

Ratchanee Khumdech 2010: Response of Sugarcane Grown on Coarse-textured Soils to Chicken Manuring and Foliar Application of Zinc and Iron. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Miss Suphicha Thanachit, Ph.D. 124 pages.

Growing sugarcane (K95-84) on coarse-textured, Satuk (Typic Paleustult) and Korat (Arenic Haplustult) soils in farmer's field of Sikhiu district, Nakhon Ratchasima province, was aimed at examining the effect of rice husk-mixed chicken manure and Zn, Fe foliar application on cane yield and nutrient concentration in leaf of the plant. The experimental design used was 2 x 6 factorial in randomized complete block with four replications, comprising two factors as follow; 1) no manure and chicken manure application (1,000 kg/rai) and 2) no foliar application, Zn foliar application (3 kg/rai) once, twice, and three times, Zn+Fe application (3 and 0.8 kg/rai, respectively) once, and twice. This application was conducted at two-, three- and four-month after planting. All plots were added with complete fertilizer (15-15-15) at a rate of 20 kg/rai as top dressing with urea mixed with 13-13-21, each at the rate of 20 kg/rai applied three- and five-month after planting. Top visible dewlap leaf was collected at three- and six-months after planting for plant analysis and cane yield was harvested at 10 months of age.

Results showed that the application of chicken manure in Satuk soil gave the yield of 15.6 tonne/rai, which was significantly higher than that of the other with no chicken manuring (13.4 tonne/rai) but the result was in contrast to the yield obtained from Korat soil. Besides, growing sugarcane on the latter soil provided significantly higher above ground biomass (16.9 tonne/rai) with the application of this manure than with no application (14.3 tonne/rai). The application, however, statistically reduced CCS of cane in both soils. Single foliar application of Zn and two-time application of Zn incorporated with Fe tended to give the highest cane yields of 16.0 and 8.0 tonne/rai when grown on Satuk and Korat soils, respectively. When applied Zn twice and Zn and Fe twice with chicken manure added before planting tended to offer the greatest cane yield of 17.3 and 9.1 tonne/rai in Satuk and Korat soils, respectively.

The application of chicken manure lowered Zn concentration but increased Fe in leaves compared to those without this application. Zinc foliar application enhanced a concentration of this nutrient but when applied together with Fe, there was no effect on Fe concentration. Cane yield relatively correlated to N concentration in three-month old's leave and to P and K in leaves at six months of age.

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