



# SOY NOTES

for Kansas soybean farmers

News from the Kansas Soybean Commission — the soybean checkoff | Fall 2020

## Soybean meal, animal ag are the perfect pair

It is no secret that animal agriculture is the biggest customer for soybean meal – about 97% of meal serves as a feed source in animal production. Recent reports from the U.S. Meat Export Federation (USMEF) and Soy Aquaculture Alliance (SAA) confirm the strength of this partnership.

The USMEF report shared updated findings from an independent study that quantified the value red meat exports provide to U.S. soybean producers. The update uses 2019 data to determine the critical returns delivered to farmers through meat exports.

“Utilizing checkoff dollars for development and research in the meat arena will help sustain and expand soy’s use to provide food for an ever-growing world,” says Raylen Phelon, Kansas Soybean Commissioner and representative to USMEF. “The pork industry in Kansas is a trusted and vital partner for Kansas soybean farmers.”

In Kansas, pork consumes the largest share of soybean meal. The market value of pork exports to the state’s soybeans came to \$39 million and added 9% to the soybean bushel value. This value was an increase from the 2018 finding of \$35.2 million. Looking ahead, the projected market value of pork exports to Kansas soybeans is \$600

million from 2020 to 2029.

Nationally, U.S. pork exports consumed 2.12 million tons of soybean meal – equivalent to 89.2 million bushels of soybeans. Soybean revenue generated by these pork exports totaled \$751.7 million. With the added \$0.76 per bushel value and total production of 3.55 billion bushels, national pork exports provided \$2.7 billion in value to the national soybean crop. More on the data provided in this study is available at [www.usmef.org](http://www.usmef.org).

SAA shared findings from its 2020 report “Potential Economic Value of Growth of U.S. Aquaculture to U.S. Soybean Farmers.”

The study explored effects of increased growth of U.S. aquaculture relative to increased demand for soybeans. Total soybean demand in U.S. aquaculture for 2018 was estimated to be 8.6 million bushels. The combined potential demand from the growth projections in the analysis was 16.7 mil-

lion bushels, with a possible range of 10.2 million bushels to 25.1 million bushels, over the next 5 years.

“The aquaculture industry and especially our soybean industry’s role in developing sustainable fish farming in the U.S. is at a critical juncture,” says John Wray, who is the Kansas Soybean Commission representative for SAA. “The cooperative efforts of the United Soybean Board through research, American Soybean Association through policy and the U.S. Soybean Export Council internationally continue to boost aquaculture’s economic impact on soybeans.”

Researchers examined soybean inclusion rates in feeds for various aquatic species to estimate long-term impact on meal value. Inclusion rates in feed formulations typically follow a least-cost basis, meaning ratios vary as ingredient costs vary – because of such variation, the study evaluated typical ranges of ingredient ratios.

Soybean meal inclusion rates also vary depending on the aquatic species. One objective of the study looked to determine species with potential for more inclusion and factor that into growing meal demand. Diets for salmon and marine fish showed great potential for increased inclusion rates of soybean products. For these species, an additional 152,995 bushels of soybeans are expected to be demanded by 2024, based on a calculated average inclusion rate of soybean products at 15%.

U.S. catfish are the largest sector of aquaculture in terms of overall share of aquaculture species and highest inclusion rates in consumption. Catfish feed uses higher percentages of soybean meal than that of any other livestock at 35% inclusion. The study concluded that growth of the U.S. catfish industry can have a major impact on increasing overall demand for U.S. soybeans. The full SAA report is available at [www.soyaqualliance.com](http://www.soyaqualliance.com).

Phelon concludes, “It is of utmost importance that we, as soybean producers, work with our meat producing partners – whether poultry, aquaculture, beef or pork – to continue to look at and refine new ways to optimize production with the use of soy products.”



Soybean meal as part of pork’s diet is crushed and mixed with other grains and proteins to create feed. Out of the total soybean meal fed to livestock in Kansas, pork consumes about 60%.



Courtesy: Global Aquaculture Alliance

Aquafeed formulations vary in composition and presentation to suit each aquaculture species’ feeding habits. Tilapia, which account for 2% of the aquaculture industry, consume pelleted feed.



[www.KansasSoybeans.org](http://www.KansasSoybeans.org)



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## Ag Growth Summit convenes virtually

Dennis Hupe, Kansas Soybean director of field services, participated in the Soybeans and Other Oilseeds virtual session of the 2020 Kansas Ag Growth Summit on July 31. Hupe shared that about 130 million bushels of Kansas soybeans are crushed in-state, while about 60 million bushels leave the state. The capacity and location of facilities in the state impact these numbers.

