

C MAGAZINE



Going Global

Emerging markets are eager for U.S. grain

12
Cyberattack
Lessons

18
Caring for
Cotton

22
Santa's Hooved
Helpers



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Global Trade Reset 6

Market dynamics are changing world demand for U.S. crops. As competition grows, co-ops are finding opportunities in new global markets.

ON THE COVER: Longshoremen get a shipment ready for its overseas journey at the CHS terminal in Superior, Wis. The terminal sends nearly 40 vessels (each carrying the equivalent of 800 semi loads) of spring wheat, durum wheat, canola and flax to global markets through the St. Lawrence Seaway each year. Above, grain is loaded in Tacoma, Wash., at TEMCO, a grain export joint venture between CHS and Cargill. TEMCO includes three export terminals: Kalama and Tacoma, Wash., and Portland, Ore.

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WINTER 2022

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Jay Debertin, president and CEO, CHS

Investing for Growth

Capital investment used to be pretty straightforward: A company checked its wish list for new or updated facilities, decided how much to spend and ordered the bricks and mortar so construction could begin.

That's an oversimplification, but one that illustrates how differently we are making investments today. While we continue to expand and update CHS facilities, our investments are increasingly focused on identifying and implementing the technologies that will enable improved efficiency and growth — and enabling the people who will help derive the most value from those investments for CHS and for you, our owners.

This issue of C magazine describes one way CHS is growing and providing value to owners, through more diverse and creative approaches to global market access. CHS grain marketing teams located around the world are using data, supply chain strength and the power of this farmer-owned cooperative system to find new market opportunities in countries where incomes are rising, consumers are demanding higher-quality food and our ability to provide year-round supply meets those needs.

Technological advances that make our extensive supply chain smarter, faster and more effective will come from all corners of the world. But too few investors are focused on bringing new ideas to cooperatives and the farmers and ranchers they serve. That's why CHS and Growmark have partnered up to create Cooperative Ventures, a \$50 million venture capital fund focused on spurring breakthrough technologies that benefit agriculture. The fund will support startup companies with promise in these three areas: crop production, supply chain and sustainability.

Growth will also mean finding new ways to work together across the cooperative system. How can CHS capabilities provide strength and support that will help meet your needs? Where do you see opportunities for growth that will build value for you and other cooperative owners? Let's talk about how CHS can be part of your growth story.

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.



GLOBAL TRADE RESET



By Brittany Voss

Global disruptors, supply chain imbalances and changing market dynamics are changing how the world views trade. What does that mean for U.S. farmers?



There's no doubt these are complicated times. From extreme weather patterns to inflation and from supply chain backups to international conflict, agriculture trade has been playing a steady game of dodgeball since 2018.

With increased competition from regions like the Black Sea and South America, the United States is not as critical to supplying the world with grain and oilseeds as it was 10 or 20 years ago. Farmers elsewhere around the globe with lower land and labor costs

and improving transportation infrastructures, encouraged by growing international acceptance of genetically modified seed technology, are creating a competitive marketplace.

How can U.S. farmers continue to secure grain market access for not only today, but for generations to come?

"In today's commodity trade environment, connections to the cooperative system and organizations that secure market access and new opportunities for U.S. farmers are more crucial than ever," says

Brian Schouvieller, senior vice president, global trading and risk management, CHS Global Grain & Processing.

"Farmers need partners who are figuring out how to sell the crop the same day they are planting. At CHS, farmers' best interests drive every decision we make every day."

New and Emerging Markets

The 2018 U.S.-China tariff situation was a stark reminder of the value of balanced domestic

and international markets and the importance of not concentrating business in one country. Over the past 12 months, the CHS Global Grain & Processing team has focused on increasing relationships and expanding export volume with a number of key countries.

"Increasing our international grain marketing footprint gives us more options to secure the best market value and price for farmers," says Bryce Banfield, vice president, marketing, CHS Global Grain & Processing. "Having employees on the ground around the world allows us to >

- CHS Tacoma terminal, TEMCO
- CHS Kalama terminal, TEMCO
- CHS Portland terminal, TEMCO

● CHS Superior terminal

● CHS Myrtle Grove terminal

Mexico

Latin America

● CHS at Port of Itaqui

Brazil

Paraguay

● Joint venture terminal

Argentina

● Joint venture terminal

● CHS at Necochea

Portugal

Spain

Algeria

Top Global Grain Markets

CHS export terminals are strategically located for efficient grain movement to existing, expanding and new destinations around the world

Key

- Traditional grain markets
- Expanded and new grain markets



Trade Risk and Policy

Nigeria and Egypt are just two CHS marketing success stories. Increased export volumes to Spain, Portugal, Southeast Asia and Latin America, including opening a new CHS grain marketing office in Mexico City, are other wins for CHS and farmer-owners. But do new partners in more countries mean more risk?

“As we expand into other parts of the world, we are constantly thinking about counterparty risk,” says Brian Schouvieller, senior vice president, global trading and risk management, CHS Global Grain & Processing.

“International markets are extremely important to U.S. farmers and CHS spends a lot of time, energy and capital ensuring we can participate in those markets safely.”

When new customers are identified, they are vetted by CHS legal, commercial and compliance teams to rate not only their finances, credit history and country concentration risks, but whether they will be end users and consistent buyers, the potential stress those sales could put on the CHS supply chain and how much value the new market will create for farmer-owners.

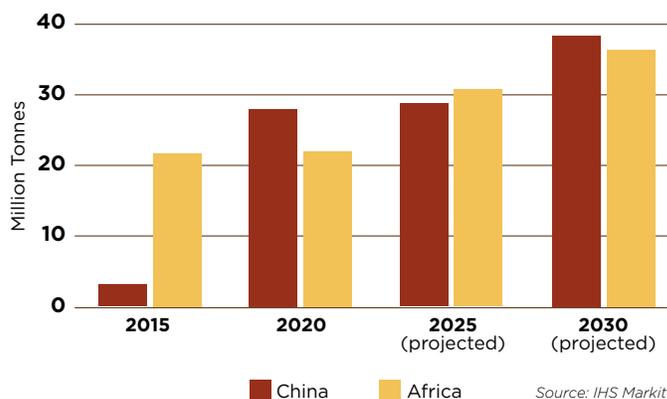
“From traders, originators and international marketing teams to supply chain experts, finance, credit and compliance teams, there is strong collaboration across CHS to secure competitive market opportunities for our owners.”

➤ form relationships not only with large grain and food customers, but with middle-sized and small customers that eventually turn into large buyers.”

“When identifying new and emerging markets, we first need to look at economic activity, changing food preferences and purchasing habits and birth rates,” says Ken Eriksen, who heads up client advisory and development in commodities, transportation and infrastructure for IHS Markit. “There are still a lot of unknowns that will be coming out of the pandemic, but it’s fascinating to watch the amount of opportunity and investments that could take place in areas like Southeast Asia and Africa.”

