Whether it’s improving soybean meal to outperform the competition or promoting the sustainability of U.S. soy, the soy checkoff has been working behind the scenes to help farmers satisfy their customers’ needs. We’re looking inside the bean, beyond the bushel and around the world to keep preference for U.S. soy strong. And for U.S. soybean farmers like you, the impact is invaluable.

See more ways the soy checkoff is maximizing profit opportunities for farmers at unitedsoybean.org
Beyond the Pump
Illinois is both a leading producer and a consumer of biodiesel. And the same properties that make soybeans an ideal feedstock—ample availability, high fat and oil content—also make them applicable to an almost unimaginable array of other uses.

Biodiesel on the World Stage
Around the world, biodiesel creates a market for not only waste that would otherwise be discarded into landfills, but for oil produced from crushing soybeans and other meal-producing oilseeds. Learn more about where in the world biodiesel is produced and where it is used.

Innovative Biodiesel Business Opportunity
While farmers can benefit from carbon sequestration producing soybeans for biodiesel, they also may profit through increased production and nationwide demand for biodiesel. Read about efforts to embrace the greater carbon reduction strategy nationwide.

Better Breathing with B20
Biodiesel mitigates health risks associated with petroleum diesel. What does that mean for Illinois communities? Less air pollution and measurable economic results.

Biodiesel’s Bright Fuel Future
Three-quarters of Americans say it’s more important for the U.S. to develop alternative energy sources than to produce more fossil fuels. Such attitudes are strongest among those under age 40. Find out more about a few making a difference in the industry.

Casey’s General Store
The financial feasibility of biodiesel was a primary driver in Casey’s decision to begin blending the fuel for its Illinois pumps. They also recognize that biodiesel is produced in a lot of the small towns where they operate stores and have plans to expand to additional locations.

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SOY FUELS MORE THAN DIESEL ENGINES
And it does a pretty good job of that, too!

If you could reduce expenses on your farm and support the soybean industry at the same time, you would probably use whatever cost-saving input was at your disposal, wouldn’t you?

About 10 years ago, the driver who brings fuel to our farm asked me why I wasn’t using biodiesel. Since my grain trucks were 20 years old, I told him I was afraid to add biodiesel since I knew it would cleanse the fuel system of sediment deposits and might clog the filters.

He asked me if we were filling our truck fuel tanks at convenience stores, and I said yes. He told me, “Doug, you are already using biodiesel!” I was surprised by that. He convinced me using biodiesel would not be a problem and guaranteed me he would always supply soy biodiesel.

I took him up on that offer and we have used biodiesel on the farm ever since. It was a no-brainer. Even though we didn’t realize it, we were already using biodiesel without problems, the company was offering a guarantee, I could save money using the state biodiesel tax credit and support our industry. We use B11 in all our trucks and farm equipment today.

I share this story with the hope it will serve as an inspiration for other soybean farmers. As you can see, soy fuels more than diesel engines. It fuels the economy. It is produced from soybeans grown in Illinois, refined into biodiesel in Illinois and used in trucks and farm equipment today.

The Illinois biodiesel industry has grown from less than 20 million gallons per year in 2003 to more than 200 million now, supporting 2,000 Illinois jobs. It annually generates $145 million in household income and $3.4 million in farm income. It has increased the price of soybeans by 63 cents per bushel. So, why not give it a spin? I am sure you will be just as sold as I am.

“We were already using biodiesel without problems, the company was offering a guarantee, I could save money using the state biodiesel tax credit and support our industry.”

DOUG SCHROEDER | ISA Chairman
Pushing B20 for 2020 and Beyond

Favorable biodiesel legislation and regulations have been priorities for Illinois Soybean Growers (ISG) since the 1990s. We have notched several state and national victories over the years that have led to fuel tax credits, inclusion in critical energy policy and positive environmental results.

For example, the Illinois Biodiesel Sales and Use Tax Credit, which began in 2003, continues to offer a full exemption from the 6.25 percent sales tax on biodiesel blends exceeding 10 percent and a 20 percent exemption for blends below 10 percent. Biodiesel producers also have federal tax credits available to them. And we believe ongoing assistance will help grow the industry.

So, in 2020, we are taking another step forward by advocating for more widespread B20 use, a 20 percent biodiesel blend. While much of the biodiesel used in Illinois is commonly blended as 5-11 percent biodiesel with the rest petroleum diesel, we have documented that blends up to at least 20 percent can further enhance the economic and environmental benefits of biodiesel.

Illinois soybean farmers currently are working with industry officials to perform an analysis on the different components of biodiesel use in Illinois. We are updating numbers and the overall statistics for the Illinois economy to confirm continued economic viability at the fuel pump.

We also are looking at the updated environmental aspects of what biodiesel offers as a renewable fuel. We plan to share all of these facts with stakeholders as we push for more B20 use. We also are building coalitions that can help us secure an even better future for biodiesel.

ISG’s advocacy work complements what the Illinois soybean checkoff is doing on the biodiesel research and promotion front. Biodiesel helps drive the value of soybean oil and has contributed more than 60 cents per bushel to the price of soybeans because checkoff dollars have been invested in programs to inform and educate biodiesel users about its value to environment and economy. Projects are looking into the pathways for achieving even higher biodiesel blends.

As 2020 progresses, I encourage farmers to support our B20 efforts. If you have not signed up on the VoiceforSoy.com website to get critical issue updates and action alerts, now is a good time to do so. ISG will keep farmers and others updated on what comes next in our 2020 B20 push.
The first USDA crop production report of the year made it official: Illinois continues to lead the nation in soybean production. In 2019, the state’s farmers harvested 532 million bushels from 9.9 million acres, for an average yield of 54 bushels per acre.

According to the latest figures, 40 percent of those beans will be crushed in Illinois, with the bulk of the resulting oil and meal going to make biodiesel and livestock feed.

