

# REFLECTIONS: HIGH-FORAGE DIETS SHOULD INCLUDE HIGH QUALITY FORAGES



by **Fernando Diaz (DVM, PhD)**  
**Independent Dairy Consultant**

Forages are, in general, the least expensive source of energy for dairy cows. However, the efficiency of converting forages to milk is limited by the digestibility of forage cell walls.

Under ideal feeding conditions cell wall digestibility in the total digestive tract is still generally less than 65%.

Average fibre (NDF) digestibility of forages reported by a commercial laboratory from Minneapolis, MN at 30, 120, and 240 hours were 54 (range: 43-64%), 71 (63-80%), and 74% (66-84%) of NDF for corn silage, and 38 (27-49%), 41 (30-52%), 42% (30-53%) of NDF for alfalfa hay.

Using these fibre digestibility times on the Rafrenatto rate calculator for NDF from the NDS software platform, the average degradation rate for corn silage and alfalfa hay were 4.4 and 8.3%/hour, respectively.

It can be observed while corn silage contains the greatest amount of digestible fibre, alfalfa hay is digested at much faster rate.

Two recent experiments carried out at the South Dakota State University Dairy Research and Training Facility tested different forage concentrations on high-producing dairy cows.

In low-forage-diets, the forage mix (consisted of 67-75% corn silage and 25-33% alfalfa hay on a dry matter basis; DM) was partially replaced by non-forage fibre sources such as corn gluten feed and soyhulls.

In the first experiment, cows fed low-forage-diet (45%) had greater intake of DM (26.9 vs. 25.2kg/day) and produced more energy-corrected-milk (ECM; 41.9 vs. 40.2kg/day) than cows fed high-forage-diet (65%). Similar data were obtained in a subsequent study conducted by this author who reported lower intake and milk yield (2.9 and 1.9kg /day of DM and ECM, respectively) when high-(61%) were compared to low-forage-diets (46%).

In both trials, in spite of diets being balanced to be similar in energy, protein, starch, and fibre concentrations, forage quality was not adequate to support milk production in high-forage diets mainly due to a reduction in intake. Fibre particles from forage remain in the rumen longer than non-forage fibre particles increasing rumen fill and decreasing feed consumption.

In conclusion, feeding high-forage diets to high-producing cows requires high-quality forages.

