

C MAGAZINE

The Fast Lane

Will renewable fuels
change ag for good?

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Educating
Innovators

20
Rodeo
Riders



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Jay Debertin, president and CEO, CHS

The Road to Sustainability

With core capabilities in energy, agronomy, global grain marketing and processing, CHS has a unique perspective on the renewable fuels conversation. And as a cooperative, we put our owners' needs first, even as we are poised to leverage emerging opportunities that provide growth for CHS and value for our owners.

CHS is not new to renewable fuels. We have been marketing ethanol for nearly four decades from our own plants in Illinois and for many other ethanol producers. We have worked tirelessly with regulators and retailers to make E15 and other ethanol-blended fuels more available to consumers.

And we are actively involved in the debate around renewable diesel and its role in reducing our country's carbon footprint. We know there are very real implications for agriculture with greater adoption of renewable diesel, including impact on cropping decisions, supply and demand, and commodity prices. Renewable fuels are just one element in the burgeoning demand for plant-based oils, including soy oil, and we are expanding our processing capacity to take advantage of that shift with greater market access for growers.

At the same time, we are not backing away from our pledge to produce and deliver the diesel fuel and other energy products our owners need now to plant and harvest crops, heat homes and shops, and keep fleets on the road.

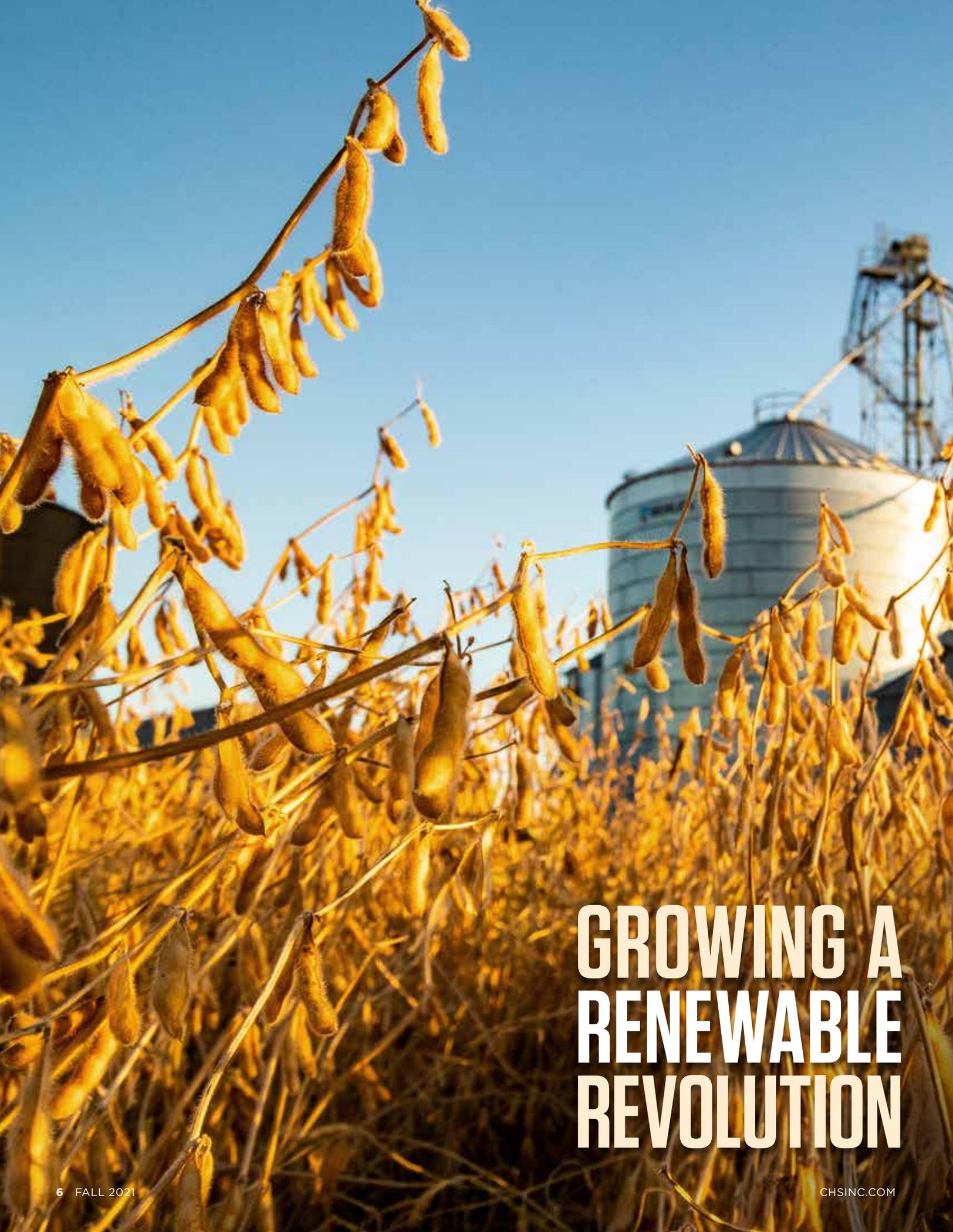
While we will continue to watch and act as a future with more versatile energy solutions unfolds, the changes will not diminish our commitment to serving and supplying our owners' energy needs.

Efficiency across CHS and strategic resource use are evident in the CHS sustainability program, which has three fundamental components: economic viability, environmental stewardship and community well-being. I invite you to learn more in the 2021 CHS Sustainability Report (chsinc.com/sustainability).

As we continue on our sustainability journey and the renewable energy conversation evolves, you can be sure we will remain focused on serving your needs and on fulfilling our purpose: creating connections to empower agriculture.

A handwritten signature in black ink that reads "Jay D. Debertin". The signature is written in a cursive, slightly slanted style.

Have a question or feedback for the CHS management team? Get in touch with us at feedback@chsinc.com.



GROWING A RENEWABLE REVOLUTION



By Sarah Haugen

The push to reduce carbon emissions will affect ag in unexpected ways. Will cutting carbon change soybean production for the better?

As the United States focuses on tackling climate change, the energy market is seen as a key part of the solution. While federal policy and funding is focused on electric vehicles, a quieter potential answer is

emerging: the growing adoption of renewable fuels.

While renewable fuels including biodiesel and ethanol have been reducing emissions since the Renewable Fuel Standard was enacted in 2007, renewable diesel is an emerging solution that could

drive monumental changes in both agriculture and energy.

But how fast will change happen?

While all renewable diesel adoption has come in California and Oregon, which have enacted low-carbon fuel standards that >

- > make the fuel more affordable for refiners to produce, its growth across the country may not be far off.

