

INTERCROPPING CORN AND SOYBEANS OR COWPEAS: NUTRITIONAL QUALITY

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In order to meet a greater proportion of ruminant nutrient requirements with forages, a cooperative experiment with the Plant & Soil Sciences Department was initiated. Preliminary test plots of various combinations of corn and soybeans or cowpeas were harvested as silage. Protein content for corn, soybeans and cowpeas averaged 7.89%, 20.67% and 14.05% respectively.

Four treatments were put up in experimental silos for animal evaluation. Combinations ensiled were: 100% corn, 100% soybeans, 67% corn:33% soybeans, and 50% corn:50% soybeans. Analysis of the ensiled treatments gave the following information (Table 1).

Table 1.

	100% C	100% SB	67% C:33% SB	50% C:50% SB
% dry matter	33.8	30.8	36.5	29.5
% crude protein	8.10	19.75	9.0	10.91
% acid detergent fiber	21.30	29.83	22.17	-
% lactic acid	2.08	4.92	5.24	-

The lactic acid content as well as acetic acid content was highest for silages containing soybeans, indicating greater fermentation activity.

Each of the four silages were fed to mature ewes for 10 day adjustment period followed by a 5 day digestion trial. Average dry matter intakes for the 100 C, 100 SB, 67 C:33 SB and 50 C:50 SB were: 833.3 g, 798.5 g, 849.3 g and 850.9 g respectively. Crude protein intakes were: 67.1 g, 160.7 g, 76.2 g and 92.8 g per day. Sheep fed the 100% soybean silage consumed larger amounts of protein but had slightly lower dry matter intakes than those on the other three treatments.

Dry matter digestibility for the 100 C, 100 SB, 67 C:33 SB and 50 C:50 SB averaged 58.9%, 56.0%, 63.2% and 55.6% respectively. The 67% C:33% SB silage was more digestible than the straight corn silage. The 100% soybean silage and 50% C:50% SB silage were slightly less digestible than the 100% corn silage. This may be due to the higher acid detergent fiber content of silages containing the higher proportion of soybean plant. Research into the nutritional value of corn:soybean and corn:cowpea silages is currently in progress.