

# Continuous Innovation Keeps Farm in Top Shape

Lynn Fahrmeier farms 2,300 acres of corn, soybeans, wheat and pasture near Wellington, Mo. The farm also includes 200 Katahdin hair sheep, a cow/calf herd, and honey bees. Working with Scott Bergsieker, precision ag specialist with MFA Inc., the two are incorporating the 4R framework with conservation practices and livestock management.

Fahrmeier, a fourth-generation farmer, has always worked within the context of the goals set out by his father: to improve farm profitability, leave the farm in a better condition for future generations, and incorporate a balanced approach to productivity while reducing impacts to the environment.

Bergsieker provides ongoing crop input advice, fertilizer and precision ag recommendations. The 4R framework has evolved in the last decade through Fahrmeier's partnership with MFA, Inc., and more recently, Bergsieker. For the last four years, he has worked with Fahrmeier to develop the 4R nutrient management and precision ag technology recommendations.

Soil sample data and yield monitor data are imported into SST Summit software where crop removal rates are incorporated to develop fertility recommendations for the management zones. Variable rate technology helps apply nitrogen, phosphorous and potassium. Fahrmeier and Bergsieker meet a couple times a year to affirm what's going into specific fields and which acres are assigned to each crop.



## MEET THE ADVOCATES

**Grower:** Lynn Fahrmeier, Wellington, MO (right). **Crop Advisor:** Scott Bergsieker, MFA Inc., Lexington, MO (left).

The pair doesn't stop there. In-field management guided by the 4R principles helps keep nutrients in the field. Conservation acres help reduce potential runoff. Proper livestock management helps, too. Fahrmeier began shifting from conservation tillage to a no-till system in the late 1980s. Most of the farm is now no-till, except for acres with heavy clay soils that require vertical tillage.

The pair are seeing results in the field. Corn yields have doubled from 90 bu/acre in the 1980's to 187 bu/acre in 2015. During the same time frame nitrogen use efficiency (NUE) has improved from 1.4 lbs/N per bushel of

**“As a precision ag specialist, it is my duty to make sure every pound of fertilizer ends up in the crops on Lynn’s farm. By applying 4R Nutrient Stewardship practices, we continue to get the job done.”**

corn to 1.0 – 1.1 lbs/N per bushel. Soybean yields have nearly doubled, as well. In the mid-1980s, the average soybean yield was about 30 bushels per acre. The average yield in 2014 was 50 bushels per acre and 40 bushels per acre in 2015.

## BEST PRACTICE MANAGEMENT

- > Farm nutrient plans have evolved and now include 2.5 acre grid soil sampling to create prescriptions for variable rate applications
- > Adoption of diversified tillage practices including no-till and vertical tillage have led to improved soil health through less soil disturbance
- > In the last four years starter fertilizer has been used as part of the 4R approach, placing fertilizer under the soil increases the ability for plants to take it up and reduces the potential for runoff loss.
- > Phosphorous in the form of a dry blend of monoammonium phosphate and MicroEssentials® SZ™ are surface broadcast and incorporated along with potash through VRT and applied in the fall or early spring.
- > Anhydrous ammonia is split applied. Fall anhydrous ammonia with N-serve is applied

by knifing with closing discs and no-till coulters. The remaining N needed is applied during the spring season.

- > Cover crops are used on 25 to 50% of corn acres, including highly erodible acreage to mitigate nutrient and soil loss
- > Cover crops are applied in the summer via airplane into the standing crop and include mixes of winter rye, turnips and radishes to allow cover crops to establish and not be limited by crop harvest dates.
- > Conservation practices play a large role in the farming operation and overall 4R strategy.
  - Terraces have been built on hilly terrain to reduce slope and slow potential runoff
  - A large 150-foot wide riparian corridor is maintained along a creek that runs through the property to slow runoff
  - Many fields employ buffer strips on field borders to slow runoff
  - 15 acres are in the Conservation Reserve Program

- > Livestock are incorporated into the farms overall management strategy through a rotational grazing plan that helps improve productivity.
- > Data plays a large role in the farming operation. SST Summit software used to help develop nutrient recommendations for the farm's management zones by incorporating soil sample and yield monitor data along with crop removal rates.
- > **Corn yields have doubled from 90 bu/acre in the 1980's to 187 bu/acre in 2015. During the same time frame nitrogen use efficiency (NUE) has improved from 1.4 lbs/N per bushel of corn to 1.0 – 1.1 lbs/N per bushel.**

