

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