

Integrated Nutrient Management in Banana variety of Nendran

Details of success story:

1. Background

Banana also known as 'Poor man's apple' is the major staple food crop for people in India. It is mainly produced in tropical and sub-tropical regions of the world and recognized as the fourth most important food in terms of gross value after paddy, wheat and milk products. It is a cheap source of energy like vitamins A, C, B6 and other minerals with traces of fat. Due to its large size and rapid growth rate, it requires relatively large amount of nutrients for high yields of quality fruits. Application of inorganic fertilizers though increases the yield substantially but could not be able to sustain the fertility status of the soil and have caused several undesirable consequences in the fragile soil ecosystem, leading to gradual decline in productivity. Considering the present situation of soil quality and environmental security, it is necessary to go for an integrated nutrient management, involving various sources of organic manures, organic cakes and bio-fertilizers besides using chemical fertilizers in banana.

Banana Cultivation in Idukki district also faces problems like high soil acidity, inward marginal yellowing of older leaf followed by marginal necrosis, yellow stripes parallel to leaf midrib and crinkling of leaves, delayed unfolding of leaves, deformation of flag leaves, and growth retardation. However, studies indicate that combined application of 100% recommended dose of NPK along, IIHR Banana Special with organic manures increased the pseudo stem height and girth, minimize the days for flowering, reduce deformation and total crop duration and increased yield attributes in banana. Hence, this study was under taken by KVK Santhanpara to find out the influence of INM on yield and other attributes of Banana. The banana cv. Nendran was used as a test crop during the period of demonstration.

Source of Technology: - KAU and IIHR

2. Intervention process

- Availability of all the basic input resources
- Awareness campaigns on the ill effects of chemical fertilizers
- Hands-on training on Integrated Nutrient Management
- Timely intervention on different stages of growth of Banana.
- Advisory services.
- Follow-up visits and technical support as and when required.

3. Intervention Technology

- Created a platform, where farmers could understand the various critical stages of the growth of Banana, and the need of application of nutrients in such stages
- The technology was initiated in the year 2019-20 in the field of 5 progressive farmers.
- Between 2019-20, several trainings, related field demonstrations, field visits and farm tours were organized by the KVK to make the farmers aware, and give them confidence in INM in Banana.
- Timely intervention, was provided not just for farming activities, but also for allied support inventory.

4. Impact - Horizontal Spread

KVK intervention to increase the adoption of INM reaped successful results as the area under INM has increased from 2ha to 50 ha after the demonstration. The number of farmers who expressed their willingness to adopt INM has increased in the neighboring areas also through word to word publicity.

5. Impact- Vertical spread.

The impact of INM in banana is reflected in the production and productivity during the demonstration period. During 2019-20, the highest bunch weight (15 kg), number of hands/bunch (10) and maximum yield response (38.82 t/ha) respectively were obtained with application INM along with IIHR banana special spray. Increase in yield attributes could be due to the increase in morphological traits such as plant height, girth, number of functional leaves, leaf area index, faster rate of leaf production and also higher nutrient uptake by the plants. Increased number of leaves might have increased the photosynthetic activity resulting in higher accumulation of carbohydrates. Relatively higher carbohydrates could have promoted the growth rate and in turn increased bunch weight. Higher yield response owing to application of organics ascribed to improved physical, chemical and biological properties of soil resulting in better supply of plant nutrients, which in turn led to good crop growth and yield.

6. Impact - Economic Gains

Higher net returns of Rs.357300/- was recorded during 2019-20 respectively with the adoption INM along with IIHR banana special spray. The benefit-cost ratio was also higher (2.58) when compared to the BC ratio obtained through conventional practices (1.58).

Conclusion

From the field investigations, it can be concluded that banana responded favorably to Integrated Nutrient Management practices of KAU and IIHR. Higher yield and better B: C ratio was obtained in fields of INM application. Moreover, incidence of recurring problems like, marginal necrosis, crinkling of leaves, deformation of flag leaves, and growth retardation also decreased drastically. Combined application of INM along with IIHR banana special spray positively influenced the yield attributes along with economics. Hence, the integrated nutrient management practice along with IIHR banana special spray has been found to be an ideal option to improve yield besides being economically competitive and productive under the soil and climatic conditions of Idukki district.

Steps for Scaling –up:

- Large Scale demonstrations in convergence with State Department of Agriculture will be conducted
- The KVK will ensure that the majority of the growers are benefited by such programmes.
- Inputs will be supplied to the marginal, financially weak and small growers on credit basis and that too at a subsidized rate.
- Farmers will be given trainings to produce Organic manures and fertilizers in their own fields.



