

Suphalucksana Sangon 2011: Response to Phosphorus Fertilization of Cassava Planted on Coarse- and Fine Textured Soils. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Assistant Professor Thanuchai KongKaew, Dr.Agr. 97 pages.

The right amount of phosphorus fertilization need to be derived from testing a defined cassava variety on field trial which specify soil and climate condition. Fitting curve of cassava growth and phosphorus fertilization and the critical point should be used to estimate the right amount of phosphorus apply to soil.

The field trials were conducted in site 1) Satuk soil series and site 2) Pak Chong soil series to be tested cassava response to phosphorus fertilization. Experimental design was RCBD with 3 replications. Six rates of P_2O_5 at 0, 4, 8, 12, 16 and 20 $kg\ rai^{-1}$ were applied for cassava cv. Kasetart 50 planted on site 1 and for cv. Rayong 5 planted on site 2. Total N and K_2O of 20 $kg\ rai^{-1}$ were applied for all treatments. Each trial plot of $5 \times 6\ m^2$ was conducted to plant cassava with spacing of $1 \times 1\ m^2$. Five cassava plants of 9 months age were harvested. The harvested plants were measured for above ground biomass yield phosphorus concentration and uptake for the above ground biomass and starch content. Results indicated that cassava cv. Kasetart 50 planted on Satuk soil series which had initial available phosphorus of 23 $mg\ kg^{-1}$ responded to applied phosphorus at 6.87 $kg\ P_2O_5\ rai^{-1}$. It produced the fresh tuber yield of 8.58 $t\ rai^{-1}$. The coefficient of determination ($adj.R^2$) of the correlation between yield and applied phosphorus was 0.99. The cassava cv. Rayong 5 planted on Pak Chong soil series where found 11 $mg\ kg^{-1}$ of initial available phosphorus responded to phosphorus fertilization at 3.53 $kg\ P_2O_5\ rai^{-1}$. It produced the fresh tuber yield of 4.68 $t\ rai^{-1}$. The moderate coefficient of determination of 0.59 was obtained. Yields, phosphorus concentration and uptake of above ground biomass of cassava and starch yield content trend to increases when phosphorus fertilizer was applied.

Student's signature

Thesis Advisor's signature