Effect of fibrolytic enzymes on the performance of dairy cows fed two levels of concentrates

Objective
• To determine enzyme application effects on the performance of dairy cows fed a low or high concentrate ration
Main results

• Enzyme application increased the digestibility and rumen fermentation of the diets and efficiency of milk production

• Applying the enzyme to the low-concentrate diet resulted in similar milk production as the high concentrate diet
Effect of ammonia or fibrolytic enzyme treatment of bermudagrass hay on the performance of beef cattle

Objective

Evaluate the effect of an exogenous fibrolytic enzyme or anhydrous ammonia treatment on the nutritive value and voluntary intake of 5-wk and 13-wk regrowths of Coastal bermudagrass hay (Cynodon dactylon).
Main results

- Ammonia increased the nutritive value (CP and IVOMD) of the hay and increased in vivo NDF and DM digestibility, in situ degradability, rumen fermentation and tended to increase ADG.

- Enzyme increased in vivo NDF digestibility of the 5-week regrowth but had no other beneficial effects.
Effect of a bacterial inoculant on the quality and nutrient losses from corn silage produced in farm-scale silos

Objective
To determine the effect of a dual-purpose inoculant on the fermentation, nutritive value, amount of spoilage, nutrient losses, and aerobic stability of corn silage produced in farm-scale silos.
Main results

Inoculation with Biotal Buchneri 500 had the following effects:

• Reduced the percentage and quantity of spoiled silage and the associated nutrient and energy losses

• Increased acetate concentration and decreased lactate:acetate ratio.

• Tended to decrease the ensiling temperature and yeast and mold counts.
Reducing aflatoxin transmission from contaminated diets to milk

Objective
Examine effects of adding two doses of a clay adsorbent on milk aflatoxin concentration, and performance and immune response of cows fed an aflatoxin -contaminated diet.
Main results

• Feeding the toxin diet tended to decrease milk yield, increase aflatoxin in the milk, and heighten the immune response

• The high dose of the adsorbent reduced milk aflatoxin concentration but the low dose did not

• Both doses of the adsorbent prevented adverse effects of the toxin on milk yield and immune response
Current research

• Improving the potency of fibrolytic enzymes to improve bermudagrass quality and milk production by dairy cows

• Comparing the efficacy of inoculants at improving the fermentation shelf life of bermudagrass haylage

• Determination of the best chemical additives or bacterial inoculants for improving fermentation of corn and sorghum silages in Florida

• Evaluation of novel silo covering strategies to improve silage preservation and minimize nutrient losses

• Warm season legume options for improving animal performance.
FORAGE RELATED RESEARCH

Dr. Matt Hersom
Extension Beef Cattle Specialist
Utilization of wet brewers grains or dried distillers grains as supplements to round bale silage or dry hay for young beef cows

- To evaluate the effectiveness of different forage-supplement combinations as nutritional programs for young cows through the measurement of cow performance, voluntary DMI, digestion kinetics, and fermentation parameters in beef steers
  - Hay vs. RBS
  - DDGS vs. WBG
Main Results - Cows

- Cows consuming RBS had slightly greater BW and BCS - Combination of a wet forage and a wet supplement did not affect cow performance
- Cow reproductive performance was severely diminished when supplements were no longer offered
  - No significant differences between treatments
  - Mean 30 d AI pregnancy rate was 44.2%
  - To maintain cow performance on low to average quality forage, supplementation is necessary
Main Results - Digestion

• There was a tendency for wet feedstuffs to decrease forage or supplement DMI of steers
  • RBS tended to decrease supplement DMI
  • WBG tended to decrease forage DMI
• Only the WBG treatment affected total DMI
  • Refusal by a steer in period 1
  • Moisture? Palatability?
• Steers offered WBG had lower apparent digestibility
  • Fecal output did not vary among treatments
  • Lower DMI intake for steers offered WBG
• All four treatments maintained rumen pH above 6.0 and rumen ammonia-N within critical levels 6.0 mg/dL
• Although there were decreased DMI from RBS and WBG treatments, values were numerically small
Ongoing Research-Extension

• Utilization of Round Bale Silage for heifer development
• 2011 Beef Research Report