

Technology, 4Rs Lead to Profitability, Sustainability

Kyle Brase has been operating a family farm with the 4R practices since before the industry adopted the term, “4Rs.” Brase and his team keep progress going with the help of Joe Huebener, a YieldPoint precision ag specialist at CHS Shipman in Shipman, Ill., to develop top-notch nutrient management plans for the 3,500 acres of winter wheat, corn for grain and silage, soybeans and alfalfa.

“Joe and I work closely together and he goes above and beyond to do what’s right for our farm,” Brase says. “We exchange a lot of ideas and look at ways we can test them to learn if they may or may not work.”

In addition to operating the fifth-generation farm, Brase manages a retail sales business with DuPont Pioneer and CHS from which he sells seed, crop protectants and fertilizers to area growers. He is also a certified crop advisor.

Technology and data are driving factors for Brase and Huebener. They sit down annually and examine multiple years of soil tests, yield results, and related items to arrive at a fertilizer prescription. Their decisions are guided by weighing profitability costs, environmental impact, and common-sense approaches to time management.



MEET THE ADVOCATES

Grower: Kyle Brase, Edwardsville, IL (right). **Crop Advisor:** Joe Huebener, CHS Shipman, Shipman, IL (left).

It began in the 1980s when the Brase crew began spreading cow manure based on soil analyses in targeted portions of fields where tests indicated low phosphorous. This evolved into using variable-rate fertilizer application farm-wide in the mid-1990s. GPS monitoring was added to the mix in the early 2000s. Soil testing that forms the basis for putting fertilizer where it most effective was a practice started long ago. Huebener customizes the nutrient recommendations each spring when he and Brase integrate soil fertility maps and yield monitor data.

“Every farmer in the world should practice the 4Rs.”

Brase’s and Huebener’s efforts produce returns. Using variable rate technology, Brase is able to save \$10-\$12 per acre yearly. Corn yields have increased three percent to five percent on average. In 1999, 1.5 pounds of nitrogen was needed for each bushel of corn. Today, the nutrient use efficiency is 0.9 pounds per bushel. Corn yields in 2014 were 211 bushels per acre and 178 bushels per acre in 2015. All corn is no-till on slopes greater than three percent. No-till soybean yields have gone from an average of 41 bushels per acre in 1957 to 69 bushels per acre in 2014 and 67 bushels per acre in 2015.

BEST PRACTICE MANAGEMENT

- > Utilizes GPS to soil sample on 2.5 acre grids to create prescriptions for variable rate applications
- > No fall-applied anhydrous ammonia on fields near creeks or on frozen ground to reduce potential nitrogen loss
- > N is applied as anhydrous ammonia with N-Serve in split applications during the spring. UAN is also sidedressed during the growing season
- > Post-harvest application and incorporation of MicroEssentials SZ and Aspire for P and K
- > Cap fertilizer rates on low-CEC soils to match nutrient applications with the soil’s ability to hold and exchange them for plant uptake and reduce the potential for nutrient leaching
- > Conduct on-farm research to assess timing and application rates and use N-watch program trials to improve 4R Nutrient Stewardship.
- > Manage pH to optimize nutrient availability
- > Utilizes CHS YieldPoint program to integrate soil maps, yield monitor and other data sources to better assess nutrient needs as a part of creating variable rate prescriptions
- > Oats and winter wheat are used as cover crops to mitigate nutrient and soil loss on highly erodible acreage
- > Conservation practices including dry dams and grassed waterways are implemented across the farm to keep water and nutrients in the field
- > **VRT saves \$12/acre yearly**
- > **Increased NUE from 1.5 lbs of N in 1999 to 0.9 lbs of N per bushel of corn today**

“Implementing the 4Rs is a game-changer,” Brase says. “It’s all part of a holistic approach to farming and following conservation practices. My dad always told us, ‘This land is just ours for a while.’ I feel like we’re just borrowing it.”

