



SOY **MANY USES!**

soy products from our farms to your family

SOY MUCH MORE THAN A LATTE OR TOFU!

Farmers grow soybeans throughout the United States. About 60 percent of U.S. soybeans are exported around the world, while the rest are processed here. But regardless of where they are used, the vast majority are crushed to separate the protein and oil in the bean.

Products made from soybeans touch everyday life in countless ways, though often behind the scenes.

ANIMAL NUTRITION

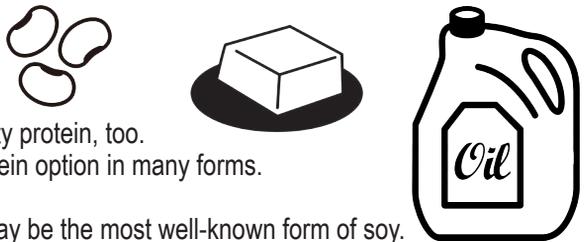


Animal agriculture produces high-quality protein in the form of dairy, meat, poultry, fish and eggs. But much of that protein started as soy. In fact, global animal agriculture is the No. 1 customer for U.S. soybeans.

Animals like chickens, pigs, turkeys, cattle and fish rely on nutrient-dense soybean meal to thrive. They need high levels of quality protein and digestible energy to grow, both of which are found in soybean meal.

Soybean meal fed in the U.S. goes to several segments of animal agriculture. Poultry eats about 61.2 percent.¹ Pigs consume nearly 18 percent.¹ Beef and dairy cattle use just over 18.5 percent.¹ The rest goes to aquatic farming like fish and shrimp, other farm animals and companion animals like horses and pets.¹ Countries buying soybeans from the U.S. also use soybean meal to feed animals. For example, it feeds poultry in Columbia, pigs in the European Union, fish in Southeast Asia and much more, according to the U.S. Soybean Export Council.

HUMAN NUTRITION



Of course, people need high-quality protein, too. Soybeans deliver a vegetable protein option in many forms.

Tofu, a nutritious protein option, may be the most well-known form of soy. Tempeh, made from fermented soybeans, carries similar nutritional benefits to tofu. The popular appetizer edamame is specific varieties of food-grade soybeans, picked while still green, served in the pod.

Most of the time, foods incorporate soy after the beans have been crushed. Soybean meal provides protein in foods like protein bars, meat alternatives and soy milk.

Ever cook with vegetable oil? Soybean oil remains the most common vegetable oil in the U.S. and is often labeled and sold as just that — vegetable oil. In fact, 54.3% of the soybean oil used in the U.S. goes to the food industry.³

Food companies and restaurants rely on it for frying, baking and other food preparation. The FDA has reviewed research that says: “Supportive but not conclusive scientific evidence suggests that eating about 1½ tablespoons (20.5 grams) daily of soybean oil, which contains unsaturated fat, may reduce the risk of coronary heart disease. To achieve this possible benefit, soybean oil is to replace saturated fat and not increase the total number of calories you eat in a day.” Food companies are permitted to use that claim on labels.²

Soy lecithin adds and protects texture and flavor in many foods, like chocolate. In the grocery store, bottles of pure vegetable oil, salad dressings, spreads and more contain soybean oil. It’s a source of omega-3 and vitamin E with zero trans fats.⁴

INDUSTRIAL USES

A renewable resource, uses for soybeans range far beyond food and feed. Soybean oil and meal can replace petroleum and other volatile ingredients in many industrial and consumer products.



The primary example is biodiesel, a cleaner-burning, renewable alternative to petroleum diesel. Biodiesel blended into diesel used in the U.S. transportation fuel supply reduces greenhouse gas emissions by up to 86%.⁵ It also eases dependence on fossil fuels often refined from foreign oil. Biodiesel, renewable diesel, and sustainable aviation fuels are available now to help meet nationwide carbon reduction goals.

Farmers may attribute 13% of the selling price of their soybean crop to the checkoff-funded development of soy biodiesel.

OTHER USES FOR SOYBEAN COMPONENTS

Using soy allows manufacturers to replace petroleum-based materials and satisfy demand for sustainable, environmentally friendly products, while increasing performance.



Uses for soy-based products continue to expand, with the soy checkoff’s Soy Products Guide (www.soynewuses.org/products/) containing more than 1,000 items currently on the market — from flooring and roofing products to candles and personal care items.

Soy impacts feed, food, fuel and countless other areas. And it makes a good latte.



Sources and Additional Resources:

- 1 2020/2021 Market View Database, United Soybean Board.
- 2 Food and Drug Administration (April 2019).
- 3 United Soybean Board Market View Database.
- 4 United Soybean Board.
- 5 National Biodiesel Board (2019). Production Statistics.

SOY TIRES

A close-up, low-angle photograph of a tire tread, showing the intricate patterns of sipes and grooves. The lighting is dramatic, highlighting the texture and depth of the rubber.

Whether you're hitting the road for a run or a drive, you can now do so with soy-based rubber technology. U.S. soy is now available in Skechers footwear, thanks to the shoemaker's collaboration with The Goodyear Tire & Rubber Company — opening the door to a new market for U.S.-grown soybeans.

The United Soybean Board regularly collaborates with Goodyear on research to learn how to incorporate soy into its rubber technology. This research led to the discovery that soybean oil could not only improve tire flexibility across temperatures but also provide enhanced grip on road surfaces, making it an ideal choice for Goodyear's all-weather tire line.

