

C MAGAZINE

Growing Solutions

New agronomy products start and end in the field

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Jay Debertin, president and CEO, CHS

Serving Owners, Building Strength

Working together for shared success — that desire inspired cooperative founders a century ago and it's what drives CHS today. Understanding and addressing the needs of our owners is at the core of every decision we make.

Gathering information directly from growers and agronomists sparks ideas to help manage the weeds, diseases and insects that prevent crops from fulfilling their genetic potential. As you'll read in this issue, our crop science research and development process begins and ends on the farm as we identify, test and deliver solutions for agronomic challenges.

We take the same approach in other areas, collaborating with customers on how they need diesel fuel to perform in the field, on the road and at the construction site. Those insights drive decisions about additive packages and diesel production at our refineries. Combining an extensive energy supply chain with local expertise and technical advice means you have the information and products needed to power your business.

Recognizing changes in global grain trade flows propels us to build relationships with partners in Brazil, the Danube Corridor, Australia and other regions of the world to ensure CHS and the cooperative system have a stake in global grain supply year-round. At the same time, we are partnering with member co-ops in the U.S. to strengthen grain movement to meet domestic and export demand. Maintaining a long-term view allows us to make strategic decisions that will continue to provide value for our owners. You expect nothing less from your cooperative.

Change will continue, in the policies we navigate, the technologies we adopt and the markets we develop. Through that change, we will continue to advocate for you, speaking up for the needs of agriculture, energy and cooperatives.

Our cooperative spirit is strong. The opportunities are great. Let's continue working together to make connections that empower agriculture.

Don't miss news from CHS



This issue of C magazine is our last printed issue. The news and stories you rely on from CHS will still be found our website, e-newsletters and social media channels. To ensure you are notified of new content from CHS, use the QR code on this page or visit chsinc.com/connected to opt in.

FULL-CIRCLE SOLUTIONS

Solving crop protection challenges starts and ends on the farm.

By Matthew Wilde

Dandelions are some of the worst yield-robbers on Aaron Stroh's North Dakota farm, stealing nutrients and water from crops. The bright yellow menaces have tormented growers and weed scientists for decades.

According to one of the country's first weed management guides, "The Weed Exterminator," written by Ezra Michener in 1872, dandelions are among the hardest weeds to manage. "When we consider the tenacity of life, which the roots possess; their familiar adaptation to almost every soil, locality and growing crop; their rapid and continuous production of many seeded heads...we may well despair of ever being able to effect its extermination," he penned.

Those words ring true today, Stroh says. Fortunately, he has better control options than tillage and the "high farming" (planting grasses and grain

to smother weeds) Michener recommended.

The LaMoure no-till farmer uses herbicides in a tank mix with CHS Level Best® Pro, an adjuvant that improves herbicide uptake, translocation and efficacy to control dandelions, waterhemp and other weeds.

"Dandelions are pretty bad this year. They are hard to kill due to their long taproot," Stroh says — a taproot up to 2 feet long, according to University of Minnesota Extension references.

"CHS Level Best Pro helps get the chemical into the leaf of the weed. It's an extra expense that's worth it for better control."

Farmer Focus

Stroh and his brother Ryan grow corn, soybeans, spring wheat, rye, alfalfa and yellow peas. Stroh says he talks with Jacob Olson, his agronomist at the CHS Dakota Plains Ag >



Audrey Conrad, a technical product specialist with CHS, records data in mid-June from a corn research trial in York, Neb.

➤ LaMoure location, several times a week about agronomic issues and crop protection strategies. While Stroh is focused on his own farm's needs, those discussions and others like it across the country are the beginning of the CHS crop protection and crop nutrient product development and improvement process. The company gathers feedback year-round from growers, agronomists and retailers across the U.S. to develop and fine-tune agronomic solutions. "The more you visit with your local agronomist, the more apt we are to get new products that work," says Stroh. "That's an advantage of working with a cooperative; they listen to their owners to implement solutions faster."

A product's path from concept to commercialization starts and ends at the farm, says Steve Carlsen, director of proprietary products with CHS.

"With our intimate connection with growers and their needs, we can develop products that solve problems they're facing on the farm."

"The more you visit with your local agronomist, the more apt we are to get new products that work."

— Aaron Stroh

Product Discovery

Every year, the CHS agronomy team convenes agronomists from across the country to discuss agronomic issues.

Challenges such as weed control and disease management are aggregated, categorized and ranked. Participants gather in focus groups to narrow down problems and potential solutions based on numerous factors, including each issue's reach and severity.

"It's a needs-based approach," Carlsen says. "They tell us, 'We're struggling to solve XYZ agronomic or fertility problems' and we work backwards."

"We look at what we have in our crop protection pipeline and options from manufacturers. Then we turn to our research and development team to find or develop products that solve problems."

"We actively pursue hundreds of potential products annually," Carsen adds. "Three to five things in each crop protection and nutrient category get a tremendous amount of resources."

Soygreen®, distributed exclusively by CHS, is one

example of a product that got its start when growers expressed concerns about poor soybean performance due to iron deficiency chlorosis (IDC) — soils were retaining iron so crops couldn't access the iron they needed.

CHS researchers found a solution in Spain: an ortho-ortho EDDHA chelate used in orange and olive groves to make iron more available to trees growing in sandy soils. Scientists discovered it could solve iron deficiency problems in other crops.

"CHS tested the product and now, 20 years later, it's still one of the standard treatments for IDC in soybeans," says Vitor Favoretto, a technical products specialist with CHS.

Testing in Lab and Greenhouse

The CHS research and development team doesn't create new chemistry. "We're not that type of technology



Blake Murnan, director of seed-applied technologies with CHS, makes observations in a corn fertility trial at the CHS Crop Science Research and Development Center.

A researcher takes a chlorophyll reading at the CHS Crop Science Research and Development Center.



