How does N fertilization or forage legumes affect forage and animal production?

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INTRODUCTION

Grass-fed beef operations

PASTURE NITROGEN INPUT

N Application

Legume integration

Forage

Herbage mass

Nutritive value

Animal

Animal performance

Stocking rate

Liveweight gain/area

OBJECTIVE

The aim of this study was to investigate canopy structure and animal productivity responses of mixed pasture of Marandu palisadegrass and forage peanut compared to Marandu palisadegrass in monoculture, whether or not fertilized with N.

METHODS AND STUDY SITE

➢ Minimum of two Nellore heifers (234 ± 36 kg BW and 12 ± 1.3 months of age);
➢ Treatments: (GRASS+LEGUME): Marandu palisadegrass and forage peanut mixed pasture, without N fertilizer application;

(Grass+N): Marandu palisadegrass monoculture with 150 kg N/ha/year divided into three applications during the rainy season;

(Grass): Marandu palisadegrass monoculture without N fertilizer application;

➢ Continuous stocking with a variable stocking rate was used to maintain the canopy height between 20 and 25 cm;

➢ Herbage mass was sampled by harvesting six frames at ground level once every 30 days.

➢ Cattle were weighed in the morning, every 28 d throughout each season. The liveweight gain per ha was calculated by multiplying the ADG by stocking rate.
RESULTS

Figures. Herbage mass (A), stocking rate (B) and liveweight gain per ha (C) of Marandu palisadegrass pastures with or without N application, and mixed with forage peanut during the seasons of the experimental period. Error bars represent ± standard errors of the means.

CONCLUSIONS

In Brazil, the increase in productivity of livestock production on pasture in a sustainable manner becomes a necessity. Nitrogen application is the fastest and easiest way to produce more meat in smaller areas. However, mixed pastures have direct benefits to farmers, with a reduction of the cost of maintenance N application and an increase in productivity relative to GRASS pasture.

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