2020 USAFRI Research Project Objectives

Request for Alfalfa Hay Purchase to Support Funded Project, "*Increasing Alfalfa Productivity and Inclusion in Dairy Diets to Improve Milk Fat and Protien Yield.*"
Wm. H. Miner Ag Research Institute - Grant

Project Award: $14,013

Justification:

- A project was funded to conduct alfalfa field trials and a feeding study aimed at discovering the potential positive associative effects between alfalfa and corn silage when fed to high-producing dairy cattle in higher forage diets (to be conducted in 2021). The five diets will contain various proportions of alfalfa hay and corn silage (dry matter basis): 90:10, 70:30, 50:50, 30:70, and 10:90. Corn silage has been harvested on site and stored for the study. However, the alfalfa hay had to be purchased and trucked to the William Miner Agricultural Research Institute located in Chazy, NY. The target was high quality, 30 to 35% NDF (dry matter basis) alfalfa hay. The hay grower identified was located in Ohio.

- Since the initial proposal was submitted, trucking costs have more than doubled which has substantially impacted the cost of delivering sufficient hay tonnage to the Institute. The alfalfa supplier in Ohio that we purchased the 28-day supply from for the experimental period charges $450 per ton, delivered. This grower was the only source that we were able to identify with the quality characteristics needed for the study. So, with the cost associated with the alfalfa for the 28-day treatment period and, with the price per ton, it was about $5,000 over what had been allotted for hay purchase in the original proposal ($14,625 in the budget for hay purchase; paid $19,638).

- In addition, in order to have a covariate diet where the forage is 50:50 alfalfa to corn silage, we would need 20 tons for a 14-day covariate period and 100 cows as described in the original proposal (assuming 65 lb/d dry matter intake per cow, 60% forage in the diet dry matter, and a "safety factor" to account for losses in feeding of 1.25).

- Covariate adjustment is a standard statistical practice in the analysis of randomized controlled trials. By feeding the same diet to all cows prior to beginning the study, and measuring all the study parameters of interest (milk production, milk composition, dry matter intake, etc.), the investigator can better account for animal differences when the treatment diets are fed. Fewer animals are required and the chances of observing significant treatment effects are increased. Using the actual treatment forages in the diet fed during the covariate period is a common practice and expected by most peer-reviewed journals such as the target for this study, the Journal of Dairy Science.

Objectives:

- The objectives of this project are to 1) to conduct a feeding study aimed at discovering the potential positive associative effects between alfalfa and corn silage when fed to high-producing dairy cattle in a higher forage diet.