

Chestnut Manor Farm is a 2,200 acre corn and soybean operation which includes 700 acres of irrigated ground. They also raise 150 head of beef cattle. The farm maintains their own grain handling and storage system, and they run a custom straw baling operation for the mushroom industry.



Grower: Temple Rhodes (above)
Location: Centreville, Maryland
Retail Facility: Willard Agri-Service of Lynch
Crop Advisor: Allen Spray
Retailer Location: Worton, Maryland

What Temple says about the 4Rs: "Many of my farms border the Chesapeake Bay. As I strive to grow and improve my farming operation, the practices of the 4R program are helping me to get higher yields and also be a good steward of the environment."

What Allen says about the 4Rs: "The 4R program is central to what we do as an ag retailer for our customers. Helping our customers maximize nutrient use efficiency is a critical part of both the economic and ecologic well-being of our farming environment. The 4R philosophy is part of all the recommendations we make and also drives our thought process on formulation of the products we sell."

CROPPING SYSTEM OBJECTIVES:

Make cropping decisions that result in higher nutrient use efficiency and increase farm profitability.

ADVOCATE PROFILE

BEST MANAGEMENT PRACTICES IMPLEMENTED ON THE FARM:

- Utilize Willard Agri-Service decision support tool, HighQ, to make better overall cropping decisions that result in higher nutrient use efficiency and profitability
- Use RTK guidance to enable better implementation of precision practices
- Implement strip tillage and banding of fertilizer to ensure the right placement of critical nutrients and minimize the risk of erosion and runoff
- Utilize soil maps for variable rate application of fertilizer and seed populations to ensure the right rate is matched to each productivity environment on the farm
- Inject liquid N, P and K 6-8 inches underground to prevent runoff and volatilization
- Utilize a nitrogen stabilizer to further reduce risk of N loss
- Implement fertigation on irrigated acres to apply nutrients to the most productive field areas
- Tissue sample throughout the season to assess and add plant nutrition for each stage of plant development for N, P and K as well as minor elements
- Use Daikon forage oilseed radishes as cover crops to reduce soil compaction and retain residual N, P and K through winter; in addition these cover crops minimize tillage and erosion

FORMS OF NUTRIENTS APPLIED:

Custom blend of ammoniacal nitrogen, liquid phosphorous and potash that are mixed with proven nitrogen inhibitors. Minor elements are added based on soil and tissue results and are derived from highly plant available ammoniated or chelated sources. These are balanced to ensure maximum uptake of both the minor and macro elements.

NUTRIENT USE EFFICIENCY: Documented a 17% improvement in nutrient use efficiency of nitrogen even in drought conditions by utilizing a 4R management approach. This involved strip tillage and banding of custom liquid blends and the use of stabilizers and biostimulants.

Average Yield for Each Crop:

Corn Yields = 150 bushels / acre

Soybean Yields = 40 bushels / acre (Full Season and Double Crop Beans Combined)

Wheat Yields = 70 bushels / acre

Economic Measure of Savings: Improved nitrogen use efficiency has returned proven yield increases in corn, resulting in well over \$106 / acre returns on the same investment in fertilizer. We have reduced on average 2 trips over the field resulting in at least a \$30 / acre labor and equipment savings. Variable rate technology has helped us utilize the same amount of fertilizer and seed and realize higher yields.