Illinois is both a leading producer and consumer of biodiesel. It’s the fourth ranking state nationwide with a production capacity of 184 million gallons, according to the U.S. Energy Information Administration. What’s more, the biodiesel industry has a synergistic relationship with the livestock industry that fuels the success of both. Together they make for a powerhouse income generator, directly contributing to 70,000 jobs across the state.

“Soybean meal is a game-changer,” says Nic Anderson, business development director for the Illinois Livestock Development Group (ILDG). “It’s why the U.S. animal agriculture industry is so efficient. There’s really no other protein source on the market that can provide the same level of feed value. It is uniform, reliable and consistent. And we’d like to feed more of it in Illinois, since it’s such a great protein source.”

**FUELING PICKUPS, PIGS AND PEOPLE**

The same properties that make soybeans an ideal feedstock for biodiesel ample availability, high fat and oil content—also make them applicable to an almost unimaginable array of different uses, from consumer goods like crayons, candles and shampoo, to industrial applications that include everything from air conditioning filters to asphalt, to ingredients in food and pharmaceutical products.

In terms of sheer volume, however, the synergistic juggernaut of fuel and feed trumps everything else. This powerful combination allows farmers to get the most value possible from the soybeans they grow while helping to fuel the state’s economy.

Unfortunately, some of that potential is being left on the table, according to Anderson.

ILDG stepped up its efforts in 2004 after identifying that livestock receipts in Illinois had shrunk over the past decade, while livestock receipts nationwide had risen 40 percent.

And it’s still true today that increasing the state’s hog numbers, and to a lesser extent, its chickens and cattle, is the fastest way to boost soy use in a way that really moves the needle, nearly doubling economic activity generated from every $100 of output, he says.

Anderson blames a combination of regulation, tax structure, transportation and urban pressures with causing a lag in growth compared to other Midwest states. That means Illinois is missing out on the chance to satisfy a worldwide pork deficit, created by an outbreak of African swine fever, coupled with rising meat demand, driven by the world’s expanding middle class.

“We need to find a way to put another 500,000 pigs on feed and another 100,000 cattle on feed in Illinois,” Anderson says. “Last year, in Illinois, we put up about 60 new barns (the equivalent of 150,000 to 200,000 pigs). We’ve been doing that each year for the last 20 years, and it’s been viable, but we have the feed resources to easily double that.”
He argues no goal is more important than adding more value to locally grown feed crops and boosting rural economies by supplying more of rising worldwide demand for meat.

“We need to feed more livestock in the U.S.,” he says. “If we don’t do it here, they will do it somewhere else in the world.

“Let’s own the market,” he adds. “Keep corn and soy here, feed it and get the best value out of it. Quality is highest when it’s right out your back door. The farther you get from the source, the more quality degrades. The only way to solve that is reducing the price.”

**ADDING VALUE, ENHANCING SUSTAINABILITY**

The fastest rate of market growth will come by exporting pork rather exporting soybeans or meal, according to the U.S. Meat Export Federation. USMEF estimates a third of all growth in Illinois soy exports between now and 2028 will come by feeding it to pigs.

More than a quarter of all U.S. pork production is now being exported. In Illinois specifically, between 2015-2018, USMEF says one in every 10 tons of soybean meal production growth went into pork bound for export. Bottom-line, those pork exports added 85 cents per bushel to soybean prices in the state, or about nine percent.

Considering objections by the public and others toward confined animal feeding operations, it’s not clear how the Illinois pork industry can grow much faster than it already is. But one thing the soybean industry is doing is working to increase feed value of its meal, and, by extension, pork’s profitability, marketability and competitiveness.

The Illinois soybean checkoff continues to promote its innovative High Yield PLUS Quality (HY+Q) project designed to increase the feed value of soybeans by encouraging farmers to plant varieties that feature high rankings for livestock feed value. The program researches soybean varieties and identifies which ones offer the best feed value based on amino acid profiles that are critical to livestock growth and productivity. Improvement in feed quality resulting from more widespread planting of high-value varieties could conceivably help hog producers save as much as 80 cents per head on feed costs.

“The more efficient agriculture can be at delivering food with reduced costs per unit of input, the more sustainable the food production system will be,” says John Othus, HY+Q lead. “Feed efficiency is likely to become an important sustainability metric in the future. Many supply chain managers are already discussing adding feed efficiency to their increasingly sophisticated sustainability modeling. Farmers who plant high-quality soybean varieties not only contribute to sustainability efforts for themselves and for their industry, but also for livestock producers and that industry sector as well.”

**EFFICIENCY IMPROVEMENTS GROW MARKETS**

The issue of responsible food production and resource management is reverberating around the world, fueling implications for U.S. ag exports.

“Sustainability is a very important topic. It’s getting a lot of focus in the global supply chain,” says Abby Rinne, director of sustainability for the U.S. Soybean Export Council.

The U.S. soybean industry already offers a sustainability assurance protocol to foreign buyers seeking sustainably produced products but hopes to expand those efforts in a way that could also boost the U.S. livestock industry. About 40 percent of all exported soy ships out with a sustainability certification, according to Rinne.

“It’s being used a lot in European and Asian markets and in the Americas,” she notes. “What we want to find out now is whether it’s feasible to put that same logo on meat that gets exported. We are in the exploratory stage of studying how the supply chain works, to see if meat produced with sustainably produced soy can be labeled with the logo, too.”

“Last year, in Illinois, we put up about 60 new barns (the equivalent of 150,000 to 200,000 pigs). We’ve been doing that each year for the last 20 years, and it’s been viable, but we have the feed resources to easily double that.”

NIC ANDERSON | Business Development Director, Illinois Livestock Development Group
As a value-added product for agriculture, domestic biodiesel can be effectively produced from animal fats and recycled cooking and vegetable oils left over from livestock and human food.

Around the world, biodiesel creates a market for waste that would otherwise be discarded into landfills, as well as for oil produced from crushing soybeans and other meal-producing oilseeds like rapeseed. Other feedstocks include sugar cane, corn, cassava, cellulosic switchgrass, palm oil, castor, jatropha and algae, reports University of Michigan Center for Sustainable Systems.