CHS Crop Protection Process



company, doing molecular discovery," Carlsen explains. "What we are good at is working with our hundred-plus suppliers to find technologies that solve problems, which includes putting together existing chemistries in unique ways."

The road from need to solution can take one year or several years, he adds. Before products earn a place in the CHS agronomy portfolio, they must pass extensive testing to validate efficacy.

The CHS Crop Science Research and Development Center in Randolph, Minn., opened in early 2024 to speed development, evaluation and commercialization of agronomic products.

The center includes a state-of-the-art greenhouse, which includes six climate-controlled

bays to replicate a range of growing conditions, and a formulations lab.

Prior to the center, CHS relied on field research during the growing season to test product concepts. Alissa Geske, greenhouse research lead, says evaluating plants year-round without having to worry if weather will cooperate is a game-changer.

"In general, I would say it halves the testing time," she says. "There's also cost savings. Sending 20 products to the field for testing is a lot more expensive than initial evaluations in the greenhouse to narrow your pool to a handful for field validation."

"Now I'm only sending the best products for field testing, which will help increase grower confidence," she continues.

Geske develops research methodology to evaluate everything from adjuvants and seed treatments to nutrient products and biostimulants. She works closely with Amy Carter, a product development chemist with CHS, who heads the formulations lab.

Carter researches and develops new chemical formulations and analyzes the impact of compounds on crops and the environment. She also assesses formulations for equipment, packaging and tank-mixing compatibility, viscosity, shelf life and more.

"We were relying on chemistry teams from companies we were purchasing ingredients from to do this work before," says Brian Kuehl, director of product development with CHS. "Now we can overcome obstacles ➤"

"With our intimate connection with growers and their needs, we can develop products that solve problems they're facing on the farm."

— Steve Carlsen

Finding Solutions

Dozens of crop protection and nutrient products have been developed by CHS to solve agronomic problems and boost production. Here are five innovative solutions:

- **N-Edge® Pro** nitrogen stabilizer protects against volatilization, leaching and denitrification in below- and above-ground applications. It reduces nitrogen loss by preventing the urease enzyme from converting urea to ammonia, which can be lost to volatilization. It slows activity of Nitrosomonas bacteria, which convert ammonium to nitrate that can be lost to denitrification and leaching, and keeps nitrogen available longer in the root zone.
- **Trivar® EZ**, a Levesol® enhanced granular micronutrient blend, mixes with dry fertilizer. The patented chelate is infused in the granule to boost micronutrient availability.

• **Tapran®** is a multifunctional, high-efficacy adjuvant that helps activate herbicides for better performance against tough-to-control weeds, including later-season weeds. It includes tallow amine, which helps degrade the leaf surface of weeds for better absorption of herbicides.

- **Soiltrate™** soil and spray deposition agent improves efficacy and adsorption of soil-applied herbicides, improves drift control and enhances application efficiency.
- **CHS Acuvant®**, a NPE-free oil emulsion deposition and drift management agent, is designed to suppress off-target drift of pesticides applied by ground or air.

LEARN MORE: Find more agronomic solutions at chsagronomy.com.



Jacob Olson, right, an agronomist with CHS Dakota Plains Ag in LaMoure, N.D., discusses in-season weed control strategies with LaMoure farmer Aaron Stroh.



> faster and improve quality control with our own chemistry expert verifying the products we’re selling.”

“My involvement with product development is very much cradle to grave,” says Carter. “I make sure a formulation is workable and effective and if a problem or new need arises, like a new pest or a tank-mix partner change, I help with product improvements.”

Field Testing

After lab and greenhouse evaluations, product prototypes are sent to the field for what the team calls ground truthing.

“A product may work great in controlled conditions, but when you take it to the field, you may not get the same results,” says Favoretto. “It’s important to see how it will interact with the environment.”

He and Audrey Conrad, a technical product specialist with CHS, are responsible for coordinating small- and large-scale field research trials with land grant universities and certified

research organizations.

“By conducting research across the country, we know how products are going to perform in each of our geographies,” Conrad says.

In 2024, 178 field trials were conducted in 22 states using 68 test protocols. Typically, five to 15 products are tested in each trial.

Aaron Hoppe, CHS field research lead, develops the field-testing protocols — treatments, evaluations and special management instructions — and analyzes trial data.

Every protocol has specific research objectives concerning product performance. For an adjuvant used in herbicide applications, for example, researchers record weed-control efficacy from 0% to 100%. They may also assess use rate, tank-mix compatibility and crop injury. For seed treatments, nutrient products and biologicals, researchers may rate plant vigor, stand establishment and yield.

One or several years of data could be collected to determine the efficacy of experimental and existing products. “We use data to decide what products we ultimately want to move through the product pipeline and commercialize,” Hoppe says.

Growers often play a role again at the end of the product development process by participating in a soft launch before full commercialization, Hoppe adds.

“The more data generated from product testing, such as observations and yield, the more confidence farmers will have in products.” ■

LEARN MORE: Find an **It Takes a Co-op™** podcast episode about the CHS crop product development process at chsinc.com/podcasts.



Striving to Improve

Improving crop protection and nutrient products is one of the primary goals of the CHS agronomy team.

“There’s always potential for formulation improvements and innovations,” says Amy Carter, a product development chemist with CHS. “As new crop challenges arise, we’re always looking for creative solutions.”

CHS Level Best® Pro is one result of that continuous improvement mindset. CHS Level Best®, an adjuvant that improved herbicide efficacy, was introduced in 2015. However, growers discovered it was difficult to use as temperatures dipped.

“Farmers found CHS Level Best tough to pump when it got cold. We were able to develop an improved adjuvant with less viscosity to take it to the next level,” says Brian Kuehl, director of product development with CHS.

CHS Level Best Pro replaced its predecessor in 2019.

