

### Organic management of *Brachiaria brizantha* cv. Marandu pasture mixed with *Stylosanthes* spp. in the Cerrado.

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The forage growth response of tropical species to alternative fertilizers legally accepted for organic systems still is unknown in the Cerrados. The aim of this work was to evaluate dry matter yield (DMY) and contribution of legumes in *Brachiaria brizantha* cv. Marandu pasture intercropped with a mixture of *Stylosanthes* spp. cultivars (Mineirão, Campo Grande and Bela) exposed to organic and conventional management during three years in two adjacent areas (Oxisol) with or without green manure (*Crotalaria juncea*). The experimental design was generalized randomized blocks with three blocks and three treatments with two repetitions per block. Management treatments were no fertilization (Control), conventional management (CM) and organic management (OM) fertilization. Three months before planting it was applied 2 t ha<sup>-1</sup> of dolomitic limestone and 1 t ha<sup>-1</sup> of gypsum and then green manure area was cropped using *Crotalaria juncea* to guarantee the N source. At planting OM was performed with K and P sources such as thermopotassium (6% K<sub>2</sub>O) and thermophosphate (12% P<sub>2</sub>O<sub>5</sub>) in amounts of 2 t ha<sup>-1</sup> and 1 t ha<sup>-1</sup>, respectively. For CM treatment it was used potassium chloride (60% K<sub>2</sub>O), triple superphosphate (46% P<sub>2</sub>O<sub>5</sub>) and urea (46% N) totaling 200, 260 and 217 kg ha<sup>-1</sup>, respectively. There was one harvest per season (dry and rainy) and forage was cut at 10 cm from ground level using a square of 1 m<sup>2</sup> in three points per plot (10 × 12 m). There was no difference for DMY in both seasons during the second and third years ( $P > 0.05$ ). The CM<sub>DMY</sub> was higher only in the first year for dry (3000, 1171 and 1650 kg ha<sup>-1</sup> for CM, OM and control, respectively) and rainy season (9542, 6073 and 4229 kg ha for CM, OM and control respectively). The contribution of legumes in OM plots was superior ( $P < 0.05$ ) than CM in the first (1805 vs. 820 kg ha<sup>-1</sup>), second (1605 vs. 441 kg ha<sup>-1</sup>) and third year (1308 vs. 506 kg ha<sup>-1</sup>). The OM plots showed lower DMY only in the first year, while in the two last year DMY was similar. The CM<sub>DMY</sub> decreased over time, probably because of readily available nutrients in the first year in comparison to a slower nutrient release of the organic management of the fertilization. The OM management provides higher forage yield and composition stability of grass legume mixture.

**Key Words:** fertilizer management, forage, grass, legume, organic