

**Using ethanol industry coproducts in diets for forage fed cattle.** T. Klopfenstein\*<sup>1</sup> and D. Adams<sup>2</sup>, <sup>1</sup>*University of Nebraska*, <sup>2</sup>*West Central Research and Extension Center*.

Beef calves from weaning until they enter feedlots, developing heifers and beef cows are fed primarily forage diets. Especially in the winter, forages are low in protein and phosphorus and need to be supplemented. Further, the protein in forages is highly degraded in the rumen and the cattle may need to be supplemented with undegraded protein to meet metabolizable protein requirements. Distillers grains (wet or dry) is an excellent source of undegraded protein and phosphorus. The high escape protein value of distillers grains is due to the innate characteristics of the protein and not to drying or moisture content. Stocker calves, developing heifers and cows may need energy supplement in addition to supplemental protein and phosphorus. It is advantageous if the same commodity can be used for supplemental energy as well as protein. Experiments were conducted with calves fed grass hay and levels of distillers grains or corn. Apparent energy value of the distillers grains was 127% the energy value of dry rolled corn. Rate of in situ fiber digestion was lower (3.43% /h) when corn was supplemented than when distillers grains was supplemented (4.09%/h). Distillers grains contain little starch and therefore do not appear to depress fiber digestion as does corn. When distillers grains are fed as a supplement to low protein forage, degradable protein may be deficient while undegraded protein is in excess. Experiments showed no response to added urea suggesting N recycling is sufficient to meet degradable protein requirements of the rumen microorganisms. As forage prices increase, ethanol co products may be economical substitutes for grazed forages. Graded levels of distillers grains have been fed to calves consuming low- and high-quality forages and cool- and warm-season grass pastures. Increasing levels of distillers grains increase gain and decrease forage intake. The net effect is a high apparent economical value for distillers grains.

**Key Words:** Beef cattle, Forage, Distiller's grains

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