Effects of Soil Management on the Yield Potential of Peanut in Penghu Area

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Abstract

This experiment was conducted in the Penghu Branch Station of Kaohsiung DAIS in order to study the effects of six different soil managements (deep plowing, doubling the rate of phosphate fertilizer, pig compost, pig compost+green manure, combined treatment, check treatment) on the peanut yield and the soil fertility in a moderate alkaline soil. The results are summarized as follow:

Deep plowing up to a depth of 40 cm of soil could significantly increase the pod yield of peanut by 20.5% over that of check treatment. Application of pig compost at a rate of 10 t/ha must be continued for at least three years, before the increase in the pod yield could reach the statistically significant level. Planting rape as green manure during the winter season, not only protecting the surface soil from erosion by northeast wind laden with salt , but also improving the soil fertility and the yield of peanut. Doubling the rate of phosphate fertilizer application did not increase the yield of peanut. Thus a rate of 100kg/ha of P_2O_5 is recommended.

Deep plowing increased significantly the soil organic matter and the available K contents, but reduced the available P content. Continue application of pig compost and planting rape as the green manure during the winter reduced the pH value and increased the organic matter content significantly. Doubling the rate of phosphate fertilizer application increased the available P content of the soil. Combined treatment significantly increased the organic matter and the available K contents, but it did not affect the available P content.

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