“We’re in the early adoption phase with renewable diesel, which will grow as more states have low-carbon fuel standards in place,” says Joe Lardy, market intelligence analyst, CHS Global Research. “There is good momentum and there is good investment. It’s coming in the foreseeable future.”

Finding Feedstock

Just as expansion of ethanol through higher-blend fuels like E15 steadily grows corn demand, increased use of renewable diesel could cause demand spikes for vegetable oil feedstocks, especially soy oil.

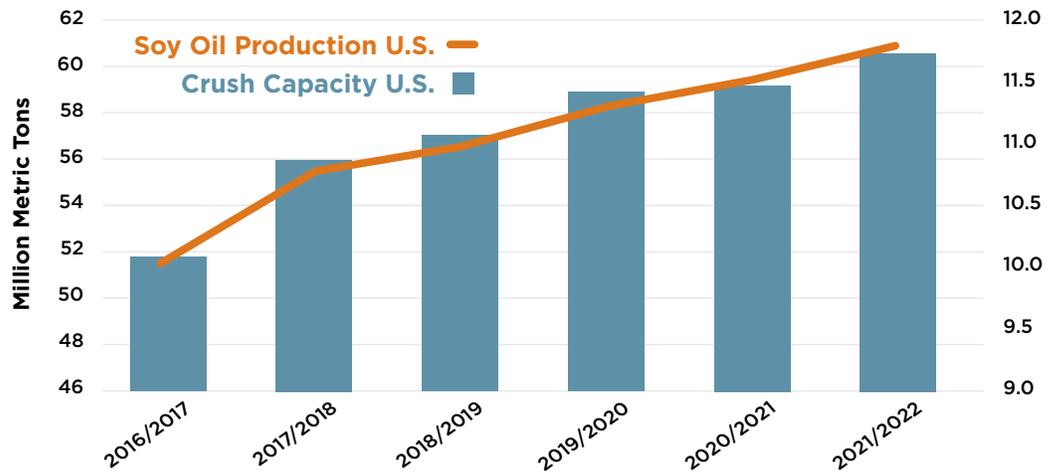
“In most instances, fossil fuels are blended with renewable fuels, but renewable diesel is kept separate in the refining process and made completely from renewable sources like vegetable

oils,” says Jason Schwantz, senior vice president, CHS Refined Fuels. “Which means more use of renewable diesel could impact soybean oil as a food source.”

“It will be a once-in-a-generation change in the use of soybean oil,” adds Chris Pothén, vice president, CHS Global Grain & Processing, and that shift will have significant implications for ag.

2021 saw a tight soybean balance sheet with record-setting exports, mostly to China for

U.S. Soy Oil Production Grows



Soybean crush capacity is expanding across the U.S. to prepare for the expected increase in soybean oil demand as renewable diesel adoption grows.

Source: Platts Analytics USDA NASS



animal feed. We won't see massive demand increases like this in the near term, and the projection for 2022 is a decrease in total U.S. exports by nearly 9%, says Lardy. "China is trying to rely less on imports, and African swine fever changed the Chinese hog industry in 2018 to an industrialized system where they're using more corn for feed," he says.

Plus, Brazil is the global soybean leader. "In 2022, Brazil is forecasted to grow the biggest soybean crop the world has seen at 143 million tons. The U.S. grows 119 million tons. Brazil exports almost two-thirds of its crop," says Lardy.

Other sources such as animal fat and canola can be used to create renewable diesel, but using these feedstocks doesn't satisfy Renewable Fuel Standard specifications (see sidebar). Efforts are underway to change this, including a petition pending with the Environmental Protection Agency (EPA) to certify canola as a renewable fuel feedstock.

"The EPA conducts an analysis to ensure a feedstock used to produce

a renewable fuel decreases carbon emissions by a certain percentage relative to gasoline and diesel," says Dan Mauer, CHS Washington representative, who meets with legislators and industry groups to advocate for a better renewable fuel policy. "They're currently testing canola oil as a pathway for renewable diesel, and it's believed that canola should meet the required 50% carbon reduction threshold, but the timeline for approval isn't known."

Increasing Infrastructure

To accommodate the expected increase in soybean oil demand for renewable diesel, crush capacity is expanding across the U.S., says Pothen. "We're seeing not only traditional large crushers growing in capacity, but new players coming in from the energy and private equity space."

This includes expansion at the CHS soybean processing plant in Fairmont, Minn., and a recently announced expansion of the CHS >

Refining and the 3 Rs: RFS, RIN and RVO

The Renewable Fuel Standard (RFS) was created by Congress in 2007 and requires refiners to blend renewable fuel into the nation's transportation fuel. A renewable identification number (RIN), the compliance mechanism for the RFS, is created when a gallon of qualifying renewable fuel is produced. That RIN is then "attached" to that gallon of renewable fuel. It is separated once the renewable fuel is blended with gasoline or diesel. It can be used to show compliance with the RFS and it can be traded or banked for future use. If a refinery doesn't blend enough renewable fuel into the gas or diesel that it produces, the refiner must buy RINs. The number of RINs a refiner must have is set through the renewable volume obligation (RVO). The Environmental Protection Agency (EPA) has yet to name the RVO for 2021, which leaves refiners and renewable fuels groups guessing.

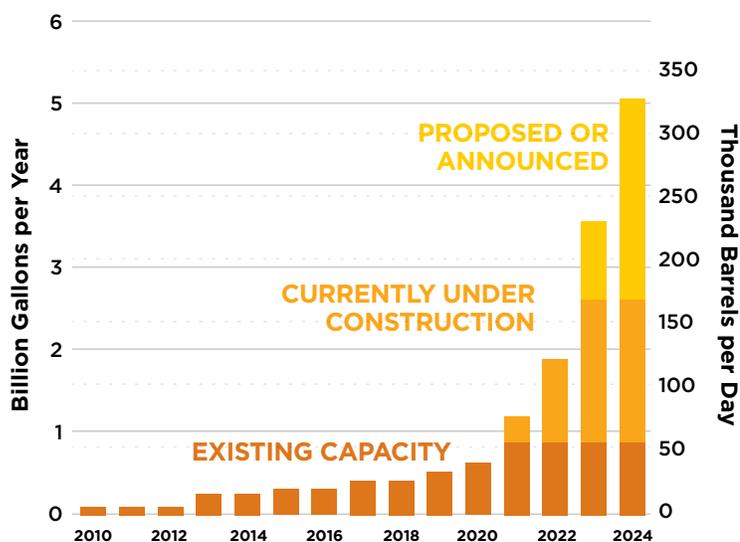
Due to 2020 gas demand declines and market uncertainties, RIN prices have been extremely volatile since the pandemic began. In January 2020, ethanol RINs were being purchased for about \$0.15. In June 2021, they traded at an all-time high of over \$2. In October 2021, RINs cost about \$1.30.

