

Phatcharin Bua-iam 2010: Affect of Dripper Location and Fertigation Rate on Peach Yield and Quality. Master of Science (Soil Science), Major Field: Soil Science, Department of Soil Science. Thesis Advisor: Associate Professor Kumut Sangkhasila, Ph.D. 112 pages.

The goal of this research was to find the most suitable dripper location for peach-fruit production. The research was divided into 2 experiments. Both experiments consisted of 2 factors, namely 1) fertigation rates, a main factor, and 2) locations of drippers installed, a sub-plot factor. Each factor had 4 treatments with 3 replications. Totally, 48 of 4 to 6 year old peach trees were used in this research. The 4 treatments were 4 drippers installed at radiuses of 30, 60, 90, and 120 cm, respectively. The fertigation rates of these two experiments were different. The 1st one consisted the rates per peach tree as no fertilizer (T_{0_1}), 15 g-N+ 0 g- P_2O_5 + 15 g- K_2O (T_{1_1}), 15 g-N+ 0 g- P_2O_5 + 30 g- K_2O (T_{2_1}), and 15 g-N+ 0 g- P_2O_5 + 60 g- K_2O (T_{3_1}). Whereas, the 2nd experiment consisted the rates per peach tree as no fertilizer (T_{0_2}), 100 g-N+12 g- P_2O_5 + 90 g- K_2O (T_{1_2}), 200 g-N+ 24 g- P_2O_5 + 180 g- K_2O (T_{2_2}), and 400 g-N+ 48 g- P_2O_5 + 360 g- K_2O (T_{3_2}).

Results of the 1st experiment showed that fertigation rates of 30 and 60 g- K_2O (T_{2_1} and T_{3_1}) made peach fruits held the highest TSS. Further analysis from all experimental units, the nutrient depletions, i.e. differences in amount of N, P_2O_5 , and K_2O nutrients at the beginning of the experiment and those of at the harvesting time, was mostly occurred with the installation of drippers at the radius of 90 cm around a peach tree. At these 2 dripper installation locations, peach fruits held the highest contents of N, P, and K nutrients.

Results of the 2nd experiment also showed that the nutrient depletions mostly occurred at 90 cm radius of dripper installation. Whereas the lesser depletion was likely occurred at the 120 cm radius of installation. At a 90 cm radius of dripper installation, peach fruits accumulated highest amount of N, P, and K nutrients. In this experiment, the highest accumulation amount of nutrients in peach fruits was also found with the fertigation rate of 200 g-N + 24 g- P_2O_5 + 180 g- K_2O (T_{1_2}).

Results of these 2 experiments lead to the conclusions that of the most effective use of nutrients from the fertigation system for peach fruit production, the most suitable fertigation rate should be 200 g-N + 24 g- P_2O_5 + 180 g- K_2O , and the most effective locations for dripper installation should be at the radius between 90-120 cm around a peach tree.

Student's signature

Thesis Advisor's signature