

Pongnarin Nimmual 2014: Utilization of Waste Materials from Ethanol Factory for Increasing Yield of Cassava (*Manihot esculenta* Crantz) 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. 65 pages.

The aim of this study was to investigate the utilization of waste materials from ethanol factory for increasing yield of cassava *var.* Huay Bong 80. The experimental design was a randomized complete block (RCBD). The study revealed that the application of yeast cake and vinasses effluent mixture of 1,200 kg/rai in combination with chemical fertilizers containing all major elements equivalent to 1,200 kg/rai of the mixture has resulted in the highest plant height, branch/plant, fresh root yields and starch contents comparable to the applications of chemical fertilizers containing all major elements equivalent to 2,400 kg/rai of the mixture. While the control treatment has resulted in the lowest plant height, branch/plant, fresh root yields and starch contents. Further, the application of yeast cake and vinasses effluent mixture of 1,200 kg/rai in combination with chemical fertilizers containing all major elements equivalent to 1,200 kg/rai of the mixture has resulted in the highest concentrations of N, P and K in cassava root, which were not different from the applications of chemical fertilizers containing all major elements equivalent to 2,400 kg/rai of the mixture and of the mixture of 2,400 kg/rai. While the control treatment gave the lowest concentrations of N, P and K in cassava root.

After experiment, it was found that all treatments that applied chemical fertilizers or yeast cake and vinasses 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 moderately acid to neutral; b) the electrical conductivity (EC_e) of soil was non-saline; c) the organic matter of soil was low to moderately low; d) the available P of soil was very high; e) the exchangeable K of soil was moderate; f) the exchangeable Ca of soil was high; and g) the exchangeable Mg of soil was low to moderate.

Student's signature

Thesis Advisor's signature