredient limitations. Two years later, we still are not clear how a decision to prohibit soy products could have been made.

It is only recently that we have also learned that soybean oil is not listed as an “approved product” for DoD procurement. This is a real hurdle in attempting to help the military transition to high oleic soybean oil.

The FDA heart health claim presents one final challenge. In October 2017, the FDA published a proposed rule to revoke or downgrade to “qualified” the current health claim for soy protein, rather than retain the “unqualified” claim soy protein currently uses.

An unqualified health claim suggests substantial scientific agreement among qualified experts. A qualified health claim indicates a lower level of scientific consensus and must be accompanied by a disclaimer or other qualifying language to accurately communicate the level of scientific evidence supporting the claim. A final rule from FDA is now expected early in 2020.

While the health benefits of soyfoods haven’t changed, the conversation and perception around soy definitely have. We have our work cut out for us here at ASA to help policymakers fully understand the many benefits that soy protein and soybean oil contribute to a healthy diet.



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(continues on page 12)

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The Global RISE of PROTEIN

(continued from page 12)

(USSEC) and ASA's World Initiative for Soy in Human Health (WISHH) to build relationships, provide networking and connect members of the value chain, ultimately helping to create long term demand for U.S. soy in developing and emerging markets. These organizations provide soybean growers with the opportunity to differentiate U.S. soy and create partnerships built on trust and reliability.

While principles from the United States help with guiding success in other countries, these organizations work hard to customize their

approach for each region and allow for nuances found both in local governments and local consumer preferences. Meeting customers where they are on the path to purchase of U.S. soy can help set U.S. soybean growers up for success in the future.

Positioning U.S. soy

Whether increasing the amount of soy found in rations in the U.S. or creating a preference for U.S. soy around the world, there are consistent advantages U.S. soy protein boasts to its customers.

The exceptional composition is one aspect of that advantage; the other attributes rely, positively, on soybean growers' ability to provide a consistent supply, a commitment to sustainability and a dedication to innovating beyond just increased yields.

The protein market for U.S. soy has much promise in front of it. While not everyone will go keto, populations around the world will continue to close the protein gap in diets. And, U.S. soy is positioned well to be part of the solution.

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#SOY SOCIAL

Join ASA-WISHH for #MarketMonday

The American Soybean Association (ASA) invites you to join us for #MarketMonday—an ongoing social media initiative to highlight the work the World Initiative for Soy in Human Health (WISHH) is doing in emerging markets.

WISHH is a market development program for U.S. soy targeting human and animal nutrition in early stage developing markets. The program stimulates demand for soy in public and private sectors around the world and has worked with numerous private voluntary organizations and commercial companies in 23 developing countries in Africa, Asia and Central America, training people how to use soy for economic and nutritional advantages.

Many of these groups are using U.S. soy to improve diets and health, as well as encourage growth of food and animal production industries in developing countries.

Follow:

#ASAWISHH
#MarketMonday
#DevelopingDemand
#USSoy

And share these social posts each Monday to help spread the word about the importance of developing and maintaining soy markets.

West African poultry farmer Catherine Osei-Tutu purchased her first 100 metric tons of U.S. soybean meal this year for her 7,000-bird farm in Ghana.



Through CAST, Cambodia's private sector and universities work closely with U.S. soybean growers and businesses as well as academic and non-governmental organizations.



Soybeans increase the affordability and sustainability of the world's supply of healthy, farm-raised seafood. WISHH's FEEDING Pakistan project helped increase the market value of fish produced—tilapia—from zero at the beginning of the project, to an estimated \$4.5 million USD within three years.



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INDUSTRY perspective

Basis: The Most Misunderstood Marketing Term, Part II

Basis is a term that is commonly used when talking about crop marketing and marketing plans. Unfortunately, there is considerable confusion about the term and its proper interpretation. This is the second article in a two-part series discussing basis and how farm managers can use basis for making more informed marketing decisions.

