Facing headwinds: Ag Symposium 2023

by: Su Bacon

June 20, 2023

The agricultural sector adapts and innovates as producers deal with weather extremes and rapid economic changes.

Participants of the 2023 Ag Symposium share their real-life connections to the theme of this year's event in "Voices of Ag - The Changing Geography of Agricultural Production."

Corn is king in Giltner, Nebraska.

“And soybeans play second fiddle,” said Brandon Hunnicutt, a fifth-generation farmer and member of the Corn Board of the National Corn Growers Association.

Although corn has enjoyed a long reign in the Cornhusker state and beyond, U.S. corn and soybeans are second to Brazil in global exports. Brazil accounts for 29 percent of corn exports worldwide compared with 27 percent for the United States, said Jay Debertin, president and chief executive officer of CHS Inc., a farmer-owned cooperative that sells good and services for grain products.

And soybeans are becoming more important with the increasing interest in renewable diesel fuel, which is processed from soybean oil. Expect to see more soybean processing plants built—actually overbuilt—in the United States by 2026, Debertin said in his keynote address at the Federal Reserve Bank of Kansas City's annual Agricultural Symposium in May.

“Energy and grain are once again merging, a trend that started with ethanol,” Debertin said.

Nate Kauffman, Kansas City Fed senior vice president, economist and Omaha Branch executive, said the increased interest in soybeans is evident in the rural Michigan community where he grew up. Instead of piles of sugar beets that he used to see, "there are now 10 acres of soybeans to one acre of sugar beets."

Kauffman said that understanding the changes that affect how and where commodities are produced will lead to a better understanding of what agricultural structure and production will look like 10 years from now, as well as the access to and availability of investments needed to move forward.

“The Changing Geography of Agriculture Production” was the theme of the two-day symposium, hosted by Kauffman at the Kansas City Fed’s headquarters. Speakers, panelists and attendees explored evolving trends, risk-management methods, financing strategies, global changes in markets, and weather extremes and disruptions.

Global dynamics

“Although U.S. agricultural land is expected to continue a slightly declining trend, this is expected to be compensated by yield improvements resulting in production growth for major crops,” Holger Matthey, senior economist with the Food and Agriculture Organization of the United Nations, told symposium participants.

Matthey discussed commodity markets and trade in the context of global food security.

“For corn and soybeans, the U.S. is expected to maintain its global production share,” he said.

Symposium speaker Sara Menker, founder and chief executive officer of Gro Intelligence, discussed China's growing influence on the global agricultural system.

“China is now the world's largest importer of grain,” Menker said. China's reliance on imports is likely to continue, as it has been unable to achieve self-sufficiency in cereal grains, and only 10 percent of its land is suitable for producing crops, with little room to expand, she said.

Gro Intelligence provides analytics, such as a global drought index, used by others around the world to make such decisions as what to plant, when to plant and even whether to plant.

Adapting when harsh weather hits

Closer to home, Hunnicutt, who was a symposium panelist and grows corn and soybeans, is making crop decisions based on the drought he's experiencing in Nebraska.

“We've had less than seven inches of moisture since August of last year,” he said.

In addition to drought, winds have been harsh.

“Wind erosion has really been bad the last two to three years,” Hunnicutt said.

Adapting to changing weather patterns doesn't mean changing what he plants, Hunnicutt said. But it does mean making the crops more resilient, changing the way they are irrigated and adjusting the time of fertilizing.

“We don't want a rapid increase in growth that makes the plant brittle.”

To keep winds from turning topsoil into dust, Hunnicutt plants cover crops after harvest to help stop erosion. It's a practice recommended by the Corn Board. Cover crops keep the soil from compacting and increase the soil’s water-holding capacity.

As for rain, clouds can be fickle, said Matt Grabbe, who grows wheat and other crops on a family farm south of Hays, Kansas.

“You can drive down the road five miles and see a patch of wheat that looks good and a patch that looks terrible,” Grabbe said. The healthy patch of wheat was lucky enough to be under the rain cloud when it passed by. The other patch missed out.

Rain clouds, coupled with a newer, higher-yield variety of wheat, were kind to Grabbe's crop in 2022. Both he and his brother, John, won awards for yields—97.88 bushels per acre and 103.24 bushels per acre, respectively—in the 2022 National Wheat Yield Contest.

“It was an above-average year,” Grabbe said. Though rainfall was less than usual, it came at exactly the right time and the right place. By contrast, his 2023 crop will be below average, Grabbe said.

Across Kansas, of 8.1 million acres planted in the fall of 2022, 69 percent of the hard winter wheat being harvested now is rated poor because of drought, said Debertin of CHS Inc. The average yield is projected to be 30 bushels per acre.

Family members retrieve parts of a large barn roof that was blown off during a derecho that hit Neal Keppy's farm.

Managing risk through innovation

Drought hasn't been limited to Nebraska and Kansas.

