

Rattiya Nonthakornkitikul 2011: The Effects of Cattle and Green Manures on Yield of Organic Baby Corn. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science.

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The objective of this experiment was to study the effects of cattle manure and green manure on yield of organic baby corn during 2 years. Plant nutrient management system was applied to the 3 successive crops of baby corn per year. The experiment was conducted in sandy loam, moderately fertile soil at the experimental field of Soil Science Department, Kasetsart University, Kamphaeng Saen Campus. Based on soil properties and plant requirement the application of N-fertilizer was 30 kgN/rai for the first year and 20 kgN/rai for the second year. These rates were identified as 1N. The experimental design was CRD with 7 treatments and 4 replications. Treatments 1 and 2 were control (without fertilizer) and 1N chemical fertilizer, respectively; treatments 3 and 4 were 1N and 2N equivalent by basal cattle manure, respectively; treatments 5, 6 and 7 were jack bean green manuring during the first crop followed by two successive crops of corn, among which treatments 6 and 7 were incorporated with 1N and 2N basal cattle manure, respectively.

In the first year, the crop production (husked ear weight and dehusked ear weight) of the cattle manure and green manure treatments were significantly less than the chemical fertilizer. Compared to the treatments of organic matter in crop production, the treatments of cattle manure acquired higher yield than the treatments of green manure. Furthermore, the rate 30 kgN/rai cattle manure treatments gave higher yield than the rate 60 kgN/rai cattle manure treatments and the green manure plus 30 kgN/rai cattle manure gave higher yield than the green manure plus 60 kgN/rai cattle manure and the sole green manure treatment. In the secondary year, The treatments of cattle manure and green manure produced smaller yield than the chemical fertilizer. Compared to the treatments containing organic matter in crop production, the treatments of cattle manure produced higher yield than the treatments of green manure. Furthermore, the rate 40 kgN/rai cattle manure treatments gave higher yield than the rate 20 kgN/rai cattle manure treatments and the green manure plus 40 kgN/rai cattle manure gave higher yield than the green manure plus 20 kgN/rai cattle manure and the sole green manure treatment. During 2 years of this experiment, it was noted that green manure plant yielded N, P₂O₅ and K₂O nutrients at the rate of 22.83, 10.03 and 23.07 kg/rai on the average, respectively. Analysis on cost per unit of baby corn production under organic nutrient management (in the secondary year) illustrated that the rate 20 kgN/rai cattle manure treatment had lowest total monetary cost per unit of yield for husked and dehusked corn. In the case that cost was calculated under the farmer's self-managing basic, it was found that sole green manure required smallest cost for husked and dehusked yields.

Student's signature

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