

Back to Bounlieng content

Use of fresh stylosanthes (*Stylosanthes guianensis*, CIAT 184) and cassava foliage (*Manihot esculenta*, Crantz) as a protein source for crossbred pigs

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Abstract

Two experiments were conducted in the Livestock Research Centre, National Agriculture and Forestry Research Institute. The first was a study of the effect of including fresh *Stylosanthes guianensis* (CIAT 184), and cassava foliage (*Manihot esculenta* Crantz), fed separately or in a mixture, on digestibility, intake, and N retention in growing pigs. The second was a study on the effect of fresh *Stylosanthes guianensis* (CIAT 184), and cassava foliage (*Manihot esculenta* Crantz), fed separately or in a mixture, on feed and nutrient intake, growth performance and carcass quality of crossbred pigs.

In Experiment 1 Eight individually housed crossbred (Large White x Mong Cai) castrated male pigs of 26 to 30 kg were used to study the effect of fresh stylosanthes (ST) and cassava foliage (CL) fed alone or in a mixture (MIX) together with a basal diet (Ctrl), on the intake, nutrient digestibility and nitrogen balance. The basal diet and the foliages were fed separately *ad libitum*.

Total feed dry matter (DM) intake was higher when fresh stylo was offered mixed with cassava foliage in the proportion 50:50 (DM basis) (1624 g/day) as compared with fresh stylo (1583 g/day) or cassava foliage (1483 g/day) as the sole supplement and compared to the basal diet (1361 g/day) ($P < 0.05$). There were no significant differences ($P > 0.05$) among treatments in digestibility of DM, but N digestibility was lowest for the CL (83.3%) and MIX (83.4%) treatments compared to Ctrl (85.1%) ($P < 0.05$). N retention was higher ($P < 0.05$) for the MIX (15 g/day), ST (14 g/day) and CL (13 g/day) than for the Ctrl (11 g/day) treatment. There were no differences in DM digestibility among the foliages, which were in the range 58.9 % (CL) to 65.0 % (ST) nor in the N digestibility, which was in the range 60.5 % (CL) to 73.4 % (ST).

It was concluded that providing stylosanthes and cassava foliage in a mixture increased DM intake and N retention compared to feeding them as the sole supplement and compared to a basal diet.

Experiment 2 A growth trial was conducted with a total of 16 crossbred (Large White x Mong Cai) castrated male pigs of 23 kg mean initial live weight. After 4 weeks for adaptation and vaccination, they were distributed at random into four treatments to study the effect of feeding *ad libitum* a basal diet (Ctrl) fed alone or together with fresh stylo 184 (ST) and cassava foliage (CT), offered alone or in a mixture (MIX), on intake, growth performance and carcass quality.

Mean total daily DM intakes were 1148, 1383, 1488 and 1602g for treatments Ctrl, CL, ST and MIX, respectively ($P < 0.001$). Average daily gains (ADG) were 363, 425, 561 and 582g for treatments Ctrl, CL, ST and MIX, respectively ($P < 0.001$). Feed conversion ratios (FCR) were 3.16, 3.25, 2.65 and 2.75 kg feed / kg gain for treatments Ctrl, CL, ST and MIX, respectively ($P > 0.05$). There were no consistent effects on carcass quality and organ development. Economical efficiency was improved by offering the foliages, and feed costs/kg live weight gain were 8,582, 8,466, 7,033 and 7,249 Kip for the Ctrl, CL, ST and MIX treatment, respectively.

It was concluded that supplementing a mixture of fresh stylo 184 and cassava foliage fed together *ad libitum* improved the quality of the overall diet, which resulted in higher intake and growth rate, and better feed conversion and economical efficiency. Including the foliages made use of locally available, low cost resources.

Key words: Crossbred pigs; Stylo CIAT 184; Cassava foliage; Digestibility; Nitrogen balance; Intake; Carcass quality; Economic benefits.
