

Piyapong Katpiyarat 2013: Effects of by-Product of Monosodium Glutamate (ami-ami) Mixing with Fly Ash on Growth and Yield of Sugarcane (*Saccharum officinarum* L.) Master of Science (Soil Science and Management Technology), Major Field: Soil Science and Management Technology, Department of Soil Science. Thesis Advisor: Assistant Professor Chaisit Thongjoo, Ph.D. 78 pages.

The aim of this study was to investigate the effects of by-product of monosodium glutamate (ami-ami) mixing with fly ash on growth and yield components of sugarcane (*Saccharum officinarum* L.) var. Kamphaeng Saen 01-4-29. Experimental design was randomized complete block (RCBD). The study revealed that all treatments that applied chemical fertilizers or ami-ami and fly ash mixture both single use or in combination with chemical fertilizers effected on height, leaf greenness, stalk heights, stalk diameters, number of internode/stalk and CCS of sugarcane nearly the same, and significantly different when comparing with the control treatment that effected on the lowest of height, leaf greenness, stalk heights, stalk diameters, number of internode/stalk and CCS of sugarcane. Further, the application of ami-ami and fly ash mixture of 1,000 kg/rai in combination with chemical fertilizers equivalent to 1,000 kg/rai of the mixture effected on the highest of cane yield, weight/stalk, sugar yields, concentrations of N, P and K in stalk and straw of sugarcane, which was not different from the applications of chemical fertilizers equivalent to 2,000 kg/rai of the mixture and of the mixture of 2,000 kg/rai. While the control treatment effected on the lowest of cane yields, weight/stalk, sugar yields, concentrations of N, P and K in stalk and straw of sugarcane.

After experiment, it was found that all treatments that applied chemical fertilizers or ami-ami and fly ash mixture both single use or in combination with chemical fertilizers as well as the control treatment effected on chemical properties of soil: a) soil pH was slightly acid to moderately alkaline; b) the electrical conductivity ( $EC_e$ ) of soil was non-saline; c) the organic matter of soil was low to moderate low; d) the available P of soil was very high; e) the exchangeable K of soil was moderate; and f) the exchangeable Ca and Mg of soil were high. Further, the application of ami-ami and fly ash mixture of 2,000 kg/rai effected on the highest of the exchangeable Na of soil, which was not different from the application of ami-ami and fly ash mixture of 1,000 kg/rai and the application of ami-ami and fly ash mixture of 1,000 kg/rai in combination with chemical fertilizers equivalent to 1,000 kg/rai of the mixture. While the control treatment effected on the lowest of the exchangeable Na of soil.

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Student's signature

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Thesis Advisor's signature