**Beef production with different improved forage options in the Tropics**

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**Abstract**

The global population growth and changes in living conditions in many developing countries during the last decade have generated an increasing demand for food, especially animal source food (protein), which is directly related to the efficiency of livestock production systems. In Colombia, livestock production is characterized by extensive and inefficient production systems which has resulted in national efforts and strategies for increasing cattle inventory while at the same time reducing grazing area and setting free area for crop production and reforestation (Colombian Livestock Strategy PEGA 2019 for sustainable intensification). In this sense, improved forage materials and silvo-pastoral systems are being considered as valuable options for sustainable intensification in terms of increased biomass production, better nutritional quality and higher carrying capacity.

At the International Center for Tropical Agriculture (CIAT) in Cali, Colombia, a trial was set up for evaluating animal live weight gains per hectare for three different forage treatments (plot size of 3300m2 per treatment): T1) Grass monoculture: *Brachiaria* hybrid cv. Cayman (CIAT BR02/1752), T2) Grass-legume associoation: *Brachiaria* hybrid cv. Cayman (CIAT BR02/1752) + *Canavalia brasiliensis* (CIAT 17009), and T3) Silvo-pastoral system: *Brachiaria* hybrid cv. Cayman (CIAT BR02/1752) + *Canavalia brasiliensis* (CIAT 17009) + *Leucaena diversifolia* (ILRI 15551). A total of 12 male calves (2 years age) was put under grazing in groups of four animals per treatment, using a completely randomized experimental block design during 7 months in 2015 and measuring meat production per hectare.

The total meat production per hectare reached 1104, 1219 and 1423 kg, for T1, T2 and T3, respectively, obtaining a carrying capacity of 2.5, 2.7 and 3.2 animals per hectare (LU = 450kg). With regard to these results, the silvo-pastoral system with *Brachiaria* hybrid cv. Cayman, *Canavalia brasiliensis* and *Leucaena diversifolia* (T3) clearly proves to be a suitable option for achieving higher per area productivity and carrying capacities and leaves the conclusion that silvo-pastoral systems are an excellent alternative to contribute to the Colombian Livestock Strategy (PEGA 2019) for sustainable intensification.

**Key words:** Silvo-pastoral Systems, Carrying capacity, improved forages, sustainable intensification, animal live weight gain

1. [↑](#footnote-ref-1)