Fenugreek as Forage for Dairy Cattle

J.E. Montgomery, J.R King, 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)* is a single-cut, annual legume, originating from the Indian subcontinent and Eastern Mediterranean. Fenugreek is traditionally used as a spice or dye, as well as for its neutraceutical benefits to humans. Development of forage-type varieties of fenugreek at the AAFC research station in Lethbridge, and CDC / University of Saskatchewan, has sparked interest in the use of this crop as a forage source for dairy herds. Benefits of fenugreek include nitrogen fixation, high protein content maintained through the growing season, and indeterminate growth allowing greater flexibility of harvest. Research in Lethbridge has found that one cut of fenugreek is equivalent in dry matter to two cuts of alfalfa, and that fenugreek silage has a similar nutrient content to alfalfa silage with superior digestibility, potentially reducing costs of protein supplementation.

In 2006, five acres of CDC Quatro and AAFC F70, a parent line, were grown for haylage production. The haylage was used in two rumen degradation studies, whereby small samples of feed in nylon bags are placed in the rumen over a set period of time to determine dry matter, protein, and fibre disappearance. One study monitored rumen-only degradation of CDC Quatro, AAFC F70, and alfalfa forages, while the other study measured full-tract digestibility, which includes the forage utilized in the intestines.

Both studies indicated that the dry matter disappearance of CDC Quatro was similar to that of alfalfa, and that both these varieties were superior to AAFC F70. In the rumen degradation study, the maximum dry matter disappearance of alfalfa was 78%, while the maximum for CDC Quatro was 74%, and 60% for AAFC F70. For the full-tract digestibility study, alfalfa and CDC Quatro had very similar dry matter disappearance: 74% and 78% for samples put through the intestine after 18 hours and 30 hours in the rumen, respectively, while AAFC F70 consistently had the lowest dry matter disappearance, around 64% and 67% for samples at the same time points.

Implications: Before fenugreek can be widely used in the central Alberta dairy industry, basic agronomic procedures must be established to optimize fenugreek forage crop production. Then, if fenugreek is equal or superior to alfalfa as forage for lactating dairy cows, producers will have another option for forage source, and increased variety in their cropping rotation.