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U.S. Department of Transportation

SunGrant INITIATIVE South Central Region

Project Title: **Using Crude Glycerin in High Forage Diets-A Way to Improve the Profitability of Biodiesel Production**

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Project Goal
To determine the effects of crude glycerin (CG) concentration in steam-flaked corn (SFC)-based growing diets on animal performance, heath, ruminal fermentation, and diet digestibility.

The two experiments to achieve this were:

1. Four ruminally and duodenally cannulated steers were used using SFC-based diets with 0, 2.5, 5, or 10% CG replacing forage.
2. 309 crossbred steers were used which consisted of SFC-based diets with 0, 5, or 10% CG replacing forage.

Project Outcomes

- The addition of crude glycerin as a partial replacement for roughage in SFC-based diets appears to positively impact performance, nutrient digestibility and ruminal fermentation at levels up to 5% substitution for roughage. These data indicate crude glycerin may be an alternative lower-cost higher-yielding ration ingredient in receiving cattle diets.
- In Exp. 1, we found a large increase in propionate production and shift in the ratio of acetate to propionate produced, we observed no difference in fiber digestibility with increasing crude glycerin concentration, and we found crude glycerin increased microbial crude protein production when included at 5% of the diet.
- In Exp. 2, we observed no effects of crude glycerin on animal health, indicating crude glycerin can be safely incorporated into the diets of newly received calves without negatively impacting animal health.

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