

Kingkan Panitnok 2009: Effects of Vetiver Grass, Green Manure and Chemical Fertilizer Management on Maize Yield and Properties of Map Bon, coarse-loamy variant.  
Doctor of Philosophy (Soils), Major Field: Soil Science, Department of Soil Science.  
Thesis Advisor: Assistant Professor Suthep Thongpae, Ph.D. 180 pages.

The study on effects of vetiver grass, green manure and chemical fertilizer management on maize yield and properties of Map Bon, coarse-loamy variant was conducted at Khao Hin Son Research Station, Chachoengsao province. The experiment was carried on split-split plot design in RCBD with 3 replications. There were 2 main plots: with and without vetiver grass; 4 sub plots: without green manure, *Vigna sinensis*, *Canavalia ensiformis*, *Dolichos lablab*; 2 sub-sub plots : without chemical fertilizer and with chemical fertilizer grade 15-15-15 and 21-0-0. The experiment was carried on during March 2001 to April 2003. The results showed that treatments with vetiver grass gave higher grain yield of maize than without vetiver grass significantly, while the treatments with and without green manure gave no difference of maize yield. The use of chemical fertilizer tended to give better maize yield. As for soil properties, treatments with vetiver grass caused the increment of organic matter, total nitrogen, available phosphorus, exchangeable potassium and magnesium and also saturated hydraulic conductivity. On the other hand, bulk density of topsoil and subsoil and soil hardness were decreased, while pH, exchangeable calcium, total porosity and available water capacity were not affected. The use of green manure did not effect soil properties except soil hardness and saturated hydraulic conductivity that were better. Application of chemical fertilizer also did not effect soil properties except soil hardness that was increased. The treatments with vetiver grass and green manure also gave an increment of exchangeable potassium and magnesium and also available water capacity of soil.

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