And with so many options, biodiesel’s production is economically sound worldwide. In 2018 Renewable Energy Group (REG), the largest U.S. biodiesel producer with additional locations in Europe, produced 502 million gallons of biodiesel. REG officials report biodiesel increases the value of soybeans by 63¢ per bushel and animal fats by 20 cents per pound.

**WHERE IN THE WORLD IS BIODIESEL PRODUCED?**

While the U.S. outproduces other suppliers, Germany, Argentina, Brazil and Indonesia round out the top five list of single-country producers. The U.S. and Brazil have a combined share of nearly 87 percent of world production, according to Statista, a market and consumer data firm.

- Brazilian alone accounted for about a quarter of the world’s biofuel production in 2018. Sugar cane is the primary feedstock used for ethanol production, while soybeans are used in biodiesel production. Of total biofuel production, biodiesel is about a 14 percent share.

- Indonesian biodiesel production relies on palm oil as its feedstock and is the third largest producer. The Pacific nation made about 1.05 billion gallons in 2018.

- Germany is one of the world’s largest biodiesel producers with about three percent of global capacity. Germany produces annually about half the volume of U.S. plants. Germany primarily relies on rapeseed and used cooking oil for its biodiesel feedstocks.

- Argentina represents almost three percent of total global production capacity. USDA notes most of the country’s 13 plants use sugarcane for feedstock. Argentina also accounts for more than half of the world’s biodiesel product exports.

**WHERE IN THE WORLD IS BIODIESEL USED?**

“There’s close to a three-billion-gallon market for biodiesel in the U.S., and it’s a similar market in Europe,” says Jon Scharingson, executive director for REG. “We certainly expect biodiesel growth as North America and the globe look for low carbon fuel solutions for transportation.”

- The United Nations Food and Agriculture Organization (FAO) projects biodiesel use will decrease in developed countries and expand in developing countries during this decade.

- Biodiesel use in Indonesia could reach 1.08 billion gallons by 2027, according to FAO. The U.S. Soybean Export Council says the Indonesian government increased its biodiesel blends to 20 percent last year with plans for expansion to B30 this year.

- Brazil and Argentina are forecast by FAO to grow to 1.48 billion gallons and 502 million gallons respectively during the next several years.

- Because of biodiesel blending requirements, small volume users Colombia, India, Malaysia, Paraguay, Thailand and Philippines will also see expansion.
“The potential will only continue to grow,” says Donnell Rehagen, National Biodiesel Board (NBB) CEO, adding that Illinois soybean farmers are part of the global story. “What farmers do in Illinois soybean fields is being analyzed and discussed in urban centers and in local governments around the globe. Illinois farmers should be proud of the sustainability story they can share about their product, and the fuel it creates. It’s truly making a difference.”

In 2001, the U.S. Energy Information Administration estimates worldwide biodiesel consumption was 0.3 billion gallons.

**BY 2016, GLOBAL CONSUMPTION ROSE TO ABOUT 9.3 BILLION GALLONS ACROSS 56 COUNTRIES. MORE THAN HALF OF THAT VOLUME IS CONSUMED IN FIVE COUNTRIES.**
Illinois soybean farmers commonly are aware of numerous benefits that biodiesel provides versus petroleum diesel; reliable engine performance, cost effectiveness, fewer harmful emissions and a lower carbon footprint. But what farmers may not realize is new business prospects may exist if they focus on the value of carbon reduction to further build the industry.

“A misconception about the value of carbon reduction exists within agriculture. But farmers can change the paradigm by more aggressively participating in the debate,” says Rebecca Richardson, Illinois Soybean Association (ISA) biodiesel lead. “Those who can sequester carbon should not only be doing so but should begin looking into ways to quantify it. Carbon sequestration could find its way into a future farm bill much like the Conservation Reserve Program (CRP) evolved into an opportunity for farmers.”

In addition to benefitting from carbon sequestration for producing soybeans for biodiesel, these same farmers could profit through increased production and nationwide demand for biodiesel. The U.S. Energy Information Administration (EIA) says U.S. biodiesel production climbed 18.6 percent from 2016 to 2018, or from 102,000 barrels per day to a record 121,000 barrels per day. EIA estimates production this year could increase to as much as 156,000 barrels per day.

“There already are Low-Carbon Fuel Standards on the West Coast. The East Coast is also developing renewable portfolio standards to generate electricity from energy lower in carbon, including renewable fuels,” says Richardson. “Farmers and the biodiesel industry should promote that biodiesel stores solar energy. That’s what makes it a powerful tool to reduce carbon. Biodiesel displaces fossil carbon emissions and complements other renewable sources."

EIA considers biodiesel to be carbon neutral. “Plants used as feedstocks for making biodiesel, such as soybeans, absorb carbon dioxide (CO2) as they grow. Absorption of CO2 by the plants offsets the CO2 that forms while making and burning biodiesel,” the agency notes.

Don Scott, director of sustainability for the National Biodiesel Board (NBB), agrees. “Biodiesel is the best carbon reduction tool of any commercial liquid fuel. U.S. biodiesel reduces lifecycle carbon emissions, on average, 80 percent compared to petroleum diesel,” he says. “Biodiesel also cuts particulate matter and carbon monoxide from tailpipe emissions and offers health benefits by reducing the amount of carbon dioxide in the air. Biodiesel displaces more than 20 million metric tons of CO2 nationwide annually.”

In fact, Scott says using biodiesel is one of the most effective ways to cut greenhouse gas (GHG) emissions on the market today. While transportation specialists on the East Coast, for example, are exploring electric vehicle technology, using biodiesel right now in existing diesel vehicles would give them immediate carbon reduction results. California statistics show electric vehicle use in that state only reduced CO2 in 2018 by 1.2 million tons; one-third of the state’s diesel biofuel reductions. The U.S. transportation sector is the largest GHG emissions contributor.

