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Early-Season Termite Composition (Isoptera: Macrotermes) on Maize Fields on Two Soil Types in Two Agro-Ecological Zones of Zimbabwe

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Abstract

Soil fauna plays an important role in tropical agroecosystems. Agricultural management techniques that involve the utilization of different crop residues such as conservation agriculture make use of this role to benefit crop production. A faunal characterization was carried out in the 2004/2005 cropping season at three sites in Zimbabwe. Henderson and Zimuto, sites have predominantly coarse grain textured sandy soils, (represent agroecological zones II and IV of Zimbabwe), whereas Shamva is on a red clay loamy soil (agroecological zone II). The aim of this study was to determine the species diversity and the density of termites as a key faunal group. Soil samples were collected from fields under conventional, reduced tillage treatments and adjacent natural woodlands. At Henderson Research Station and Zimuto, the fields had been left fallow for a minimum of three years. Termites were hand-sorted from excavated soil monoliths (25 x 25, 30 cm deep). *Macrotermes* was identified as the dominant termite species from all the three sites. There were significant differences ($p < 0.05$) in termite densities across the three sites in the order Shamva; Zimuto; Henderson. No immediately clear trend in vertical termite densities was found at the sites. Early in the cropping season, higher termite density was observed on the clay textured soils in agro-ecological zone II compared to the sandy soil site in the same zone and that in zone IV. Significantly lower termite densities were observed in natural woodlands.

Keywords: Conservation agriculture, direct seeding, termite diversity, termite density, natural woodlands, savannah