"When drought comes, income goes with it," said Kimberly Ratcliff, a north-central Texas rancher and symposium panelist.

Ratcliff raises Charbray and Wagyu cattle on her Caney Creek Ranch. Although the drought has ended in her area, she has prepared for more dry years by digging a pond to catch water and building a well that runs on solar power.

When an ice storm last year destroyed trees, froze pipes and cut off electricity, Ratcliff knew she once again needed to prepare for the next round of extreme weather.

"We've never had this before," she said. "We need to change our mindset of how we ranch."

To prepare, Ratcliff bought three generators, stocked up on salt and sand, and made plans to care for her cattle when ice made it difficult to reach them.

Sometimes it's not the farming practices that change—it's the crop. Consider cotton in Kansas.

"Cotton uses less water than corn and commands a better price," said Jonathan Aguilar, a Kansas State University researcher who has received funding to test the sustainability and economic performance of cotton on a field near Garden City.

"Drought and changing climate in our region are favorable to cotton production," Aguilar said. "We're pushing the northern limits of cotton production."

Adverse weather disrupts farming operations and creates risk that producers must consider when planning for future crops or herds.

Neal Keppy's farm in Eldridge, Iowa, was disrupted in 2020 when he and his brother were sorting pigs in a barn.

"Suddenly the power went out, lights went off, and the roof disappeared," Keppy, a symposium panelist, recalled. They found the roof in a cornfield.

Farmers and ranchers face uncertainty in the market, the weather and the longer term changes in climate.

“Producers must choose how they manage risk,” said Tom Coon, vice president of Oklahoma State University's Division of Agricultural Sciences and Natural Resources.

Whitney Hansen, a symposium participant from Burlington, Colorado, remembers running a combine for 22 hours to get a wheat crop out of the ground before a hailstorm. She mitigates her risk through crop insurance.

“Have a good insurance agent and be proactive,” she said. “If a storm is predicted on Thursday, make sure to get your crop insurance on Tuesday or even hours before.”

She recommends close working relationships with a crop insurer, a seed salesperson, a banker and a financial partner.

Hansen divides her time between a row-crop farm in Colorado and a cattle ranch in Oklahoma. She has experienced two different weather disruptions at the same time: flooding in Oklahoma and a drought in Colorado.

In Iowa, the widespread damaging windstorm—known as a derecho—that tore the roof off Keppy's barn also flattened half of his cornfields.

“It got us thinking about healthier plants,” he said. He now nourishes the plants with a variety of treatments from roots to tassels.

Keppy also is growing shorter corn. He is experimenting with corn that will grow to be about five or six feet high rather than 10 to 12 feet.

“If the ear is closer to the ground, the plant won't tip over as easily,” he said.

While Keppy has done much to make his crops more resilient, he recognizes that he can't control the climate for his corn and soybeans.

Weather disruptions will continue and are, in fact, nothing new.

“My grandfather and great-grandfather farmed through the Depression and Dust Bowl. My father farmed in the 70s when it was so snowy, it was hard to feed cattle and provide bedding," he said.

“We work with what Mother Nature gives us.”

The ag investment horizon

Farmers and ranchers and their lenders face mounting challenges from weather extremes and variability.

Increasingly, agricultural investors are looking ahead to the next 10 to 20 years, said Jackson Takach, chief economist and senior director at Farmer Mac, and a symposium speaker.

“And they're talking about weather and climate more today than ever before.”

Takach said that investors want answers to four questions:

“*What is the cost?*”

“*What is the risk?*”

“*What is the return expected?*”

“*What are the inputs needed?*”

“What lenders want to hear is that borrowers have a plan in place if there is no rain, or if it floods or if the well water dries up,” Takach said.

If the cost of capital is too high, it might change behavior. If the cost is too high, the producer may decide not to build that barn or plant that orchard.

“Necessity may be the mother of invention,” Takach said. “But the cost of capital is the midwife.”

In the Kansas City Fed’s regional footprint, researchers are finding that cotton grows well in parts of Kansas and Oklahoma. Even though cotton might grow and thrive in new regions, it takes a lot of acres to pay for a machine to harvest cotton bolls—about $1 million for a cotton stripper.

The cost for capital to finance the cotton stripper might change farmers' minds about what they plant.

“Agriculture financial institutions grapple with what their role should be in navigating climate risk,” said Maggie Monast, senior director of Climate-Smart Agriculture for the Environmental Defense Fund (EDF), and a symposium panelist.

EDF launched a pilot program in 2022, in collaboration with the Farmers Business Network, called the Regenerative Agriculture Financing program. The program offers a .05% interest rebate on operating loans for farmers who meet standards

of nitrogen use and soil health, Monast said.

Forty-eight grain farmers from 18 states enrolled in the $25 million pilot program. It was so successful that the program doubled in size to $50 million in 2023.

Transitioning to climate-healthy practices often involves financial incentives. Producers might be more willing to try less traditional, more expensive practices when they have loans or grants to do so.

