ABSTRACT

EFFECT OF LAND AND APPLICATION SYSTEM TOWARD BAGASSE MULCH SOIL RESPIRATION OF THE LAND CROPPING CANE (Saccharum officinarum L.)
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PT Gunung Madu Plantations (GMP) sugar cane plantations has been conducted an intensive land management since 1975. In order to maintain product and sustainable soil fertility is necessary to maintainance land management, such as minimum tillage and the utilization of residual sugar factory as mulch, for example, is bagasse. Tillage systems and mulching bagasse treatment will affect the activity of soil microorganisms that can be measured by soil respiration. Research was carried out since July 2010, soil respiration observations performed at 21 and 24 months after the first ratoon, in April and July 2012. The study was designed as a split plot in a randomized block design (RBD) with 5 replications. The main plot tillage system that consists of no-tillage (t₀) and intensive tillage (t₁). The subplots were bagasse mulch application, which consists of non-bagasse mulch (m₀) and bagasse mulch 80 t ha⁻¹ (m₁). Before anova data were analyzed by Bartlet test and Tukey test at confidence level of 1% and 5%. Main values were analyzed by Least Significant Differences
(LSD) at 1% and 5%. The results showed that tillage systems and bagasse mulch application did not significant by effect on soil respiration in both the morning and afternoon observation. The main values of soil respiration in the plant were in mulch and tillage, mulch and no tillage respected. There were no correlation effect between soil respiration and soil organic-C, soil pH, soil temperature and soil moisture.

Keywords: Bagasse mulch, soil respiration, tillage systems