

Glycerin as a feed for ruminants: Using glycerin in high-concentrate diets. J.S. Drouillard, Kansas State University, Manhattan.

The availability of glycerin as a feedstock for cattle and other livestock species is increasing due to rapid expansion of the biodiesel industry. Glycerin is a viscous, sweet liquid, is effective in controlling dust, and can aid in preventing segregation of diet components in a total mixed diet. Published literature pertaining to utilization of glycerin in concentrate-fed animals is scarce, but studies currently are underway at several U.S. institutions. German researchers reported that glycerol can readily replace up to 10% of readily fermentable starches, but its energetic value when fed in conjunction with a starch-based diet (60% concentrate) was approximately 85% of its value when fed with a forage-based diet. Feeding glycerol has been reported to shift VFA production in favor of propionate at the expense of acetate both in vitro and in vivo. Since propionate production typically is greater for concentrate fed animals, there may be less opportunity to improve energetic efficiency when glycerol is combined with concentrates compared to feeding with forages. Crude glycerin has been reported to decrease DMI when included at 10% of diets that contain combinations of dry-rolled corn and grain co-products, but ADG increased, resulting in efficiency improvements of 16 to 23% compared to diets without glycerin. Efficiency improvements were greatest when diets contained more starch, which is in contrast to observations of German researchers. In flaked-corn diets, feeding glycerin has been reported to have a quadratic effect on efficiency ($P < 0.05$), with the greatest improvements associated with low levels of feeding. Efficiency changes were 11, 10, 8, 3, and -3% for diets containing 2, 4, 8, 12, and 16% glycerin, respectively. Adding glycerin to flaked corn diets yielded a linear increase in *longissimus* muscle area ($P < 0.05$) and linear decreases in subcutaneous fat and marbling deposition ($P < 0.05$). Crude glycerin is promising as a feed for finishing cattle, though much remains to be learned about optimal levels of feeding and implications for carcass quality, composition, and sensory attributes.

Glycerin, cattle, feedlot