In similar fashion, CHS researchers discovered additional uses for the ortho-ortho EDDHA chelate originally used in Soygreen®, an enhanced efficiency product to overcome iron deficiency chlorosis in soybeans. Besides iron, they discovered the chelate works to free up other positively charged nutrients in the soil, including zinc, manganese and copper. The chelate also prevents phosphorus from binding with positively charged micronutrients, making that nutrient more readily available to plants.

That learning led to development of CHS Lumen®, an advanced starter fertilizer that includes the ortho-ortho EDDHA chelate, micronutrients and an advanced enzyme to enhance plant growth.

“CHS Lumen is a groundbreaking differentiator from common starter fertilizers,” says Vitor Favoretto, a technical products specialist with CHS. “The chelate has a dual benefit of protecting micronutrients and liberating phosphorus.”

PARTNER POWER

Garden City Co-op and CHS partnership builds Kansas grain strength.

By Matthew Wilde

Investing \$30 million in a new shuttle train facility in Holcomb, Kan., wasn't a decision Garden City Co-op (GCC) Inc. Board Chair Clayton Maddux took lightly. Another grain-receiving facility was located a few miles away and some of the co-op's farmer-owners were skeptical about needing a second one, he admits.

Yet the board unanimously approved building River Valley Terminal. Why such confidence? Maddux says data and a strong partnership with CHS tipped the scales.

"We grow more sorghum and wheat in this region than the

local market demands, so it has to go somewhere. We're also in a corn-deficit region," he says. "Owning our own high-speed rail facility to efficiently move high volumes of grain in and out to meet customer needs and retain margin benefits our owners.

"We would have been apprehensive doing this if we didn't have a strong partner in CHS and access to that expertise," Maddux continues. "CHS has global connections, ports and rail capabilities that we don't."

Kealan Griffin, a senior merchandiser with CHS, says the

partnership with GCC benefits both cooperatives. As the CHS grain liaison with GCC, he leads marketing and transportation logistics for grain CHS purchases from GCC with the goal of growing the overall grain business of both companies.

"Garden City Co-op and CHS have always traded grain. River Valley Terminal expands on the volume we handle with Garden City and our marketing opportunities," Griffin says. "Processors want to buy larger volumes, not just a few [rail] cars, to reduce freight costs. When we need six trains to fill a ship heading to customers

overseas, we can call on Garden City to load a couple of trains that will head to the port."

GCC's 21 grain locations, located primarily in southwest Kansas, annually source 30 million to 36 million bushels of corn, hard red winter wheat, sorghum and soybeans. Grain from GCC locations is trucked to River Valley Terminal.

Connections Spur Success

The terminal has been humming since it became operational in August 2024. Millions of bushels have already

moved through the facility, mostly marketed by CHS.

The terminal is served by BNSF Railway and CHS is one of the rail company's largest freight customers. The facility's 1.5-mile loop track can handle a unit train — up to 125 cars, with a typical train length of 116 cars — which carries about 425,000 bushels of wheat or 450,000 bushels of corn or sorghum. It takes no more than 10 hours to fill or unload a train at the highly automated terminal.

Outbound trains often head to export facilities in Houston or the Pacific Northwest operated by TEMCO, a joint venture between

"Our relationship with CHS strengthens our business."

— Clayton Maddux

CHS and Cargill. The trains also deliver grain to processors in Mexico and the U.S.

"CHS has the best sorghum export connections," says Mike Wisner, GCC vice president of grain. "Before that market shut down this spring, CHS bought two unit trains of sorghum from

A train is loaded with wheat at the River Valley Terminal in Holcomb, Kan. Garden City Co-op, based in nearby Garden City, owns the shuttle train facility, which became operational in August 2024. Photo by Trevor Hands, Garden City Co-op Inc.

us in November 2024 that were exported to Africa through the TEMCO port at Houston, which helped us move a lot of bushels and keep harvest moving."

"Another success story for [GCC] members is we've been able to move quite a bit of wheat through River Valley Terminal and CHS, which allowed us to make good margins on those bushels and turn over space in our facilities to make room for more crops," adds Lindy McMillen, GCC director of grain trading. "That's a win-win."

Handling grain from farm to consumer through the ➤



Kansas farmer Clayton Maddux, Garden City Co-op board chair, is convinced the co-op's River Valley Terminal will benefit owners by expanding and opening new markets for grain.

Annual Kansas Crop Production

-  **Wheat**
308 million bushels
7.2 million acres
-  **Corn (for grain)**
748 million bushels
5.8 million acres
-  **Sorghum (for grain)**
182 million bushels
2.8 million acres
-  **Soybeans**
155 million bushels
4.4 million acres
-  **Canola**
9.6 million pounds
8,000 acres
-  **Sunflowers**
1.05 million pounds
1,000 acres

Source: USDA, 2024

> cooperative system is another win for owners, explains Jeff Boyd, CEO of GCC. As a CHS member cooperative, "Garden City participates in the additional economic value created through CHS patronage and equity retirements."

Local Demand

Beef feedlots and dairies are the primary corn markets in southwest Kansas, followed by ethanol plants, Wisner says. Local production dictates how much corn is needed. In a drought year, he says that can be more than 70 million bushels.

GCC buys corn from CHS and member cooperatives in the Midwest to sell locally. Corn is shipped in via rail to River Valley Terminal, one of the few facilities in the region that can offload unit trains. Cooperative owners benefit from that margin opportunity.

"It's a natural relationship that we want to continue to foster," says Griffin, "to help grow the grain business between the two cooperatives."

Competition and Need

Maddux grows corn, hard red winter wheat and sorghum on his family farm near Deerfield, Kan. He says competition for grain created by River Valley Terminal benefits all farmers in the region.

WindRiver Grain — a train shuttle loader facility with 8.7 million bushels of storage in Garden City — has been a major grain buyer and valuable gateway for grain exports in the region since the late 1990s. Even though GCC is part owner of that company, Maddux says there's enough business for both shuttle loaders to succeed.

