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Potential of *Canavalia brasiliensis* as a Dry Season Supplement in Central American Mixed Crop-Livestock Systems

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Abstract

In Nicaraguan hillsides livestock suffer forage shortage during the dry season of five months with subsequent production decline. Because of its drought tolerance, introduction of *Canavalia brasiliensis* into the traditional maize-bean-livestock system is thought to be a good option and its potential was assessed on-farm. Experiments at three smallholder farms with two treatments each were performed. At each farm two plots of 0.35 ha were planted with maize during the first rainy season and either beans (treatment 1, control) or *Canavalia* (treatment 2) during the second rainy season. After removing maize cob and beans at harvest, three groups of 3–5 lactating cows entered the maize stover fields and grazed first the plots with the maize stover (and weeds/legumes) followed by the maize plots with *Canavalia*. Each treatment had duration of eight days, of which were four days of adaptation and four days of data collection. Biomass production was estimated, and milk production and quality were determined.

As a mixed crop with maize, an average *Canavalia* yield of 1.6 t ha⁻¹ dry matter (DM) was achieved after 16 to 20 weeks of growth which was lower than in pure stands (Martens et al., this volume). However, total biomass of the mixed *Canavalia*-maize plots was significantly higher than the control maize plots: 4 versus 3 t ha⁻¹ DM, providing a higher feed availability and also better quality of feed.

The high *in vitro* DM digestibility of *Canavalia* of 65% versus 41% of maize stover, the lower lignin and cellulose content (ADF 39% vs. 50% of DM) and the additional protein supply of *Canavalia* contributed to a significant increase in milk production by 0.5 kg d⁻¹*cow (15–20%) on average. No effect was found in milk quality.

The farmers recognise the positive effect on milk production and they show a clear interest in continuing integrating *Canavalia* in their farming system.

Keywords: *Canavalia brasiliensis*, Central-America, maize stover, milk production, mixed crop-livestock systems