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Effects of Rainfall Intensity on Soil and Nutrient Losses from Fertilised Upland Fields and Farmers' Acceptability in Northeast Thailand

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Abstract

The losses of soil and nutrient to the water system cause severe environmental problems, such as eutrophication in water systems or land degradation. Especially, agricultural fields are widely recognised as a non-point source of nutrient components. So, the objectives of this study are to evaluate granular compost application comparing with chemical fertiliser or conventional compost from a viewpoint of reducing soil and nutrient losses under various rainfall intensities of 15, 30, 45 and 60 mm hr^{-1}, and to discuss the farmers' acceptability on promoting organic farming for decreasing the amounts of chemical fertiliser applied through farmers' participation for sustainable agriculture in Khon Kaen of northeast Thailand.

The results showed that soil and nitrogen losses from conventional compost plots were significantly smaller than other plots at the rainfall intensity lower than 30 mm hr. But in case of rainfall intensity higher than 45 mm hr^{-1}, the losses from granular compost plot were the lowest among plots. Also, organic matter and carbon losses from the plot applied granular compost were significantly smaller than those applied conventional compost at 95 % confident level. Additionally, the promotions of organic farming through the demonstration on composting and granular compost making were conducted in Khon Kaen. Farmers' acceptability and participating level were discussed through 4 times of workshop including the questionnaire surveys. It was concluded that the deeper farmers' perception led to the higher farmers' participation, and directly it connected to farmers' acceptability for organic farming. For decreasing the amounts of chemical fertiliser applied, granular compost is the one of farmers' alternative, which may contribute to sustainable agriculture.

Keywords: Organic farming, Thailand

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