Effect of Soil Moisture and Fertilzer Levels on the Growth and Yield of Banana（Musa cavendish）

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Summary

The effect of different soil moistures, fertilizer levels on the soil fertility, nutritional status of plant, growth and development, and yield of banana(cv. “Giant Cavendish”)were conducted in TBRI during 1976 to 1978.

The results showed that strong acid soil（pH 5.42）retained in higher soil moisture（irrigation at 60% of maximal water holding capacity, MWHC)in dry season were higher in soil pH value and exchangeable calcium after the end of the trial than that retained in lower soil moisture（irrigation at 45% of MWHC）, whereas the available phosphorus and exchangeable potassium were reverse. However, the fertility of soil after the end of the trial among the treatments of different compound fertilizer levels at rates of 1.5 ; 2.0 ; 2.5 and 3.0 kg per plant per year were no significant difference except the exchangeable potassium seemed that had the trend increased with the fertilizer applied.

In the nutritional status of the 3rd leaf during banana shooting, the K content in higher soil moisture were significantly higher than those in lower soil moisture, while there were no significant difference in N and P content. Also, there were no significant differences in N, P, and K content of banana leaves while the plants received different rates of fertilizer, though the N and K content seemed to increase with the rate increasing. And whether soil moisture or fertilizer treatments, the concentration of leaf N, P, and K of all treatments were above the critical levels. Therefore, no significant differences showed in plant height, circumference of strunk, number of hand and finger, and yield of bananas in different soil moistures, though those were higher in higher soil moisture; and in different fertilizer levels.

The results of this study suggest that the compound fertilizer(11:5.5 :22) at 1.5 to 2.0 kg are recommended per plant per year for banana cultivation in Taiwan.

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