

Effects of Isotricha, Dasytricha, Entodinium, and total fauna on ruminal fermentation and duodenal flow in wethers fed different diets

ABSTRACT

The objective was to measure rumen fermentation and duodenal flow of amino acids and nonammonia N components in five groups of five ruminally and duodenally cannulated wethers that were fauna-free, or inoculated with the ciliate protozoa genera of *Isotricha*, *Dasytricha*, *Entodinium*, or a normal population (total) of fauna. They were used in two 25-d periods and fed a haycrop-based diet in the first period and a corn silage-based diet in the second period. Feces, duodenal digesta, and rumen contents were sampled in each period and analyzed. The number of *Entodinium* in wethers containing the *Entodinium* monofauna was higher than the total protozoa numbers, including *Entodinium*, in wethers containing total fauna population. The type of diet or fauna did not affect total volatile fatty acid concentrations in rumen fluid. The ammonia N concentration in rumen fluid was higher in wethers containing total fauna (25 mg/100 ml) than in fauna-free wethers fed the two diets (18 and 12 mg/100 ml). In comparison with the respective fauna-free wethers, the concentration of ammonia in wethers containing *Entodinium* was higher when fed the corn silage diet, but not different when fed the haycrop diet. Ruminal presence of total fauna or *Entodinium* decreased the nonammonia N by 16 and 17%, and total amino acid flows from the stomach by 20 and 19%, respectively. Flow of bacteria N was decreased in wethers fed the two diets when *Entodinium* or total fauna were present in the rumen. The presence of *Isotricha* resulted in higher flow of bacteria N in wethers fed the haycrop diet, but the presence of *Dasytricha* resulted in higher bacteria N flow in wethers fed the corn silage diet. *Entodinium* was the most detrimental of ciliate protozoa species concerning protein nutrition of the host ruminant.

Keyword: Fauna; Ruminal fermentation; Duodenal flow; Wether