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Summary only

NUTRITIVE CHARACTERISTICS OF MAIZE SILAGE AND  
MAIZE SILAGE/GRASS RATIONS FOR CATTLE

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Sixteen rising two-year-old monozygous twin cattle (Jerseys) were housed indoors and fed maize silage, both as a sole ration and in conjunction with fresh pasture, to investigate some nutritional properties of various diets.

In a preliminary experiment, silages harvested using two types of machine to give conventional (1.24 cm mean particle size) and coarse (2.20 cm) silages were fed at restricted levels. The dry matter (DM) digestibilities and mean retention times were 62.7% (44.6 h) and 65.1% (49.0 h) for the conventional and coarse silages, respectively. These differences were possibly related to the slightly higher intakes and higher dry matter content of the conventional silage, so that the effect of particle size *per se* may have been small.

Maize silage and grass (mixed pasture (MP); and Tama ryegrass (T), in separate trials) in the ratios of 100:0 (T1), 80:20 (T2), 44:55 (T3), and 0:100 (T4) were fed *ad lib.* to four groups of cattle. Digestibilities rose as the proportion of grass in the ration increased, OM digestibilities for T2, T3 and T4 being 68.0%, 73.0% and 82.0%, respectively. Silage (T1) OM digestibilities were low and declined from 65.4% to 57.2% over the 8-week duration of the experiment. Voluntary intakes were significantly higher for the mixed rations than for the silage or grass rations fed alone. Dry matter intakes (g/kg body weight<sup>3/4</sup>) during the Tama feeding period were 95.9 (T1), 107.0 (T2), 122.3 (T3), and 89.9 (T4). Digestible DM intakes (g/kg body weight<sup>3/4</sup>) for T1, T2, T3 and T4 were 51.7 (MP and Tama); 64.8 (MP), 68.4 (Tama); 70.8 (MP), 80.7 (Tama); and 66.5 (MP and Tama), respectively. All comparisons between T1 and the mixed rations were highly significant ( $P < 0.01$ ).

It was concluded that the protein deficiency of maize silage could be overcome by supplementation with small quantities of fresh pasture; higher levels of supplementation resulted in very high intakes of digestible nutrients.