“Biodiesel is ready to displace more petroleum immediately without having to wait for new technology. It is commercially viable today,” says Scott. “Installed biodiesel plant capacity is available, and soybeans could be one of the big players in meeting increased demand.”

GHG emissions remain a flashpoint in environmental discussions, which Scott anticipated could spark more cities and fleets nationwide.
to use biodiesel. He also is aware of budding discussion seeking to compensate farmers for carbon reduction. “Farmers control a lot of land. They have a role in managing carbon. And while they may be worried about additional regulations, they can have a voice in how they are compensated,” says Scott. “It is a business opportunity. Farmers should be seen as part of the solution.”

CALIFORNIA CASE STUDY

Look no further than California for a real-world Low-Carbon Fuel Standard success story. The California Air Resources Board (CARB) reports biodiesel and renewable diesel have contributed to the largest cut in transportation sources of greenhouse gas emissions ever. Data show since 2011, biodiesel and renewable diesel have displaced more than 18 million tons of CO2.

According to Floyd Vergara, long time CARB official and now NBB director of state regulatory affairs based in Sacramento, the standard was put in place in 2008 when university research confirmed that transportation fuels create half of the state’s greenhouse gas emissions and small forming pollutants that lead to human health problems. “Researchers identified both electrification and biofuels as solutions, and biodiesel and renewable diesel were found to be the best alternatives at this time,” he states. “Under the standard, credits can be generated in one area and sold or transferred to another.”

In California, the light-duty transportation sector needs credits that using high energy intensity liquid biofuels like biodiesel in the heavy-duty category can fill. The state says electrification in the heavy-duty sector will take several decades while biodiesel fills the need immediately. Since 2011, biodiesel and renewable diesel have represented 41 percent of the generated credits. “That is a value-added market opportunity for soybean farmers,” says NBB’s Don Scott.

Vergara offers three tips for other states that wish to follow California’s successful lead:

1. Don’t ignore the transportation sector. It generates half of the problem in California and is likely a similar percentage in most other states.
2. Alternative fuels like biodiesel promote the use of mature technologies. Fleets have no problems with the fuel and can switch over seamlessly.
3. Consider a Low-Carbon Fuel Standard like the ones in California and also Oregon. The standard provides a strong market signal that has incentivized biofuel producers to put more supply into the stream to meet the uptick in demand. California went from using 14 million gallons in 2011 to 600 million gallons estimated in 2019.

“Long-term, the approach has to be holistic. California hopes to be carbon neutral by 2045,” says Vergara. “That means policies must improve the carbon sink (storage) for agricultural lands. The goal is to absorb more CO2 in the ground to offset CO2 levels in the air.”
Illinois consistently ranks number one in U.S. soybean production. It’s a natural fit to use oil from those soybeans and animal fats in biodiesel to fuel unique efforts throughout the state. Check out what’s powered by biodiesel in Illinois.
Illinois is one of the largest biodiesel-producing states, with capacity to produce about 190 million gallons of biodiesel per year once the new plant in South Roxana begins operation. This includes the new Cook County Jail bioprocessor, recycling used cooking oil for diesel and educating inmates. Actual production depends on local demand and renewable fuel policies.

**B20 CLUB**

The B20 Club consists of select Illinois-based fleets that run on biodiesel blends of 20 percent, B20, or higher at least six months per year. A partnership between ISA and the American Lung Association, the B20 Club highlights the value and benefits of biodiesel.

- **Chicago Park District**—B20 Club member Chicago Park District pushes the envelope for biodiesel blends. As a pilot project, they installed innovative fuel systems on two refuse haulers that allow use of 100 percent biodiesel, or B100, in existing diesel vehicles. Tracking key engine performance indicators found carbon emissions can be reduced up to 27.9 tons annually.

- **Quad Cities**—Club member City of Moline has used B20 for more than a decade. They contribute to Quad Cities air quality as the exclusive biodiesel provider for other area fleets, including neighboring cities, school districts, a fire department and Black Hawk College. Channel Cat Water Taxi, part of the regional transportation system operated by METROLink during summer, also runs on B20.

- **ComEd**—Energy company ComEd, the largest electric utility provider in Illinois, takes their B20 Club membership a step further, using biodiesel blends of B30 in their diesel equipment.

**BIODIESEL USERS**

Biodiesel blends fuel fleets throughout Illinois, including governments like suburban DuPage County and the City of Bloomington, transportation companies like Dynamic Transit and R&N Trucking, construction companies like Ozinga, waste companies like Groot Industries and PDC-Area Disposal Company, and farmers like Elliott Uphoff from Shelbyville (see article page 16). Plus, companies like Ag-Land FS and Al Warren Oil Co. both sell and use B20 blends.

**MECHANIC TRAINING**

With significant biodiesel production comes the need for mechanics trained to understand biodiesel use in diesel engines. These Illinois community colleges and technical schools have offered biodiesel training as a component of diesel-focused classes with past support from ISA.

**HORNBLOWER CRUISES AND EVENTS CHICAGO**

From architecture tours to lakefront dinner cruises, these boats offer unique ways to see Chicago. This is the first entertainment and event marine fleet in Chicago to use B20 during peak tourist season.

**ADM MARINE OPERATIONS**

ADM uses a B30 biodiesel blend to fuel barge tugboats on the Illinois and Mississippi Rivers, from Chicago and Minneapolis to the Gulf of Mexico, fueling Illinois soybean exports as well.

**CHICAGO MIDWAY INTERNATIONAL AIRPORT**

Shuttle buses carrying travelers and employees from parking lots to terminals at Chicago Midway International Airport run on B20 all year long, improving engine performance and emissions.

