



Forages straw decomposition oversowing on soybean consortium in crop-livestock system

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Introduction There are many peculiar features in the Cerrado Biome, characterized by soils with sandy texture, low latitudes, high temperatures and rainfall in great intensity in the summer, but with dry winter. In these regions, the major limitations for the sustainability of integrated systems involving agriculture and livestock is the low forage production in the fall period until the beginning of spring, combined with difficulty in mulch training on the ground for tillage. To try to solve this problem, the intercropping of grain crops with forage species have shown promising results. Among the consortium arrangements, the oversowing of forage species in soybean for these purposes presents operational and agronomic advantages.

Material and Methods The work was conducted during the 2013/14 crop yield in field conditions at Gurupi, Tocantins State, in Oxisol. The forages species *Urochloa* (Syn. *Brachiaria*) *brizantha* cv. Marandu, *Urochloa ruziziensis*, *Panicum maximum* cv. Mombaça and *Panicum maximum* cv. Massai was sown in two amounts: 5 kg ha⁻¹ e 10 kg ha⁻¹ of viable seeds pure (SPV, in Portuguese). The oversowing of forages species were held manually, when the soybean reached the R₅ stage (50% of plant with grains in top filling the pods). After soybean harvest, the forages remained growing during the autumn-spring season (april-november). Before the forages drying with herbicide, the dry matter productivity was determined. The straw decomposition evaluation was carried out through of packaging of litter bags made in naylor containing the dry matter proportional to each forage. In november 2013, the litter bags were alleatory distributed in the treatments and collected at 15, 30, 45, 60, 75 e 90 days after management with herbicide. Each season, after collected the litter bags, the material were dry in greenhouse forced air circulation for weighing and determined the dry matter residual in kg ha⁻¹. The difference between each season was determinate the percentage of dry matter remained.

Results and Conclusions The seeds amount influenced significantly in productivity and straw decomposition rate, even comparing the dry matter residual between the species. The *Urochloa* grasses in 10 kg ha⁻¹ of SPV showed increased the dry matter productivity and 90 days after the management with herbicide about 50% of dry matter remained in the soil surface. In the *Panicum* grasses, the decrease of dry mass occurred exponentially, independent of seeds amount. Between the species evaluated, *Panicum maximum* cv. Mombaça showed the higher straw rate decomposition, whereas 15 days after management with herbicide 46% of dry matter had degraded. At 90 days after management with herbicide, only 14% of dry matter remained in the soil surface, corresponding to 1856 kg ha⁻¹. The results found showed the seeds amount influenced directly in forage productivity for the *Urochloa* grasses when oversowing on soybean. In this high-temperature region of the Cerrado Biome, the forages can be the solution for the forage production in the autumn-spring and straw for soybean in the next crop year under no-tillage system.

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