Wipaporn Kiatnitiprawat 2012: Effects of Pig Sludge on Yield and Net Profit of Different Maize Varieties Grown after Paddy Rice. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Mr. Roongroj Pitakdantham, Ph.D. 68 pages.

After rice harvesting, two field experiments were carried out with maize grown on sandy loam soils in the irrigated area of the royal–initiated upper Lam Phayang river basin development project, Khao Wong district, Kalasin Province. The first experiment, a 2x3 factorial in randomized complete block design with 3 replications was used. The two factors were two maize varieties and three rates of pig sludge application. The maize varieties were suwan 5 (open–pollinated variety) and suwan 4452 (hybrid). The rates of pig sludge application were 0, 375 and 1,500 kg/ha. The results showed that there was no significant difference in grain yield of different maize varieties x rates of piyg sludge application interaction but highly significant and significant differences were found grain yield of maize varieties and rates of pig sludge application, respectively. On average, suwan 4452 increased grain yield by 21% when compared with suwan 5. The pig sludge application at the rate 1,500 kg/ha gave higher grain yield than that of the rate 375 kg/ha and none pig sludge application. The pig sludge application at the rate 375 kg/ha gave grain yield comparable to none pig sludge application. The results led to the following recommendation when costs and prices of maize were fixed. The hybrid maize and 1,500 kg/ha of pig sludge should be applied instead of the open–pollinated variety and none or the lower rate of pig sludge application if maximum net profit was aimed at. The second experiment, six commercial maize hybrids were used in a randomized complete block design with 3 replications. The results showed that there were no significant differences in grain yield and loss of nitrogen phosphorus and potassium from grain removal.

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