**MARITIME SHIPPING**

The International Maritime Organization now limits the sulfur content in ship fuel oil to 0.5 percent to reduce sulfur oxide emissions. Biodiesel has potential to be a low-sulfur solution, from vessels on the Great Lakes to those crossing the Atlantic and Pacific Oceans.
Health Risk Mitigation is a Benefit Worth Touting

> BY TIM ALEXANDER

Mitigating risk is woven into every decision people make. No one wants to choose a path that puts health, safety or finances at risk. One easy choice that can help everyone breathe easier is supporting clean-burning biodiesel as a renewable substitute for petroleum diesel.

Rather than depending heavily on foreign petroleum supplies, domestic energy combats trade deficits, fuel supply disruptions and unexpected price changes. Biodiesel provides energy security and enhanced engine operation and safety factors. And biodiesel mitigates health risks associated with petroleum for machinery operators, families, co-workers and the general public.

According to the U.S. Environmental Protection Agency (EPA), pure biodiesel (B100) reduces lifecycle carbon dioxide (CO2) emissions by 57-86 percent compared with petroleum diesel. Experts with the American Lung Association (ALA) recognize biodiesel not only reduces carbon emissions but can also provide health benefits.

“The figures we use for biodiesel emission reductions come directly from peer-reviewed studies performed by experts with organizations such as the National Renewable Energy Laboratory, Purdue University and the EPA,” says Bailey Arnold, senior manager of clean air initiatives with the ALA and project lead for the B20 Club, a partnership between ASA and the Illinois Soybean Association that recognizes Illinois Fleets committed to using B20.

“ALA began to support biodiesel use in the early 2000s when it became the first and only alternative fuel to successfully complete the Tier 1 and Tier 2 health effects testing requirements of the Clean Air Act amendments of 1990,” Arnold explains. “Pure biodiesel was found to be non-toxic and biodegradable, posing no threat to human health.”

Selective catalytic reduction (SCR) technology required in diesel vehicles manufactured after 2010 reduces nitrogen oxide (NOx) emissions to near zero levels, according to the U.S. Department of Energy. Biodiesel use reduces emissions because CO2 released from biodiesel combustion is offset by the CO2 absorbed from growing soybeans or other fuel feedstocks.

“Another benefit biodiesel can provide is risk mitigation because biodiesel reduces harmful emissions of carbon monoxide and particulate matter as well,” says Arnold.

SUCCESS IN CAROL STREAM

The Village of Carol Stream, Ill., converted its municipal fleet of 44 vehicles to clean-burning B20 in 2019, partly because of the health and environmental advantages of biodiesel.

Village leaders worked with the B20 Club, ALA and Pete Probst of Indigenous Energy to clean and prepare their fuel tanks, incorporate B20 into new fueling infrastructure and equip village vehicles to run on high blends.

“Through this transition to B20, we will prevent the release of almost 25 tons of carbon dioxide annually, which is the same as planting 374 trees,” says Sam Barghi, public works management analyst for the Village of Carol Stream, a Chicago suburb of 40,000 in DuPage County. “It is important to us to be good stewards of the environment while not be impacting service levels for our residents in a negative way. It’s also important to provide a cleaner and safer work environment for our employees who work in and around these vehicles all day.”

The village’s fleet of vehicles includes light- and heavy-duty trucks, backhoes, loaders and utility task vehicles (UTVs); all of which emit less CO2 into the atmosphere with conversion to B20.

“With the reduction in particulate matter, in particular, the village should expect to see a nominal health benefit to its employees,” Arnold agrees. “The reduction in air pollution will also provide an annual health benefit of $5,300 to the village and its residents.”
With the transition to B20 from standard ultra-low-sulfur diesel, the Village of Carol Stream will prevent the release of nearly 25 tons of carbon dioxide annually into the environment and gain operational benefits like improved engine performance and lower maintenance costs.
The energy used to power, transport, fuel and charge our lives stimulates engagement among interested parties, especially those who are focused on sustainable energy improvement.

Historically, the U.S. has relied almost completely on fossil fuels, but attitudes are changing. A 2019 Pew Research Center survey found that 77 percent of Americans say it’s more important for the U.S. to develop alternative energy sources than to produce more fossil fuels. Such attitudes are strongest among younger generations—those under 40.

Biofuels, including biodiesel, represent a small percentage of the energy used in the U.S. Forward-thinking leaders in the first half of their careers who actively engage in the industry are excited by the current use and future potential for the alternative energy source. From research to production in the field and processing plants, their perspectives highlight its long-term potential.

**RESEARCH SPARKS SUSTAINABLE INNOVATION**

Bernardo del Campo first learned about biodiesel in his native Uruguay.

“I saw a tractor running on biodiesel, and it blew my mind,” he says. “The relative simplicity of making biodiesel and the ability to use it in agriculture appealed to me. I was excited about the possibilities to find alternatives to petroleum, because we use too much fossil fuel.”

Del Campo wanted to learn more, so he headed to Iowa State University, which offers degrees in biofuel studies. There he earned a master’s degree in biorenewable resources and technologies, followed by a doctorate in mechanical engineering and biofuels.

“People have so many misconceptions about biodiesel, and they need to be educated,” he says.

At Iowa State, del Campo led youth workshops that included teaching about biodiesel production for Extension outreach and education. His research and enthusiasm got him selected as founding co-chair of the National Biodiesel Board’s Next Generation Scientists for Biodiesel campaign.
His entrepreneurial spirit also led him to help start Iowa State's BioBus Organization, a student club that collected waste grease to produce biodiesel for campus buses. That experience, in turn, led to founding Midwest Renewable Biofuels, MRBfuels.com, a company that collects and filters oil for biodiesel production. Though started in Iowa, the company now operates in seven states and recycles about 1.5 million gallons of oil per year for biodiesel feedstocks.

“We have to review the systems we use and make them more sustainable,” he says. Currently, he is president of ARTi, ARTichar.com, a startup using biochar, a high-carbon by-product from the conversion of biomass to biofuels, to sequester carbon in soils and improve soil health. “It all started with biodiesel,” he says. “As an additive, biodiesel is a beautiful fuel with many benefits. It provides great sustainability components, but we need to do more. Developing fuels and products from biomass, like biochar for agriculture and filtration uses is an example of that.”