The RFS is set to undergo major changes after 2022 when the congressionally mandated RVOs expire and EPA is given the sole authority to set future volume amounts. Congress could pass a new law to give additional certainty to the industry or could leave it to the EPA to determine the future of the RFS.

"We don't know what kind of program, if any, the RFS will be replaced with," says Dan Mauer, CHS Washington representative. "The current market volatility and potential future changes to the RFS leave the refining industry in an anxious situation."

Renewable Diesel Production Expected to Grow

Existing and expected U.S. renewable diesel production capacity



Source: U.S. Energy Information Administration

> soybean refinery in Mankato, Minn., which will increase the facility's soy oil refining capacity by 30%.

This growth is good news for Doug Jenkins, who runs more than 2,000 acres of corn and soybeans near Winnebago, Minn., and delivers soybeans to the CHS plant in Fairmont.

"When prices are good, plants can fill up. We want plants to be ready to take more crop as demand for soybeans grows. With the CHS plants being able to take more beans, we know we can deliver our crop and take advantage of that good price."

How soon
renewable diesel
makes its way
to mainstream
consumption
and how fast it is
adopted depends
on policy.

— Dan Mauer

"The industry is setting itself up to produce more than the market is looking for," says Pothen.

With increased crush capacity comes increased byproducts. "The more we turn crude soybean oil into soybean oil for the food market or for renewable diesel feedstock, the more soybean meal we'll produce."

This could mean up to 15% more soybean meal produced. "We'll need more infrastructure to support soybean meal. That could mean opportunities for livestock producers or increasing meal exports," says Pothen. "The implications will challenge the

current balance and will create changes in trade flows."

Driven by Policy

How soon renewable diesel makes its way to mainstream consumption and how fast it is adopted depends on policy, says Mauer. "Policy will be a driver of adoption, especially the implementation of state-by-state low-carbon fuel standards."

Pending policies such as the extension of the renewable diesel tax credit, currently slated to expire at the end of 2022, and the push for a sustainable aviation fuel could tip the scales. "The best way to make renewables make sense for rural America is to have supportive policy that rewards refiners for creating and blending more renewable fuels," says Mauer.

But with no funding for renewable fuels in the bipartisan infrastructure bill that was recently signed into law, Mauer says the industry will have to find other opportunities, such as the recently announced \$700 million in funding from USDA for biofuel producers. "As we look at the Renewable Fuel Standard mandates sunset after 2022, these kinds of opportunities from government agencies can help push adoption of renewable fuels."

Elusive Electric

"As we look at the role of the energy and ag markets in decreasing carbon emissions, all signs point to an evolution, not a revolution," says Darin Hunhoff, executive vice president, CHS Energy. "If you pick up any newspaper, you might think everyone will be driving electric vehicles (EVs) in the next few years. The reality is that there are a number of infrastructure issues that need to be figured out before >



Biodiesel Buildout

As the original alternative diesel fuel, biodiesel is available nationwide, but is seeing the most adoption in states like Minnesota and Illinois, which have mandates that require a certain amount of biofuel be blended with diesel fuel.

Premier Cooperative recently partnered with the Illinois Soybean Association to promote year-round use of B20, a diesel that is 20% biofuel. "As a cooperative, we wanted to support our owners, who are soybean farmers," says Garrett Bruns, energy manager for Premier Cooperative, which has more than 20 locations across central Illinois. "More than half our diesel business during the summer months is biodiesel and we want to grow that number, even in the colder months."

Bruns has used biodiesel on his family farm for more than 10 years. "We've found biodiesel has added lubricity compared to traditional diesel, and soybean oil is also a natural detergent for a fuel system," he says.

While policy and mandates will grow adoption, Bruns sees education as an important opportunity. "Biodiesel can be used on any piece of diesel equipment with no changes needed," he says. "I try to educate about biodiesel whenever I can because many farmers just don't know how easily they could switch to it. It's a win-win. They'll see better performance and help their fellow farmers."

EVs Go Country

The growth of electric vehicles relies on expansion of charging infrastructure, and cooperative-run convenience stores are slowly becoming part of that growth in rural America.

For Enerbase in Minot, N.D., the opportunity to partner with the Verendrye Electric Cooperative on an EV charging station at its Cenex® branded Enerbase Travel Plaza came from a grant from the North Dakota Department of Environmental Quality. The grant covered 80% of the estimated \$72,000 cost of the project.

“We wanted to take advantage of the grant to stay ahead of the curve,” says Enerbase CEO Tony Bernhardt. The station was the first in the state that could charge

vehicles other than Tesla brand. “EVs are going to be part of the future. You can’t turn away from it and think it’s not going to happen.”

While the return on investment hasn’t yet been realized, Bernhardt says he is confident in increased use of the charging station, which has led Enerbase to pursue a grant to install a second station at another location. “We’re doing this so we can be set up for the future as EVs grow.”

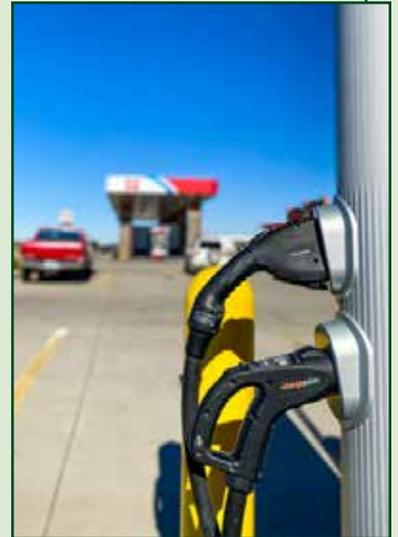
For the Cenex Zip Trip® in Miles City, Mont., the push to install an EV charging station came from Tesla. Wanting a charging station about every 100 miles along interstate highways, the company sought out the location

about two hours east of Billings, Mont., on I-94. “Tesla handled the infrastructure and installation,” says General Manager Steve Haase. “With EV charging stations, we can draw in customers who are charging their vehicles.”

Installed in early 2020, the Miles City charging stations saw nearly 300 charges in August 2021. Haase says that number is growing. “We’ve seen an tremendous uptick in the number of people using the charging stations as more people are traveling in 2021,” he says. “And you can assume those people are coming into the store to buy food and drinks as they wait the half hour it takes to charge their cars.”

