Nilubon Liplang 2008: Effects of Intercropping Tropical Forage Legumes on Physic Nut Yield and Soil Properties. Master of Science (Environmental Science), Major Field: Environmental Science. College of Environment. Thesis Advisor: Professor Sayan Tudsri, Ph.D. 134 pages.

A comparison of seed yield of Physic nut (*Jatropha curcas*) intercropping with four different legumes species (*Stylosanthes hamata* cv. Verano, *Stylosanthes guianensis* cv. Thaphra stylo, *Centrosema pascuorum* cv. Cavalcade and *Lablab purpureus*) were carried out at the Corn and Sorghum National Research Center, Pakchong, Nakornrachasima during October 2005-March 2007. The objective of this study was to investigate the effect of tropical forage legumes on Physic nut yields and some properties of Pak Chong soils. The design of an experiment was a randomized complete block (RCB) with 3 replications.

The results showed that Stylosanthes guianensis cv. Thaphra stylo produced the highest total dry matter yield (2,755 and 66.5 kg/rai respectively) followed by Verano stylo (*Stylosanthes hamata* cv. Verano), Lablab (*Lablab purpureus*) and Cavalcade (*Centrosema pascuorum* cv. Cavalcade). The highest of Physic nut yields were observed on the Verano stylo and Lablab plots (118.5 and 116.5 kg/rai respectively) and the lowest was observed on the Calvacade plots. All legume species had high nutritive value and were suitable for ruminant animal feeding.

Intercropping with any of legumes study did not effect the soil pH but decreased the soil organic matter from 2.3-2.5 to 1.1-1.4 percent. The water holding capacity increased in all treatments from 45.1-45.6 to 53.9-56.5 percent. Size of soil aggregate was the greatest in the Verano stylo plot while the soil moisture content in Thaphra stylo plot was higher than the other plots.

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