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10. Multistate Project No.			11. Cooperating States	
12. Investigator Name(s) Last Name and Initials)				sent via BITNET/INTERNET electronic mail systems Date: <u>1/25/12</u>
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Goals/Objectives/Expected Outputs				
Objectives: 1) To assess the effect of agricultural by-products (rice bran, wet corn distiller's solubles WCDS, dried distiller's grains plus solubles DDGS and soy hulls) on lactation performance of Holstein cows or growth potential of Holstein heifers fed corn silage, hay or baleage-based total mixed rations (TMR). 2) To assess the effect of supplementing pastured Holstein steers with agricultural by-products on growth performance. 3) To characterize the economics of agricultural by-product-based diets for cattle and document seasonality patterns in availability and price.				
Methods				
This applied feeding project focuses on locally and regionally available feed by-products fed with locally grown forages such as bermuda grass hay and brown mid rib (BMR) sorghum silage. A total of seven projects will be conducted over five years. These projects will emphasize use of the by-products at low, moderate and very high levels (in some cases substituting for 50% or more of traditional corn and soybean meal concentrates). The overall objective is to improve sustainability of the local dairy industry by determining optimal conditions for feeding various by-products and to reduce producer reliance on traditional concentrates such as corn, soybean meal and whole cottonseed. In Exp. 1, 48 early to mid-lactation (50-150 DIM) Holstein cows will be individually fed BMR sorghum baleage-based TMRs in which wet corn distiller's solubles (WCDS) substitutes for 0, 15, 30 or 45% of a conventional corn-soybean meal concentrate. Lactation data, body condition scores, locomotion scores, rumen fermentation data and disease incidence data will be collected. Data from the CRD will be analyzed using data from a 14d preliminary trial as covariables. In Exp. 2, 48 Holsten heifers (approx. 400 kg) will be individually fed 4.5 kg corn-soybean meal concentrate or 1.5, 3.0 or 4.5 kg WCDS (replacing corn-soybean meal) in bermuda grass hay-based TMRs during a 112d CRD. Growth rate, rumen fermentation (rumenocentesis) and health data will be collected. Exp. 3 objective will be to determine optimal levels of DDGS for lactating Holstein cows limit grazing oat-ryegrass pastures. Dietary treatments will be 0, 20, 30, and 40% DDGS as a percent of total predicted DMI. Cows will graze mornings and will be individually fed a partial mixed diet evenings. Pasture intake will be determined by marker dilution. Exp. 4 will be similar to Exp. 3, but lactating Holstein cows will receive rice bran at 0, 7, 14, or 21% of diet DM. Exp. 5 will evaluate the effects of substituting 0, 33, 66, or 100% of corn grain DM with soy hulls for late lactation (200 DIM) Holstein cows receiving corn silage-based TMRs. Exp. 6 and 7 will use fifty young Holstein steers (100 to 150 kg) to evaluate rice bran and soyhull supplementation (1% BW) of oat-ryegrass pastures. Calves will be blocked by calving date and randomly assigned to treatments for the 112 day grazing supplementation studies. Pasture intake estimates will				



be based on pasture energy estimates and individual weight gain.

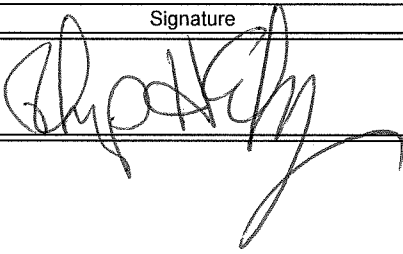
23. Non-Technical Summary

In many cases, cost of traditional feed ingredients such as corn, soybean meal and cottonseed used in dairy diets has doubled in the last two to three years. Consequently, many dairy producers have turned to feed by-products to meet cattle nutrient needs. Some of these by-products such as dried distiller's grains and soyhulls have been incorporated, at modest levels, in dairy diets for many years. Others such as wet corn distiller's solubles have not been available until the expansion of the ethanol biofuel industry. An ethanol plant located in Vicksburg, MS now has made this product available for dairy and beef producers in the region. Most of these products have been evaluated in mid western states where corn silage and alfalfa make up the major forage base. How dairy cattle in Louisiana that rely heavily on ryegrass pastures, bermuda grass hay and sorghum baleage as forage sources will react to these feed by-products is not known. Furthermore, most of the research was conducted at relatively low levels of supplementation. It is well recognized that high-performing Holstein cows require specific levels of starch, protein, lipids and effective fiber for optimum production and health. This project will attempt to determine how effective these by-prodcuts are at filing these nutrient needs. In so doing, it may be possible to reduce producer reliance on higher priced energy and protein sources and improve profitability of local and regional dairy enterprises.

24. Keywords

dairy ; lactating cows; Holstein cows ; Holstein steers; agricultural by-products; rice bran; soy hulls; wet corn distiller's solubles; dried distiller's grains ; pasture; hay ; baleage

**** The Original signed document is on file at this institution. ****

Signature	Title	Date
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