Compost, for example, can contribute more to soil health than synthetic fertilizer, but compost costs more. Andy Breiter, owner of Grama Grass & Livestock in Boulder County, Colorado, received a $15,000 Restore Colorado grant in 2021 to purchase compost for 30 acres of his operation.

Restore Colorado is a local program that was launched as the result of a U.S. Department of Agriculture grant in 2020 to support regenerative practices.

Breiter is a first-generation farmer who wanted to raise and graze cattle without purchasing land.

“One barrier that many first-generation farmers deal with is the ability to obtain land that we can use to produce food,” Breiter said. “By working with private and public landowners, I've had the opportunity to reduce a traditionally large cost—owning land—and create additional income by providing ecosystem services such as grazing.”

He contracted with the city of Boulder and other organizations to restore pastures and degraded land through rotational grazing, applying compost, and planting grass on bare ground. The cattle recently grazed on an area where a wildfire destroyed 1,000 homes in 2021.

The Restore Colorado grants “seek to ease the financial burden of conservation practices and to make possible the use of regenerative methods for farmers whose profit margins are already razor-thin,” said Christian Herrmann with the Boulder County Office of Sustainability, Climate Action & Resilience.

The policy landscape

From local efforts to long-standing federal policies and new climate legislation like the Inflation Reduction Act of 2022, programs and policies are in place to address risks associated with food and agricultural production and to ease the adoption of newer practices.

“The 2022 Climate-Smart Commodity Program funds conservation projects to switch crops, use new irrigation practices and increase carbon sequestration,” said Coon of Oklahoma State.

In the previous decade, the 2014 Farm Bill focused on risk management and expanded the scope of crop insurance and broadened policy coverage, Coon said.

“Federal crop insurance is critical,” said Aaron Harries, vice president of research and operations for the Kansas Wheat Commission. Crop insurance is the only way that Kansas wheat farmers can sustain their operation, he explained. In the third year of a drought, Kansas is now experiencing the worst winter wheat crop since 1963.

Through the Natural Resources Conservation Service of the USDA, cost-sharing provides the impetus for producers to make changes they otherwise couldn't afford.

“We know there are practices we should be doing,” said Ratcliff, the Texas rancher and symposium participant. “But they're not in our price range.”

She used cost-sharing on her ranch to cross-fence a 100-acre pasture to make rotational grazing possible. She also dug a well and planted windbreaks.

“You have to pay out of pocket first, but they then reimburse you,” she said.

The USDA grants are available to encourage farmers to try planting cover crops after harvesting their main crops.

Grabbe, in Kansas, believes “cover crops are the right thing to do and have benefits.”

Yet, he is participating in an experimental program offered by a private company rather than applying for the USDA grants. “Too many stipulations” with government programs, he said.

There are those who say the government also moves too slowly.

The pace needed to enact policies to keep up with climate change is too slow, said Gregg Doud, a symposium participant who is chief economist at Aimpoint Research, a global marketing research and competitive intelligence firm.

“Our limitation is our government,” Doud said. “For example, it takes 15 to 17 years to approve a new herbicide.”

Getting regulatory approval for new technologies is a bottleneck.

“If we can't get our government to approve technology, we won't be able to commercialize it,” Doud said.

Another concern is the research gap, said Laura Wood, a symposium participant and owner of Laura Wood Peterson Consulting.

"U.S. spending on agricultural research has declined in the last 20 years," she said.

More research is needed and quickly, said David Lobell, symposium participant and a professor at Stanford University in California. Lobell studies how to effectively adapt agriculture to climate change.

The long lags in agricultural research and the rapid pace of climate change "raise the question of whether current levels of investment in agricultural research are sufficient to sustain 20th century rates of productivity growth in the 21st century," Lobell said.

The speed of change is faster than many farmers' ability to adapt, said Monast of the EDF. A program like Regenerative Agriculture Financing can help farmers with the cost of adopting climate-smart practices.

"The key challenge in federal farm policy today is assessing and managing risk in our agricultural system relative to climate-smart agriculture and nutrition security at home and abroad," Wood said.

Media

Senior Vice President, Economist and Kansas City Fed Omaha Branch Executive, Nate Kauffman explains the theme of this year's event to this year's attendees.

Voices of Ag: Globalization
Farmers and ag-industry leaders share how globalization and geographical patterns of agricultural production are changing the industry.
https://youtu.be/ym7hXo0yVOc

Voices of Ag: Weather Impacts
Farmers and ag-industry professionals discuss how disruptions related to severe weather are affecting agricultural production decisions in the near-term and the longer-term, and the strategies to mitigate risks.
https://youtu.be/rkDYRLPwPWc

Voices of Ag: The Investment Landscape
Hear from farmers and economists how changes in agricultural production are affecting investment and lending decisions, and how these decisions might evolve in the years ahead.
https://youtu.be/JiXsJRoPtGY