



Gaston Grower Spotlight May & June 2023

Breaking news fertilizer helps grass grow. Yes, here at Gaston County Cooperative Extension we realize that this isn't really breaking news. So why did we do a trial showcasing different fertilizers being used at different rates within a field? 2022 presented challenges with increased fertilizer prices effecting the entire agricultural community including local hay producers. Last year's fertilizer prices drove many farmers to call our office looking for the best approach for their field. We suggested that producers opt for cutting their rate in half to reduce cost. This trial was conducted this year to help farmers make fertility decisions in the future if prices were to reach values comparable to 2022. You will find more insight on the implications for local hay producers below.



Where it Started

The field was divided randomly into areas slightly smaller than 2,500 ft². There were four treatments that were repeated four times within the field. We based our first three treatments from our 2022 inquiries. The control was not treated, a treatment with a nitrogen application at half soil test recommendation, and a treatment with nitrogen at full soil test recommendation. 17-17-17 was selected as the fourth treatment due to meeting the crops needs based on the soil report. Often, we suggest splitting fertilizer applications in Spring and Fall for hay fields, but the reality is that most local farmers apply once in the Spring. We chose to mimic our local farms by applying our treatments in the Spring (March 20th, 2023). The bottom picture shows plant response from treatments seen 3 weeks after the initial application



The Results

To no surprise the highest yielding treatment was the 17-17-17 which followed the soil test recommendations. However, with a higher price per acre of application it was not the most profitable application in 2023 but it was a close second. If the same yields were achieved in 2022 the treatment would only profit \$20 more per acre than applying nothing. Profitability numbers are highlighted below and are based on square bale weights on the host farm. Bale price of the host farm was also utilized in the calculations. More breakdown information is provided below.



Hay nutrient content varied slightly in quality but remained at acceptable levels in all samples. Post-trial soil test give indication that pH, sulfur, and phosphorous levels will impact yield unless addressed through future fertility management. The most beneficial takeaway for hay producers is that when fertilizer prices are high, they can opt for nitrogen applications and remain more profitable than skipping a fertilizer treatment or using more expensive complete fertilizers. Addressing nutrient deficiencies in soil when fertilizer prices decline is recommended to increase yield and profitability. We realize that the upfront cost of fertilizers remains a challenge for many producers. For example, in 2023 the 17-17-17 application would cost a producer \$28,000 upfront to fertilize 100 acres. This issue can be addressed by working with Gaston County Cooperative Extension on a management plan that works to split these costs over a period of time.

Treatment	Per acre Profit 2022	Per acre Profit 2023
Control	\$ 110.33	\$ 114.30
44-0-0 Half	\$ 234.32	\$ 300.51
44-0-0 Full	\$ 260.17	\$ 368.37
17-17-17 Full	\$ 130.49	\$ 359.82

*These calculations were done using Bulk Fertilizer Rates and under the assumption that .5 gallons of fuel were utilized for each acre traveled. We have assumed 5 total acre passes (Herbicide application, Cutting, Tethering, Raking, & Baling). A \$12/acre application fee has been applied to all fertilizer expenses reported.



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