



Tropentag, October 7-9, 2008, Hohenheim

“Competition for Resources in a Changing World:  
New Drive for Rural Development”

## Rapid Assessment of Ensilability of *Vigna unguiculata* and *Canavalia brasiliensis* as an Option for Alternative Pig Feeding

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### Abstract

In view of increasing prices for grain based concentrates, alternative feeds are sought to improve competitiveness of smallholder pig production in the tropics. Ensiled forage legumes are seen as an option.

The “Rostocker Fermentation Test” allowed a quick evaluation of the ensilability of forage legumes per se and its possible improvement by additives.

*Vigna unguiculata* and/or *Canavalia brasiliensis* resp. were harvested at 4 different ages (Martens et al., this volume), chopped and minced. 50 g fresh material was weighed in a sterile glass beaker (600 ml) and 200 ml of distilled water were added. Four treatments applied in triplicates: control, control + 2% sucrose on FM base, control + *Pediococcus acidilactici* preparation ( $3.0 \times 10^5$  cfu g<sup>-1</sup> FM), control + *P. acidilactici* + 2% sucrose. The preparations were incubated at 35°C for 2 days. The pH as indicator for the ongoing acidification was measured at 0, 22, 28, 52 and 58 hours.

With *Vigna unguiculata*, after an initial sour fermentation, the pH of the control rose again during the second day of fermentation until 10 weeks of age. The addition of the lactic acid bacteria preparation slightly improved the fermentation. A significantly better pH development was achieved by adding sugar from 8 weeks onwards. The most promising treatment, independent from the plant age was the combination of the *P. acidilactici* preparation with sugar, fermenting most rapidly and always leading to a final pH of  $\leq 4.0$ . Best results without additional sugar were achieved at 12 weeks age, the ripening beans probably providing additional carbohydrates (WSC), confirming with findings for lab scale silages (Martens et al., this volume).

The pH development of silage cultures with *Canavalia* without sugar addition was not acceptable throughout the weeks 8–20 hardly going below pH 5.0. The best age for ensiling *Canavalia* when adding sugar and preferably combine that with lactic acid bacteria inoculation was at 12 and 20 weeks. By this method it was revealed, that in general, the ensilability of *Canavalia* was worse compared to *Vigna*, probably due to less WSC and to a higher buffering capacity.

**Keywords:** Additives, *Canavalia brasiliensis*, fermentation test, *in-vitro* ensilability, *Vigna unguiculata*