Haase says there’s an added

bonus as well. “You can see search results for Tesla charging stations from the driver’s seat, so it’s added brand awareness for us as well.”



Propane Powers Fleets

Propane is used mostly to heat homes and dry crops, but another use of the alternative fuel is growing in popularity: powering fleets. Grant opportunities and programs like the CHS Propane-Powered® rebate program have helped cooperatives partner with school districts to transition buses from diesel to propane power.

Farmers Pride in northeast Nebraska had been trying to break into the transportation side of the propane business for years, says Dave Spencer, sales and marketing director. In 2020, the co-op was able to partner with the Yankton, S.D., school district on a pilot project to get two propane school buses. In 2021, the district

added two more buses and plans to add two more in 2022.

“With our three-year pilot, we’re tracking data to see if it makes sense to slowly convert our fleet,” says Jason Bietz, business manager for the district.

The program got off the ground with a little help. Farmers Pride used the CHS program to contribute more than \$20,000 toward the autogas dispenser, which is located in the school bus yard. In addition to the \$2,500 per-bus rebate from CHS, the district qualified for Diesel Emissions Reduction Act (DERA) grants through the South Dakota Department of Agriculture & Natural Resources, covering 35% of the bus purchase price.

Bietz says most cost savings with the conversion to propane have come from being able to lock in contracts for their 1,000-gallon tank when propane pricing is favorable. “This shows us how the savings could really pile up over time,” he says.

Cost savings is not the only reason the district likes the buses. “Propane buses heat up almost instantly and they run quieter than diesel-powered buses,” says Bietz. “Plus, we run a daily bus exchange where about 15 buses idle in one location loading kids. That’s a lot of emissions in one location. Using a cleaner-burning fuel helps us leave a cleaner footprint on our community.”

Renewable Diesel Driving Force

When will using renewable diesel become the norm? Three conditions must be in place for renewable diesel to be more cost-effective to produce than traditional diesel.

A tax credit that pays fuel blenders \$1 per gallon to blend biodiesel or renewable diesel with petroleum diesel. Congress is considering legislation that would extend the credit through 2026.

This policy is in place at the federal level.

Tax Credit

D4 RIN Credit

A credit, or biomass-based diesel renewable identification number (or D4 RIN), that is generated when renewable diesel is produced from feedstocks like soy oil, waste oil or animal fats.

This policy is in place at the federal level.

Low-carbon fuel standards (LCFS), which generate credits to fuel producers for creating fuels that emit fewer greenhouse gases. California and Oregon are currently the only states with active LCFSs. If more states adopt LCFSs, renewable diesel adoption is expected to grow.

This policy is set state by state.

Low-Carbon Fuel Standard

“Electric vehicles just don’t make sense yet for a lot of people in rural communities.”

— Jason Schwantz

> we will be ready for mass adoption. If everyone goes out and buys an EV and plugs it in, the electric grid will be overloaded.”

While only 5% of cars on U.S. roads today are electric, that number is expected to grow, driven in part by state and federal policies that support EV adoption. “It’s clear through the regulations and rules the Biden administration has put forward, and the legislation that Congress is considering, that the federal government sees EVs as one of the primary ways to accomplish its climate change goals,” says Mauer. “Those initiatives support things like building a network of charging stations and tax credits for buying EVs. The push for EVs

won’t stop anytime soon.”

In rural America, adoption will likely be slower. “Electric vehicles just don’t make sense yet for a lot of people in rural communities,” says Schwantz. “Charging stations aren’t yet widely available and driving distances are greater.”

Schwantz says there’s even less viability for on-farm electric equipment. “High-torque and high-horsepower farm equipment will likely continue to rely on diesel fuel. We don’t yet see that electric farm equipment has the charging ability or the power needed to run today’s farms.”

As ag equipment and trucks continue to run on diesel, Hunhoff says renewable diesel may be the

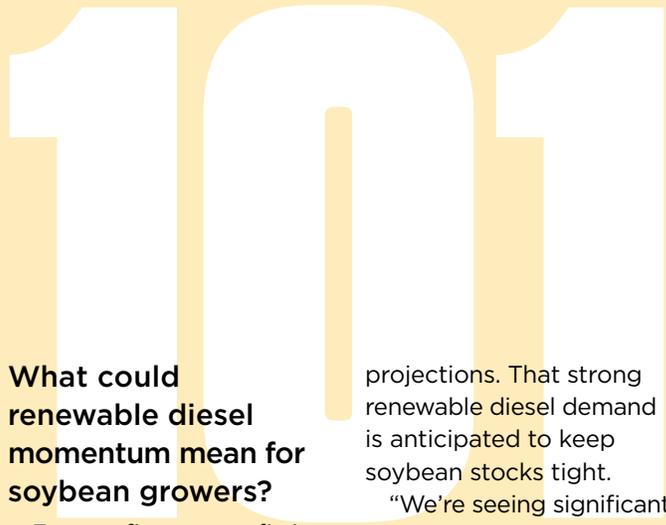
solution for cutting emissions while powering agriculture. “Reducing greenhouse gases will rely on a combination of efforts, including electric vehicles, but renewable fuels could be a more sustainable and attainable solution, especially in rural America.” ■



Hear more from experts about renewable fuels and other current topics on cooperativeownership.com.

RENEWABLE DIESEL

VS. BIODIESEL



Chances are, you've heard plenty about biodiesel as a sustainable energy solution. But as renewable diesel emerges as a growing sustainable alternative, what exactly sets it apart from its renewable cousin, biodiesel?

To start, renewable diesel isn't made from fossil fuels. It's made entirely from feedstock products, including vegetable oils like refined soybean oil and canola oil, animal fats, used cooking oil and distillers corn oil.

The feedstock is refined with a hydrotreating process similar to the process used to create petroleum-based diesel.

Renewable diesel is not derived from crude oil, so it's a strong fit for refiners utilizing the Renewable Fuel Standard (RFS) program.

How is renewable diesel different from biodiesel?

Renewable diesel and biodiesel are both high-quality fuels, are made from the same oils and fats, and are both eligible for RFS and low-carbon fuel standard programs. The difference comes down to the refining process and cold weather viability.

- Biodiesel is made using a process called transesterification, which can be less capital-intensive than the hydrotreating process that produces renewable diesel.
- Renewable diesel has a lower cloud point, and therefore better cold weather handling properties.
- Renewable diesel can be transported in existing pipelines, while biodiesel generally requires separate storage and handling.

What could renewable diesel momentum mean for soybean growers?