"I've seen stronger basis levels, especially at harvest, because of the competition that now exists in the marketplace and more market access," he adds. "I like competition. It keeps people grinding to get you the best deal and serve the customer better."

GCC officials say storage shortages have occasionally slowed harvest progress in the past. River Valley Terminal, with 1.2 million bushels of

capacity and the ability to ship out large volumes, helps mitigate bottlenecks.

"There will always be a need to move grain," Maddux says. "We were filling up all the time and needed a way to move more bushels and control our own destiny. To have another delivery option for corn before it goes down in the Kansas wind is important."

Cooperatives were founded on the principle of farmers working together for the greater good. "Our relationship with CHS strengthens our business," Maddux says. "We have a partner that has our back." ■

SEE MORE: Watch videos about Garden City Co-op and the art of loading a train at chsinc.com/news-and-stories.

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Summer Solstice

As days get longer and summer settles in across farms and ranches, there's a pause from the fast pace of planting, calving, lambing and other spring activities.

When farm shop demands are less urgent and crops reach toward the sun, the less hectic schedule allows time for softball games, family reunions, parades, county fairs, church picnics,

maybe a visit to a favorite fishing spot. Summer means cold lemonade on hot afternoons, fresh-picked tomatoes from backyard gardens and firefly-lit evenings with family and friends.

The busy fall season will be here soon, but until then, we hope you can enjoy everything you find special about summer in the country.

— Cynthia Clanton



David Loberg, who farms near Carroll, Neb., says premium diesel fuels help his operation reduce labor and costs for equipment maintenance.

DIESEL THAT DOES MORE

By Peg Zenk

Latest premium diesel fuel formulation keeps equipment running clean and efficiently.

When you're investing in a new state-of-the-art tractor or combine, it pays to invest in top-quality diesel fuel.

"The high-performance engines in today's farm equipment need fuel that's formulated to provide optimal power, performance and protection," says Charlie Carter, product quality and additives manager with the refined fuels team at CHS.

"Premium diesel fuels like Cenex® Ruby Fieldmaster® help keep new engines running cleaner longer and clean up engines in older equipment to help them work better.

"Understanding the tough environments on farms and seeing common equipment maintenance issues helped us enhance the qualities of Ruby Fieldmaster and Cenex Roadmaster XL® so they deliver even better performance."

Carter points to enhancements in four key areas:

1. Better cleaning. "Our latest diesel formulation is 40% more effective at breaking down engine deposits* due to an advanced aggressive detergency package," says Carter. "That delivers more power, better fuel efficiency and improved engine performance."

2. State-of-the-art total water management system. "A new two-phase process first uses a demulsifier that separates out the majority of water that can get into fuel so it settles at the bottom of the storage tank for easy removal," he explains. "Any remaining water is then entrained by the detergency package to pass safely through the combustion process."

3. More complete burn. "Our enhanced fuel formula produced 25% lower exhaust cylinder temperature deviations, which results in improved fuel efficiency, increased power and balanced engine performance," says Carter. "A more complete burn also means less soot production,

reduced regenerations and decreased wear and tear on the exhaust system."

4. Exceptional filterability and 20% better biostability. "The improved formula reduces filter blocking by up to 75%** compared to #2 diesel, which extends the life of diesel particulate filters," he says. "To account for increased use of biodiesel, we improved our detergent package to reduce fuel degradation and extend storage life."

Less Downtime

For David Loberg, the biggest benefits of upgrading to Cenex premium diesel fuel have been better overall fuel quality and reduced maintenance costs. On the fifth-generation Carroll, Neb., farm he runs with his mother, Kris, and sister, Beth Lutter, Loberg says he is hands-on when it comes to equipment maintenance and repair. "We >

* In comparison to the previous generation of Cenex® premium diesel fuel.

** In comparison to #2 diesel.

Troubleshoot with a Fuel Test

If equipment issues cause you to question fuel quality, a simple, inexpensive fuel test can help pinpoint a fuel-related problem.

CHS offers easy-to-use refined fuels kits with everything you need to take and submit fuel samples for lab analysis, says Charlie Carter, product quality and additives manager with the refined fuels team with CHS.

“We’ve streamlined the process, making it easier to get results that identify factors impacting fuel quality, such as water issues in storage or contaminants.”

These simple tests can help farmers maintain fuel storage and determine when a tank should be drained and cleaned. It takes only a few days to get test results online.

Confirming the fuel you buy is what you expect is another outcome of fuel testing, Carter adds. “Cenex® premium diesel fuels contain a tracer component so we can always verify customers are getting the real thing that is fully additized,” adds Carter.

“We offer fuel test kits as an easy way to get answers and peace of mind about your fuel supply.”

To receive a fuel test kit, contact your local Cenex fuel supplier.

do nearly all our own work, so fewer repairs save us money and time.”

He says they switched to using Cenex premium diesel fuels more than a decade ago. “We were tired of dealing with water issues common with #2 diesel, as well as frequent fuel injector plugging and occasional fuel pump issues.”

To cover the operation’s 4,500 acres of corn, soybeans and hay, the Loberg Farms fleet includes four semi tractor-trailers, three tractors, a self-propelled sprayer, a self-propelled fertilizer spreader, several pieces of earth-moving equipment and four diesel-powered irrigation rigs.

“We have replaced fewer fuel injectors since switching to premium diesel and we see less carbon buildup,” he says. “When using #2 diesel, we had to replace fuel injectors in irrigation engines every three to four years because of plugging. Since we’ve been using Ruby Fieldmaster, if there was an injector problem, it was due to mechanical failure and not fuel-related issues.”

Benefits Add Up

Most farmers don’t care about diesel fuel details until

they have a problem, says Bryan Daum, energy manager for Farmers Pride Cooperative, the Loberg Farms fuel supplier. “After six months to a year of using Ruby Fieldmaster, they are usually convinced the benefits are worth the extra cost per gallon.”

