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Canavalia brasiliensis and *Vigna unguiculata* at Different Growth Stages

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Abstract

The cover crop legume *Canavalia brasiliensis* can be grown on a wide range of soils: soil pH 4.3–8.0, low fertile soils and up to a height of 1000 m .a.s.l. The annual *Vigna unguiculata* shows even a wider range of environmental adaptation.

The high level of crude protein of these legumes suggests a good suitability as feed supplement for ruminants and possibly even for swine.

Canavalia brasiliensis CIAT17009 and *Vigna unguiculata* CIAT9611 were established in September 2007 at Palmira station, Colombia, in quadruplicate. Each plot had a size of 5 m × 3 m. Row-spacing was 70 cm and within rows 30 cm or 20 cm respectively for *Vigna* at a sowing rate of 20 kg ha⁻¹.

Canavalia was harvested at 8, 12, 16 and 20 weeks of growth, *Vigna* at 6, 8, 10 and 12 weeks. Yield, feed value and ensilability were determined.

The dry matter yield of *Canavalia* developed slowly from 1.1 t ha⁻¹ after 8 weeks of growth to 3.6 t ha⁻¹ after 12 weeks, then to 6.1 t ha⁻¹ at 16 weeks and 12.3 t ha DM after 20 weeks. The DM content rose from 21 to 24 % from 8 to 16 weeks, and to 39 % after 20 weeks. The fast growing *Vigna* started with a DM yield of 1.7 t ha⁻¹ (6 weeks), and increased to 3.5, 5.1 and 8.5 t ha⁻¹ with 8, 10 and 12 weeks, respectively. *Vigna* had a high water content in the stems, resulting in a total DM of 11–13 % until 10 weeks. Only in the final stage of pod ripening the DM content rose to 21 %.

Throughout the weeks 6 to 10 *Vigna* had a high *in vitro* DM digestibility (IVDMD) for ruminants of > 74 % and a CP content of 20–17 % in DM in comparison to 59–65 % IVDMD and around 16 % CP of *Canavalia* from 8–20 weeks. When *Canavalia* was used on-farm as a supplement in Nicaragua, it improved the performance of dairy cattle (van der Hoek, this volume).

Keywords: *Canavalia brasiliensis*, feed value, yield