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Biomass Production and Relative Palatability of Possible Supplementary Forage Plants of the Northeastern Amazon

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Abstract

In the Bragantina region of north-eastern Pará, Brazil, the sustainability of extensive smallholder pastures is constantly jeopardised by resprouting trees of the native secondary vegetation. While most trees are feared weeds some of them might be useful on farms as they are often completely defoliated, thus obviously palatable for cattle. As these species might be cheap supplementary forage alternatives, we compared its leafy biomass production and relative palatability against well-known forage legumes. Therefore, an on-farm buffet trial was conducted on a 0.5 ha pasture at Igarapé-Açu (47°36'W/1°08'S). Six native species, namely *Attalea maripa* (Arecaceae), *Cecropia palmata* (Cecropiaceae), *Phenakospermum guyannense* (Strelitziaceae), *Abarema jupunba*, *Inga edulis* (both Fabaceae), and introduced *Tithonia diversifolia* (Asteraceae), *Mangifera indica* (Anacardiaceae), and *Racospermum mangium* (Fabaceae) were tested against *Cratylia argentea* and *Flemingia macrophylla*. Twenty-five saplings of each species were planted on 25 m² plots, respectively, and repeated eight times in a randomised block design (n=80 plots, n=2000 saplings). After 24 months of establishment time, the buffet trial was grazed by four mixed-bred steers (mean liveweight: 506 kg; 2 AU/ha) for one week. The results showed that most tested species had a comparable leafy biomass production and palatability: *R. mangium* 455 kg ha⁻¹ (standard deviation: 429) / consumed biomass: 21%; *F. macrophylla* 260 (89)/ 13%; *C. argentea* 164 (87)/ 40%; *P. guianensis* 156 (13)/ 1%; *M. indica* 156 (19)/ 25%; *A. jupunba* 140 (13)/ 29%; *I. edulis* 94 (9)/ 8%; *C. palmata* 88 (20)/ 60%; *A. maripa* 60 (13)/ -%; and *T. diversifolia* 57 (62)/ -%. The establishment of the buffet trial was problematic and transplantation of saplings to a soil-compacted pasture can not be recommended to farmers as mortality was high and growth rates were low. For instance, individuals of *A. maripa*, *P. guianensis*, and *T. diversifolia* were still too small to be evaluated for its palatability. However, as most species showed palatability between the two reference legumes and had an acceptable biomass production they can be designated to be interesting supplementary forage plants. Consequently, smallholders possess free accessible forage alternatives that should be at least tolerated if not fostered on pastures.

Keywords: Agro-silvo-pastoral systems, cafeteria trial, cattle browsing, secondary vegetation, smallholdings