Premium Diesel Fuel Benefits

Benefits of using Cenex Ruby Fieldmaster vs. typical #2 diesel fuel:

- 30% reduction in soot emissions
- 14% reduction in NOx emissions
- 4.9% reduced DEF consumption

Note: Data reflects results from Cenex tractor testing conducted in a controlled laboratory setting. Field results may vary based on environmental and operational conditions.

The most common benefit users see is less filter-plugging, says Daum. “They may need to change filters more regularly in the first months after switching to premium diesel because the detergency package does

a good job cleaning out any contaminants or impurities. But we just don’t see filter-plugging in equipment that runs on premium diesel.”

Daum says other premium diesel benefits farmers notice include improved lubricity, a high cetane number, water management characteristics and storage stability.

“During a wet season like this year in northeast Nebraska, irrigation rigs don’t have to run as much. Sometime fuel can sit in them for a year or two. With premium diesel, we haven’t seen any degradation problems.”

With the value of the equipment his customers are fueling, Daum says he doesn’t feel right selling them conventional #2 diesel.

“Our customers recognize the value of using high-quality diesel fuel with a premium additive package. It pays for itself in the long run.” ■

LEARN MORE: Contact your energy retailer to learn about Cenex® premium diesel fuel.



Checking in with customer David Loberg, right, are Nick Rohde, sales manager, Farmers Pride Cooperative, left, and Bryan Markes, certified energy specialist.

TRIVAR® EZ

CHELATED POWER IN EVERY GRANULE.

Every granule of Trivar® EZ is packed with purpose. This dry, easy-to-blend micronutrient solution is powered by the patented Levesol® chelating agent, which keeps phosphorus and key micronutrients available longer.

That means better early growth, stronger roots and higher yield potential. When applied with dry fertilizer, Trivar® EZ ensures even distribution and consistent performance across every acre. No impregnation needed. Just smart, efficient nutrition that helps you get more from every pass.



Ask your CHS representative about the many benefits of Trivar EZ.
chsagronomy.com/trivar-ez

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planting kindness

By Matthew Wilde

An army of volunteers helps Farm Rescue support farm families in need.

The first day of 2025 soybean planting didn't go as planned for Jim Engelhart on his Venturia, N.D., farm. Still, his daughter Allison couldn't help but smile as she watched her father, who's battling cancer, climb over a 60-foot air seeder like he was a teenager.

"He has a spring back in his step," the 19-year-old exclaimed as her dad, who recently finished a round of chemotherapy, eagerly jumped in to help Farm Rescue volunteers fix the

implement. The nonprofit organization, based in Horace, N.D., provides free planting, harvesting, haying and other assistance to farmers and ranchers in need.

The Farm Rescue team and the Engelharts faced plenty of obstacles in their drive to get

soybeans planted. First, a wire got tangled in a wheel. Then several broken bolts on a wing had to be replaced to prevent frame damage. An electrical problem kept seeding data from being sent to the tractor monitor and operator. And extreme heat — 95 degrees

Fahrenheit in mid-May — and 40-mile-per-hour wind gusts made for a challenging environment.

Despite the obstacles, it was a much-needed good day for Engelhart, who is still grieving the death of his wife, Terra, in December 2024 and adjusting >

Volunteers with Farm Rescue, a nonprofit organization that helps farmers in need, plant soybeans in mid-May for Venturia, N.D., farmer Jim Engelhart.



Jim Engelhart, left, a Venturia, N.D., farmer battling cancer, is all smiles as he feels good enough to assist Farm Rescue volunteer Wade Peterson with equipment repairs.



Glenn Biederman, Louisburg, Kan., is a Farm Rescue volunteer.

Angels in Blue

Working 12-hour-plus days, getting scraped up wrenching on equipment and spending more than two weeks in farm fields isn't what most people have in mind for retirement. Not Wade Peterson.

The former utilities superintendent for the city of Baraboo, Wis., volunteers with Farm Rescue, a nonprofit organization that helps farmers in need with free planting, harvesting, haying and other services. In May 2025, Peterson and two other volunteers planted soybeans for Jim Engelhart, a Venturia, N.D., farmer battling cancer.

Peterson says there's no better way to spend his free time than getting back to his farming roots and helping others. "It doesn't take long to get hooked," he says. "You get to help families that need a hand and meet great people. You can tell it's hard on the farmers we help that they can't do all the work themselves."

Volunteer Glenn Biederman, an ag equipment manufacturing retiree from Louisburg, Kan., adds, "That why we are here — to get people through rough spots and give them time to figure out a path forward."

Farm Rescue leaders refer to volunteers as "angels in blue," as each dons a dark blue T-shirt sporting the organization's logo at job sites. Peterson's and Biederman's shirts are stained with grease and covered in ground-in dirt, a testament to the good work getting done.

More than 700 volunteers power Farm Rescue work, according to Executive Director Tim Sullivan. Most volunteers use vacation time to help, are part of company volunteer programs or are retired.

"These unselfish individuals come from every state on their own dime to meet the needs of families in crisis. It's amazing to see," he says.

Drew Fish helped plant corn in early May 2025 for Justin Schemm, a Wallace, Kan., farmer who lost his left leg in a combine accident the previous fall. Fish, an equipment factory automation supervisor in Iowa, volunteers for two weeks in the spring and fall through his company's paid volunteer program.

"This has been a way to connect with our end user," Fish says. "People like Justin are what make volunteering worth it."

> to being a single parent.

"Dad needed this," says Allison. It was the first time in nearly 40 years that the elder Engelhart hadn't personally planted every acre on the farm.

It took Farm Rescue volunteers three days to seed 1,000 acres of soybeans for Engelhart. He was able to plant about 1,000 acres of spring wheat and corn this spring, but with a family — Jillian, 15; Allison; and Tiffany, 25 — and health issues to deal with, Engelhart needed help.

