

***Brachiaria* and *Panicum* productivity at different sites within the Brazilian Amazon**

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Introduction Over the last 25 years more than 70 M ha of native vegetation in Brazil have been replaced by pastures for beef production. The substitution of native vegetation on such a large scale with African grasses (mainly of the genera *Brachiaria* and *Panicum*) is likely to have an impact on nutrients and organic matter composition, as well as a regional impact on hydrology and water quality.

Materials and methods The literature was searched to gather data on grass productivity for the genera *Brachiaria* and *Panicum*, found in Amazonian pastures. Only data from unfertilised pastures and grasses on Oxisol or Ultisol (which together represent about 60% of the soils in the Brazilian Amazon) were selected for this study. Therefore, 17 cases for *Brachiaria* and 15 for *Panicum* were obtained from the following publications: Valentim & Moreira (1994); Souza-Filho *et al.* (1990); Costa *et al.* (1989); Costa (1989); Gonçalves *et al.* (1982); and Azevedo *et al.* (1982).

Results and discussion Mean productivity of *Brachiaria* was 8.22 t DM/ha/year and for *Panicum* was 9.55 t DM/ha/year (Table 1). In both cases, the differences in productivity can be explained by the variation in the genetic cultivars more adapted or more susceptible to warm and humid tropic weather. No correlation was found between grass productivity, soil properties (texture, pH, carbon, bulk density, etc) and geographic location. However, *Brachiaria* and *Panicum* showed higher productivity compared to native pastures (about 3 t DM/ha/year, Camarão & Souza Filho, 1999) in the Brazilian Amazon.

Table 1 Grass productivity in different sites within the Brazilian Amazon

County	Coordinates		Weather ¹		Soil type	Productivity (t DM/ha/year)	
	Lat (S)	Long (W)	Prec (mm)	T (°C)		<i>Brachiaria</i>	<i>Panicum</i>
Rio Branco	09° 58'	67° 29'	1989	24.9	Oxisol	-	18.00 (1.41)
Ariquemes	09° 55'	63° 03'	2270	24.5	Oxisol	7.00	-
Vilhena	12° 44'	63° 08'	1941	22.7	Oxisol	7.96	-
Porto Velho	08° 46'	63° 05'	2200	25.6	Oxisol	9.90 (5.06)	9.90 (8.22)
Presidente Médici	11° 71'	62° 15'	1825	25.0	Ultisol	4.33 (0.54)	5.35 (1.64)
Ji-Paraná	11° 17'	61° 55'	2270	24.5	Ultisol	11.52 (5.41)	5.20
São João do Araguaia	04° 50'	48° 55'	2081	26.2	Ultisol	8.62 (0.96)	9.30 (1.33)

Values in brackets refer to standard deviation. ¹Mean annual precipitation and annual temperature

Conclusion *Brachiaria* and *Panicum* pastures present high productivity levels when well managed (mainly controlling weeds and maintaining an adequate animal stocking rate) even when they were not fertilised. Moreover, cultivated pastures are on average 35% more productive than Amazonian native pastures.

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