

Bamboo - based alternatives of feeding for tropical cattle farming: A case study in Colombia

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INTRODUCTION

In tropical areas cattle farming have considerable increased during the last years. Therefore, grassland is one of the largest land use that occupies important areas in tropical countries. These systems have been established instead of traditional land uses even an important portion forests area have been eliminated for establishing pastures. This situation is one of the causes of land degradation and loss of ecosystems services (ES), therefore cattle farming is currently considered an important source of green house gases. In order to promote alternatives for a better cattle farming, different strategies have been employed for mitigating the above-mentioned negative conditions. To find new sources of feeding is one strategy to optimize cattle systems, especially when species used have a better nutritional quality and are capable to provide other ES. In this sense to introduce woody species have resulted adequate because fulfill both feeding and ecological benefices. Bamboo species widely distributed in tropics can provided alternatives for being alternatives as feeding in cattle farming systems.

OBJECTIVE

To assess the potential of nine bamboo species for providing forage to be use for ruminant feeding

METHODS

The bamboo species included were 1) *Bambusa heterostachya*, 2) *Bambusa longispiculata*, 3) *Bambusa multiplex*, 4) *Bambusa vulgaris*, 5) *Gigantochloa apus*, 6) *Guadua angustifolia*, 7) *Oatea acuminata*, 8) *Phyllostachys aurea*, and 9) *Schizostachyum brachycladum*.

A proximate analysis (PA) and in vitro digestibility (ID) were evaluated and then three bamboo species selected for assessing palatability. The PA, ID and the facility for collecting forage as well, were criteria for selecting species for a palatability evaluation. Palatability assessment was carried out in a trial where a complement a daily portion of bamboo leaves during a week was offered to five cows (weigh of 225 kg /each). Cows were freely grazing in a pasture during the time of the trial. Bamboo leaves were disposed in troughs with three replicates per specie. Troughs were strategically located in the trial area.



(i) *Guadua angustifolia* (ii) *Gigantochloa apus*

2) Laboratory analysis

2) Palatability Evaluation

RESULTS

After the proximate and digestibility analysis, three species (5, 6 and 8) showed the better conditions (e.g. in vitro digestibility over 50% and crude protein around 15%) with values comparable to other woody species used in silvopastoral systems (SSPP). The palatability trial showed a low acceptance of animals for the three bamboo species. Probably, the abundance of grass and also the fact that bamboo leaves were offered pure for avoiding any additional supplement that increase the costs associated with this alternative, were factors influencing the low consumption of animals. Bamboo species are grass and therefore may be easily adapted for being integrated to pastures. In addition, growth fast and might be managed for being browsed directly by animals.

CONCLUSION

These results showed the potential for new feeding resources for a better cattle farming with some advantages of bamboo species upon traditional woody species used in SSPP, related to adaptability and fast growth. However, it is feasible that it works better for those areas with scarce of feeding resources, where animals have a lesser offer.

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