"It's been a long couple of years," says Engelhart, a CHS owner and fourth-generation farmer, as he wiped away tears. "We're all very grateful [to Farm Rescue]. I didn't have to worry about getting the crop in on time this year, which will help preserve the farm for future generations."

A sophomore at Bismarck State University studying ag business and agronomy, Allison Engelhart aspires to take over the family farm. She's spending the summer of 2025 as an agronomy intern at the CHS River Plains Ashley, N.D., location.

"I grew up in a tractor," she says. "It's what I want to do for the rest of my life."

Answering the Call

As Engelhart helped with repairs, he got a call from Jillian reminding him about her school awards banquet that night. "Don't worry, I'll be there," he answered, knowing planting would continue.

That promise, in part, is the reason Farm Rescue exists, says Executive Director Tim Sullivan. The organization provides volunteer labor and equipment to keep farms and ranches running as families

deal with mental health recovery, illness, injury or natural disaster.

"When someone can't plant or harvest a crop or feed their animals, it can be devastating to their livelihood," Sullivan says. "We are dedicated to protecting that."

"We're all very grateful [to Farm Rescue]. I didn't have to worry about getting the crop in on time this year, which will help preserve the farm for future generations."

— Jim Engelhart

Bill Gross, a North Dakota farm kid turned UPS pilot, founded the organization 20 years ago to fill a need in his state. Farm Rescue has expanded into eight other states — South Dakota, Montana, Minnesota, Iowa, Nebraska, Wisconsin, Illinois and Kansas — and has helped nearly 1,200 families in crisis.

"Our organization continues to grow with a 10th state [Kentucky] being added for 2025 harvest season. Our mission is more important than ever," Sullivan adds.

Justin Schemm can attest to that. Farm Rescue volunteers planted more than 1,300

acres of corn for the Wallace, Kan., farmer this spring using his equipment, as he recuperates from losing his left leg in a 2024 combine accident.

Needing to move every 30 minutes as part of his rehabilitation program, Schemm can't be in a tractor for long periods. He also can't handle seed bags until he's fitted with a prosthetic leg, which is in the works.

"The biggest obstacle is lifting and carrying stuff," says Schemm, a farmer-owner of CHS United Plains Ag. "The next hurdle is getting in the combine."

"Planting is the most important part of the crop," he adds, expressing gratitude for

the help. "I've been extremely pleased with the entire process."

Worthy Cause

Hundreds of donors provide financial and in-kind support to Farm Rescue, which has a \$4 million annual budget. Besides staff and operating expenses, the organization buys or leases and maintains a fleet of combines, planters, tractors, semis and pickups.

"It's not cheap to run our large equipment, buy fuel and house and feed volunteers," says Sullivan. "We need big equipment with the latest technology to cover the most acres we can and provide

families with confidence the job is getting done right."

CHS and the CHS Foundation have donated nearly \$225,000 to Farm Rescue since 2016. Megan Wolle, senior director of stewardship with CHS and CHS Foundation president, says Farm Rescue embodies cooperative spirit.

"As the nation's largest farmer-owned co-op, ensuring farm families facing difficult challenges have the support they need is critical to us," Wolle says. "Our Farm Rescue investments ensure the vibrancy of rural communities and continued success of agriculture."

For Engelhart, Farm Rescue is a beacon of hope. Seeing the

importance of the organization firsthand, he is determined to return to health so he can help fellow farmers in need.

"I'm going to volunteer one day," he vows. "I want to help out." ■

Jennifer Chick contributed to this story.

LEARN MORE: To donate, volunteer or learn more, go to farmrescue.org.



Farm Rescue volunteers David Endorf, Daykin, Neb., left, and Drew Fish, Vinton, Iowa, right, planted corn in early May for Kansas farmer Justin Schemm, who lost his left leg in a combine accident last year.

**Farm Rescue
Aid
in 2024**

102
farm families helped

26,926
acres planted or
harvested

4,343
round hay bales made

16,000
hours volunteered

Source: Farm Rescue

CHS REPORTS THIRD QUARTER FISCAL YEAR 2025 RESULTS

CHS Inc. has reported net income of \$232.2 million and revenues of \$9.8 billion for the third quarter of fiscal year 2025, which ended May 31, 2025, compared to net income of \$297.3 million and revenues of \$9.6 billion in the third quarter of fiscal year 2024.

For the first nine months of fiscal year 2025, the company reported net income of \$401.2 million and revenues of \$26.9 billion compared to net income of \$990.5 million and revenues of \$30.1 billion in the first nine months of fiscal year 2024.

Key highlights for third quarter fiscal year 2025 financial results:

- Ag segment earnings were stronger than the same period last year due to higher volumes and margins for wholesale and retail agronomy products.
- Planned major maintenance at the CHS refinery at McPherson, Kan., led to lower production of refined fuels.
- Equity method investments continued to provide solid contributions to CHS income.

“CHS was well positioned to meet our owners’ planting needs with products, services and local expertise during the favorable spring weather, resulting in a strong third quarter for our agronomy and retail businesses,” says Jay Debertin, president and CEO.

“Our employees remain committed to maintaining a high level of customer service while driving efficiency improvements. Working together with our valued partners, we will continue positioning the cooperative system to best navigate the current challenging agriculture and energy markets.”

Energy

A pretax loss of \$50.1 million for the third quarter of fiscal year 2025 represents a \$147.9 million decrease versus the prior year period and reflects:

- Planned major maintenance conducted at the McPherson

refinery led to lower production of refined fuels and drove reduced Energy earnings, despite higher sales volumes

- Increased costs for renewable fuel credits

Ag

Pretax income of \$151.0 million represents a \$42.5 million increase versus the prior year period and reflects:

- Higher volumes and margins for wholesale and retail agronomy products due to favorable market conditions
- Decreased margins for grain and oilseed and oilseed processing product categories,

primarily the result of the timing impact of mark-to-market adjustments and global market conditions

Nitrogen Production

Pretax earnings of \$54.6 million represent a \$2.2 million increase versus the prior year period, primarily due to favorable market conditions for urea.