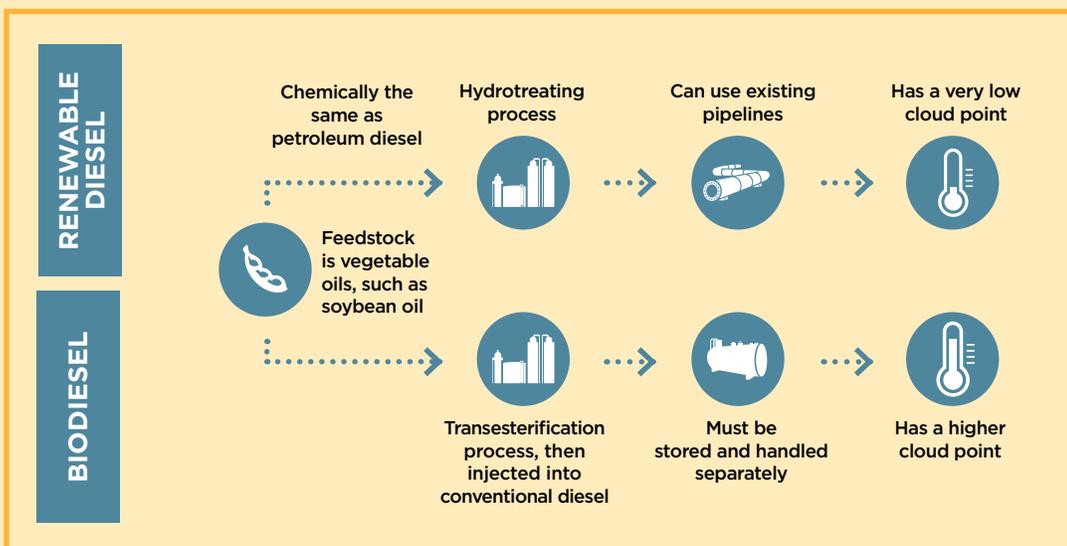
From refinery retrofitting to building new facilities, production of renewable diesel can be a capital-intensive process, but with predicted demand for renewable diesel on the rise, the future looks bright for soybean growers.

Projections for the 2021-2022 crop year show 365 million bushels of soybeans will be consumed by renewable diesel production — that's a 185% increase from 2020-2021

projections. That strong renewable diesel demand is anticipated to keep soybean stocks tight.

"We're seeing significant investment and expansion in the renewable diesel space, which indicates this is a longer-term trend, not just something happening this year or next year," says Brian Schouvieller, senior vice president, trading and risk management, CHS Global Grain & Processing. "For soybean growers, that means more demand for their production and support for better prices."

— Megan Gosch



Did You Know?
Because renewable diesel is produced using a similar process to that used for petroleum diesel, existing refineries are capable of producing renewable diesel.





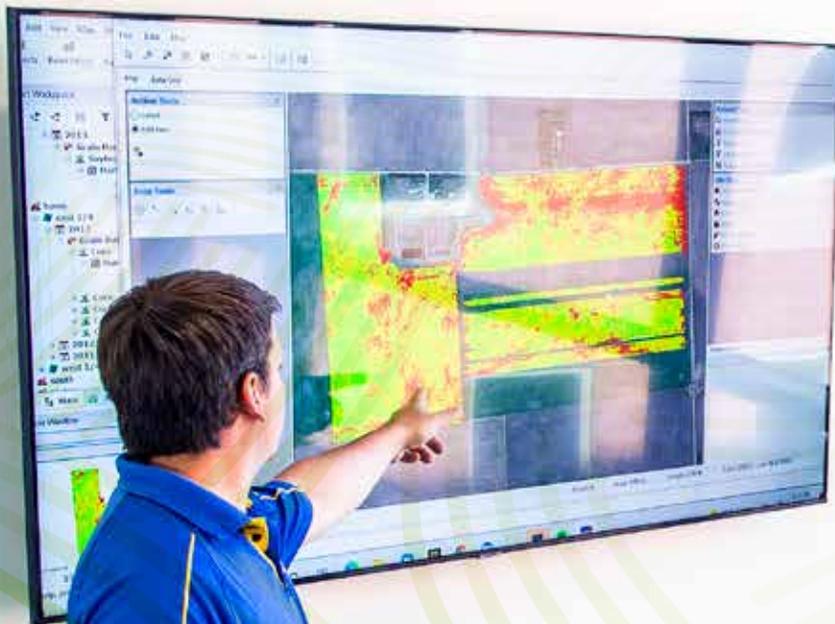
Wheat on the Water

The vessel named Tres Felices is assisted by a tugboat crew as it exits the TEMCO export terminal at Portland, Ore., filled with soft white wheat and dark northern spring wheat bound for Taiwan. Located on the Willamette River, the Portland terminal moves 75 million bushels of grain annually to global customers. TEMCO, a joint venture between CHS and Cargill, includes three export terminals — Portland, Ore.; Kalama, Wash.; and Tacoma, Wash. — which provide global market access for growers across the midwestern and western U.S.

In the distance, a snow-capped Mount Hood anchors the Portland community and provides resources and recreation for many.

— Adam Hester

LEADING V



VITH

PRECISION

A new type of ag major attracts student interest and industry support

On a sunny Saturday in September 2021, a large group of people gathered outside an impressive new 122,694-square-foot building of brick and glass on the Brookings, S.D., campus of South Dakota State University (SDSU). They were there to celebrate the grand opening of the new Raven Precision Agriculture Center. The event was significant for several reasons.

The \$46.1 million facility represented a major investment made by the state and agricultural companies in the next generation of agricultural education, with a primary focus on precision technologies.

The new facility is home to a new type of ag major, the country's first four-year degree in precision agriculture and features state-of-the-art classrooms, labs and spaces for industry collaboration.

Meeting a Need

The journey began when SDSU started to expand its ag systems technology major in 2009, recalls Nic Uilk, precision ag instructor. "We saw the need everywhere for more focused coursework on precision ag philosophy and tools. Equipment dealers, cooperative managers and ag bankers all said they wanted ag graduates with a better understanding of the field. We also had students asking for it."

He attributes the university's rapid progress in developing the program to Barry Dunn, then dean of the College of Agriculture and Biological Sciences and now SDSU president. "He recognized the industry need and was a major driving force in fundraising and in supporting curricular development," says Uilk.

By 2015, the college had introduced a minor in precision agriculture and, in 2016, SDSU became the first land grant university in the U.S. to offer

students a degree in precision ag. By May 2021, the program had 36 graduates. Today, 82 students are enrolled in the major and 57 have declared precision ag as a minor.