The first article in last quarter's magazine reviewed the mathematical definition of basis: Basis = local cash market price minus futures market price. It also discussed an operational definition of basis, which was your local cash market trying to regulate the flow of grain over time and across locations.

For example, local basis levels are typically the weakest (most negative or least positive) during harvest, when the inflow of grain into the local market is faster than grain outflow or use. In contrast, local basis levels are typically strongest (least negative or most positive) during spring planting, when the inflow of grain into the local market is slower than grain outflow or use. These basis changes over time provide incentives for farmers to store grain at harvest and deliver later in the marketing year.

Basis can also regulate grain flows across different locations.

For example, the basis at a local oilseed crushing plant for delivery in March may be stronger (less negative) than the basis at a nearby grain elevator because the elevator is full and waiting for transportation to arrive before it can efficiently deliver to an export facility. In this example, the basis at the oilseed crusher is signaling a stronger demand for soybeans in March than the local grain elevator. The farm manager must decide if the difference in basis levels between the two locations is large enough to cover any additional delivery costs from on-farm storage.

These same concepts are used by regional and national cash markets. For example, the export terminals located in the Pacific Northwest (PNW) compete with export terminals located in the Gulf of Mexico (Gulf) for soybean supplies from Nebraska. If the soybean basis at the PNW, less transportation costs, is higher

than the basis in the Gulf, less transportation costs, Nebraska soybeans will flow to the PNW. The reverse is also true: If the Gulf basis, less transportation costs, is higher than the PNW basis, less transportation costs, Nebraska soybeans will flow to the Gulf. This shift in grain movement can have an impact on basis levels at the local elevator as it works to accumulate the soybeans needed to meet the shipping commitments.

Another common misconception is that farmers pay the entire transportation cost to move grain from their farms to an end user. This is true for farm deliveries directly to a local processor, but it is not true for deliveries to an export terminal. The transportation costs from a local elevator to an export terminal are always shared between the grain buyer and the grain seller. However, the portion of the total

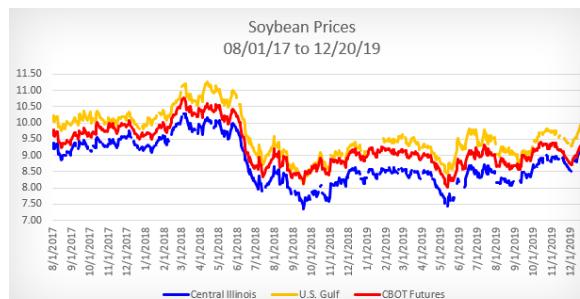


Figure 1: Historic Prices for soybeans Delivered to U.S. Gulf Export Terminals, Central Illinois Elevator Cash Bids and Chicago Board of Trade Nearby Futures

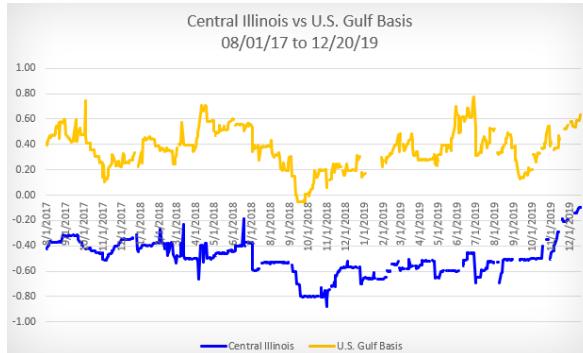


Figure 2: Historic Basis Levels for Central Illinois Elevator and U.S. Gulf Export Terminal

cost paid by the buyer and seller can change over time.

For example, the basis for soybeans at elevators in central Illinois weakened (became more negative) during early July 2019. Flooding on the Mississippi River halted grain barge shipments into the Gulf export terminals. Both grain buyers and sellers were forced to either find other short-term supplies of soybeans and/or arrange for alternative transportation, typically delivering by railroad, which is more expensive than barge shipments.