Corporate and Other

Pretax earnings of \$103.3 million represent a \$52.2 million increase versus the prior year period, mostly reflecting strong results from the Ventura Foods joint venture.

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

	Three Months Ended		Nine Months Ended	
	May 31, 2025	May 31, 2024	May 31, 2025	May 31, 2024
Energy	\$(50,088)	\$97,850	\$(113,794)	\$416,264
Ag	151,040	108,535	272,140	335,106
Nitrogen Production	54,610	52,366	100,195	125,834
Corporate and Other	103,293	51,117	174,439	135,168
Income before income taxes	258,855	309,868	432,980	1,012,372
Income tax expense	27,175	12,613	31,710	21,416
Net income	231,680	297,255	401,270	990,956
Net (loss) attributable to noncontrolling interests	(502)	(19)	50	452
Net income attributable to CHS Inc.	\$232,184	\$297,274	\$401,220	\$990,504

*Earnings is defined as income (loss) before income taxes.

GET MORE: Sign up to receive CHS news at chsinc.com/connected.

COOPERATIVE VENTURES INVESTS IN ARTIFICIAL INTELLIGENCE

Cooperative Ventures, a joint venture between CHS and GROWMARK, has invested in Precision AI, a leader in artificial intelligence-based farming practices in the U.S. and Canada.

Precision AI’s data insights, collected through autonomous aerial systems, equip farmers and agronomists to make plant-by-plant input decisions in real time, enabling them to grow stronger, healthier plants, reduce inputs and increase farm profitability. Precision AI has grown its list of new partners substantially in 2025 as more companies

see the value and potential that artificial intelligence applications, like Precision AI products, have to revolutionize agriculture.

“Today’s farmer is often challenged to do more with less,” says David Black, executive vice president and chief information officer, CHS. “Innovative tools like Precision AI help equip our owners and customers to run their operations with a focus on efficiency and profitability.”

Learn more at cooperativeventuresllc.com.



Cooperative Ventures, a venture capital fund joint venture between farmer-owned cooperatives CHS and GROWMARK, is investing in Precision AI, a leader in artificial intelligence-based farming practices.

PLAN TO ATTEND CHS OWNER EVENTS

2025 CHS New Leaders Forum

Dec. 2-3, Minneapolis, Minn.
Cooperatives are invited to nominate emerging leaders 45 years of age and younger to gain personal skills, learn about CHS and the cooperative system and discover how they can help their co-ops and communities thrive. Registration opens Oct. 9 in conjunction with 2025 CHS Annual meeting registration. Find details at chsinc.com/new-leaders.

2025 CHS Annual Meeting

Dec. 4-5, Minneapolis, Minn.
The CHS Board of Directors and company leaders will share business insights, financial updates and progress on initiatives. Owners can participate in CHS governance, create connections, ask questions and provide input. Registration opens Oct. 9. Find details at chsinc.com/owner-events.



LISTEN IN: IT TAKES A CO-OP™ PODCAST

Each episode of the It takes a Co-op™ podcast highlights agricultural and energy topics. Recent episodes have examined economic and global trends affecting agriculture, provided insights into propane production and exports, and highlighted how CHS provides innovative agronomic solutions.

Find It Takes a Co-op episodes at chsinc.com/podcasts or your favorite podcast service.



CENEX® ANNOUNCES 2025 HOMETOWN THROWDOWN \$100,000 WINNER

Cenex®, the energy brand of CHS, has named the Olde Tyme Apple Festival in Versailles, Mo., the 2025 Hometown Throwdown \$100,000 grand prize winner. Held every October, this two-day event includes a parade, fiddler’s contest, play with local actors, live music and plenty of apple-themed desserts.

The Hazen Chalkfest in Hazen, N.D., will receive \$20,000 for second place; Borderline Chalkfest in Wahpeton, N.D., will receive \$15,000 for third place; Windmill Days in Baldwin, Wis., will receive \$10,000 for fourth place; and the 4th of July Celebration in Mapleton, Iowa, will receive \$5,000 for fifth place.

“We are once again blown away by how communities have united around Hometown Throwdown,” says Erin Wroge, senior director of energy marketing at CHS. “We love seeing and celebrating local communities and their festivals.”

Learn more at CenexHometownThrowdown.com.