Across Asia, Eriksen says, consumer diets and preferences are shifting to be more protein-based and per capita incomes are rising, so consumers there can afford higher-quality meat products. Simultaneously, animal husbandry practices are improving and there’s a shift away from backyard feed operations to sophisticated

Africa Corn Imports Expected to Match China



vertical integration of hog and poultry production.

“China will always be a major player when it comes to soybean and soybean meal demand,” adds Eriksen, “but now we’re seeing those same patterns in Malaysia, Thailand and Vietnam. And unlike China, those Southeast Asian countries still have a steady population growth.

“We’re also seeing fewer wet [open-air food] markets and more controlled environments like supermarkets and commissaries across Southeast Asia, so we’re very curious

to watch how consumption, buying behaviors and demand will continue to evolve.”

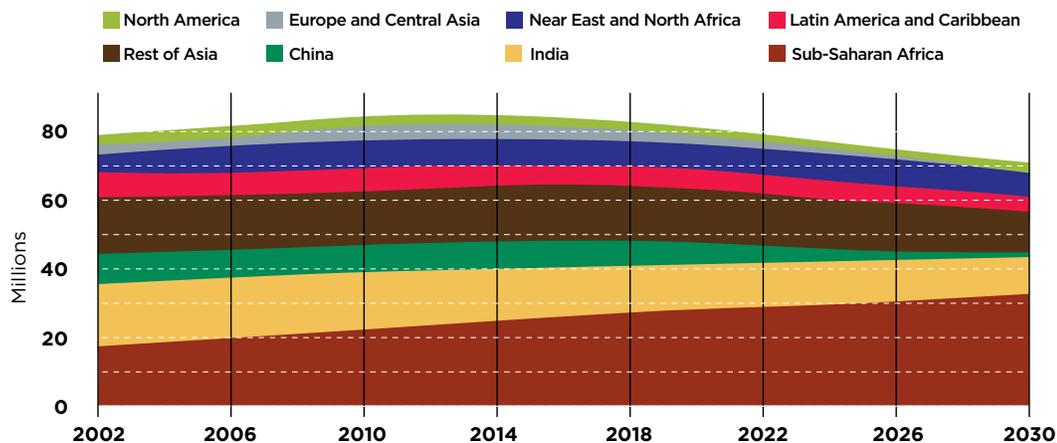
Africa on the Rise

Emerging markets often don’t have sufficient economies of scale and infrastructure to be major grain purchasers, but Eriksen says that’s not a reason to overlook Africa and the Middle East.

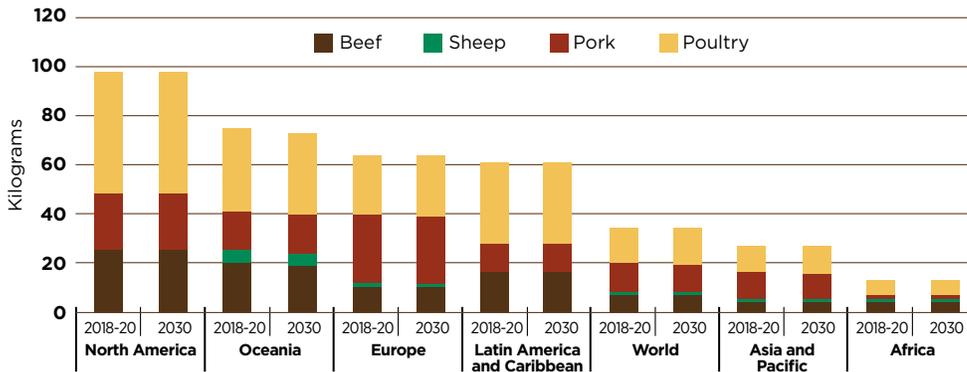
“In the last 20 years, the population and birth rate in all countries in Africa and the Middle East has risen and will continue to grow. In Africa, the population eats 2 to 3

World Population Growth

Year-on-year population changes



Meat Consumption per Capita: Continued Rise of Poultry, Fall of Beef



Note: Per capita consumption is expressed in retail weight.
Source: OECD-FAO Agricultural Outlook, 2021

kilograms [4.4 to 6.6 pounds] of meat per person per year,” says Eriksen. “Compare that to the U.S. and Europe, where the average is 35 kilos and 25 kilos per person, respectively, and there’s tremendous room for growth per year.

“In the last five years, we’ve seen a significant increase in the level of imports of animal feed compounds and corn across Africa. When you compare those numbers to China and factor in population densities and birth rates expected in the next five to 10 years, we’re predicting Africa will be importing the same amount of grain as China,” he adds.

Rom Veru, a CHS Global Grain & Processing marketer based in Geneva, Switzerland, focuses on the strength of the CHS supply chain and the capabilities of cooperatives and farmer-owners to identify opportunities for market growth in Europe, the Middle East and Africa.

“Our supply chains are very strong in the U.S. Northern Plains, especially in soybeans, hard red winter wheat and spring wheat,” says Veru. “Nigeria consumes a lot of hard wheat and we know more customers there want to work with companies like CHS that

“At CHS, farmers’ best interests drive every decision we make every day.”

— Brian Schouvieller

have origination access and high-quality grain coming direct from the farm.”

CHS began expanding its customer base with trading partners in Nigeria in late 2019 and has already landed sales equaling up to 65% of the milling needs of one of the largest wheat millers in the country. The added volume has encouraged the buyer to double mill capacity from 360,000 tons to 720,000 tons in 2023.

“We sell a cargo ship of hard red winter wheat to this customer every month. Consistent wheat quality and logistics, plus flexibility in trade execution, have been key in developing this relationship,” says Veru. “Customer service is very important to us and is what helps us secure the best price for CHS farmer-owners.”

Egypt is another key growth country for grain marketed by CHS, increasing purchase volumes in the last 12 months. CHS sold soybeans to Egypt for the first time in 2021, diversifying some shipments away from China to continue to expand the CHS soybean customer base.

“Egypt is a sizeable market for beans, importing 4 million to 5 million metric tons annually,” Veru explains. “One of our newest customers in Egypt has a feed mill capacity of 2,000 metric tons per day and a soybean crushing plant with capacity of 3,000 metric tons per day. Through our U.S. footprint and assets in Brazil, Argentina and the Black Sea, we’re able to provide that steady supply of corn and soybeans all year.” ■



LEARN MORE: Ask your local cooperative about grain marketing opportunities. Get stats on CHS grain marketing and processing at chsinc.com/c.