Figure 1 shows the historical futures market prices (red line), cash prices for soybeans in central Illinois (blue line) and the cash bid for soybeans delivered to an export terminal in the Gulf (gold line) from Aug. 1, 2017 through Dec. 20, 2019. Please note that these prices tend to move together, but not perfectly. There are times that the Gulf cash price and the futures market price are nearly the same (i.e. basis is weak) and there are also times when the central Illinois cash price is very close to the futures market prices (i.e. basis is strong).

Figure 2 shows the historical basis levels for grain delivered to a Gulf export terminal (gold line) and a central Illinois grain elevator (blue line). Once again, note that the basis levels for these two locations tend to move together over time, but not perfectly.

Figure 3 shows the historical spread, or difference between,

the Gulf basis and central Illinois basis. The basis spread between these two cash markets typically varies from about \$0.60 per bushel to about \$1.20 per bushel. This price spread must pay for transportation from central Illinois to the Gulf, the local elevator's handling costs and profit margin, and any storage costs.

However, in late May 2019, when Mississippi River barge shipments were halted, the basis spread reached a peak of about

but the majority of the increased transportation cost was paid by the buyer. This is an example of a "demand pull" market response.

In a "demand pull" market, the buyer is increasing bids to encourage more selling, thus willing to pay a larger portion of increasing transportation costs. In contrast, in a "supply push" market the seller continues to sell even though prices are falling. An example of a supply push market is in July and/or August when farmers sell stored corn and soybeans to make room for the next year's harvest. In a supply push market, the seller often pays a larger portion of the total transportation cost because the seller is "pushing" more grain into the market than the buyers need at that time. In a demand pull market, the buyer often pays a larger portion of the total transportation costs.

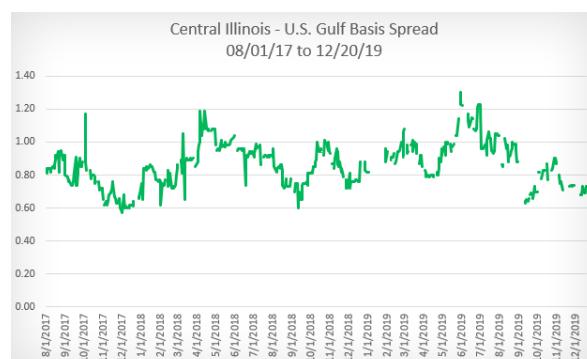


Figure 3: Historical Basis Spread Between Central Illinois Elevator and U.S. Gulf Export Terminal

\$1.30 per bushel. Figure 2 shows that the basis levels in the Gulf increased significantly from late May until late June 2019. But, the basis levels in central Illinois changed very little during the same period. This suggests that the Gulf export terminals began bidding more aggressively for soybean deliveries. Local grain elevators responded by selling soybeans, but they had to pay a higher cost for rail deliveries rather than barge shipments. A portion of the increased transportation costs resulted in lower farm prices,

Understanding historical basis patterns and why basis levels change over time and across location can help farm managers develop more effective marketing plans, accurately estimate the revenues from on-farm storage, and adapt to changing market conditions. This two-part series has tried to clarify common misunderstandings about basis and provide a useful operating definition for basis. I hope you have found it valuable.

WISHH 20th Anniversary Begins with World Food Prize Presentation



(From left) USB's Polly Ruhland, Yedent Agro Group CEO Samuel Ntim-Adu, WISHH Executive Director Liz Hare, and Past ASA Chairman John Heisdorffer discuss soy's commitment to global food security on a panel at the 2019 World Food Prize symposium.

