

Public Abstract

First Name:Mariana

Middle Name:

Last Name:Medeiros Masiero

Adviser's First Name:Monty

Adviser's Last Name:Kerley

Co-Adviser's First Name:

Co-Adviser's Last Name:

Graduation Term:FS 2017

Department:Animal Sciences

Degree:PhD

Title:RUMINAL DEGRADATION OF PROTEIN AND CARBOHYDRATE USING A BATCH CULTURE SYSTEM, AND RESPONSE TO ROUGHAGE REMOVAL, RUMEN MODIFIER INCLUSION AND POSTRUMINAL AMINO ACID SUPPLY IN FEEDLOT CATTLE

The first study characterized rumen N, starch, and NDF degradation rate (kd), and further calculated ruminal degradable, undegradable and extent of digestion of those nutrients using a batch culture system. This study provided estimates of protein and carbohydrate ruminal degradation of feedstuff for use in diet formulation models. Ruminal degradation results observed agree with published data and is reproducible, resulting in a viable, and less complex method, to determine ruminal digestion characteristics of feedstuff. The second study determined the effects of roughage removal, ruminal modifier, and diets balanced to meet effective energy and predicted AA requirement on beef steer growth performance and carcass characteristics. Roughage removal improved feed efficiency but gain and carcass weight were not optimized. Balancing diets to meet effective energy and predicted AA requirement increased ADG for overall period, and increased carcass weight. Steers performance was not affected by ruminal modifier. The third study determined the effect of roughage removal and ruminal modifier on ruminal fermentation characteristics in beef steers fed no-roughage diets. Daily average ruminal pH, ammonia N and VFA did not differ among diets. Roughage removal and replacement of monensin by essential oils had no effect on VFA profile, daily average ammonia N concentration and pH.