

Effects of Vetiver Grasses on Soil Aggregate Stability, Total Organic Carbon and Polysaccharides on Tha Yang Soil Series

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Abstract

Effects of vetiver grasses on soil aggregate stability, total organic carbon and polysaccharides on Tha Yang Soil series at Rachaburi Land Development Station. The experiment was arranged in completely randomized design with eleven treatments and three replications. Ten types of vetiver grasses (Songkhla 1, Songkhla 2, Suratthani, Loei, Rachaburi, Phitsanulok, Maehongson, Prachuapkhirikhan, Nakhonphanom 2, Kamphaengphet 2 ecotype) and compared with the control plot. The objectives of this investigation was 1) to determine the effects of vetiver grasses on chemical and physical properties of soil and 2) to the rate of accumulation of organic matter and organic carbon. The experiment started in April of 2010 and ended in September of 2011. Soil samples were collected and analyzed for chemical and physical properties.

The results of this study found that vetiver grasses affects of chemical and physical properties of the soil. The two-year study found that Maehongson ecotype as a result, the lowest average bulk density of the soil. Rachaburi ecotype, resulted in the highest soil aggregate. Soil pH, decreased in all grass species. The Organic matter, organic carbon and polysaccharide in the soil increased in all grass species, by Loei ecotype as a result highest but not significant with Rachaburi, Kamphaengphet 2, Maehongson ecotype.

From this investigation, we found that better soil quality can be achieved by vetiver grasses cropping. For Tha Yang Soil series and *soil* variant should be used Maehongson and Ratchaburi ecotype.

Keywords: Vetiver grasses, Aggregate Stability, Organic Carbon, Polysaccharides.