He brings a global perspective to energy use, especially since he has a farm in Uruguay. “Biodiesel has potential for so many developing countries, and the work done in the U.S. impacts that,” del Campo says. “When the U.S. does something, the rest of the world watches, and often follows. We have to continue growing the use of biodiesel, improving the efficiency of its production and increasing the blends used, especially in the farming community where biodiesel feedstocks are produced. We need to close the loop.

“I would like to see more farmers and truckers use more biodiesel,” he continues. “We need more entrepreneurs pushing it forward to grow the industry.”

**SOYBEANS PRODUCE SUSTAINABLE ENERGY**

As a fifth-generation farmer with a trucking business, Elliott Uphoff agrees whole-heartedly with del Campo’s perspective about biodiesel’s potential.

“I drive a semi about 50,000 to 60,000 miles a year,” Uphoff explains. “That burns a lot of fuel. I fuel the truck with biofuel – B11 biodiesel in this case – made from crops grown on our farm because they burn cleaner and can even be less expensive for us to run.” Uphoff raises soybeans and corn with his dad and retired grandpa near Shelbyville, Ill., and serves as an ISA district director.

“I’m a millennial farmer, which means a couple of things. First, I think outside the box. And second, I’m concerned about sustainability,” he says. “I remember the middle school science teacher telling us that someday we are going to run out of petroleum and not have enough. We know fossil fuels negatively impact the environment and are finite resources.” He sees part of his job as a farmer to be an environmentalist and a local energy supplier.

“Our fields are literally full of energy,” he says. “We grow soybeans and corn very efficiently. Using them for renewable fuel is a win for everyone – farmers, consumers and the environment.” He notes it doesn’t get more local and sustainable than biofuels produced using crops grown in his fields. And since they burn cleaner, biofuels are a local, environmentally conscious product.
“All fuels have a carbon footprint, but with biodiesel, farmers are part of a full cycle. We use biofuels to create more energy when growing soybeans,” he explains. “If we can keep sourcing our energy from renewable resources like this, our whole society could be more sustainable.

“We want to move the needle environmentally,” he adds. “With biodiesel, we are doing the best we can with what we have.”

INDUSTRY PRODUCTION DRIVES PROGRESS

As manager of corporate affairs for Renewable Energy Group (REG), a biodiesel producer headquartered in Ames Iowa, Elizabeth Burns-Thompson, believes farmers like Uphoff are making a difference in many ways with biodiesel. And she’s part of that.

As an Iowa farm kid, Burns-Thompson wanted to use her affinity for grassroots outreach and political engagement to support the agriculture industry. But that’s not all.

“For me, a good job is more than just salary and benefits,” she says. “Holistically, my job is part of who I am, and I want to believe I am making a difference.”

She believes she is doing just that within the biodiesel industry.

“I am focusing on a value-added segment of the agriculture industry, working for a company and product I believe in,” Burns-Thompson says. “It is really cool to be part of helping the interesting story of biodiesel evolve and grow.”

She believes biodiesel has an amazing story to tell across a wide variety of sectors. Within ag, she says biodiesel adds value for soybeans and ethanol by creating a new market for unused oil.

“What was a by-product or waste now becomes an added value,” she explains.

Biodiesel adds worth to livestock feed by reducing the cost of soybean meal, and it adds value to livestock products because animal fats are also feedstocks.

But the story extends far beyond agriculture, offering sustainable solutions for industries from transportation to heating and from maritime shipping to aviation.

“It’s exciting to work on an issue that crosses political lines, priorities, geographies and more,” she says. “Regardless of who I talk to, I have an exciting story to tell. For example, if I talk to legislators in rural areas, I can talk about economic development and value added to agriculture. But when talking to urban-area stakeholders, I focus on environmental benefits of biodiesel like reduced emissions for better air quality. None of these benefits takes away from the others.”

Burns-Thompson believes the future is bright for biodiesel, between opportunities for market growth by increasing blends to the potential to open new markets.

“At REG, we consider ourselves ‘Fuel Forward.’ We appreciate the past, but we are forward-thinking, looking to the future,” she says. “That really describes who we are.”

While today biofuel provides just two to three percent of the U.S. energy supply, that total can grow as leaders demonstrate systems for others around the world to implement tomorrow.

A SUSTAINABLE CYCLE

Young leaders like del Campo, Uphoff and Burns-Thompson represent more than 35 percent of the workforce, per a 2018 Pew Research Center survey. The age group cares about sustainability, new solutions to challenges, and making a difference. And they are.

Consider the interconnected cycle they represent:

- Research done by scientists like del Campo can influence the efficient production of biodiesel that Burns-Thompson cultivates support for at REG.
- REG buys feedstock from farmers like Uphoff and companies like Midwest Renewable Biofuels, started by del Campo.
- Equipment and trucks run by farmers like Uphoff run on biodiesel from REG and other producers.
- At ARTi, del Campo uses biochar, an REG by-product, to sequester carbon and improve soil health for farmers like Uphoff to produce more biofuel feedstocks.
ISA Selects John Lumpe as CEO

ISA announced John Lumpe as its new CEO during the February board of directors meeting. Lumpe’s resume includes more than 30 years of experience in association management, public relations, strategic thinking, communications and market development. His most recent role was as senior vice president of FLM Harvest where he provided strategic leadership to the organization and specifically checkoff/association clients and trade associations. He also previously served as executive director of the Ohio Soybean Association, Ohio Soybean Council and Ohio Soybean Council Foundation. Lumpe is an Ohio native and holds a bachelor’s degree in communications and journalism from Walsh College. Lumpe and wife, Lisa, have two sons.