The American Soybean Association's (ASA) World Initiative for Soy in Human Health (WISHH) launched its 20th anniversary activities before a global audience at the 2019 World Food Prize and Borlaug Dialogue International Symposium in October in Des Moines. Past ASA Chairman and Iowa soybean grower John Heisdorffer and WISHH Executive Director Liz Hare joined United Soybean Board (USB) CEO Polly Ruhland on a panel moderated by Iowa Soybean Association CEO Kirk Leeds, where they discussed U.S. soy's commitment to global food security.

"Our commitment to feed the world in a nutritious and sustainable manner is taken very seriously and is of intrinsic importance to all U.S. soybean farmers," Heisdorffer said. "Soy is part of the larger solution to nourish our population."

Hare described how 20 years ago U.S. soybean growers anticipated protein playing an essential role in human nutrition globally. As a result, they took action to launch WISHH as U.S. soy's catalyst in emerging markets.

"WISHH's role within the U.S. soy family is to connect trade and development in order to strengthen agricultural value chains," she said. "The visionary leaders who founded this organization recognized the potential to build U.S. soy trade through the improvement of health, nutrition, and food security in emerging markets."

One of WISHH's greatest strengths is its ability to build strategic partnerships across the globe, and WISHH appreciated a key supply chain partner traveling from West Africa to join the World

Food Prize panel. Yedent Agro Group CEO Samuel Ntim-Adu delivered a powerful and practical message on how trade helps fill supply gaps and is a catalyst for food security in emerging markets like Ghana, where his company is headquartered. WISHH's technical assistance and other activities with Yedent supported the company expanding to offer poultry and livestock feeds along with its multiple soy-based human foods. The cooperation with Yedent also exemplifies how WISHH leverages farmer checkoff dollars. Yedent was a key business partner in WISHH's U.S. Department of Agriculture (USDA) Food for Progress poultry and egg project in Ghana, and the company is key to the ongoing development of these sectors in Ghana.

USDA Under Secretary, Senators, and Experts Affirm WISHH Strategy

USDA Under Secretary for Trade and Agricultural Affairs Ted McKinney, Senate Agriculture Committee Chairman Pat Roberts, Senator Joni Ernst, additional international experts, and WISHH trade team participants share their views on the future of U.S. soy market development in WISHH's new 20th anniversary video. Excerpts of their remarks include:

Jan MIDDENDORF



Kansas State University Sustainable Intensification Lab Associate (SILA)
Director B. Jan Middendorf

Jayson Lusk



Purdue University Agricultural Economics
Department Chair Jayson Lusk

Ted MCKINNEY



USDA Under Secretary for Trade and Agricultural Affairs Ted McKinney

“The payoff of these last 20 years is that you have a world that has complete trust in the quality and safety of your product, and that brings a healthier and more well-fed world.”

Pat ROBERTS



U.S. Senate Agriculture Chairman Pat Roberts
(Kansas)

“You concentrate on a lot of smaller markets and develop those markets that will make a tremendous difference. If there is anything we need to do in agriculture today, it is to get that diversification so we can do the things with those leveraged dollars and gain markets that nobody probably thought of 10 years ago.”

Joni ERNST



U.S. Senator Joni Ernst (Iowa)

“With WISHH, the American Soybean Association, our farmers, they are all working together to develop those emerging markets.”

By Barb Baylor Anderson

If It's Not Broke

**100 Years of
Diversified Farming
Agrees with the
Greenways**



Brent Greenway (pictured with his wife Mollie) farms full time with his family in South Dakota and says diversification has been key to their stability. They recently revamped and expanded their pork production enterprise.

When Brent Greenway came back to farm fulltime in 2019 as the fourth generation of the Mitchell, South Dakota, grain and livestock farm, he was returning to what has worked for a century. Commodity diversification has been the equivalent of stability for the family.

"Above all, coming back to farm and work with family on the ground that has been in our family for almost 100 years allows me to help build on the legacy of the last three generations," he said.

Brent farms with his parents, Brad and Peggy Greenway, and his grandfather, Tom Greenway. Although Tom is 87 and not involved in the day-to-day

operations, Brent says he is always a source of knowledge. An employee, Thomas Smith, has been with them for the last 11 years.

