Maize silage is a potential supplement to pasture and is currently used on a number of farms in Victoria to alleviate shortages of pasture in autumn and early spring. It has been found that cows respond well to maize silage supplementation, but no extra milk is produced once maize silage exceeds 40% of the diet (Stockdale, unpublished results). Because protein deficiency is probably the major cause of this limitation, an experiment was done at Kyabram in 1986 to assess the use of pure legume pasture instead of traditional perennial pasture in a pasture/maize silage ration.

Twenty-four cows in mid lactation were stall-fed each day for a period of five weeks with 7.4 kgDM/cow of forage harvested pasture; this was supplemented with amounts of maize silage ranging from 0-11 kgDM/cow/d. High quality pasture was Persian clover (Trifolium resupinatum) (76% DMD and 21% protein) and low quality pasture was irrigated ryegrass (Lolium perenne)/white clover (Trifolium repens) (67% DMD, 16% protein and 25% white clover). The maize silage was 61% digestible and had 8% protein.

The results of this experiment are summarized in Fig. 1. For cows fed ryegrass and white clover, milk yields peaked at approx. 20 L/cow when maize silage constituted about 40% of the diet, confirming earlier results. When Persian clover was fed, a milk yield of 24 L/cow was achieved at maximum silage intakes which constituted 60% of the diet, with no indication that a plateau in milk yield had been reached. Furthermore, the marginal return to maize silage was greater where Persian clover was the basal feed, even at low levels of maize silage; for example, the return to the first 5 kg of maize silage was 0.9 L milk/kg maize DM for ryegrass and white clover, compared to 1.4 L for Persian clover. The response to maize silage supplementing the legume can only be explained if positive associative effects on digestion occurred due to improved utilization of one or both of the feeds. This experiment has provided an example of the value of legumes in a dairy farming system.

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