world congress on integrated
crop-livestock-forest systems
3rd International Symposium on Integrated Crop-Livestock Systems
towards sustainable intensification • brasilia • brazil • 2015

# Evaluation of agro forestry system coconut/sheep in Costal Tablelands Northwest of Brazil

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**Introduction** - The low planting densities observed in coconut favors the cultivation of the weed infestation thereby increasing production costs. The integrated farming with animal husbandry constitutes an alternative control of natural vegetation while providing an additional income to the producer. In this work, we evaluated the effects of grazing sheep and mechanical weeding on animal performance and production of coconut trees.

**Material and Methods** - The study was conducted over three years, in an area with coconut trees giant variety aged around 30 years, and sheep Santa Ines, in Coastal Lowlands area of Sergipe. The soil was characterized as Spodosol and climate according to Koeppen classification is the type's' (hot and humid). The average rainfall in this region is around annual 1.416mm (Araújo Filho and others 1999). The chemical analysis of the soil revealed the following levels: pH - 5.9; Al - 0.11 meq / 100 g; Ca + Mg - 0.8 mEq / 100 g; P - 2.5 ppm; and K - 10.0 ppm. The experimental design used in the first year of conducting the trial was a randomized complete block design with four replications, with the following treatments: T0 = Mowing vegetation held twice a year (control); T1 = light stocking rate (2.4 sheep / ha); T2 = average stocking rate (3.2 sheep / ha); T3 = heavy stocking rate (4.0 sheep / ha). In sub treatments, it evaluated the effect of manual crowning of coconut palms held twice a year, with and without this practice without using fertilization of coconut trees.

**Results / Conclusions** – Liveweight gains obtained in the first year were low, and declined linearly with increasing stocking rate. After control of parasitic diseases, animal performance improved markedly, while in the third year, under heavy grazing, there has been decline in weight gain, the effect of the gradual replacement of the grass-ginger (*Paspalum maritimum, Trind.*), Intensely grazed by grass *Papophorum sp.*, rejected by the animals. Mechanical mowing more than doubled the proportion of these grasses in the pasture at the expense of legumes and other forbs. The coconut production did not change significantly ($P < 0.05$) according to the intensity of grazing, although the crown of coconut trees has produced significant effects ($P < 0.05$) both in mowing areas and in areas under light grazing and medium In a complementary experiment, the growth of grass ginger and its phosphorus content responded significantly ($P < 0.01$) to fertilization. Its crude protein and in vitro dry matter digestibility declined with age of the plant, without response to fertilization. Native pastures under coconut trees, with dominance of grass ginger, can therefore be exploited to sheep, subject to the production of coco.