ISA Seeks Soybean Farmers to Fill Board Seats in 2020

ISA board seats representing Districts 1, 5, 7, 9, 12 and 13, and two at-large board seats will be open for election this year. Paul Rasmussen (District 1), Roberta Simpson-Dolbeare, (District 12), Jenny Menenga (At-Large) and Austin Rincker (At-Large) will all term off during ISA’s July 2020 meeting in Champaign, Illinois. Mark Read (District 5), Tom Kentner (District 7), Ron Kindred (District 9), and Ed Murphy (District 13) are eligible for re-election. Districts include:

- **District 1**: Jo Daviess, Stephenson, Winnebago, Boone, Carroll, Ogle, DeKalb and Lee
- **District 5**: Knox, Peoria, Marshall, Putnam, Fulton and Tazewell counties
- **District 7**: Ford, Iroquois and Vermilion counties
- **District 9**: Mason, Logan, Cass, Menard, Morgan and Sangamon counties
- **District 12**: Pike, Scott, Calhoun, Greene, Macoupin and Jersey counties
- **District 13**: Montgomery, Bond, Fayette and Marion counties

Contact Paul Rasmussen, ISA Governance Committee chair at paul.rasmussen@frontier.com, Dustin Scott, scottd@ilsoy.org or Claudine Wargel, wargelc@ilsoy.org for information.

American Soybean Association Celebrates 100 Years

The American Soybean Association (ASA) celebrated its century of existence at last month’s Commodity Classic in San Antonio, Texas. The first Corn Belt Soybean Field Day was held in 1920 in Indiana and the National Soybean Growers’ Association, now ASA, was founded. To learn more about the milestones of the last 100 years, visit asa100years.com. ISA is one of the platinum-level sponsors for the anniversary activities.

Calendar of Events

**2020 ILSoyAdvisor Soybean Summit**
> March 10 • Springfield, IL

**Animal Ag Alliance Stakeholders Summit**
> May 7-8 • Arlington, VA

**AMP Summer Seminar**
> July 16 • Champaign, IL

**ISA Annual Meeting**
> July 28-30 • Champaign, IL

**Illinois State Fair Agriculture Day**
> August 18 • Springfield, IL

**Farm Progress Show**
> September 1-3 • Boone, Iowa

Illinois Farmers Part of ASA WISHH Visits to Cambodia, Myanmar

Four Illinois soybean farmers earlier this year were part of a USDA-funded mission to Cambodia and Myanmar to deliver key soy protein messages to current and potential customers. Protein demand in both countries is rapidly growing for aquaculture and livestock feeds, as well as for human foods. The American Soybean Association’s World Initiative for Soy in Human Health’s (WISHH) Southeast Asia trade team also celebrated a milestone by joining a ribbon cutting for Cambodia’s first in-pond raceway aquaculture system, an important innovation for the sustainable intensification of fish production in the region. The 13-member U.S. farmer team included Illinois leaders Daryl Cates, Doug Winter, Stan Born and David Droste.

ISA Staff Meet with Illinois FFA Officers

ISA staff members Amy Roady and Rachel Peabody met with the 2019-20 Illinois FFA state officers in January. Conversation focused on ag education in the state, the importance of agtech to the evolving agriculture industry and prospects that exist for students interested in cutting-edge ag careers. ISA stays connected with FFA to collaborate on unique opportunities that arise.
WITH BIODIESEL, FARMERS WEAR MANY HATS

> BY ROB SHAFFER

Most soybean farmers have gotten a free cap from just about every ag company. Wearing many hats is what we do. And that includes our work with biodiesel.

I started out wearing the Illinois Soybean Association (ISA) hat in 2010 as a director. Initially, I was involved with our animal ag work given my livestock background. Then in 2012, I was invited to participate in the state’s biodiesel efforts. I was named an alternate for Illinois representation on the National Biodiesel Board (NBB), and I started attending their meetings. The first thing I learned is that NBB is feedstock neutral, which means not just biodiesel made from soybean oil. I quickly learned, however, that any biodiesel feedstock is good for farmers.

As part of my role as an American Soybean Association (ASA) director for Illinois, where we lobby all things soybean related, I can push the biodiesel narrative. I also stepped up my involvement with NBB because I could see the value of biodiesel. I currently serve on the governing board as second vice chairman, and I have been able to lobby for favorable fuel legislation and regulations in Washington, D.C., on multiple occasions.

I get to interact with the users of our soybeans, including biodiesel plant owners. I have visited REG in Seneca and Danville and Incobrasa in Gilman. You appreciate what these plants can do with our soybeans when you see it in action.

I also take the opportunity to share with other soybean farmers the success story of biodiesel. When soybean farmers started funding biodiesel research in the 1990s, we couldn’t give soybean oil away. We crush soybeans for the meal, and oil supplies were a drag on soybean prices.

Investing in research is the greatest checkoff story of our time. Hedge funds don’t invest in product potential, so it is up to us to invest in soybean uses that offer potential. And biodiesel adds 63 cents per bushel. When you quantify success, checkoff investment is easy to see.

As we look to the future, bioheat is a next big market for biodiesel. Since there is no natural gas used in the Northeast, they use heating oil. We can get 2-5 percent of that market for soyoil-based bioheat. Likewise, renewable diesel is another promising market. Jet planes and cities along the West Coast are potential users where carbon scores are important. They will pay premiums for the right fuel. The East Coast will follow and renewable diesel demand will rise.

Biodiesel has a place on the farm, too. I use 11-20 percent biodiesel on my farm all year long, which are cost-effective blends. My fuel provider provides the different blends, and I have no problems, even in cold weather. I run everything on biodiesel, from a 1967 John Deere 3020 to a 2018 Case IH loader tractor, as well as my combine and trucks.

If you farm and don’t use biodiesel, there’s no time like the present to put on your biodiesel hat. To learn more about what is happening with biodiesel, visit BiodieselAdvantage.com.

Rob Shaffer is a fourth-generation soybean, corn and Angus cattle farmer from El Paso, Ill.

"As part of my role as an American Soybean Association (ASA) director for Illinois, where we lobby all things soybean related, I can push the biodiesel narrative. I also stepped up my involvement with NBB because I could see the value of biodiesel.”

