Krich Sittichoketram 2009: Effects of Combined of Manure and Chemical Fertilizer Application on the Growth and Yields of Field Corn cv. Suwan 4452. Master of Science (Agriculture), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Assistant Professor Arunsiri Kumlung, D.Agr. 118 pages.

The effects of cow and chicken manures applied in various combinations with chemical fertilizer on the vegetative growth and yields of field grown Suwan 4452 corn variety were studied at the experimental field of Soil Science Department, Kasetsart University, Kamphaeng Saen Campus (Kamphaeng Saen soil series). Based on general farmer recommendation, the application of N-fertilizer was 8 kgN/rai (using 16-16-8 compound fertilizer at the rate of 50 kg/rai). This rate was identified as 1N. The experimental design was RCBD with 10 treatments and 4 replications. The treatments are 1) control 2) 1N from chemical fertilizer 3) 1N from cow manure 4) 1N from chicken manure 5) 1/2N from cow manure+1/2N from chemical fertilizer 6) 3/4N from cow manure+1/4N from chemical fertilizer 7) 1N from cow manure+1/2N from chemical fertilizer. Treatments 8-10 were the same as treatments 5-7 except the organic N–sources were the chicken manure. Urea was top dressed at the rate of 10 kgN/rai to every treatment.

The results drawn from 3 successive growing season revealed that growth and grain yield of control treatment was lower than every treatment containing fertilizer. The 1N chicken manure treatment gave higher grain yield compared to cow manure applied at the same rate for every growing season and higher than the 1N chemical fertilizer treatment for the first season. For the 2nd and 3rd seasons the chicken manure and chemical treatments were found equally performed. Increase in application rate of chemical fertilizer from 1/4N to 1/2N in the treatments containing animal manures at 1N plus chemical fertilizer resulted increases in yield for the group of cow manure in every growing season and for the group of chicken manure in the 3rd season. Such application was found to have comparable effects in the 2nd season and resulted decreases in yield in the 1st season. It was also found that treatments containing 1N of chicken manure, 1N of chemical fertilizer, and 1N of chicken manure plus 1/2N of chemical fertilizer produced highest yield in the 1st, 2nd, and 3rd season, respectively.

_____ _____ ___ / ___ / ___

Student's signature Thesis Advisor's signature