“Infrastructure is the most critical thing for a crush facility location to be considered,” Hupe says. “Proper access to water, power and two Class 1 railways is necessary.”

Session participants also heard updates from other oilseeds. Michael Stamm, representing canola, said

the main crop focus is increasing oil content. Sunflower representative Karl Esping reported an uptick in value of the crop this year. Jason Griffin and Jay Garetson, representing industrial hemp, shared that the crop is in a stage of exploring variety traits.

The Summit, hosted by the Kansas Department of Agriculture, traditionally convenes in Manhattan in August, but was moved online as a series of webinars this year. Beginning mid-July, KDA hosted 17 sector-specific webinars over three weeks, followed by a final week with three broad crossover sessions and a keynote.

The crossover topics covered agriculture’s voice in statewide initiatives,

protecting the food supply chain during COVID-19 and trade. The final keynote guests were Governor Laura Kelly and Ken Isley, administrator of the USDA Foreign Agricultural Service. KDA Secretary Mike Beam and Deputy Secretary Kelsey Olson concluded the event with highlights from the sector webinars and by honoring Kansas Ag Heroes who have provided a notable contribution to the agriculture industry or their communities this year.

Over a thousand Kansans joined the discussion on how the Kansas agriculture community can work toward agricultural growth.

Recordings of all of the webinars can be found at [www.agriculture.ks.gov/Summit](http://www.agriculture.ks.gov/Summit).

## Soy plays lead role in biodiesel growth

The National Biodiesel Board announced its vision to be a 6-billion-gallon industry by 2030. This vision more than doubles production of biodiesel and renewable diesel in the next decade and sets the industry on a fast trajectory to find feedstocks to supply demand.

“Biodiesel is a leading soybean customer with demand for oil increasing 300 percent in the last 10 years,” says NBB Outreach and Development Director Tom Verry. “Additional production will drive even more soybean oil to be used for this market, which is a good thing for farmers’ bottom lines.”

However, there has been a lot of discussion about the impact COVID-19 is having

on agriculture and renewable fuels. Through this unparalleled time the industry was steadfast, and demand showed there was a desire for better, cleaner fuels. Demand for meal remained strong in 2020, with the oilseed crushing industry setting monthly records and generating robust soybean oil stocks. The generation of animal fats returned to near pre-COVID levels as slaughter weights increased and the animal processing sector returned to more than 90 percent of capacity.

“Even in the face of historic challenges, soybean oil continues to be the golden standard for biodiesel production,” Verry shares.

Today, biodiesel uses more than 8 billion pounds of soybean oil, which is ap-

proximately one-third of the oil from U.S. crushed soybeans. To reach 6 billion gallons, research is projecting biodiesel and renewable diesel could need over 18 billion pounds of soybean oil in 2030, making it soy oil’s largest customer. With increased protein demands worldwide, soy’s popularity continues to rise. But the protein need far outpaces the need for oil, leaving a surplus of soybean oil on the market, and that trend will continue in the next decade.

Biodiesel has proven to be a consistent and growing customer for soybean oil. Together with soybean farmers, biodiesel will remain better, cleaner, and available now to all.

Visit [www.nbb.org](http://www.nbb.org) for more.

## Harvest calls for focus on farm equipment safety

Accidents can happen in the blink of an eye. Every day, about 100 agricultural workers suffer an injury that causes lost work time. During harvest, it is important to be mindful of equipment safety because of the hazards associated with power takeoff drive-lines (PTO), extra riders and transporting equipment.

The 1907 innovation of PTO shafts in tractors gave farmers an advantage. These days, farming could not proceed without PTOs. With this great innovation comes potential hazards for individuals who work near these units, as entanglement can cause extreme injury to or loss of limbs. It is recommended to wear fitted clothing to avoid entanglement when working near these units.

Research by Penn State Extension identifies other unsafe practices associated with PTO shafts, including mounting, dismounting and reaching for control levers from the rear of the tractor. Other practices such as stepping across the shaft, instead of walking around the machinery, and carrying an extra rider without a buddy seat while PTO power machinery is operating are also potentially hazardous.

Tractors are meant to be one-person vehicles, unless equipped with a buddy seat and seatbelt. Additional rider deaths can occur from falling off open cab tractors or being thrown out of cabled tractors. These falls or ejections typically occur from unexpected stops or bumps and can result in tractor run-over accidents.

According to the National Ag Safety Database, (NASD)

a tractor traveling as slow as five miles per hour only takes .84 seconds to travel six feet and requires twelve feet of stopping distance.

