



Effect of chemical and mechanical weed control on cassava yield, soil quality and erosion under cassava cropping system

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Three years field experiments were conducted to study the effect of chemical and mechanical weed control on soil quality and erosion under cassava cropping system. The experiment were conducted at University Brawijaya field experimental station, Jatikerto, Malang, Indonesia. The experiments were carried out from 2011 – 2014. The treatments consist of three cropping system (cassava mono culture; cassava + maize intercropping and cassava + peanut intercropping), and two weed control method (chemical and mechanical methods). The experimental result showed that the yield of cassava first year and second year did not influenced by weed control method and cropping system. However, the third year yield of cassava was influence by weed control method and cropping system. The cassava yield planted in cassava + maize intercropping system with chemical weed control methods was only 24 t/ha, which lower compared to other treatments, even with that of the same cropping system used mechanical weed control. The highest cassava yield in third year was obtained by cassava + peanuts cropping system with mechanical weed control method. After three years experiment, the soil of cassava monoculture system with chemical weed control method possessed the lowest soil organic matter, and soil aggregate stability. During three years of cropping soil erosion in chemical weed control method, especially on cassava monoculture, was higher compared to mechanical weed control method. The soil loss from chemical control method were 40 t/ha, 44 t/ha and 54 t/ha for the first, second and third year crop. The soil loss from mechanical weed control method for the same years was: 36 t/ha, 36 t/ha and 38 t/ha.

Key words: herbicide, intercropping, soil organic matter, aggregate stability.