"It is tough to start farming. I was fortunate my parents helped me transition into the operation and my grandfather provided a no-interest loan to buy into our cattle enterprise," said Brent, who holds a bachelor's degree in agriculture engineering and master's degree in engineering management. He worked in farm equipment before returning home with his wife, Mollie, a registered dietitian.

The Greenways have 320 commercial cows as part of the farm, and Brent owns 75 of them. In addition, they have revamped

and expanded their pork production enterprise.

"We had a farrow-to-finish operation where pigs were housed outdoors after the nursery stage. My parents decided the environment for the pigs was no longer an efficient production strategy, especially with cold winters and humid summers in South Dakota. Returns were low," Brent said.

The Greenways joined a 14-person cooperative, Bluestem Family Farms, which is a sow barn managed by the Pipestone Veterinary Clinic out of Minnesota. The sows are a mile away from the Greenways and the source of pigs for their now wean-to-finish

operation. They built two, 2,400 head barns about seven years apart, installing the latest pork production technology. Another barn was rented from Brent's aunt before he joined the operation.

They now produce 14,000 pigs per year.

"By expanding the livestock portion of the farm, my parents were able to hire Thomas in 2008 and more recently help support my family," he said. "The decision to expand was a wise one."

One livestock enterprise that no longer fits with the Greenway's strategy is the dairy Tom had until 2002. Tom and his wife, Janice, chose not to continue due to low milk prices and an aging herd. But they did maintain the beef cow herd.

"We have less productive land that is not tillable and has creeks running through it, so it makes the most sense to use that land as pasture," Brent said. "We sell the calves as feeders."

The pig and cattle businesses fit well with the family's crop enterprise. Animal agriculture consumes nearly 28 million tons of soybean meal and is the top customer for U.S. soybeans. About one-third of the U.S. annual corn crop is fed to livestock.

"We have synergies with our crop production. We feed much of what we raise," Brent said. "We make use of what we produce, and we do so sustainably."

Generally, the Greenways feed about 75% of the corn they grow and use an on-site feed mill to process it primarily for the pigs. They also utilize dried distiller's grain from a local ethanol plant. Some cracked corn is fed to the cattle.

Since the closest soybean processor is 100 miles away, they market their soybeans locally and buy soybean meal for feed as needed. Pig manure is spread on soybean ground for the following year's corn crop.

And while diversification has worked well for 100 years, Brent said the last two have tested that strategy. "In 2019, we only got half of our corn planted and only about one-third of the soybeans," he said. "Since we feed our corn, we didn't have enough and had to buy some."

The good news, he adds, is low crop prices and reduced crop production have been somewhat balanced by higher pork prices and production. Feeder calf prices have been relatively steady.

"When corn and soybean prices are low, we get better returns on pork," he added. "Diversification takes out the highs and lows at any one time and helps even out our income."

Mollie's off-farm income as a dietitian is critical, too, although she is self-employed. "We have joined with the farm plan to get health insurance, so that is a big cost for us," Brent said.

Additional expansion is not out of the question for the Greenways down the road. Brent and his family have discussed possibly adding one or two more wean-to-finish barns.

"Now that we have a pig production system in place, it would be easy to scale up and add more buildings," he said. "Our cow numbers are static because of the finite land we have for pasture."

And while Brent says they won't shy away from buying acreage to produce more corn and soybeans in the future, he believes the current market is not favorable to pencil out any profits.

"We rent about 75% of our ground now and my dad owns the other 25%. We sharecrop with my grandfather," Brent said. "If the opportunity to rent more ground should become available, we would likely entertain that more than an opportunity to buy."