ROB SHAFFER I soybean, corn and Angus cattle farmer from El Paso, Ill.
Every farmer has that pocket tool that never leaves their side. That tool that can do a little bit of everything. With actionable tips from soybean experts, industry news and insights, connections to other Illinois farmers, events, webinars and more, ILSoyAdvisor is the latest multi-tool you shouldn’t farm without.

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ILSOYADVISOR.COM
“Dollar-wise, American farmers produced about $41 billion worth of soy in 2017, according to USDA, making it the second-biggest cash crop behind corn. For perspective, $41 billion is about three times the total annual revenue of the NFL...”

CHRISTOPHER INGRAHAM | “Soybeans explained for the agriculturally impaired,” July 26, 2018, The Washington Post

“Soybeans are the second-most valuable crop in the U.S., not far behind corn and way ahead of everything else, as well as the country’s most important agricultural export. Those exports have fallen 25% since 2017 because of President Donald Trump’s trade war with China, but the pain this has caused in the Midwest and the billions of dollars that the Trump administration has forked over to assuage it are yet another indication of how important soybeans have become.”

JUSTIN FOX | “How soybeans became ubiquitous,” December 7, 2019, Bloomberg Opinion

“Soybean oil is the second most consumed vegetable oil on the planet...The oil is part of the soybean complex: soybeans, soybean oil and soybean meal, all of which have an influence on one another. Soybeans can be processed for human consumption but more than 80% is used for animal consumption in the form of meal or oil...So, we have three intrinsically linked commodities, all with their own supply and demand factors, in competition with other commodities that also have their own supply and demand factors, as well as wider global economic influences, that make the soybean complex – complex!”

LORAINE HUDSON | Mintec, adapted from Spend Matters article

“Today, biodiesels are the most advanced they’ve ever been. Thanks to quality enhancements over recent years, the biodiesels currently on the market can meet the demands of a wide variety of operations.”

RON JESSEN | Cenex director of product management and business development, refined fuels

“Biodiesel supports 60,000 American jobs. For every 100 million gallons of biodiesel that is produced—the industry creates 3,200 jobs. So, as biodiesel grows—so does its job-creating ability...As diverse as its feedstocks, so are the sectors impacted economically. Biodiesel drives economic benefits for manufacturing, service, transportation and ag, to name a few. After more than 25 years, biodiesel has grown to adding more than $12 billion to the U.S. economy.”

NATIONAL BIODIESEL BOARD

“For nearly two decades, the federal biodiesel tax credit incentivized production of a clean, safe fuel that has become an economic engine and a reliable fuel source across the country. It has also been vital to job creation and the reduction of greenhouse gas emissions...The credit has helped fuel retailers offer biodiesel, a cost effective and environmentally friendly fuel, to consumers at a lower cost. It also sustained increased economic activity and job creation for retailers and producers alike...”

LISA MULLINGS | president and CEO, NATSO, “Saving the biodiesel industry is good for both the environment and consumers,” December 3, 2019

“Increased use of soybean oil-based biodiesel in the U.S. has a limited impact on soybean production, which is primarily determined by demand for protein meal. Instead, the main effect is to tilt the balance of demand in favor of vegetable oils versus protein meal, which favors sources like palm and canola. Canadian canola oil may supply some of this additional demand, but palm oil is the least expensive, fastest growing source of vegetable oil on the global market, and most likely to fill the void left by U.S. soybean oil being used for fuel.”

JEREMY MARTIN | senior scientist, Union of Concerned Scientists, June 22, 2016
What are your plans for the future in terms of marketing biodiesel?

Given the recent approval of the federal tax credit, we are looking to expand to new states. Casey's also will move most locations to offering B20 as we head into the spring. (Qualified biodiesel producers and blenders currently are eligible for an income tax credit of $1.00 per gallon of pure biodiesel (B100) or renewable diesel produced or used in the blending process. The credit had expired on Jan. 1, 2018, but was retroactively reinstated Dec. 20, 2019, as part of the federal spending bill. The credit remains in effect until the end of 2022).

How can Illinois soybean farmers partner with you?

Farmers and the biodiesel industry have to continue to partner with us on education. If we assume everyone understands the benefits of biodiesel, we have done our guests a disservice and we will never get full adoption. Illinois is Casey's second largest operations state behind Iowa, so it is a very important market for us. ■

When and how did Casey's get involved with marketing biodiesel?

We started blending biodiesel during the summer of 2018 for our locations throughout Iowa and Illinois. The financial feasibility of biodiesel was a primary driver in our decision to begin blending, but we also wanted to recognize that biodiesel is produced in a lot of the small towns where we operate our stores. Casey's is at the heart of communities we serve so it's a perfect fit.

Casey's is committed to providing customers the safest, most reliable gasoline and diesel fuel and to enhancing that promise with new fuel options, including biodiesel. Our stores have taken a pro-biofuels approach. In addition to blending more biodiesel, we are promoting the E15 ethanol program, “Prime the Pump.” All totaled, Casey's has converted more than 590 stores to biodiesel and continues to expand to additional locations.

What kind of feedback do you get from Casey's customers?

Overall, we have received very little feedback from our guests and we believe that is because biodiesel has become a standard renewable fuel product offering they expect. There is still a subset of customers that are not interested in biodiesel, but largely we have found a positive response from people and think that subset will get smaller over time.

Nathaniel Doddridge oversees Casey’s fuel strategy for all facets of the business, including retail marketing/pricing, procurement and transportation. He joined Casey’s after spending 13 years at Murphy USA working in all areas of operations and fuel. Casey’s owns and operates approximately 2,200 locations in 16 states. Fun fact: Casey's is also the fifth largest pizza retailer in the U.S. and is known for restaurant quality food served via convenience stores.
FULL-CIRCLE RETURN

FARMERS SELL BEANS TO ELEVATORS, PROCESSORS & DEALERS

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

0.5%

PROMOTION

RESEARCH

EDUCATION

ROI TO THE FARMER

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

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

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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