



Influence of Supplemental Legumes that Contain Tannins and Saponins on Intake and Diet Digestibility in Sheep Fed Grasses that Contain Alkaloids

Jacob M. Owens, Frederick D. Provenza, Juan J. Villalba and Randy W. Wiedmeier; Utah State University;
Contact Author Email: j.o@aggiemail.usu.edu

We hypothesized legumes such as alfalfa (ALF) and birdsfoot trefoil (BFT) fed as supplements to grasses such as endophyte-infected tall fescue (TF) and older varieties of reed canarygrass (RCG) provide nutritional benefits. This hypothesis is based on the notion that complementary relationships exist between the alkaloids in tall fescue and reed canarygrass and the saponins in alfalfa and the tannins in birdsfoot trefoil that enable herbivores to eat more food when offered a combination of plants as opposed to only one plant. On this basis, we predicted sheep fed mixtures of the above forages would maintain higher nutrient intake and hence greater digestibility of nutrients than sheep fed only the alkaloid-containing forages. In trial 1 lambs fed a basal diet of RCG or TF were supplemented with ALF, whereas in trial 2 lambs were supplemented with BFT. Forage, fecal, and urine samples were collected and analyzed to determine total dry matter intake (DMI) and apparent digestibility of dry matter, energy, nitrogen, and neutral detergent fiber. Supplementing lambs fed basal diets of RCG or TF with ALF or BFT increased intake and as a result increased the amount of energy and protein digested. These results are likely due to complementary relationships among secondary and primary compounds in the grasses and legumes.

2009. 62nd Society for Range Management Annual Meeting. Paper No. 65-8.