

Fermentation characteristics and nutritive value of corn silage intercropped with soybean under different crop combination ratios

ABSTRACT

Corn silage is an important feed for intensive ruminant production. Combining corn with legumes for silage is a feasible strategy to improve crude protein (CP) concentration in corn silage. This study was conducted to determine silage nutritive quality and fermentation profiles of corn grown in mixture with soybean at different crop combination ratio. In this experiment, corn-soybean combinations of 75:25, 50:50 and 25:75 in addition to monocrops of corn and soybean were evaluated. The crop combination ratio had significant effects on nutritive quality and fermentation characteristics of silage. Silage quality in terms of CP (75:25 ratio 12.23%, 50:50 ratio 12.88% and 25:75 ratio 13.65%) was improved by intercropping compared with corn sole crop (9.91% CP). Increase ratio of soybean resulted in an increase in lactic acid and pH of the mixed silage. Sole soybean gave significantly higher lactic acid (3.57%) and pH of silage (4.33) compared to all other treatments but dry matter concentration was significantly higher in corn monocrop silage (34.34%) than other treatments. The propionic acid and butyric acid content of soybean monocrop and intercrops silage were in all cases higher than sole corn silage.

Keyword: Silage fermentation; Volatile fatty acids; Nutritive quality; Proportion; Corn-soybean intercropping