Tractor and equipment transportation between locations is an unavoidable practice on most operations; when trailer transport is not an option, it is important to take steps to ensure operator safety on the road. Roll-over Protective Structures (ROPS), which serve as a protective zone that reduces the risk of an operator being crushed during a rollover event, became standard in 1985. NASD reports that transportation incidents such as tractor overturns were the leading cause of death for farmers and farm workers in 2017.

Operators should always be alert and drive defensively on public roadways. Equipment traveling below twenty-five miles per hour should have a slow-moving vehicle sign, tractor reflectors should be visible and headlights and taillights should be working. Consider equipping tractors built before 1985 with ROPS, and whenever possible, avoid driving farm equipment on public roads at night.

It can be easy to forget potential operating hazards that accompany farm equipment use. Always be mindful of dangerous tractor situations, avoid additional riders without a buddy seat and don't cut corners when it comes to safety.

*Written by Shelby Berens, 2020 summer intern.*

Right: Top winners of the Kansas Soybean Yield & Value Contests receive plaques and recognition at the Expo luncheon.

## Yield, value contests let farmers' crops compete

All soybean growers in Kansas are invited to participate in the 2020 Kansas Soybean Yield and Value Contests. As harvest progresses, those interested in competing may collect relevant records for one entry per field, and submit entries postmarked no later than Dec. 1.

"The contests are an incentive for farmers to maximize soybean yield and protein and oil contents," says Sarah Lancaster, chair of the Kansas Soybean Association contest committee. "They also provide an opportunity to share production practices that achieve high levels of yield and value."

Per yield contest rules, one entry per field is allowed. Eligible fields must consist of at least five contiguous acres as verified by the Farm Service Agency, GPS printout or manual measurement. A non-relative witness, either Kansas State Research and Extension (KSRE) personnel or a specified designee, must be present at harvest and should ensure that the combine grain hopper is empty prior to harvest. Official elevator-scale tickets with moisture percentage and foreign matter included must accompany entries to be considered.

Four categories – conventional-till dryland, no-till dryland, conventional-till irrigated and no-till irri-

gated – are considered for the contest, with dryland entries further divided into eight districts based on field location. A farmer may enter multiple categories.

The Kansas Soybean Commission provides monetary awards to yield contest winners. The highest dryland and irrigated yields in the contest each will receive a \$1,000 award. If an entry surpasses the previous record of 104.14 bushels per acre, they could earn an additional \$1,000. In each district, first place receives \$300, second will earn \$200, and third will receive \$100. No-till on the Plains supplies additional awards in the no-till categories.

The value contest allows for one entry per individual and is a statewide contest that recognizes the top three contestants. Entries consist of a 20-ounce sample of seed sent to KSA; these samples are analyzed by Ag Processing Inc. for protein, oil and additional qualities to calculate a value.

Farmers are welcome to enter just the yield contest, just the value contest, or both. The results are shared at the Kansas Soybean Expo January 6, 2021.

Information is available at [www.kansassoybeans.org/contests](http://www.kansassoybeans.org/contests), calling 877-KS-SOY-BEAN/877-577-6923 or at local KSRE offices.



# Soybeans travel complex journey to reach end use

Soybeans must be processed before the byproducts can be utilized, and the journey through processing can be pretty complex. Brent Emch, an Operations Manager for Cargill, provides insight into a soybean's journey to the final product stage.

Although soybeans end up in different places, they all start by being cleaned to remove pods, sticks, dirt, and trash. From there the paths vary, but most soybeans are either heated or steamed, to expand the soybean. Expanding the soybean allows for the hull, or the seed coat, to be removed. This hull can then be used as a substitute for grass in cattle diets due to the high fiber content.

The soybean is then cracked to create uniform quarters of the bean. Those four pieces are pressed by a roller and turned into a flake - imagine steel rolling pins compressing a small piece of bean into a thin piece comparable to the size of a fingernail. Depending on the processing plant, the thickness and size of the flake can vary, as the plant aims for what optimal size flake satisfies their customers.

After the soybean is transformed into flakes, those flakes are put through a hex-

ane bath. The hexane causes a chemical reaction that separates the oil from the proteins. The flakes then go back through the drying process to remove the last bit of hexane in the meal. They are now white in color, since the oil has been removed. Once

the flakes are toasted, the meal is ground into a micron size that is uniform and consistent. Most of it is shipped out to customers as livestock feed. While the ground meal is palatable for various animals, the final packaging may be in the form of pellets

or a fine blend.