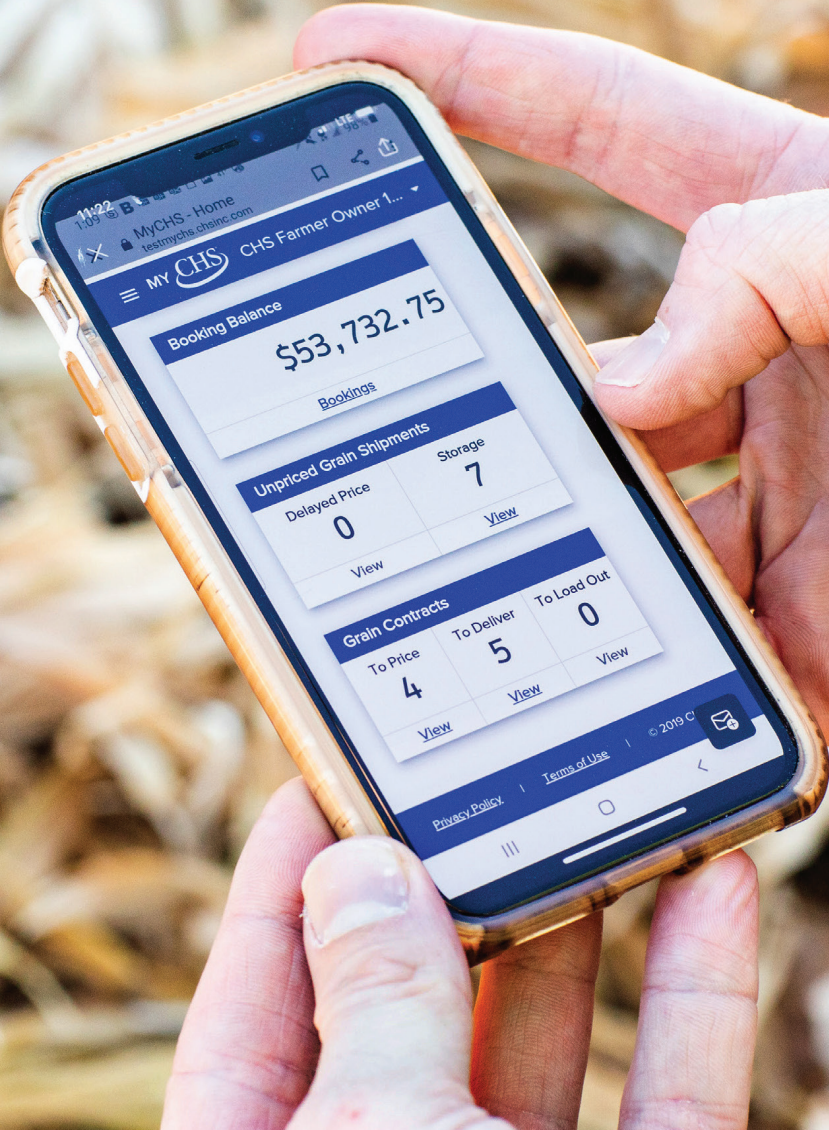
Growing Minds and Green Thumbs

Teacher's vision for engaging, hands-on learning flourishes with community support.

When agricultural educator Eric Sawatzke envisioned adding a greenhouse at West Central Area High School in Barrett, Minn., he pictured a small space where students could perform simple plant science activities, such as seeding and transplanting.

His dream blossomed into something much bigger after he made two decisions: He would empower students to make fundraising presentations and the plan would include raising food for charity. >

Ag instructor Eric Sawatzke's school day includes one free hour each day to concentrate on grant applications and community meetings, an approach he encourages other school districts to consider. Collaborating with his local CHS ag retail location helped Sawatzke secure a CHS Seeds for Stewardship grant for a school greenhouse, with the added bonus of giving high school students on-farm planting and harvesting experience.



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“Most of our students come from nonfarm experiences. When they get their hands on plants, it sparks something that may lead them to an ag career,” says Eric Sawatzke. “One of our first student greenhouse managers is studying ag business at college and working as a summer intern for CHS. It’s rewarding to help develop top-notch talent.”



Each year, the school donates fruits and vegetables grown in the greenhouse, along with thousands of ears of sweet corn the students grow at a nearby farm with help from the CHS ag retail team in Hoffman, Minn. “Every student graduates having helped produce food for the food shelf. We’ve built an authentic service component into the program,” says Eric Sawatzke.



“We’ve created a culture of responsibility,” says instructor Eric Sawatzke. “I don’t run the greenhouse; the students do. They even stop by on weekends or after basketball games to check on things. It’s a testament to their leadership skills.”

> “As the students talked about what the greenhouse would mean to them, the whole community got excited and stepped up,” says Sawatzke. “I am so grateful others believed in this project as deeply as we did.”

Because the plan included raising vegetables and fruits for local food shelves, the greenhouse program qualified for hunger project grants from unconventional partners such as Lions Club International. Combining community and grant support, the school raised more than \$375,000 to build the facility.

Breaking Barriers

Today the greenhouse provides a hands-on learning environment, supplies fresh produce for people in need and serves as a community education center where agronomists conduct tests on planting depth, cold stress and more.

It’s also a revenue generator. “This year, we sold 9,000 plants at our plant sale and brought in more than \$16,000,” says Sawatzke.

The funds reduce costs for students participating in FFA events, he explains. “We’re removing socioeconomic barriers.”

Based on the greenhouse program’s success, the community and nonprofit organizations including USDA have helped the school fund a mobile meat trailer where students learn about meat cuts and grading.

While the results are remarkable, Sawatzke is convinced other communities can meet their own needs with similar creative approaches and collaboration. “These projects are totally replicable in other towns if you get the right players involved.” ■

LEARN MORE: Find information on CHS Seeds for Stewardship matching grants and CHS Foundation ag teacher grants at chsinc.com/stewardship. View a video interview with Eric Sawatzke at chsinc.com/c.



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C TOMORROW

Science at Work

Building expertise to serve the global marketplace of the future takes a cooperative system powered by fresh thinking and innovative solutions. New ideas can come from anyone, including interns experiencing their first taste of agricultural research and production.

University of Minnesota student Ethan Gross is exploring his interest in environment-controlled agriculture through an internship at the CHS Crop Science Research and Development Center in Randolph, Minn., working in the center's state-of-the-art greenhouse.

"I have been capturing data on stomatal conductance of leaf tissue," which is one measure of plant performance, explains Gross. "I've also been using time-lapse photography to capture differences in seed treatment performance." He hopes to apply his double major in computer science and plant science to a career in genomics.

San Diego State University biology major Lauren Carter

is putting her laboratory experience to work analyzing formulations at the R&D center. "I'm testing specific gravity, pH, viscosity, particle size and more to determine how surfactant formulations react in different situations."

Mentored by center staffers, Gross and Carter are helping to find solutions for crop production challenges while they gain experience that could lead to ag careers. Both expect to pursue graduate degrees.

"It's exciting to see talented people join CHS from so many different backgrounds," says Lauren Bucci, who heads up the intern program for CHS. "We look for candidates who have passion for fields ranging from agronomy to engineering, technology and more."

"Whether they grew up on a farm or are new to the world of agriculture, there are many opportunities to join our team to help fulfill our purpose of creating connections to empower agriculture."

— Cynthia Clanton



Intern Lauren Clark tests formulations at the CHS Crop Science Research and Development Center.