Sawanna Lachitavong 2006: Effects of Sugarcane Residues Management on the some Soil Properties and Economic Ruturns in Sugarcane Plantation. Master of Science (Sustainable Land Use and Natural Resource Management), Major Field: Sustainable Land Use and Natural Resource Management, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Pongsant Srijantr, Ph.D. 207 pages.
ISBN 974-16-1128-5

The experiment on the effects of sugarcane residues management on some soil properties and economic profits in sugarcane plantation was conducted on farmers field with 3 treatments as 1) yearly burning of sugarcane residue. (T1) 2) burning of sugarcane residues at 3 years interval (T2), 3) yearly ploughing down of sugarcane residue. (T3) Four farms of each residues management method were studed. (4 replications) Therefore 12 farmers at Nong Bo and Bo Supan subdistrict, Song Phinong district, Supanburi Province were particated. The farmers corresponding with treatment was interviewed to obtain the data on the cane yield costs and economic return. The undisturbed and disturbed samples were collected from the experimental field to determine bulk density, porosity, hydraulic conductivity, available moisture content, texture, CEC and concentration of some nutrients. The statistical mean difference were analyzed by DMRT.

T1 gave maximum value of bulk density, medium rate of hydraulic conductivity and minimum total porosity, available moisture content, exchangeable potassium and extractable magnesium. While T2 gave the minimum bulk density and extractable calcium but maximum total porosity, available moisture content, organic matter, nitrogen, iron, manganese and zinc. However, T3 gave the maximum value of available phosphorus and exchangeable magnesium.

There was the significant sugarcane yield response to the 3 treatments. Burning sugarcane residues every 3 years produced 15.75 tons of cane per rai which was significantly higher than yearly burning residues (14.53 ton/rai) but the first treatment gave remarkable higher yield than yearly plowing down the sugarcane resdues (12.42 ton/rai)

Comparing the cost of sugarcane production, the minimum cost came from the method of ploughing down sugarcane residues every years in case of ploughing, labour, fuel for irrigation, cost of chemical fertilizer and weed control. The maximum cost as above came from the method of burning sugarcane residues every year. The cost for harvesting in the method of burning sugarcane residues every year was 95 baht and 105 baht both in the method of ploughing sugarcane residues every year and burning sugarcane residues every 3 years because difficulty in harvesting fresh sugarcane. Cost about 10 baht more expensive than the method of pre-harvest burning was added in case of fresh sugarcane harvesting.

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23 / 05 / 2006