Brent also has eyes in the future of becoming more of an agricultural advocate. "I would like to get more involved. My dad has been very active on the advocacy front with the National Pork Board and U.S. Farmers & Ranchers Alliance. He speaks with a lot of different groups telling the story of agriculture," he said. "I have gotten a taste of that through the [ASA Corteva Agriscience] Young Leaders Program."

Brent enjoys working with other Young Leaders and connecting on Snapchat to compare notes and talk about what each of them face on their farms. Training through the program to talk with the media and with legislators has also been of value to Brent and Mollie.

"All of this will come in handy when I have more time to tell our diversified crop and livestock story," he said.



The pig and cattle businesses fit well with the Greenway family's crop enterprise. Animal agriculture consumes nearly 28 million tons of soybean meal and is the top customer for U.S. soybeans.

Thank You!



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Fsoy FORWARD

By Rachel Gantz

U.S. Pork Producers: Part of the Solution

US pork producers have a fantastic environmental story to tell. Farmers' livelihoods are directly tied to air, water and land, so they understand their responsibility to protect the world's natural resources. As pork producers operate their farms and help feed their neighbors here at home and around the world, they must protect and conserve the environment. Farmers are stewards of the environment and thanks to continuous on-farm improvements in nutrition, genetics and overall pig care, U.S. pork producers are doing more with less.

Just how much less? It's significant.

According to recent Environmental Protection Agency findings, the production of U.S. pork is responsible for only 0.3% of all agriculture greenhouse gas emissions in the country. While our environmental footprint is small, our farmers continue to improve sustainability practices. For centuries, farmers have practiced environmentally friendly farming by capturing valuable nutrients from manure and recycling it as a natural fertilizer. Applying fertilizer benefits crops and soil by contributing necessary nutrients that crops need to grow. Additionally, some of those crops are in turn fed to the animals, which starts the natural recycling process over again.

Similarly, the U.S. pork industry's inputs needed to produce a pound of pork have become more environmentally friendly over time. According to an April 2019 study by the University of Arkansas, U.S. pork producers have used 75.9% less land, 25.1% less water and 7% less energy over the past 55 years. This also has resulted in a 7.7% smaller carbon footprint. Simultaneously over the same timeframe, U.S. pork production has significantly increased: 262% more food was produced with 2% fewer inputs.

To save as much water as today's hog farms do over their predecessors from 50-plus years ago, the average American would have to take 90 fewer showers per year. Likewise, to understand the energy savings accomplished by hog farmers during the same timeframe, a typical household would need to eliminate the use of a refrigerator altogether.

Hog farmers have also increased their feed efficiency, which means it takes less feed to raise a pig. According to recent research, advances in swine genetics and producer focus on nutrition improvements have resulted in dramatic reductions in both the nutrient content of manure and emissions from farms—up to 68% at sow farms and 54% at finishing farms. The environmental study also showed hog farms' contributions to nutrient levels

Rachel Gantz



Rachel Gantz is communications director of the National Pork Producers Council

and ammonia emissions have declined significantly over the last two decades. Other activity—increasing human population and growth in associated emission sources like automobiles, industry and human waste processing—has likely contributed to a general increase in ammonia emissions in the state.

Due to continuous on-farm improvements in nutrition, genetics, and overall pig care, America's hog farmers continue to make tremendous advancements and achieve more with less every day. U.S. pork producers aren't part of the climate change problem; they're part of the solution.



1920 (L to R) Brothers and pioneer soybean growers Taylor, Finis and Noah Fouts on their Soyland farms in Camden, Ind., on Sept. 3, 1920, at the "First Corn Belt Soybean Field Day" where ASA was founded.

2020 (L to R) John Heisdorffer, immediate past ASA chairman, Bill Gordon, ASA president and Davie Stephens, ASA chairman

FROM SOYLAND TO CAPITOL HILL

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The American Soybean Association is in Washington, DC:

- Protecting soybean interests in the farm bill
- Fighting against burdensome EPA regulations
- Growing soybean trade opportunities

That's why ASA matters.

