Effect of organic fertilizers in reducing chemical fertilizers on sweet corn , Kanchanaburi Province

Kamchai Kanjanatanaset

Abstract

The research project on the effect of organic fertilizers in reducing chemical fertilizers on sweet corn was conducted on Kamphangsaen soil series , soil group 33 at farmer field ,Ban Nong Teng , Tambom Lum Lung , Amphoe Boploi , Kanchanaburi Province ,during 2006 - 2008 , The objectives of the research are to study effect organic and chemical fertilizers on sweet corn in reducing chemical agriculture and economic return on Kamphangsaen soil series . The experiment was designed by using randomized completed block with a triplicate of 8 treatments including the application of 1) farmer practices (46-0-0 , 15-10-10 each of 50 kilogram per rai) 2) chemical fertilizer based on soil analysis (10-0-0 kg N P_2O_5 K_2O per rai) 3) green manure + liquid organic fertilizer 4) compost 2 toms per rai + liquid organic fertilizer 5) green manure + chemical fertilizer ½ N , P, K based on soil analysis 6) compost 2 tons per rai + chemical fertilizer ½ N , P, K based on soil analysis 7) green manure + chemical fertilizer ½ N , P, K based on soil analysis + liquid organic fertilizer 8) compost 2 tons per rai + chemical fertilizer ½ N , P, K based on soil analysis + liquid organic matter fertilizer . Results showed that application of organic fertilizer such as green manure , compost and liquid organic fertilizer raised average soil reaction from 7.40 to 7.53 , organic matter content from 1.4 to 2.44 percentage , and nonvaraition of phosphorus content . Application of the compost , it was found that 2 tons per rai of compost gave average content of nutrients of nitrogen ,phosphorus , potassium in rage of 4.31-14.54 , 6.74 – 14.79 and 5.25 – 17.26 kilogram per rai respectively . For cowpea as green manure gave average content of nutrients of nitrogen , phosphorus , potassium , calcium and magnesium in rage of 8.37 -19.29 , 0.77 – 2.09 , 9.19 – 20.52 , 6.32 – 11.84 and 0.48 – 1.98 kilogram per rai respectively.

Results from both years , it was found that application of green manure and liquid organic fertilizer was the most appropriated with the highest average yield of 3.17 tons per rai and the highest of economic return 6,801 Baht per rai . The second was application of the chemical fertilizer based on soil analysis (10-0-0 kg N P_2O_5 K_2O per rai) which gave the average yield of 2.86 ton per rai and economic return 5,958 Baht per rai . But application of compost 2 tons per rai and liquid organic fertilizer gave the average yield of 2.48 tons per rai and economic return 1.299 Baht per rai . For the application of fertilizer based on farmer practices gave the average yield of 2.67 tons per rai and moderate economic return 4,286 Baht per rai

Keywords organic fertilizers, reducing chemical fertilizers, sweet corn, Kamphangsaen soil series