

## EFFECT OF GRASS HAY PROPORTION IN CORN SILAGE BASED DIET ON DIGESTIBILITY AND RUMEN DIGESTA KINETICS

Animal Science, Animal Production System  
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Feeding corn silage (CS) alone caused reduces chewing activity and ruminal pH, low fiber digestibility and faster ruminal passage rate in dairy cows. Dairy cows need dietary forage having an adequate particle size to maintain chewing activity, ruminal passage rate and digestibility. If ensiled forages are used in diets, the physical form of the diet could be increased by increasing silage chopped length or by supplementing with long hay. Therefore, this study was carried out to evaluate effects of combining forage sources on physical digestion and digestibility, and to establish the relationship between ruminal passage rate and proportion of poor quality grass hay in finely chopped corn silage in forage mixtures.

Six ruminally cannulated Holstein dry cows were allocated one of six treatments of GH proportion (0, 10, 20, 30, 40, 50%, DM basis) in CS diet. The ruminal digesta kinetics were measured by ruminal dosing of markers (Dy, Gd, Sm, Pr for CS, Er, Ho, Nd, Ce for GH ) followed by fecal samplings until 96h after dosing. Chewing activity was recorded by video-recorder. Marker concentration curves were fitted to the age dependent and independent model. Ruminal liquid passage rate and disappearance rate were fitted to one-compartment simple exponential model.

High GH proportion in CS based diets increased eating and chewing time with no affecting on particle size reduction, ruminal pH and total volatile fatty acids (VFA) contents. Feeding GH 50 and GH40 in CS based diets significantly increased in NDF digestibility without disturbing digestibility of other nutrients compared with GH30, GH20, GH10 and GH0. GH50, GH40, GH30 and GH10 had lower ruminal passage rate and ruminal disappearance rate of CS compared with GH0 and GH10. From these, it was confirmed that physical form of poor quality grass hay can influence the physical digestion of corn silage. The low NDF digestibility of CS could probably be improved by reduced the ruminal passage rate and ruminal disappearance rate of CS from the reticulorumen.

It was concluded that cows fed high proportion of chopped GH in finely chopped CS diet seemed to be a suitable method to improve NDF digestibility by decreasing ruminal passage rate of small particles and ruminal disappearance rate of rumen digesta of CS. Moreover, there could be positive associative response of physical form between corn silage and poor quality grass hay on physical digestion.