Pacific Northwest Powerhouse

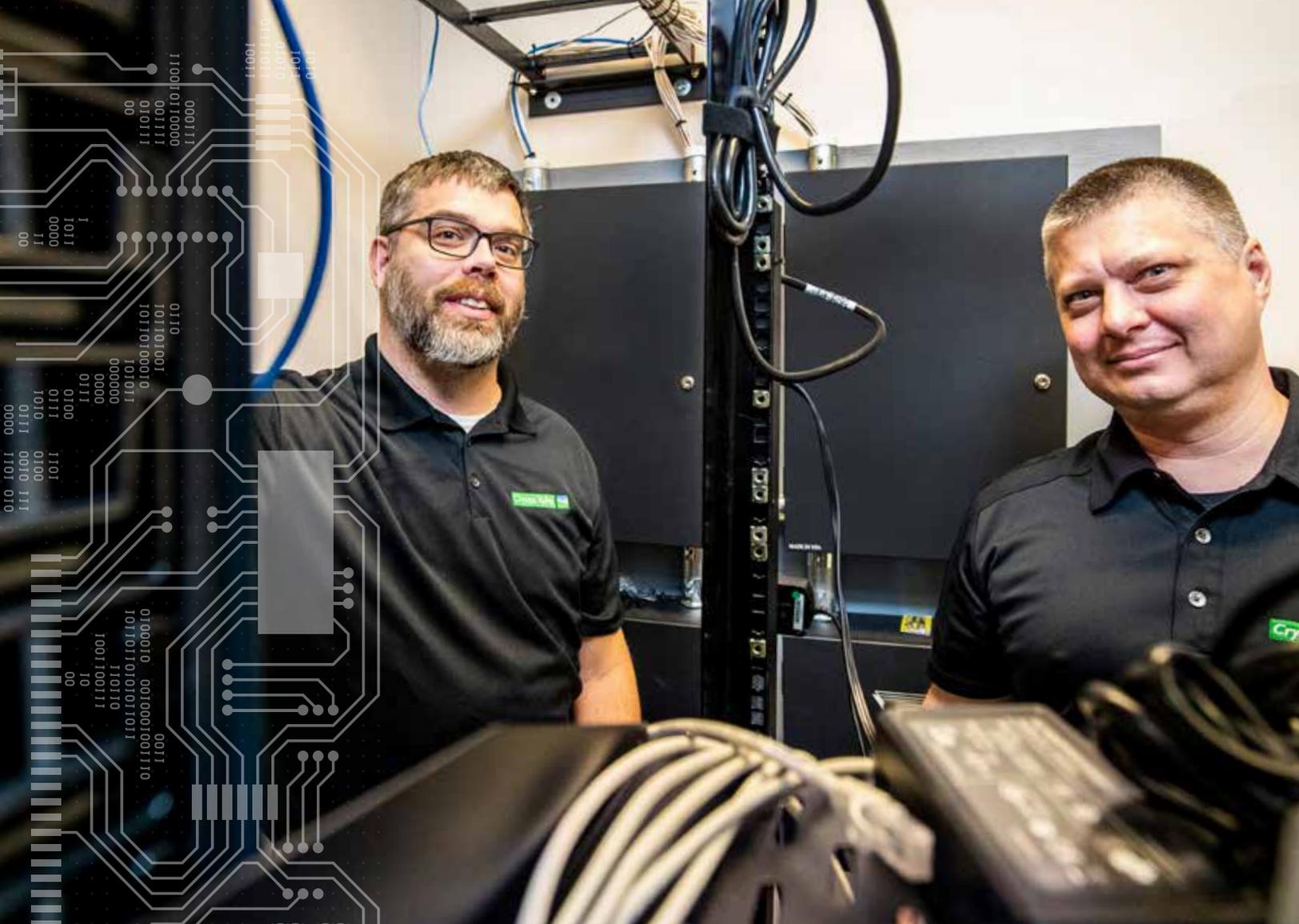
TEMCO, a grain export joint venture between CHS and Cargill, includes three export terminals in the Pacific Northwest: Kalama and Tacoma, Wash., and Portland, Ore. Over the past year, CHS has improved supply chain efficiencies to source more grain faster from farmers and cooperatives. Through the TEMCO joint venture, CHS is now the largest exporter of grain from the Pacific Northwest to Asia markets.

2020-2021: Export volume grew from 40 million bushels per month to 55 million bushels per month through Pacific Northwest ports

TEMCO handled nearly 540 million bushels of grain in fiscal 2021, up from 331 million bushels in fiscal 2020

CHS grain market share in the Pacific Northwest is 35%, the nearest competitor holds 25% market share

TEMCO distributes grain to 11 countries, including China, Japan and South Korea



UNDER ATTACK

By Amy Sitze

How a co-op responded to a cyberattack — and what you can learn from that experience

When Jon Langland logged into his cooperative work account on a Sunday morning last September, he discovered he hadn't received the regular morning updates from the co-op's systems.

"Initially, I didn't think anything of it. I presumed it was a hardware or provider issue," says Langland, IT manager for Crystal Valley Cooperative, based in Mankato, Minn. He texted CEO Roger Kienholz and System Administrator Kyle Kurth and drove to the co-op's data center in downtown Mankato to see if he could troubleshoot the problem.

Later that day, ominous messages popped up on computer monitors at many of the co-op's 16 locations and at the data center. "There was a statement saying all of our files have been encrypted, and to get our data back and keep our privacy safe, we must click on a file and follow the instructions," recalls Kienholz.

The Cybersecurity and Infrastructure Security Agency reports the criminal group behind the attack is likely

related to a Russian-speaking group the FBI blames for a ransomware attack on Colonial Pipeline a few months earlier. The criminals encrypt networks and data, making it inaccessible, then demand ransom payments ranging from \$80,000 to \$15 million to be paid in cryptocurrency.

Langland and Kienholz didn't know it then, but Crystal Valley was not alone. That same weekend, a large co-op in central Iowa was attacked by the same group, just weeks after the FBI released a warning about ransomware attacks in the food and agriculture sector.

These attacks have become more frequent across all industries, according to the FBI Internet Crime Complaint Center. The center received 2,084 ransomware complaints from January to July 31, 2021, a 62% year-over-year increase. In 2020 (the most recent year financial statistics are available), companies reported ransomware losses of \$29.1 million. And that number includes only ransom payouts, not other costs associated with the attacks.

Logistical Nightmare

As the Crystal Valley team soon learned, those costs can be considerable — in both time and money. Kienholz says they decided not to click on the file in the message or respond to the harassing phone calls that followed. "We never found out what the ransom demand was, and we never negotiated with them," he says. "We decided we weren't going to let the bad guys win."

Drawing that hard line meant the company's networks, data and automated systems were inaccessible for weeks. Every automated process had to move immediately to paper and pen — and the timing couldn't have been worse, says Kienholz, with harvest just beginning.