It wasn't just Upper Midwest students attracted to the new program, notes Uilk. "In the first year it was offered, we drew students from Wisconsin, Illinois, Ohio, Texas and Washington."

Hands-on Learning

SDSU senior Parker Aase is one of those precision ag majors who has long known he wanted an active, ag-based career. "I definitely don't want to spend the bulk of my workdays sitting in an office."

The Owatonna, Minn., native didn't grow up on a farm, but has roots in rural communities, showed livestock in 4-H and took ag classes in high school.

"I wanted to major in agronomy, but after I had taken a few precision ag classes here at SDSU, I felt it was a great way to apply all the agronomy basics >

SDSU precision ag instructor Nic Uilk, left, examines field maps with students Park Aase, center, and Rosalyn Madsen in one of the new Raven Precision Agriculture Center's high-tech classrooms.



Finding a troubleshooting solution during an electronics lab brings smiles to student Rosalyn Madsen, right, and instructor Nic Uilk.

“There is no shortage of opportunities in agriculture. Students just need to get the right skills and experience.”

— Nic Uilk

I was learning, so decided to double-major. “I really like the data-mapping classes because they’ve helped me understand how to make all that information useful to farmers,” he says. “I have already been able to help farming friends of mine create field input maps that help them control costs.”

The program’s hands-on approach extends beyond the classroom, with faculty members helping students find summer internships. “Our faculty maintain close connections with local agribusiness people, both personally and through our industry advisory board,” says Uilk. “We hold annual career fairs and other events that allow our students to meet people working in the industries they’re interested in. Those connections are really valuable. That’s how many find summer internships.”

During his freshman year, Aase met an executive at Raven at a college event, which led to his first summer internship with the company working in customer service and training. The following summer, he interned with a seed company and last summer he was back at Raven, learning more about technical development of the company’s autonomous grain

carts and the Omnipower self-propelled power platform. “I’ve really enjoyed all of my internships and learned so much,” says Aase, adding he’d be happy doing any of those jobs full-time after graduation.

Practical Experience

Along with loving technology and hands-on learning, SDSU junior Rosalyn Madsen wants a job where she can work with people. “I’d love to work as a tech specialist, installing precision ag technology and helping customers solve problems. Maybe someday I will even run my own business.”

Taking her first introductory precision ag course, which allows students to work on a fleet of Kubota tractors fitted with autosteer systems, solidified Madsen’s decision in the major. “The work combines my love of agronomy with the chance to work with my hands. This technology is definitely where everything is headed, which makes it exciting.”

Madsen’s family lives outside Franklin, Minn., but doesn’t farm. Most of her ag experience has come by taking high school classes, participating in FFA and helping on a neighbor’s farm. Last

summer, she interned at Central Region Cooperative, based in Fairfax, Minn., loading out crop protection products, consulting on applications and scouting general crops. “I got customer interaction experience and great practice identifying weeds and pests.”

Summer internships are important for providing practical experience because the SDSU precision ag major requires 120 credits, with very little room for electives. “We need to provide a solid foundation in agronomy, along with electrical and equipment courses. That’s a lot to fit into four years,” says Uilk.

Most upper-level courses have labs, as well, which meet at least two hours per week. “While most of the classes went online during the 2020–2021 school year because of the pandemic, labs were able to continue in person, operated with recommended precautions,” he says. “This year, we’re back to mostly in-person classes.”

SDSU currently has an articulation agreement with Mitchell Technical Institute in Mitchell, S.D., that allows students from that two-year school’s precision ag technology program to transfer credits into the SDSU four-year program. “We’re talking with a few other two-year institutions to set up a similar agreement,” says Uilk. “There is definitely a lot of demand.”

He says about half of the program’s graduates have gotten jobs in agronomy and half are working with ag equipment. “A few have gone home to farm, but most have their pick of jobs when they graduate.”

From College to Career

That was the case for Tonner Bowman, Garretson, S.D., who has been working in agronomy sales for the CHS location based

in Brandon, S.D., since he graduated from SDSU with a precision ag degree in May 2019. "I had multiple job offers, but decided to return to my home community," he says.

Bowman interned at the cooperative the summer before he left for college and at another one of its locations for two summers while at SDSU.

"I initially majored in agronomy, but felt like everything we talked about in other classes came together when I took precision ag-mapping classes. Learning how to work with the data and make recommendations and having the chance to go more in-depth on the equipment side of it was important."

Bowman says he uses most of those skills every day in his work with growers in eastern South Dakota and western Minnesota. "I'm largely focused on soil fertility, using grid soil sampling, interpreting those results to write fertilizer recommendations and develop variable-rate application maps, plus interpreting harvest results.

"We now have the Agellum® farm management and

planning tool to help us harness the power of all that data and help growers make management decisions that help maximize returns," he says. "It takes so much of the guesswork out of crop management."

Bowman recently took a sales agronomist position with the cooperative and finding a precision ag specialist to replace him hasn't been easy, says Bob Goodroad, agronomist and seed manager for CHS at Brandon. Goodroad also coordinates internships for the business. "Right now, there simply aren't enough qualified candidates to go around."

Staffing needs are one reason why the CHS staff at Brandon has supported the new SDSU program and why the team stays in regular contact with Uilk and other precision ag faculty.

At least once a year, they get together to discuss what they see happening in the industry and topics that should be covered in the classroom. And the co-op is providing hands-on training by hosting 12 to 20 interns each summer. It even

works to customize internships to fit individual students' careers goals and experience gaps, says Goodroad. Each year, two or three former interns are hired by the co-op for permanent positions after they graduate.

"We're training students, but we're also trying to build our bench. It's a chance for us to sell the students on the benefits of working for us and show them the potential for growth and career advancement in the cooperative system."

As an SDSU alum, Uilk says one of the best things about the school's newest program is that it creates opportunities for rural students to develop the skills needed to go back and work in their home communities. "There is no shortage of opportunities in agriculture. Students just need to get the right skills and experience." ■

The new Raven Precision Agriculture Center features 15 teaching labs, 12 research labs and 22 collaborative spaces for use by SDSU faculty and students and ag industry partners.

