Abstract

Knowledge of the dynamics of decomposition and nutrient release in production systems is of great importance for management of soil fertility and reducing waste of resources. In this regard, an experiment was conducted in Cerrado (Brazilian tropical savanna) soil from the western region of Bahia, Brazil, for the purpose of studying the decomposition and nutrient release from corn stover plus Brachiaria ruziziensis straw under an integrated crop-livestock system. The evaluations were performed using litterbags collected at 0, 15, 40, 110, 170, and 220 days after desiccation of the stover/straw, which occurred in October 2008. Initial total dry matter was around 6.6 Mg ha\(^{-1}\), with a half-life of 115 days. Nutrient release from this volume of straw (with the percentage in relation to the total amount of nutrients accumulated in the plant) up to the end of evaluations was 29.3 (62 %), 7.8 (80 %), 42.2 (94 %), 48.6 (74 %), 17.0 (81 %), and 7.7 (79 %) kg ha\(^{-1}\) of N, P, K, Ca, Mg, and S, respectively. These results assist management of crop fertilization and result in less waste of natural resources. As an example, transforming the amounts of the three main macronutrients (N, P, and K) released up to 110 days (a period of a certain coincidence with the flowering of the main successor crop) into amounts of fertilizer, there would be savings of R$ 243.00 per hectare.

Keywords

Nutrient cycling, plant nutrition, crop residues.