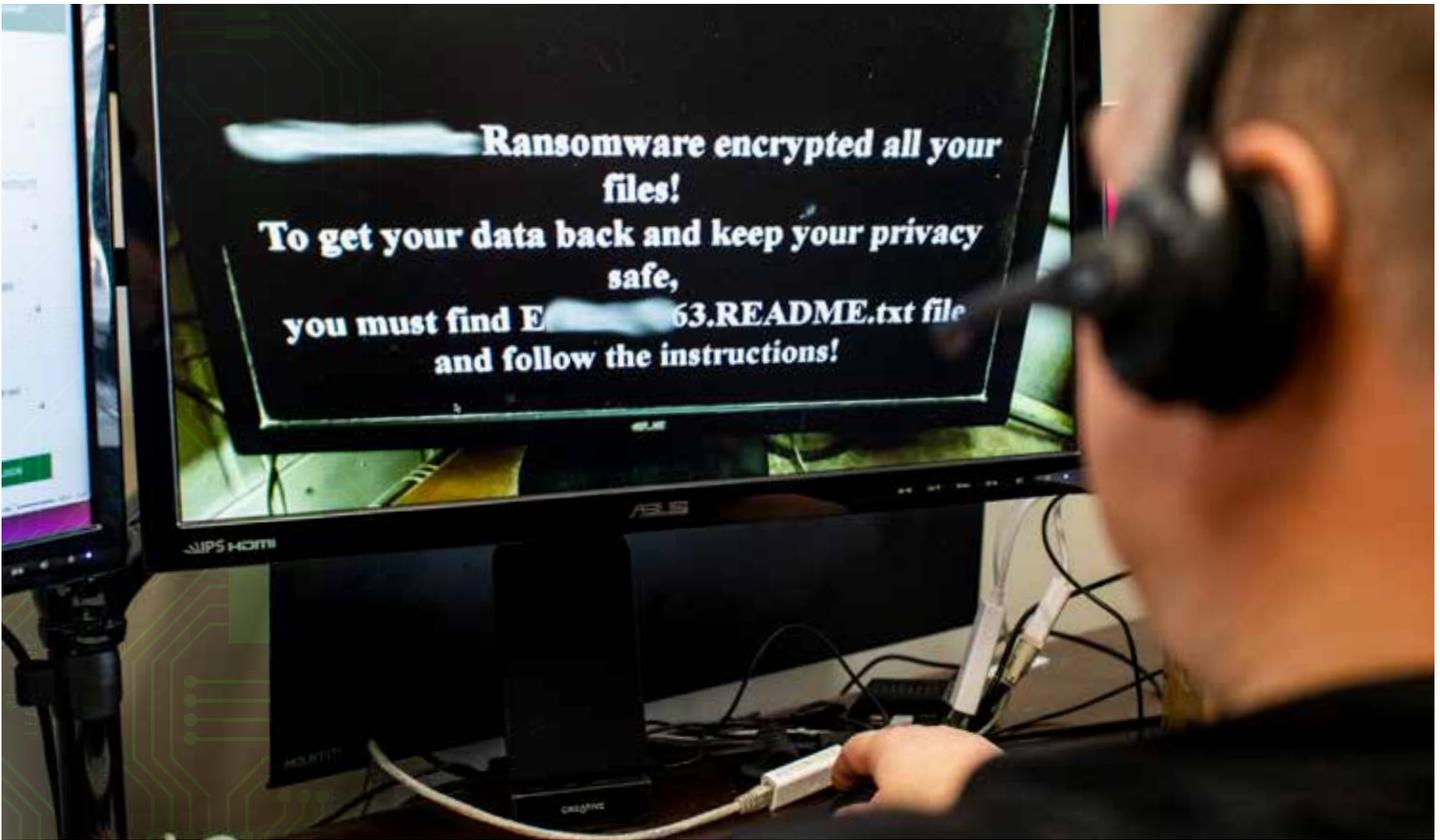
Crystal Valley grain elevator teams had to hand-write vehicle weights and moisture testing results on paper, causing long delays. The co-op's automated energy and agronomy businesses were affected, too, requiring handwritten tickets for fuel and propane deliveries and paper instructions for custom >



"We never found out what the ransom demand was, and we never negotiated with them. We decided we weren't going to let the bad guys win."

— Roger Kienholz

Kyle Kurth, left, and Jon Langland spent weeks reinstalling Crystal Valley Cooperative's servers and computers after a cyberattack in September 2021.



This ominous message (altered for security) appeared on computer monitors at many of the co-op's 16 locations and the data center.



“We had started to talk to cybersecurity vendors in the months before the attack, but my mindset was that we’re a small company in rural America, so who would possibly be interested in messing with us?”

— Roger Kienholz

- applications delivered in person to fertilizer tender drivers.

The co-op’s feed mills, which also rely on automated systems, shut down completely for about 10 days. In a heartening show of support, six neighboring co-ops and six other local companies stepped in to help manufacture and deliver feed.

“There were poster-sized sticky notes plastered all over the walls because we had to track everything manually,” says Kienholz. “We had to record when a farm needed so many tons of feed, which mill was making it for us, and which trucks would pick up the feed and deliver it. It was a logistical nightmare.”

Forensic investigations by the FBI and a cybersecurity recovery firm, both of which assisted Crystal Valley after the attack, were unable to determine whether co-op data had actually been stolen, but Crystal Valley posted a notice on its website and mailed letters to 15,000 owners,

customers, suppliers and other business partners to let them know sensitive information may have been compromised.

The investigators determined the cyberattack likely came in through a spare server that had been used for migrating the co-op’s email systems to the cloud several years ago and was still connected to the network. “It got forgotten because it was never really a requirement except for the email migration,” says Langland.

Lessons Learned

Crystal Valley operations are largely up and running again after a staggering amount of work, says Kienholz. With the help of a company specializing in cyberattack recovery, the co-op team rebuilt systems, isolated parts of its network to make it harder for intruders to reach all data, strengthened passwords and multifactor authentication,



Crystal Valley Cooperative
CEO Roger Kienholz

reinstalled computers and servers, limited administrative access to various systems and invested in an endpoint detection and response system that monitors for malicious activity.

They're also doubling down on training employees on cybersecurity measures, even though the entry point for the cyberattack was not an employee account. Combined, the added security measures cost Crystal Valley about \$200,000, says Langland.

No one is immune to cyberattacks, says Kienholz. "We had started to talk to cybersecurity vendors in the months before the attack, but my mindset was that we're a small company in rural America, so who would possibly be interested in messing with us?" he says. "My mind obviously has changed considerably since then." ■



LEARN MORE: Read about another co-op's cyberattack experience at chsinc.com/c.

Staying Cybersafe: Top 5 Tips

With cyberattacks becoming more frequent for food and ag organizations, any business that uses technology or automation needs to know how to prepare for and prevent a cyberattack. "It's a broad, complex and scary topic, and it can be overwhelming," says Sarah Engstrom, who heads up cybersecurity efforts at CHS. She offers five things to consider first.

 **Implement two-factor authentication.** This security measure requires two forms of identification, such as your password and a code sent to your cellphone. If everyone in your organization registers for and uses two-factor authentication, it reduces the chance a criminal group can use a compromised password to get into your network.

