Technology/Machinery

Young ag irrigators gain opportunities with technology

BY **TYLER HARRIS**

BRANDON Biesemeier was somewhat skeptical of precision ag technology at first. "We're old-school farmers, but it's been an interesting experience because we've never used technology on our farm," says the 32-year-old farmer from Sedgwick, Colo. "Coming back gave me an opportunity to pave my own path."

A year ago, Biesemeier and his wife moved back to the family farm after he had worked 10 years as a police officer. "Technology has given me a little more of an interest, a little more of a spark to say 'Here's something I can do that my grandfather didn't do and my dad didn't do,'" he says. "That's something younger generations always want to do — exceed their fathers and make them proud. This is where I think the younger generation has an opportunity to do that."

For producers like Biesemeier, it's a matter of gaining new perspective. For the last year, he's used technology like Hortau soil moisture sensors and pivot telemetry to irrigate more efficiently. "[With soil moisture sensors], we've noticed our cornfields weren't using as much water as we thought they were early on in the season. They really didn't need an inch of water until they were at full tassel," he says. "Before, I wouldn't feel comfortable cutting back that much on the pivots we don't have those technologies on, because we don't know for sure how much water we're using."

ELIMINATING EXPENSIVE SURPRISES: Clark McPheeters, 28, has used an Internet-connected Reinke base station since 2012 to monitor and control pivots via his computer and smartphone. With the drought, it was a good year to install pivot telemetry. When pivots went down, he knew in six minutes.

Technology for next generation

Clark McPheeters, 28, came back to the family farm near Gothenburg four years ago after earning a degree in bioengineering from the Franklin W. Olin College of Engineering in Needham, Mass. His experience with irrigation technology goes back to 2001, when the first computerized pivot panels with analog position resolvers were used on his farm, followed by the use of end-of-pivot GPS in 2005.

Since 2012, he's used an Internet-connected Reinke base station to monitor and control pivots through his computer and smartphone. "2012 turned out to be a good year to install pivot telemetry because when pivots went down, I knew in six minutes," McPheeters says. "It has eliminated a lot of expensive surprises to have pivot telemetry, particularly the year we installed it."

It's also helped eliminate a lot of labor. "The base station is checking all the pivots, day and night, seven days a week, every two minutes. You can't hire somebody to do that job," McPheeters says. Now, he typically checks pivots remotely at the beginning and end of each day. Using AquaSpy soil moisture probes and weather forecasts plus observations from an agronomist, he can apply the right amount of water at the right time for optimum yields.

Soil moisture sensors have an important role to play, notes Brandon Christiansen, 26, who has been back on his family's farm near Plainview for eight years, and has used FieldWise pivot telemetry for six years. For four years, he's used four different brands of soil moisture sensors, monitoring them through the different portals, and is now using FieldWise's portal — although he notes he was initially skeptical of soil moisture probes. "I thought they were way too expensive for one spot in the field," Christiansen says.

He now has six soil moisture sensors in his fields — what he refers to as a set of eyes belowground to monitor how much moisture is in the soil profile, another piece of the puzzle to help irrigate more precisely. "It needs to be used as one tool in the toolbox rather than used by itself to tell you when to irrigate," he says. "I'm also using weather stations, hand probes, ET [evapotranspiration] data. ... All of those things factor in to tell me when I need to irrigate."

Working toward wider adoption

Adopting new technology is sometimes a leap of faith. At first, new technology can seem like a luxury, especially when margins are tight, notes Christiansen. "I compare it to autosteer. It isn't really considered a luxury anymore, it's a necessity. It's something that lets you work longer hours," he says. "You spend money on pivot telemetry, but it pays for itself very fast in time, fuel, and water."

McPheeters says a big step in wider adoption of all ag technologies is being able to interpret data and turn it into an actionable insight. "We need to be able to mine the data we are collecting and learn something from it," he says.

Biesemeier adds that for farmers to adopt technology, they have to see its value, whether through other farmers as examples or testing it out on their own farm. For him, the benefits are twofold: saving money on inputs and conserving water, at a time when supplies are dropping and allocations are rising. "It is nice to know that you're not wasting water," he says. "I'm a young farmer, and I'd like to keep irrigating 20 years from now."