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## Assessing the effect of integrated nutrient management in Nendran banana

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### Abstract

A field experiment was undertaken by ICAR, KVK, Idukki at Udumbanchola village during the year 2019-20 in Nendran Banana. The objective of the experiment was to assess the effect of integrated nutrient management in Nendran Banana. The experiment consists of six treatments. The treatment with 80% Recommended Dose of fertilizers + Vermicompost (500 g) + Az spirillum (25 g) + PSB (25 g) + VAM (25 g) along with the spray of Banana micronutrients recorded highest plant height, Number of fruits/ Bunch, Fruit Length, Fruit Girth, Bunch weight and yield as compared to other treatments.

**Keywords:** Nendra banana, VAM, Az spirillum, vermicompost, PSB

### Introduction

Banana (*Musa* spp.) is one of the important fruit crops. Bananas are a heavy consumer of nutrients and requires large quantities of nutrients for its growth, development and yield (Hazarika and Ansari, 2010) [1]. Application of inorganic fertilizers though, increases the yield substantially but could not be able to sustain the fertility status of the soil (Bharadwaj *et al.*, 1994) [2]. Chemical Fertilizers have some deleterious effects on fruit quality besides adverse effects on soil, water and environmental conditions (Dutta *et al.*, 2010) [3]. The utility of microbes in maintenance and built up of soil fertility, thereby, enhancing plant growth and yield is indispensable (Marathe *et al.*, 2011) [4]. (Bhalerao *et al.*, 2009) [5] observed that combined application of 100% recommended dose of NPK along with organic manures increased the growth and also yield attributes. A judicious use of organic manures and Biofertilizers may be effective not only in sustaining crop productivity and in soil health, but also in supplementing chemical fertilizers of the crops (Jaipaul *et al.*, 2011) [6]. Integrated Nutrient management (INM) found to beneficial for maintenance of soil fertility and plant nutrients supply to an optimum level, for sustaining desired crop productivity. Integrated Nutrient management is thus necessary to protect the present situation of soil by involving various sources of organic manures and Biofertilizers.

### Materials and Methods

The experiment consists of six treatments. T1- 100% Recommended Dose of Fertilizers , T2- 100% Recommended Dose of Fertilizers + Banana Special spray @ 5 g/lit , T3- 80% Recommended Dose of fertilizers + Vermicompost (500 g) + Az spirillum (25 g) + Banana Special spray @ 5 g/lit, T4-80% Recommended Dose of fertilizers + Vermicompost (500g) + PSB (25 g) + Banana Special spray @ 5 g/lit, T5-80% Recommended Dose of fertilizers + Vermicompost (500 g) + VAM (25 g) + Banana Special spray @ 5 g/lit , T6- 80% Recommended Dose of fertilizers + Vermicompost (500 g) + Az spirillum (25 g)+ PSB (25 g) + VAM (25 g) + Banana Special spray @ 5g/lit.

### Results and Discussion

The treatment T6 with 80% Recommended Dose of fertilizers + Vermicompost (500 g) + Az spirillum (25 g) + PSB (25 g) + VAM (25 g) along with the spray of Banana micronutrients recorded highest Number of hands bunch, Number of fruits/ Bunch, Fruit Length, Bunch weight and yield as compared to other treatments (Table -1).

**Table 1:** effect of Different INM treatments on yield and its attributes in Nendran Banana.

Treatment	Number of hands bunch <sup>1</sup>	Number of fruits bunch <sup>1</sup>	Fruit length (cm)	Bunch Weight(kg)	Yield (t ha <sup>-1</sup> )
T <sub>1</sub>	8.91	141.00	21.15	10.00	22.69
T <sub>2</sub>	9.25	142.41	21.22	10.80	26.58
T <sub>3</sub>	9.41	142.55	21.25	12.20	28.64
T <sub>4</sub>	9.55	143.59	22.39	13.60	30.36
T <sub>5</sub>	9.56	145.22	22.42	14.90	35.60
T <sub>6</sub>	10.00	150.00	23.12	15.58	38.82

**Graph 1:** Effect of Different INM treatments on yield and its attributes in Nendran Banana

### Conclusion

Data presented in Table 1 indicates that significant differences were observed with regard to yield and its attributes viz., number of hands bunch-1, fruits bunch-1, bunch weight and fruit yield due to different treatments. Significantly maximum number of hands bunch-1 (10.00) was obtained Treatment T<sub>6</sub>. The increase in bunch weight was associated with corresponding increase in number of hands bunch-1, fruits bunch-1, which were found to be highest in treatment T<sub>6</sub> with 80% Recommended Dose of fertilizers + Vermicompost (500 g) + Az spirillum (25 g) + PSB (25 g) + VAM (25 g) along with the spray of Banana micronutrients were in accordance with the findings of Tejinder and Dhaliwal (2009)<sup>[7]</sup>. The role of biofertilizers and organic manures such as vermicompost and farmyard manure might have improved the soil physical condition required for plant growth and it also could be due to increased availability of nutrients especially nitrogen as it has a prominent role in leaf emission (Murray, 1960)<sup>[8]</sup>.

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