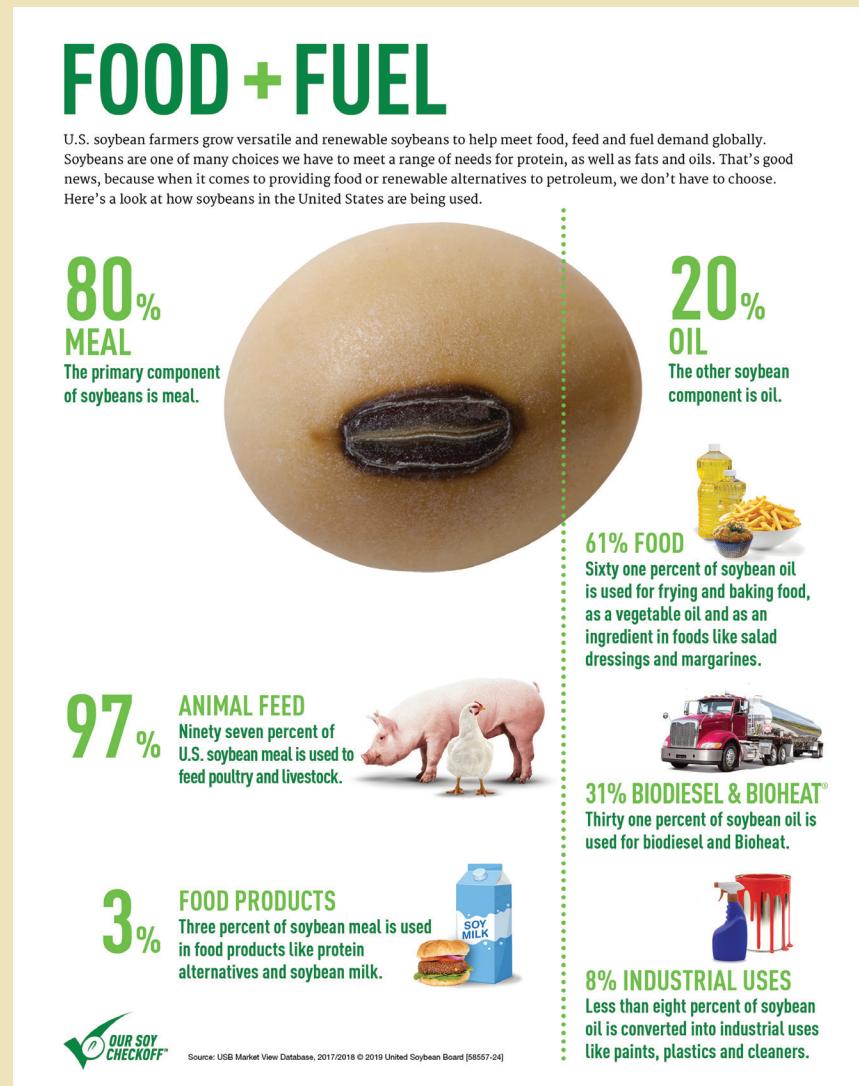
Following the hexane bath, the oil is stripped from the hexane and cleaned. The hexane is returned to its tank. Next, the plant takes the soybean crude oil and processes it further to create the right grade and type of oil that is preferred in the marketplace.

It can be used in regular soybean oil that you would buy for cooking oils, or it can be cleaned up and used for biodiesel production," Emch says in reference to the soybean crude oil.

According to the United Soybean Board, 68% of the soybean oil is consumed as edible oil, 25% is used for biodiesel and bioheat, while 7% is utilized for industrial products such as paints, plastics and cleaners.

While the processing of soybeans is complex, the wide range of end products and uses provides a greater market for soybean farmers. From biodiesel to crayons, soybeans have been developed to fill a wide range of needs. Innovation continues to be a crucial component in improving demand for the soybean industry.

Written by Sage Collins, 2020 summer intern.



## Commission seeks research and education proposals

The Kansas Soybean Commission (KSC) is seeking research and education proposals for fiscal year 2022, which begins July 1, 2021. Proposals are due Oct. 12.

Commissioners review ideas for breeding, production and environmental programs; animal- and human-nutrition or food safety studies;

commercially significant, value-added projects that will use large quantities of soybeans; and domestic or international marketing and transportation programs.

Application instructions and forms are available at [www.kansasoybeans.org/forms](http://www.kansasoybeans.org/forms) or by calling the Kansas Soybean office at 877-KS-SOY-

BEAN/877-577-6923. Those who apply may be the principal investigator or educator on only one proposal. Applicants who receive preliminary approval make formal presentations in December.

The three-day KSC meeting is scheduled for Dec. 3-5, beginning at 8 a.m. each day. The agenda includes funding

proposals, current projects, market-development activities, educational programs and administrative items.

To obtain a complete agenda or to suggest additional topics for deliberation, contact KSC Administrator Kenlon Johannes at [johannes@kansasoybeans.org](mailto:johannes@kansasoybeans.org) or at the Kansas Soybean office.