

MANURIAL CUM LIMING EXPERIMENT ON NENDRAN BANANA

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'Nendran' is the most popular commercial variety of bananas in Kerala. Large scale cultivation of this variety is confined to the districts of Cannanore, Kozhikode, Trichur, Quilon and Kottayam. Bananas in general are soil exhausting crops. It is estimated that bananas in one hectare of land remove about 300 kilograms of nitrogen, 80 kilograms of Phosphoric acid and 800 kilograms of Potash. Hence a judicious and regular manuring is imperative in the efficient banana production. 'Nendran' cultivators in Kerala are still following the age old practice of applying only bulky organic manures like farmyard manure, compost, green leaves and woodash. Though organic manuring have lot of beneficial effects, they cannot meet the heavy demand of NPK nutrients of banana, because of their low NPK status. Hence judicious and regular application of balanced NPK fertilizers along with sufficient quantities of organic manures is a profitable practice to boost up banana yield.

No scientific studies have been made to work out the NPK requirements of Nendran banana in Kerala. Hence with the object to find out the optimum NPK requirement in combination with lime, an experiment was carried out at the Banana and Pineapple research station, Kannara, in Trichur district for four years during 1963 to 1966.

**Materials and Methods**

The experiment was conducted in the irrigated area of the research station. The experimental soil was clayey loam with 0.57% (medium) organic carbon, 33 kg/Hect (Low) available P<sub>2</sub>O<sub>5</sub> and 80 kg/Hect (Low) available K<sub>2</sub>O. Total soluble salts content was 0.1% and the pH was 6.

The experiment was laid out in randomised block design with four replications. The plot size was 20 metres×6 metres (gross) and 16 metres×2 metres (Net). The plants were spaced 2 metres X 2 metres on either way. There were 9 treatment combinations consisting of 3 levels of lime viz. No lime (L<sub>0</sub>), 0.5 kg lime per plant (L<sub>1</sub>) and 1 kg lime per plant (L<sub>2</sub>) and 3 levels of fertilizers viz. No fertilizer (M<sub>0</sub>) 114 grams nitrogen, 114 grams P<sub>2</sub>O<sub>5</sub> and 228 grams K<sub>2</sub>O per plant as 8:3:16 fertilizer mixture (M<sub>1</sub>) and 228 grams nitrogen, 228 grams P<sub>2</sub>O<sub>5</sub> and 456 grams K<sub>2</sub>O per plant as 8:8:16 fertilizer mixture (M<sub>2</sub>)

Lime was applied quick lime (CaO) in a single dose after planting, around the base of the plant and the fertilizer mixture applied in two equal split doses at the second and fourth month after planting.

### Results

The results were assessed in terms of number and weight of fruits harvested. The results of the four years trial were pooled and a combined statistical analysis was done.

The data on weight of fruits and number of fruits are presented in Table 1 and Table 2 respectively.

**Table 1**  
**Yield of fruits in kilogram/plot**

Fertilizer	Lo	Lime L <sub>1</sub>	L <sub>2</sub>	Mean
M <sub>0</sub>	47.57	45.43	46.89	46.60
M <sub>1</sub>	57.94	57.80	62.90	59.55
M <sub>2</sub>	60.18	64.10	68.10	64.12
Mean	55.23	55.75	59.32	

D (0.5) comparison between marginal means = 3.32

C. D. (0.5) for comparison between marginal combinations = 5.75

*Inference* The main effect of Lime and fertilizers are significant at 0.5 level and 0.01 level respectively.

**Table 2**  
**Yield of fruits in numbers/plot**

Fertilizer	Lo	Lime L <sub>1</sub>	L <sub>2</sub>	Mean
M <sub>0</sub>	271.44	267.54	284.06	274.35
M <sub>1</sub>	328.25	322.00	343.38	331.21
M <sub>2</sub>	334.53	353.94	365.94	351.50
Mean	311.44	314.50	331.12	

C. (0.05) for comparison between marginal means = 14.58

G.O. (0.05) for comparison between combinations = 24.25

*Inference.* The effects of Lime, fertilizers and Lime X fertilizers are significant at 0.5, 0.01 and 0.5 levels respectively.

It may be seen from the above that the effect of lime and fertilizers are significant. There is increase in yield of fruits in terms of weight and numbers corresponding to the increase in the levels of lime and fertilizers.

### **Summary**

An experiment to find out the optimum level of NPK in combination with lime for the Nendran variety of banana was carried out at the Banana and Pineapple research station, Kannara, in Trichur district for four successive years from 1963 to 1966. The combined analysis of four year's results has revealed that higher dose of lime and NPK has significantly contributed to the yield of banana fruits both in terms of number and weight. Application of one kilogram of quicklime at planting time followed by application of 8:8:16 fertilizer mixture to supply 228 grams nitrogen, 228 grams P2O5 and 456 grams K2O per plant in two equal split doses within four months after planting has significantly increased the yield of banana fruits in number as well as in weight.

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