 **Pay attention to patches.** When updates (known as patches) to applications and operating systems are released, test and install them immediately.

 **Monitor remote access.** As more work happens remotely in organizations of all sizes, many workplaces aren't doing enough to ensure security. "Many companies started expanding where and how people have access without implementing controls to keep out bad actors," says Engstrom. Make sure team members can use only safe, approved applications to access company resources.

 **Plan ahead.** Cooperative boards and managers should talk about how they'll handle an attack before it happens. A quick Google search will identify multiple templates for incident response plans, says Engstrom. These templates will help you think through considerations such as communications plans for alerting others affected by an attack, cybersecurity insurance requirements, FBI contact info and backup plans if your automated systems are inaccessible.

 **Get help.** Budget for cybersecurity the same way you'd think about investing in a new building, advises Engstrom. "You either pay now or you pay later," she says. Free resources, such as cybersecurity assessment services from the Cybersecurity and Infrastructure Security Agency, can help determine where you're most vulnerable and how to fix weak spots.





Fire brigade members Seth Case, left, Nathan Prather, center, and Matt Ptaszynski work together to put out a self-propelled fire and close a valve during a fire training exercise that emulates a potential emergency event at the CHS refinery at McPherson, Kan.



Refined in Training

Open a U.S. map, close your eyes and try to put your finger on the central heartbeat of this country — chances are good that you will be pointing to the 16,000-person town of McPherson, Kan.

At the CHS refinery on the outskirts of this charming central Kansas metropolis, the main goal across the 500-person workforce is to keep the plant running at optimal capacity 365 days a year. That goal is not achieved year after year at the refinery, which is one of the primary employers in this tight-knit community, without constant safety training.

Every Wednesday, the refinery's fire brigade — more than 20 members strong — gathers at state-of-the-art training grounds next door. Rope rescue, live fire, chemical release and medical response are some of the skills built into the unique training program designed to protect this critical facility. Many of the fire brigade members mention the camaraderie they share, knowing they are trained to protect each other's lives, their business and their community.

— Adam Hester



Bullish

Open cotton bolls are ready for harvest.

on Bolls

Growing America's essential cotton crop

Corn, soybeans and wheat may take center stage in American agriculture, but cotton has earned a strong supporting role. As a key fiber in everything from T-shirts to toilet paper and much more, cotton blankets our everyday lives.

To really shine, cotton demands star treatment, requiring intensive management all season long. From crop protection and in-season fertilizer applications to harvest aids, multiple inputs are needed to effectively manage a cotton crop from start to finish.

"Cotton likes to throw curveballs," says Seth Byrd, a cotton specialist with Oklahoma State University Extension. "You can't simply plant the crop and walk away. Insect pests can rapidly cause irreversible damage to a cotton crop without proper scouting and control measures."

Trusted Partner

"Many of our relationships with cotton producers are end to end," says Jason Kroener, general manager of the CHS location based in Okarche, Okla. "Our agronomists help growers formulate crop plans, guide them through seed decisions, make timely agronomic decisions based on plant conditions and weather, and ultimately see the crop through to the ginning process."

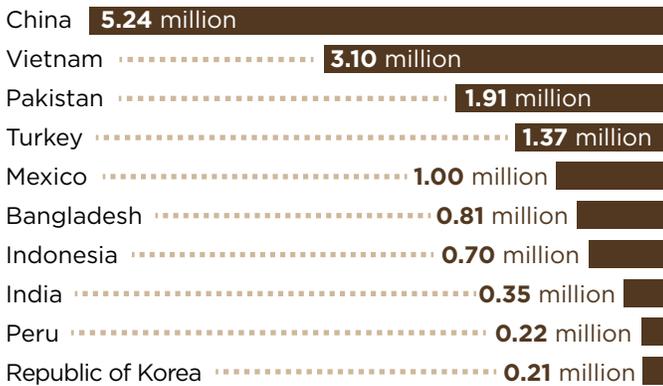
Working with the cooperative team provides reassurance in decision-making and a sounding board to discuss new ideas and strategies, says Nathan Kreutziger, a second-generation cotton producer in southwestern Oklahoma. "I rely on my CHS agronomist to be another set of eyes on my fields. Having this relationship with a trusted agronomist gives me confidence in the management decisions I make for my farm."

Kroener says adding the Red River Cotton Gin to CHS assets in March 2020 completed the journey for the cotton producers his team works with. "Acquisition of the cotton gin gave us access to a different crop market. We couldn't fully support the end-to-end >



A cotton stripper harvests cotton in southwestern Oklahoma.

U.S. Cotton Exports
 Aug. 1, 2020–July 31, 2021
 (480-pound bales)



Source: USDA

> cotton cycle before the gin. Now we're partners from seed selection through the ginning process."

Advancing the Industry

After invention of the cotton gin in the late 1800s, the industry boomed. But it didn't take long for pests such as the boll weevil to put a damper on cotton yields. To mitigate losses, Bt cotton was introduced to manage insect damage.

"More than 95% of cotton is now Bt-traited," Byrd says. That

added control helps reduce some crop protection application needs. Other agronomy advancements are also paying off for producers.

Four products in particular are showing great results in the field. "Bollbuilder® provides micronutrients that help retain bolls on the cotton plant," says William Russell, agronomy technical specialist, CHS. "Levesol® Zinc is a unique chelation product that prevents micronutrients from being tied up in the soil with phosphorus. The chelating process helps make

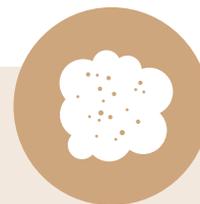


From Field to Consumer

Module haulers pick up cotton modules in the field and take them to the cotton gin.



Each module receives a number for tracking purposes; cotton from multiple farms will be ginned together in the order the modules were received.



Plastic wrapping is removed from cotton modules and the cotton is "chewed up" or fluffed.



Cotton moisture is kept at a consistent level throughout the ginning process.



A module truck delivers a round module to the CHS Red River Cotton Gin.



A gin employee keeps a close eye on the Lummus gin stand.

micronutrients and phosphorus more available in the soil for uptake and plant growth.”

Adjuvants Level Best® and Tapran™ are good fits for use on cotton plants, says Mark Morris, the agronomy sales manager on the CHS team based in Okarche. “We’ve seen great success using Level Best to help cotton producers control weeds. Tapran provides more consistent desiccation and defoliation for more efficient harvesting.”

While seed traits and genomic research have advanced, too, the biggest shift has come in harvesting methods.

Growers can choose between two types of machinery to harvest their crop: cotton pickers or cotton strippers. Cotton pickers remove cotton from the boll, while cotton strippers pull off the entire boll, then separate the cotton from the boll.

Once cotton is free from bolls and unwanted vegetation, it is pressed into either a rectangle or round cotton module. A rectangle cotton module weighs about 18,000 pounds, while a round module — which consists of four round bales — weighs about 20,000 pounds.