INVESTING IN PRECISION

Creating and refining high school and college programs takes resources. The CHS Foundation has committed more than \$2.3 million since 2018 to support new and expanding precision agriculture programs at colleges and universities around the country. Some include:

- \$1.5 million to support the South Dakota State University precision agriculture program and construction of the new Raven Precision Agriculture Center on the university's Brookings campus
- \$272,676 to the University of Idaho to develop a precision ag certificate program
- \$196,697 to the University of Illinois to implement a new computer science and crop science major
- \$120,000 to West Texas A&M University to create curriculum in seven urban high schools that targets more diverse students from nonag backgrounds
- \$80,000 to the University of Nebraska-Lincoln for a diversity student mentor program
- \$70,000 to Bismarck State College for a precision agriculture active learning classroom

"The CHS Foundation is committed to supporting projects that cultivate opportunities for students interested in agriculture and help to produce qualified graduates to fill the needs of the industry," says Nanci Lilja, president, CHS Foundation. "The ag industry needs to be innovative in how it attracts talent. These institutions are delivering on those innovations and using unique approaches to reach the next generation of ag leaders."



RODEO



RIDES ON

Photo story by Adam Hester

The day's last light falls over the oldest rodeo grounds in North Dakota as cowboys wait to execute their skills and tempt fate in what many call the most dangerous sport of all. The enthusiastic bellow of a witty rodeo announcer echoes off the hills a few times each year in Killdeer, N.D., as spectators and riders from throughout the country gather to compete and bask in the beauty of rodeo. For 90 years, the grounds have hosted some of the sport's more passionate amateur cowgirls and cowboys. Admiration and respect for horse athletes shines from the kids climbing fences for a better vantage point to the seasoned riders who, with their trusty companions, come back every year to give everything they can to add their names to this North Dakota rodeo monument.





Open your smartphone and scan the code to hear more from T.K. Leibrand and see her in action or visit chsinc.com/c.



Raised with her mother riding the barrel racing circuit, Chippewa athlete T.K. Leibrand, left, lives a rodeo life that most can't imagine. She prepares her horse, Giddy, for the Killdeer grounds and describes riding rodeo as "the closest thing you'll ever get to flying without a plane."



The second most popular event in rodeo is executed by creating a clover shape around three barrels while riding an elite horse at 35 to 40 miles per hour in about 18 seconds.



The local cowgirls of Killdeer uphold the long-standing tradition of displaying colorful flags touting sponsors.



Smoke and dust temporarily fill the darkened arena, while the love for horses and animals permeates the event all weekend.



Left, even the smallest four-legged family members enjoy the rodeo experience. Right, Miss North Dakota High School Rodeo Queen Bailey Grove encourages her trusty horse before assisting in a roping event.

CHS REPORTS FISCAL YEAR 2021 NET INCOME OF \$554.0 MILLION

CHS has reported net income of \$554.0 million for the fiscal year ended Aug. 31, 2021, reflecting an increase of 31% or \$131.5 million compared to fiscal year 2020.

Key financial drivers for fiscal year 2021 include:

- Consolidated revenues of \$38.4 billion for fiscal year 2021 compared to \$28.4 billion for fiscal year 2020, a year-over-year increase of 35%.
- Significantly improved earnings across our Ag segment compared to the prior year driven by strong global demand for grains and oilseeds, which drove commodity prices higher, and a full year of improved trade relations between the United States and foreign trade partners.
- Equity earnings from investments, particularly from CF Nitrogen and

Ventura Foods, were a significant source of earnings during fiscal year 2021.

- While improved refining margins in our refined fuels business resulted in increased margins as demand shocks from the COVID-19 pandemic began to subside, the resulting margin improvements were more than offset by exceptionally high costs for renewable energy credits and less favorable pricing on heavy Canadian crude oil processed by our refineries, resulting in lower earnings.

“For the year, overall demand for grain and oilseed helped drive strength in agriculture, as well as crop nutrients and crop protection products and services,” says Jay Debertin, president and CEO, CHS.

“Our investments in innovation are helping drive our financial strength and leading to efficiency gains throughout our expansive network. At the same time, we are enhancing the experience

of our farmer-owners and customers who rely on CHS to help them meet the growing global demand for agriculture products, opening new opportunities for growth.”

CHS INC. EARNINGS* BY SEGMENT (in thousands \$)

	Years Ended August 31	
	2021	2020
Energy	(\$10,596)	\$225,317
Ag	298,096	53,724
Nitrogen Production	121,035	51,837
Foods	67,902	24,179
Corporate and Other	38,883	31,821
Income before income taxes	515,320	386,878
Income tax benefit	(38,249)	(36,731)
Net income	553,569	423,609
Net income (loss) attributable to noncontrolling interests	(383)	1,170
Net income attributable to CHS Inc.	\$553,952	\$422,439

*Earnings is defined as income before income taxes.

2022 PRODUCTION CONTRACTS FOR PLENISH® AVAILABLE

Production contracts for 2022 are now available for Pioneer® brand Plenish high-oleic soybeans. To increase access, the CHS grain storage location in Grand Meadow, Minn., will be an additional delivery location.

Developed for the southern Minnesota and northern Iowa growing area, Plenish high-oleic soybeans can help boost soybean market opportunities and provide direct benefits to the food industry, consumers and growers.

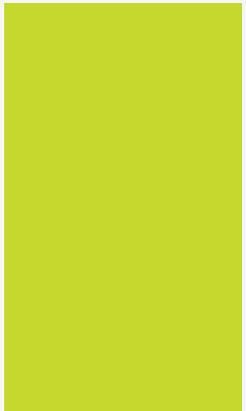


CHS OWNERS TO RECEIVE \$150 MILLION IN CASH PATRONAGE, EQUITY REDEMPTIONS

Based on fiscal year 2021 earnings, the CHS Board of Directors has approved return of an estimated \$50 million in cash patronage and \$100 million in equity redemptions to member cooperatives and individual owners in fiscal year 2022.

GET MORE: Sign up to receive CHS press releases by email or RSS feed at chsinc.com/news.

**WHEN YOU'RE
A CO-OP OWNER**



**YOU OWN
EVERY DAY.**



As a co-op owner, you own a world of opportunities powered by local expertise. You gain options and value with access to global markets and a powerful supply chain. And you can do more every day using inputs from teams who know what you need, when you need it. Learn more at cooperativeownership.com.



**When you use CHS Hedging,
there's less to worry about.**

(Unless you count tomorrow's tryouts.)

With all the uncertainties in farming, you need the right broker on your side. One who understands your operation, risk tolerance and opportunities. At CHS Hedging, our experienced advisors offer insightful advice backed by deep market intelligence. So you grow more and worry less. Learn about professional pricing, customized marketing plans and more at chshedding.com.



CHS EXPANDS SOY OIL REFINING CAPACITY

A major expansion and renovation project is underway at the CHS Mankato, Minn., soybean processing plant. The \$60 million project is the second phase of CHS investments to capitalize on changing market dynamics and opportunities to grow market access. When upgrades are completed in late summer 2023, annual refined soybean oil production at the facility will increase by more than 35%.

