

Farm Description: 38,000 acres of corn, triticale, wheat and potatoes

GROWER:

Matthew Clements (*left*)

LOCATION:

Grandview, Idaho

RETAIL FACILITY:

Simplot Grower Solutions

CROP ADVISOR:

Terry Tindall (*right*)

RETAILER LOCATION:

Boise, Idaho

**WHAT MATTHEW SAYS ABOUT THE 4Rs:**

“Our business is so competitive now that saving pennies, even on a microscopic scale, adds up to big savings. We’re seeing benefits in fuel savings, reduced wear and fewer hours on equipment. Advocating for the 4Rs and understanding the balance that it provides makes us better farmers and better members of our community.”

WHAT TERRY SAYS ABOUT THE 4Rs:

“Thousands of acres of corn and other crops have been moved into systems with minimum tillage. We’ve taken advantage of starter fertilizers, a direct value of the 4Rs. With this and other incorporations, we’ve created a 9 to 1 cost benefit ratio on 1,200 to 1,500 acres of triticale planted after a corn harvest that includes 4R practices.”

ECONOMIC MEASURE OF SAVINGS:

Applying in-season, low-salt liquid fertilizers via irrigation pivots to 8,000 acres of alfalfa is saving about \$192,000 annually compared to aerial application.

BEST MANAGEMENT PRACTICES IMPLEMENTED ON THE FARM:

- Perform on-farm trials to assess effectiveness of various 4R and management practices
- Manure produced from feedlot is tested and is a balanced part of the fertilizer program
- Precision mapping allows the creation of soil management zones for variable-rate application
- Use strip tillage and direct seeding tillage equipment for corn, triticale and wheat
- Balance input to complement production goals and economic outcomes
- Use NPK liquid, low-salt fertilizer applied either directly with the seed at lower rates or at higher rates in a 2 x 2 position
- Use in-season applications of NPK nutrients within the alfalfa production system via aerial and pivot methods
- Use fall-planted triticale as a cover crop, as well as forage for livestock
- Soil test to develop base rates of fertilizer dry formulations
- Utilize split applications for potato crop: pre-plant, at planting applications of liquid NPK and micronutrients in combination with biologicals
- Side-dress applications of nutrients during final tillage and in-season injections of N that are based on petiole tissue concentrations of nutrients
- Starter fertilizer with corn helps keep nutrients where they belong

FORMS OF NUTRIENTS APPLIED:

Low-salt NPK liquid fertilizers for starter formulations on corn and forage triticale, new nitrogen fertilizer formulations to replace ammonium nitrate with low-detonable fused ammonium nitrate, MAP 11-52-0, urea treated with NutriSphere N, elemental sulfur, potassium, micronutrients where applicable.

NUTRIENT USE EFFICIENCY:

Potato production increased almost 5.2 percent with the use of new N formulations. Irrigated corn increased from 237 bu/ac to 261 bu/ac over a three-year period using starter placement of liquid NPK in combination with an enhanced nitrogen efficiency project. Plus, triticale, which is used as a cover crop and forage following corn, yields increased significantly by adding a starter liquid NPK and provided as much as 9:1 benefit to cost ratio over traditional broadcaster applications of dry fertilizer.

AVERAGE YIELD FOR EACH CROP:

- In addition to what's noted above, incorporating 4R principles of the right source, right rate, right time and right place, in-season applications of liquid fertilizers via pivot irrigation on every cutting of alfalfa resulted in a 1.1 ton/ac yield increase.