“There has been rapid movement away from conventional rectangular cotton modules to round cotton modules,” Kroener says. Creating round modules allows producers to operate more efficiently and independently, with less worry about having enough labor during harvest to get the job done.

“Investing in a round module

machine has made a big impact on my farm,” says Kreutziger. “Before using the round module builder, I would have three to five machines running in my field during harvest, which required that many people to operate those machines. Now I can keep the round module builder running with just one person and I can run day and night if I need to.”

Focused on the Future

The domestic cotton industry has positioned itself to consistently be among the leaders in producing the best quality cotton.

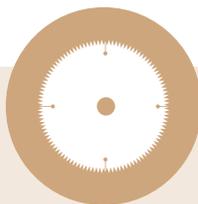
“U.S. cotton growers are on the cutting edge of new technologies,” says Byrd. “This places us in a competitive position in the global market, which in turn offers a profitable crop for producers to grow.”

As Kreutziger looks toward the future of his cotton operation, he is hopeful for consistent prices and stable markets. “There are lots of opportunities in cotton farming, but our success revolves around input costs and weather,” he says. “My goal is to continue producing cotton to keep the world clothed.” ■

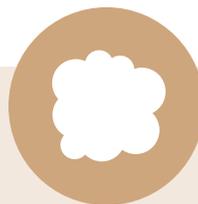
LEARN MORE: See more images of cotton harvest and processing at chsinc.com/c.



Cotton moves through cleaners to remove burs, sticks and other field debris.



Seeds are separated from cotton fiber or lint.



Raw lint is cleaned again.



Lint is pressed into 480-pound bales and wrapped in plastic for export.



Cotton by-products are turned into cottonseed oil, livestock feed, mattress stuffing and other materials.



Reindeer and
caribou are the
same species

In the U.S.,
“caribou” refers to
undomesticated
animals

By Jennifer Chick

Reindeer Games

Santa's supporting cast delights fans year-round in central Washington

The stars batted their eyelashes, tossed their heads and huffed, but were quickly satisfied when adoring fans offered handfuls of pellets. The reindeer at Leavenworth Reindeer Farm might be celebrities, but they are still eager to accept willow branches and tasty tidbits from the thousands of admirers who visit them each year in central Washington.

"They are movie stars now, but they haven't let it go to their heads," says farm manager Erika Bowie. "They are still as humble as ever."

The reindeer are featured in an upcoming Christmas movie and an Amazon Studios romantic comedy, took center stage in the popular online educational show "Blippi" and have auditioned for supporting roles in a FedEx commercial. Farm staff have been busy putting the reindeer through their paces to determine which are most cooperative in front of the camera.

Santa's Helpers

Leavenworth Reindeer Farm is tucked into the Cascade Mountains near Leavenworth, Wash. (population 2,375), which draws visitors from around the world to its Bavarian-style village. The reindeer first came to town in 2016.

Hans and Kari Andersen, who raised draft horses to pull carriages for tourists in the town's tiny downtown, had included their horses at the holiday parade a few years earlier, but rain prevented the reindeer mascot from being on hand to help Santa. Hans jokingly told Santa he would make sure real reindeer were there in the future. Bowie, the couple's daughter, recalls her mom got a twinkle in her eye and vowed to make that happen.

The Andersens are of Norwegian descent and had often seen reindeer when they traveled to Norway. They began researching what it would take to bring reindeer to Leavenworth year-round. >



The reindeer can't wait for Amy Bossen to open a bag of reindeer pellets, manufactured by CHS Animal Nutrition.

> Weather wasn't an issue, since Leavenworth's climate is perfect for reindeer. It sits at the same latitude as Mongolia, where reindeer live wild. The biggest challenge proved to be the logistics of bringing reindeer into Washington. Finally, six reindeer took a six-day ferry ride from Palmer, Alaska, to Bellingham, Wash., steering clear of Canadian waters due to shipping regulations regarding reindeer in Canada.

Leavenworth Reindeer Farm opened in November 2016.

"We didn't know if we would have anyone driving down our road, but by the end of the day, we had more than 300 people visit the farm," Bowie says. "Last year, we had 75,000 visitors."

Perfect Environment

Leavenworth Reindeer Farm is the only reindeer farm in the lower 48 states open to the public year-round, although it closes to visitors in March when reindeer are shedding their antlers and winter coats, which gives the staff time to perform annual farm maintenance during the snow melt. It reopens when the first calves start appearing in April.

The herd has grown from the original six reindeer to 23. Most were born on the farm, but the Andersens have flown several in from Alaska to diversify bloodlines.

Elsa, the reigning queen of the herd, is 8½ years old. Bowie says reindeer usually live to be 12 to 15 years old in captivity. The family has sold reindeer to new owners in several states, but are very selective, only selling reindeer in family groups.

"Reindeer bond for life," Bowie says.

Not only is Leavenworth well situated for a reindeer farm, but the surrounding area has abundant natural food sources for the reindeer. They love to eat fireweed, willow, lichen, moss, birch, aspen, cottonwood, mushrooms and dandelions. Visitors are given willow branches during summer visits to go "fishing" for reindeer. The farm supplements the herd's diet with reindeer pellets manufactured by CHS Animal Nutrition in its feed mills in Harrisburg and Hermiston, Ore. They buy the pellets from Payback® feeds dealer Cyon Livestock Solutions, Sunnyside, Wash.

"The number-one focus of Leavenworth Reindeer Farm is animal care," says Jena Ozenna, CHS Animal Nutrition sales consultant. "The formulation found in the reindeer pellet aids in that top-level care."

Managing nutrition, genetics and biosecurity are critical to the

Leavenworth Reindeer Farm, Bowie says. As owners of the USDA-certified facility, Kari and Hans take the health of their reindeer seriously. Visitors are only allowed to tour the farm by appointment. Staff members screen visitors to make sure no one has been in contact with sheep or goats 48 hours prior to visiting, since sheep and goats may carry a virus called malignant catarrhal fever, which can be deadly to reindeer. Hand sanitizer is used liberally and all visitors' shoes are sanitized before they enter reindeer pens.

Family Affair

The farm has grown from a side hustle into a thriving livestock operation that supports the entire Andersen family plus several local residents. Hans retired from his job as a county sheriff's deputy to work on the farm full-time. Bowie and her husband moved from Snohomish County in Washington to manage the farm. Bowie's sister, Kjerstin, is the farm's chef, feeding the crew, which doubles to 20 with seasonal workers over the winter months. Bowie's brother, Kristian, works with the farm's horse and carriage business. Another sister, Kristina, lives in Arlington, Wash., and creates candles, wax melts and lip balms to sell in the farm's gift shop.

Amy Bossen worked in health care before joining the farm crew in 2017 and is a full-time staff member.

"The reindeer are so cool," she says. "I get to learn something new every single day from them."

Education is an important part of each farm tour. Every visit starts with a presentation on the species' amazing adaptations.

