Growth response of pigs supplemented with two contrasting tropical legume silages in Colombia

Patricia Sarria B., Siriwan Martens*, María Adenis Candó and John Pastas

pisarriab@unal.edu.co
Universidad Nacional de Colombia, A.A. 237, Palmira, Colombia
*International Center for Tropical Agriculture (CIAT), Tropical Forages Program, Palmira, Colombia

1. Introduction
In a framework project tropical forage legumes with different levels of processing were assessed as alternative protein supplement for pigs. The high quality annual \textit{Vigna unguiculata} and the more fibrous biennial \textit{Canavalia brasiliensis} were ensiled and included in balanced diets for comparison.

2. Objective
The objective was to assess the growth potential of pigs when \textit{Vigna unguiculata} CIAT 4555 or \textit{Canavalia brasiliensis} CIAT 17009 silage replaced 200 g/kg crude protein from soybean meal in the diet.

3. Material and methods

- **Silages**: fresh forages were wilted to achieve 300 g dry matter DM/kg fresh matter (FM), chopped, \textit{Lactobacillus} CIAT S66.7 and in the case of \textit{Vigna} sucrose (20 g/kg FM) were added, and compacted in 19 l-buckets. Those were stored for several months at ambient temperature.
- **Animals**: 12 commercial male pigs with 43.0 ±1.6 kg live weight (LW) were housed individually and weighed every 14 days (Fig. 3).
- **Experimental design**: A crossover with duplicated Latin squares was applied, for a total of four squares with three treatments (see Table 1), and six orders.
- **Feeding**: The silage was mixed with the basal diet before feeding (Fig. 1). The diet for each animal changed every three weeks, for a total of 9 weeks. Food was offered starting with 80 g DM/kg LW$^{0.75\times}d$ (Fig. 2).

4. Results and discussion

- **The fermentation quality was better in the \textit{Vigna} silage (pH 4.4) than \textit{Canavalia} silage (pH 5.3) (Fig. 4). This led to less palatability and minor growth in pigs supplemented with \textit{Canavalia} silage (Fig. 5).**
- **Although the Canavalia diet contained a higher silage proportion as it was lower in crude protein, less overall consumption probably caused lower weight gain (Fig. 5).**
- **Canavalia diet had higher ADF and ADL contents (Table 1) which affected digestibility in earlier own studies.**

5. Conclusions

- All three diets gave at least reasonably good weight gains.
- Good quality forage silage of \textit{Vigna unguiculata} offered the most promising option to be included in balanced diets for growing-finishing pigs.

This study was part of the project "More chicken and pork in the pot, and money in pocket: Improving forages for monogastric animals with low-income farmers".