

Abstract

The study on the effects of maize forming on soil property and soil erosion was carried out at Ban Huay Kham, Tan Chum village, Ta Wang Pha district, Nan province, during June to October 2009. Eight treatments were performed. Soil and sediment sample were collected. Crop yield and height were compared to determine suitable treatment.

The study found the range of organic content in the soil were from 0.5 to 3.4 %, conductivity from 19.29 to 117.79 $\mu\text{S}/\text{cm}$, average pH value from 5.0 to 6.9, average Ammonium from 0.243 to 1.314 mg/kg and average Phosphorus from 6.39 to 12.53 mg/kg. The loss of organic matter with the sediment was highest in treatment 2 (25 x 75 cm with no tillage) with the amount of 351.1 kg/rai. The loss of organic matter was minimum in treatment 7 (30 x 30 cm with tillage and Jack bean) with the amount of 148.8 kg/rai. Ammonium loss was maximum in treatment 6 (25 x 75 cm with tillage) with the amount of 16.52 mg/rai and was minimum in treatment 7 with the amount of 7.54 mg/rai phosphorus loss was maximum in treatment 3 (30 x 30 cm with no tillage but with Jack bean) with the amount of 379.8 mg/rai and was minimum in treatment 7 with the amount of 101.7 mg/rai.

Treatment 3 resulted in maize yield of 1,993 kg/rai height of 267.7 cm, soil erosion of 5.42 kg/rai. It is the the best treatment for maize cultivation due to its highest yield, maximum maize height and minimum soil loss. On the other hand, treatment 6 resulted in lowest yield of 806 kg/rai with lowest maize height of 204.6 cm and maximum soil loss of 9.96 kg/rai Treatment 3, was the most suitable method of maize cultivation and should be recommended to provide maximum yield and minimum soil loss.