

Study on Comparison of Using Chemical Fertilizer Biotechnology and Soil Amendment for Para rubber Production in Soil Group 45

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Abstract

The study on comparison of using chemical fertilizer biotechnology and soil amendments was conducted at Khao Khat series, Satun province. The experimental design was CRD (Completely Randomized Design) with 3 treatments and 16 replications. Treatment 1 was the use of chemical fertilizer formula 15-7-18 at the rate of 200 kg/rai/year; treatment 2 was on the use of chemical fertilizer formula 15-7-18 at the rate of 100 kg/rai, bio-extract no.2, bio-extract no.3 and dolomite at the rate of 150 kg/rai; and treatment 3 was on the former regular simple method by using bio-extract no.2 (at the ratio 1:200 and spray at the rate of 240 litre/month to the plants).

After studying for 2 years, the results showed that the diameter of para-rubber tree was increasing in every treatment. The highest increasing rate was formed in treatment 1 (2.24 cm), and it was significant with treatment 2 and treatment 3 (1.97 and 1.96 cm, respectively). The number of tapping panel dryness were investigated, they were found that all treatments were not significantly different by showing that treatment 1, 2 and 3 were 0.29, 0.29 and 0.17 cm, respectively. Also the results of latex production showed treatment 1, 2 and 3 were 420.38, 420.51 and 380 kg/rai, respectively.

Chemical analysis showed that organic matter content, pH, and available phosphorus were the highest in the use of chemical fertilizer formula 15-7-18 at the rate of 100 kg/rai, bio-extract no.2, bio-extract no.3 and dolomite at the rate of 150 kg/rai, but the former regular simple method by using bio-extract no.2 gave the extractable potassium higher than other treatments.

Economic return analysis revealed that applying chemical fertilizer formula 15-7-18 at the rate of 100 kg/rai/year with bio-extract no.2 and bio-extract no.3 gave the highest net income which was 34,695 Baht/rai. The second treatment was applying chemical fertilizer 15-7-18 at the rate of 200 kg/rai/year (32,499 Baht/rai). The regular simple method gave the lowest net income 31,048 Baht/rai.

Keywords: rubber tree, bio-extract, soil amendments