

Chaiwat Anuphan 2007: Effects of Nitrogen Potassium Calcium and Boron Fertilizers on Growth Fruit Set and Quality of Papaya (*Carica papaya* L.) cv. Pakchong 1. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Associate Professor Chalongchai Babpaserth, B.S. 96 pages.

The study on the effects of nitrogen potassium calcium and boron fertilizers on growth, fruit set and quality of papaya fruits (*Carica papaya* L.) cv. Pakchong 1, planted on the high land of 720 meters above sea level. The experiment was conducted at the Pangda Royal Project Station, Samoeng district, Chiang Mai province, from March 2005 to March 2006. There were 2 experiments: the 1st experiment aimed to study the effect of nitrogen and the potassium fertilizers application to the soil (grams N or K₂O per plant per month). The nutrient combination of 10 treatments were as follows: T1 = N10:K10, T2 = N10:K20, T3 = N10:K30, T4 = N20:K10, T5 = N20:K20, T6 = N20:K30, T7 = N30:K10, T8 = N30:K20, T9 = N30:K30, and T10 = CONTROL (no fertilizer). The 2nd experiment was to study the effect of the calcium and the boron foliar application once every two months – consisted of 7 treatments: T1 = CONTROL (plain water spray only), T2 = Ca1,000 mg.Ca/l, T3 = Ca2,000 mg.Ca/l, T4 = B500 mg.B/l, T5 = B1,000 mg.B/l, T6 = Ca 1,000 mg.Ca/l with B 1,000 mg.B/l and T7 = Ca 2,000 mg.Ca/l with B 2,000 mg.B/l. The treatment of both experiments were arranged in completely randomized design with 4 replications. The vegetative and reproductive growth observations were made during 4 to 11 month after planting. Soil application of nitrogen and potassium fertilizers had no effects on plant height and the canopy width but the plants obtaining 20 grams nitrogen and 20 grams potassium had higher growth, stem diameters, leaf width, leaf length, petiole length and number of harvested fruits. The plants obtaining 30 grams nitrogen and 30 grams potassium produced the best quality fruits of highest recovery (85.4%), TSS (14.2 °Brix) and highest testing scores (7.8 from 10). Foliar application of calcium, boron and calcium with boron fertilizers had no effects on plant height, canopy width, stem diameters, width and length of leaves, petiole length and number of harvested fruits. Application of 2,000 mg.Ca/l with 2,000 mg.B/l to papaya plants resulted in highest percentage of recovery (87%), fruit firmness (0.76 Kg.), fruit diameters (14.2 cm.), TSS (14.2 °Brix) and highest testing scores (8.5 from 10).

Student's signature

Thesis Advisor's signature