"People can appreciate reindeer much more if they know more about them," Kari says. "They are such unique animals."

Hans adds, "Reindeer are the most highly accessorized creatures on the planet." ■

SEE MORE: Find more photos at chsinc.com/c.

Reindeer Facts

- Male and female reindeer shed and regrow their antlers each spring. New antlers can grow as fast as 1 inch per day.
- An adult reindeer can grow 30 pounds of antler, second only to moose.
- The soft velvet on a reindeer's antlers from May through October is its super power, acting like air conditioning on hot days.
- Sven, a 4½-year-old bull at Leavenworth Reindeer Farm, is one of the largest reindeer bulls in captivity at about 500 pounds.
- Reindeer are the only mammals who can see ultraviolet light.



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CHS REPORTS RECORD FIRST QUARTER EARNINGS OF \$452.0 MILLION

CHS has released results for its first quarter, which ended Nov. 30, 2021. The company reported record quarterly net income of \$452.0 million compared to \$69.7 million in the first quarter of fiscal year 2021. The significant improvement in earnings was largely driven by strong global demand across key businesses compared with lower demand during the same period a year ago as a result of the COVID-19 pandemic. Fiscal 2022 first quarter highlights include:

- The Ag segment experienced robust global demand that drove commodity prices higher, leading to a significant improvement in earnings compared to the same period during the prior year.
- Strong demand and global market forces in the agronomy business resulted in improved earnings compared to the first quarter of 2021.
- Refining margins were higher in the Energy segment. CHS also experienced more favorable pricing for Canadian crude oil, which is processed by the company’s refineries.
- Equity earnings from the company’s CF Nitrogen investment improved as a result of increased urea and urea ammonium nitrate pricing.

“Our exceptionally strong financial performance in the first quarter of fiscal year 2022 reflects the support of local cooperatives and producers, as well as the hard work and dedication of our employees around the world, who remain

focused on delivering superior value for our owners,” says Jay Debertin, president and CEO of CHS Inc. “That support and hard work, along with the investments we continue to make in critical assets and technology advancements, are leading to operational improvements and stronger customer engagement, which are driving earnings momentum.”

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

	Three Months Ended November 30	
	2021	2020
Energy	\$69,190	\$(67,176)
Ag	286,425	83,010
Nitrogen Production	96,583	4,468
Corporate and Other	14,465	24,738
Income before income taxes	466,663	45,040
Income tax expense (benefit)	14,720	(24,329)
Net income	451,943	69,369
Net income (loss) attributable to noncontrolling interests	(18)	(302)
Net income attributable to CHS Inc.	\$451,961	\$69,671

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

CHS SUNFLOWER PREMIUM CONTRACTS AVAILABLE



CHS is offering premium contracts for confectionary and conoil sunflowers for the 2022 growing season. According to the USDA, over

the past 10 years confectionary sunflowers have had one of the highest returns per acre of crops in the Great Plains.

CHS contracts for sunflowers include an “act of God” clause to help reduce risk and the flexibility to contract for entire production or pounds per acre. Call CHS Sunflower at 701-484-5313 or visit chssunflower.com.

AMENDMENTS PASSED AT ANNUAL MEETING

At the 2021 CHS Annual Meeting, CHS owners voted overwhelmingly to approve amendments to the CHS Articles of Incorporation and CHS Bylaws that removed obsolete language and confirmed the option of electronic voting for CHS annual meetings and special meetings.

In regional caucuses held in conjunction with the annual meeting and in general session remarks made by CHS Board Chair Dan Schurr, owners were introduced to another set of proposed amendments.

“The pandemic has made it apparent that we need added flexibility in timing and location of CHS Director elections,” Schurr said. “Your CHS Board is recommending amendments to our bylaws that will provide the option of — but not require — scheduling regional elections at times and places that are convenient for owners. This added flexibility will help ensure participation in CHS governance is open to as many owners as possible.”

Schurr added the CHS Board will recommend a vote on the new proposed amendments at the 2022 CHS Annual Meeting.

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

We Are Empowered

A message to CHS owners from CHS Board Chair Dan Schurr

Power is a concept we apply every day: We want powerful equipment. We celebrate athletes' power. We see the results of nature's power. Power is important to the cooperative system, too: Cooperatives were created to take advantage of power in numbers.

While power can mean many things, to empower means to give power. "Empowered" was the theme for the recent CHS annual meeting, reminding us that being part of the cooperative system gives us power to think bigger, act more decisively and plan for the future, knowing we are empowered to succeed.

A Stronger CHS

Your CHS Board has a singular focus: Empowering our owners and our customers. Over the past few years, the Board has been on a journey, working with CHS management to make this company stronger by:

- Building a strong foundation with controls and guidelines to manage risk and resources effectively
- Rethinking how we do business, improving efficiency and leveraging the power of the enterprise to drive growth
- Envisioning a better customer experience fueled by data and technology

Managing Equity

The Board is committed to managing cash flow and living within our means, while maintaining and building a strong balance sheet to provide flexibility for growth.

At the 2020 annual meeting, we announced \$33 million in equity redemptions and \$30 million in cash patronage to be distributed in fiscal 2021, promising to increase that amount if performance allowed. We kept that promise and subsequently announced an additional \$50 million in planned fiscal 2021 equity redemptions.

In fiscal 2022, we intend to return \$50 million in cash patronage and \$100 million in equity redemptions.

Effective equity management and a strong and valuable patronage program is vital to the success of CHS and our owners. To better understand the diverse views of CHS



owners, we will be reaching out this year with our proposals and to gather your feedback. We will make the process as open as possible, using the power of your insights to set the best equity management strategies for CHS and its owners.

Look to the Future

As a board, we have challenged ourselves to be more visionary, gain a broader perspective and take a fresh look at what the cooperative system can do. We ask hard questions and seek inclusive input that helps us see the big picture, considering the forces that will affect our businesses next year and in 20 years.

The CHS of today is not the CHS we will need in the future. CHS must adapt to the changing world. That will require deeper relationships with our owners, listening to how CHS can help and meeting your needs by leveraging the global scale of CHS.

We need to think about the connection between CHS and owners as a trusted relationship — one that isn't just expected, but earned.

Imagine the power of merging data from farmers and member cooperatives on stored grain and using it to plan delivery and load ships out of the ports at Kalama, Superior and Myrtle Grove. Or collecting data on crop nutrient needs and space in sheds across the system, then managing the trucks, trains, barges and ships to deliver fertilizer from CF Nitrogen or global suppliers. Or using automated fuel delivery to get diesel to producers as they need it. Think of the value owners would gain from fully leveraging the power of CHS and our global connections.

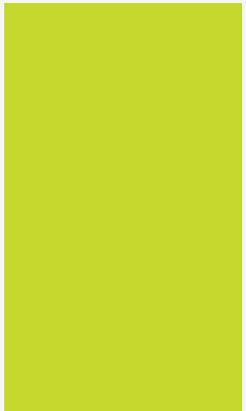
These opportunities give me tremendous optimism. We have the foundation. We have the structure. Now we must harness our shared strength to make this cooperative system better.