“Trends in global consumption of refined oils such as soy, canola and palm remain strong, especially in the renewable

diesel sector, with projected continued tightening of stocks,” says Tom Malecha, who leads processing operations for CHS. “We’re seeing tremendous opportunities to maximize our farmer-owners’ investments in high-performing assets and infrastructure.”

Another element in CHS strategic growth plans to participate in burgeoning oil markets was completed in September 2021, after a 24-month construction project at its Fairmont, Minn., plant increased soybean crush capacity by 30%.



CHS LAUNCHES CARBON PROGRAM

CHS has introduced the CHS Carbon Program in partnership with Bayer Crop Science. The program rewards growers for implementing and maintaining cover crops and conservation tillage practices on a per-acre and per-practice basis after verification.

“While agriculture is listed by the EPA as a contributor to greenhouse gas emissions, it also is one of the few industries with the ability to do something about it,” says Terry Herzig, director, retail agronomy, CHS. “To demonstrate our commitment to helping our farmer-owners be part of the solution, we are offering an incremental incentive to growers who participate in this program through CHS.”

Growers can earn additional incentives by purchasing enhanced efficiency fertilizer products, including N-Edge®, Trivar® and Levesol®.

CHS NORTHLAND GRAIN HONORED FOR SECOND YEAR

CHS Northland Grain’s Hazel, Minn., terminal has been named U.S. Elevator of the Year by Canadian Pacific Railway (CP), making it the first two-time winner in the U.S. The terminal has the capacity to load up to 110-car trains, which are sent to domestic and international markets. The elevator shipped 5,137 railcars of grain with CP during the 2020–2021 crop year.

CP presents the award annually to elevators that achieve high volumes from a single loading point, while demonstrating efficient loading and a commitment to safety.

CHS DONATES TO HURRICANE IDA RELIEF

CHS has pledged donations of \$50,000 to Hurricane Ida relief efforts, including \$25,000 to Feeding America and \$25,000 to the American Red Cross.

Hurricane Ida made landfall on Aug. 29, 2021, about 60 miles south of New Orleans, La. Thousands of homes and businesses were damaged, including the CHS Myrtle Grove, La., grain export terminal. Operations were suspended for nearly a month as crews removed water from the terminal site and repaired and tested equipment. The first ship to unload at the restored facility arrived on Sept. 24.

“We recognize the significant challenges faced by many individuals and communities impacted by Hurricane Ida,” says Jay Debertin, CHS president and CEO. “Acting on the CHS value of cooperative

spirit, we are supporting the American Red Cross and Feeding America to help those affected by this disaster as they recover and restore their homes, businesses and communities.”

Hear CHS employees talk about storm recovery at chsinc.com/c.



CO-OP CHAMPION

A few years ago, Mike Traxinger found himself in a room with 25 policymakers in Washington, D.C. The group was talking about Section 199A, a tax deduction for farmer-owned cooperatives and their member-owners. As general counsel and director of governmental affairs for Agtegra Cooperative, which serves farmers in more than 70 communities in North Dakota and South Dakota, Traxinger had been to similar gatherings before.

That's when the fifth-generation farmer realized he was the only one in the room who had actually received a 199A tax deduction from his co-op, so he shared his on-farm perspective.

"I was able to help inform those in the room how the Section 199A



Mike Traxinger sees farming from both sides as a fifth-generation farmer and general counsel and director of governmental affairs for Agtegra Cooperative in South Dakota.

tax deduction actually works for the cooperative and also myself as a member-owner,” Traxinger says. “I realized that day, more than ever before, that it is vital to have people advocating for farmers and ranchers who actually understand ag and know how these decisions impact rural America.”

That dual role defines much of Traxinger’s life. He grew up working on a 200-head Simmental cattle operation with his parents, Mike and Terri, and his sister, Brittney. The family also farms about 2,000 acres of corn and soybeans.

“Growing up, I wanted to help my neighbors and I saw that advocacy and influencing policy were ways to help farmers and ranchers.”

After receiving bachelor’s degrees in political science and journalism from the University of Minnesota, he worked in Washington, D.C., for a member of Congress. In 2012, Traxinger earned his law degree from Drake University. He’s been at Agtegra since 2014. “Working for my local cooperative just felt like coming home.”

Throughout it all, he never missed out on milestones of farming life: planting, caring for livestock, calving, his family’s annual bull sale, breeding cows, feeding and then working through harvest. On a typical day, he’ll stop by his family’s farm before or after work to help with

cattle or other farm work.

“My dad and I really support each other,” he says. “Yesterday, I was on the farm helping with cattle and in the afternoon, he stopped by my house to fix a leak in the roof. How we work together as a family makes me proud to be a farm kid.”

And it’s why being a voice for cooperatives and farmers is a responsibility Traxinger takes personally. “I grew up with the members I now advocate for and serve. I can bring things I’m hearing in the community to our

co-op board and leadership.”

“Cooperatives weather the storm to support farmers and ranchers. We’re about making our member-owners successful, because they own our business. I’m passionate about the cooperative business model,” says Traxinger. He just took that commitment one step further by joining the board of his local electric co-op, Northern Electric.

“I’m excited to be involved at the community level,” he says, “and to help further support and develop the cooperative system.”

— Sarah Haugen



Open your smartphone and scan the code to hear Mike Traxinger share more about what the co-op system means to him and his family or visit chsinc.com/c.



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One Small Switch

Whether you're lighting a farm shop or a massive export terminal, a few simple changes can reduce energy use, improve safety and help the environment.

As part of its commitment to sustainability, CHS is working to understand and manage how much and what type of energy is consumed in its facilities around the globe. They've found that even the smallest changes, like switching from conventional bulbs to LEDs, can make a big difference.

"These efforts significantly reduce our energy costs," says Chuck Kendall, who heads up environmental, health and safety efforts for CHS. "They also increase safety with better visibility and less climbing up tall stepladders to replace bulbs."

The same benefits would be true in barns, workshops and other buildings, Kendall says. With many utility companies increasing prices for electricity, the potential payback from switching to LED bulbs is even greater.

At CHS facilities, payback time frames for bulb replacement range from 9 months to 1.5 years. For example, at CHS retail sites in Fergus Falls, Minn., and Glenwood, Minn., a \$49,444 one-time project cost (including rebates) will produce a projected \$34,697 annual electricity cost savings and \$297,530 cumulative savings over 10 years.

The switch has environmental benefits, too: At the two CHS sites, the reduction in carbon dioxide emissions with LED vs. conventional bulbs is equivalent to planting 100 trees or taking 26 cars off the road.

— Amy Sitze

