MILK DEVELOPMENT COUNCIL

Whole crop cereals and other forages as bi-crops

Executive Summary
Project No. 97/R2/25
Farmer recommendations

- Bi-cropping forage brassica and a whole-crop cereal together can raise the overall protein level significantly.
- Feeding trials with barley:kale bi-crop gave higher intakes and higher milk and protein yields.

Executive Summary

The dry matter production and suitability for ensilage of wheat, barley or oats grown in combination with kale, rape or peas and wheat plus white clover were tested. Plots, size 3 x 18 m cereal drilled in mid April and harvested in mid August 1997 at each of two sites on contrasting soil types near North Wyke. The bi-crops were sown in alternate strips 68 cm wide, each strip comprising four rows of the crop.

The material cut from each plot was chopped into 14 mm lengths using a Taarup Precision Chop forage harvester. An additive (Cultech Wholecrop) was applied and a sample of the chopped material was compressed to fill a 60 litre barrel and ensiled. In mid January all effluent was drained from each barrel and a silage sample taken and analysed for DM, NCDA, DOMD, ME, CP, Ash, pH, NH4-N, NO3-N, starch, ADF, NDF, WSC, total lactic acid, ethanol, acetic acid, propionic acid, iso-butyric acid, N-butyric acid, iso-valeric acid, N-valeric acid, total volatile acids, Se, P, K, Ca, Mg, Na, Cu, Zn, Co, and I.

A striking feature of the work was the similarity of yield of the various bi-crops – except those containing peas (average 8.07 and 5.09 t/ha for bi-crops with or without peas respectively). Combinations with rape generally had the highest protein levels (15.3%) and combinations with barley gave the highest starch levels.