Creating connections to empower agriculture — that's how we define power.

A handwritten signature in black ink that reads "Dan Schurr".

Dan Schurr

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CHS OWNERS REELECT FIVE BOARD MEMBERS

CHS Inc. owners reelected five board members to three-year terms during the 2021 annual meeting held Dec. 2-3 in Minneapolis, Minn. Reelected to three-year terms were David Beckman, Elgin, Neb.; Steve Fritel, Rugby, N.D.; David Johnsrud, Starbuck, Minn.; David Kayser, Alexandria, S.D.; and Russ Kehl, Quincy, Wash.

The following CHS Board members were elected to one-year officer terms: Dan Schurr, LeClaire, Iowa, reelected chair; C.J. Blew, Castleton, Kan., reelected first vice chair; Jon Erickson, Minot, N.D., reelected second vice chair; Russ Kehl, Quincy, Wash., reelected secretary-treasurer; and Alan Holm, Sleepy Eye, Minn., elected assistant secretary-treasurer.



CHS Board members reelected to three-year terms at the 2021 CHS Annual Meeting were, from left, David Johnsrud, David Kayser, Steve Fritel, Russ Kehl and David Beckman.

READ 2021 CHS YEAR-END REPORTS

Three CHS year-end reports are now available online.

The **2021 CHS Annual Report** provides insights into the past fiscal year's successes, challenges, opportunities and financial results. Find the report at chsinc.com/about-chs/financials.

The **2021 CHS Sustainability Report** covers key initiatives in the three CHS sustainability fundamentals: environmental stewardship, community well-being and economic viability. Visit chsinc.com/about-chs/sustainability.

The **2021 CHS Stewardship Report** celebrates how CHS helps inspire tomorrow's leaders, strengthen rural communities and empower the ag industry. Read the report at chsinc.com/stewardship.

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

CHS, GROWMARK ANNOUNCE CAPITAL FUND FOR AG TECH STARTUPS

CHS and Growmark have formed Cooperative Ventures, a \$50 million capital fund that will focus on creating advancements in breakthrough technologies for the agriculture industry.

The fund will provide differentiated value to startups in the agricultural

ecosystem by leveraging the expansive, connected networks, unparalleled access to the farmgate and proven success of the two agricultural cooperatives.

Cooperative Ventures has three core investment areas: crop production, supply chain and sustainability.

COOPERATIVE LEADERSHIP CIRCLE RECIPIENTS HONORED

Five cooperative leaders have joined the Cooperative Leadership Circle in recognition of 25 years of service to the cooperative system. Honored at the 2021 CHS Annual Meeting were David Blomseth, general manager, Community Co-ops of Lake Park, Lake Park, Minn.; Paul Coppin, CEO, Valley United Co-op, Reynolds, N.D.; Kent Hanson, general manager, Cooperative Service Inc., Baudette, Minn.; Dennis Jepma, general manager, Hancock Co-op, Hancock, Minn.; and Jerry Svoboda, general manager, Farmers Cooperative of Hanska, Hanska, Minn.



Attending the Cooperative Leadership Circle were, from left, David Blomseth, Cynthia Hanson, Kent Hanson and Jerry Svoboda. CHS President and CEO Jay Debertin, right, made the presentation. Honorees not pictured are Dennis Jepma and Paul Coppin.

Riley and Morgan Hammel and their daughters Chloe and Greta (in Morgan's arms) are building their own family farming legacy in southern Minnesota, fueled by their shared love of agriculture and lessons learned from Riley's grandfather.





CHOSEN

Minnesota farmer-owner Riley Hammel spoke for his family and other young farmers and ranchers in a moment of reflection at the 2021 CHS Annual Meeting in December.

“I have been asked why I work in agriculture. It’s the reward of the hard work and the feeling of accomplishment. It’s knowing you are doing something of value, something to pass on that will continue for years to come.

“These last few years have been tough, but we live for the planning, the planting, the watching and the harvesting. That feeling of satisfaction will never get old.

“My earliest memories of farming involve my grandpa. I biked seven miles from home to his farm so I could help him fix equipment, pick rock, drive tractor or simply learn from him.

“The farm is where I learned responsibility and integrity, something I believe many other jobs do not teach. After high school, I tried other jobs, including plumbing and carpentry, but nothing felt quite right. So, starting small, I began managing my grandpa’s farm while launching my own trucking company.

“Now I farm 800 acres and was recently able to buy my grandpa’s farm with my wife, Morgan. Unfortunately, my grandpa passed away last fall and was unable to see my dream of officially owning and operating the family farm come true.

“Grandpa and I farmed together side by side. The first harvest without him was tough, but I could hear his voice in my head, reminding

me of things he taught me through the years — the things that made me fall in love with agriculture and made me into who I am today.

“The relationships I’ve built in agriculture are important to me, from the guy I buy fertilizer from to the landlords who trust me with their property. Every relationship is unique and helps me build a better operation.

“2021 was an extra special year for our family. My wife drove the grain cart with our oldest daughter, who is 8 and constantly asking questions, while I hauled around our 17-month-old. Her new favorite word is ‘combine.’

“Morgan and I can’t wait to pass the passion we feel for agriculture to our two daughters, as my grandpa did to me. In many ways, I think agriculture chose me. This is exactly where I want to be.” ■



Riley Hammel addressed other CHS owners at the 2021 CHS Annual Meeting.



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C TOMORROW

Battling Deforestation

Brazil's forests are shrinking every year. An estimated 13,235 square kilometers (8,224 square miles) were lost in the Brazilian Legal Amazon between August 2020 and July 2021, an uptick in deforestation of 22% from the previous year, according to the country's National Institute for Space Research.

CHS Brazil is doing something about this crisis by participating in programs that ensure soybeans and other crops are produced on agricultural land and not on land recently cleared through unlawful deforestation. These programs include the Amazon Soy Moratorium, in which grain traders agree not to purchase soybeans from land cleared in the Amazon Biome after 2008, and Green Grains from Pará, which prohibits the sale and acquisition of grains from illegally deforested areas in the state of Pará.

In 2021, CHS received a low-interest "green" loan from Bank of America for Brazil operations — the first of its kind — in recognition of these sustainable soybean sourcing practices.

CHS Brazil has joined nongovernment organizations such as SOS Mata Atlântica and Save Cerrado to preserve and restore native forests. The Brazil team also provides native seedlings to employees and their families to plant near CHS storage facilities.

"Measures like this awaken ecological and cultural understanding within the team, promote a better quality of life for local citizens and encourage continuous compliance with environmental standards," says Aline Rodrigues Cavalheiro, who leads compliance and sustainability efforts for CHS Brazil.

— Amy Sitze

