

Tragool Namloma 2010: Effects of Soil Conditioners on Water Runoff , Soil Erosion, Corn Yield and Economic Returns. Master of Science (Sustainable Land Use and Natural Resource Management), Major Field: Sustainable Land Use and Natural Resources Management, Interdisciplinary Graduate Program. Thesis Advisor: Professor Emeritus Piya Duangpatra, Ph.D. 113 pages.

A field experiment was conducted on Ban Chong soil series during wet season of crop year 2009 in Nakhonsawan province to assess the agronomic effectiveness of 3 soil conditioners (gypsum MK and polyacrylamide) and vetiver grass on corn growth and yield and also its beneficial effects on reducing water runoff and soil loss by erosion. The designated treatments comprise farmer 's method (chemical fertilizer grades 16-20-0 and 46-0-0), official recommendation method (chemical fertilizer grade 16-16-8), gypsum, MK, polyacrylamide and vetiver grass hedgerow. The main observed parameters were consisted of the amount of water runoff, soil loss by erosion including organic matter and plant nutrients, corn growth and yield, economic returns and participated farmer's views about the performances and probable adoption of soil conditioners for corn cultivation

Application of gypsum MK and polyacrylamide by average, markedly improve water infiltration of soil, and also exert significant effects on most chemical properties of soil measured but has insignificant influences on runoff water. The addition of gypsum MK and polyacrylamide in particular, gave more pronounced effects on reducing water runoff and soil loss by erosion than the only chemical fertilizer treatments. Vetiver grass also alleviates soil erosion problem substantially. Polyacrylamide application gave the best results on promoting corn growth and yield. Nevertheless, polyacrylamide is too expensive for use as well as the uses of gypsum and MK which augment the cost of production and thus, resulting in lesser economic returns than that of the soil conditioners-untreated corn or the chemical fertilizers-treated corn

Most research- participated farmers do not want to use gypsum MK polyacrylamide and vetiver grass for corn cultivation due to the lack of fund, labors scarcity and dear and the complication and time-consuming problems of vetiver grass practices.

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