Building off Goodyear's discovery, Skechers utilized the same technology to deliver grip, stability and durability for select models of their running shoes, with plans to incorporate the rubber into more styles in the future.

Once just a byproduct, soybean oil is now a lucrative value driver for farmers, being used as a sustainable, environmentally friendly and functional replacement for petroleum in industrial products. Goodyear recently announced that it will completely replace petroleum-driven oils by 2040.

Skechers' soy-based shoes are available in stores and online now in the Skechers GOrun collection. The brand shared plans to expand the range of styles and colors available, including branching out into trail, work and safety footwear categories for men, women and children. All models utilizing soy oil will be labeled as having Goodyear Performance Outsoles.

Goodyear's soy-based tires are also available in the U.S. and Canada in several sizes and styles, including some of their top-performing tires: the Assurance® WeatherReady®, Eagle Exhilarate™, Eagle® Enforcer® All Weather® and the Assurance ComfortDrive®.

"I am so glad to see so many things that everyone uses on a daily basis being made out of soybean oil instead of petroleum," said Muhlenberg County, Kentucky, soybean farmer Brent Gatton. "I knew about soy biodiesel, of course, but all of these new things that are rolling out that are being made with our soybeans that we grow right here in Kentucky are exciting to see."

"If I have a choice between something that's made with petroleum or something that's made with soybean oil," he said, "I am going to choose the one made with soybean oil and support myself, my fellow farmers, and the environment. Seeing tires at my local dealer and shoes at the store, both from well-known and well-respected brands like Goodyear and Skechers, shows me that the checkoff is investing in strategic partnerships that will drive demand here in the United States."

SOY SNEAKER TREAD





SOY ROOTS ITSELF IN NEW USES

There are over 4 million miles of paved roads in the U.S. that require significant upkeep, opening the door to huge opportunities for farmers growing high oleic soy across the country.

High oleic soybean oil outperforms other oils — even petroleum- and formaldehyde-based lubricants — in asphalt application. High oleic oil increases the reuse rate on asphalt grindings from 17% to over 30%, so it's changed the chemistry of that mix, and it is very advantageous for the industry.

Along with asphalt, high oleic soybean oil has had a significant role in industrial uses, hitting shelves in multiple products in recent years. One option gives America's drivers a new choice in motor oil that combines the consumer's need for performance and sustainability at a competitive cost. Biosynthetic Technologies released high-performing bio-based synthetic motor oil using high oleic soybean oil from soybeans grown by U.S. farmers.

"We get pretty excited about what our beans can do and where they end up — especially when they fill a market need and bring profit opportunities to farmers across the country," said Cadiz soybean farmer Barry Alexander. "I really enjoy working the Kentucky soybean exhibit at the State Fair or the National Farm Machinery Show. People — even other soybean farmers — will look at the soy-based tires and motor oil that we have on display and say 'well I didn't know you could make THAT out of soybeans!'" Alexander said that the use of renewable, sustainable U.S. soybean oil instead of petroleum is important to him as an American farmer.



A new soy-based concrete durability enhancer is protecting roadways in the U.S. while supporting demand for soybeans and reducing maintenance costs for U.S. infrastructure. This checkoff-funded innovation is just one of the many ways that soy is solving problems in industrial applications.

One problem? Water. Water is the enemy of highway structures. Water moves everything on a highway, such as de-icers, salt and chemicals, into concrete pores, where they cause cracks, chips, gouges and potholes. Once the network of concrete pores is compromised, the strength of the concrete crumbles.

Soy-based concrete additive PoreShield increases service life of concrete by five times, is safer and easier for applicators (no personal protective equipment is required) and reduces costs. Applicators have already voiced their strong support for the product, noting the ease and speed of application. Application crews also appreciate not having to take as many precautions when working with the product due to its natural components.

Several years of research and field trials demonstrate that a single application of PoreShield lasts 10 or more years and extends the service life of concrete five-to-nine times longer, compared to untreated concrete. To learn more, visit PoreShield.com.

Asphalt, oil and other industrial use products mark a significant milestone in checkoff-funded projects. From renewable and sustainable opportunities to new and expanding markets, checkoff funding has opened new doors for soybean farmers around the country as opportunities continue to drive demand for soybeans.



SOY CAN BE FOUND IN JUST ABOUT EVERY LIFE, EVERY DAY!

Pick up just about any personal care or cosmetic product these days and you'll see the word soy somewhere on the ingredients panel. Soybean oil is used in cosmetics as an emollient (to soften and smooth) and as an emulsifier (to keep a product from separating). Soy also contains natural antioxidants.

Some lotions boast that they contain soy-derived ingredients on the label. For example, AVEENO® Total Soy Complex is non-denatured soy, a rich source of protein, essential fatty acids, lecithin, phytosterols, carbohydrates, saponins and vitamins.



Many shampoos, conditioners, soaps and even hand sanitizers contain soy components.

Some medications, vitamins and supplements also rely on soy as an ingredient.

Soy components are versatile, useful, renewable and sustainable, and they're found in just about every life, every day!



Soybean Board

For more information on soybeans in Kentucky, visit kysoy.org. To learn more about uses for soy, check out soynewuses.org. Many innovations in the use of soy and soy components are direct results of the investment of soy checkoff dollars by national and state checkoff organizations.