

Fenugreek Haylage and Dairy Cow Productivity

A.W. Alemu and L. Doepel

Department of Agricultural, Food and Nutritional Science, University of Alberta, Edmonton, AB, T6G 2P5

Email: lorraine.doepel@ualberta.ca

Fenugreek (*Trigonella foenum-graecum L.*) is being studied as a potential forage crop for Canada. Characteristics of the plant are described by Montgomery et al. on the previous page (also see abstract in WCDS 2007). Research conducted at Agriculture and Agri-Food Canada in Lethbridge on growing steers demonstrated that fenugreek silage has a comparable feeding value with that of alfalfa and has the potential to be used as replacement forage for alfalfa. To determine the value of fenugreek for dairy cows, we conducted an experiment to investigate the effect of fenugreek haylage on feed intake, milk production and composition and whole tract digestibility in postpartum dairy cows relative to alfalfa haylage.

The fenugreek haylage used in this experiment was grown at the U of A Edmonton Research Station. We fed six 2nd lactation Holstein cows (56 ± 8 DIM) diets containing 40% haylage, 10% barley silage and 50% concentrate on a dry matter basis. The haylage component constituted the dietary treatment: AAFC F70 fenugreek, CDC Quatro fenugreek, and alfalfa. Each cow was fed each diet once a day for 18 days. Milk samples were collected during the last seven days of each 18 day period. Rumen fluid samples were collected 12 times on the last day of each period. Apparent total tract digestibility of the diets was determined by feeding chromic oxide as an indigestible marker.

Dry matter intake (22.9 vs. 17.8 kg/d), milk yield (39.1 vs. 32.1 kg/d), and milk protein and lactose yields and percent were higher for cows fed alfalfa than fenugreek, whereas milk fat yield and percent were not affected by treatment. Milk urea nitrogen was lower for cows fed alfalfa than fenugreek. Treatment had no effect on rumen pH. Rumen ammonia nitrogen concentration was lower for cows fed alfalfa than fenugreek. Whole tract digestibility for DM, NDF, ADF and CP was the same among the three haylage diets.

Implications: Our results suggest that fenugreek haylage has similar digestibility with alfalfa haylage but its feeding value is lower due to low intake by the cows.