Economic evaluation of technology intervention in nutmeg

Particulars	Value
Incremental cost	
Cost of inputs in BMP	Rs 145 per tree
Cost of additional inputs per hectare	Rs 25665
Total additional investment for adopting BMP including labour and input cost	Rs 50665 per hectare (2018-19 prices)
Incremental returns	
Incremental output -nut	159.3 kg/ha
Incremental output -mace	70.8 kg/ha
Value of incremental output[@]	Rs. 103620/ha
Incremental Benefit Cost Ratio (IBCR)	**2.1**

#Labour valued at Rs 500 per manday

Recommendations

- For soil acidity amelioration: If the soil pH is < 6.0, apply 1kg dolomite lime + 1 kg gypsum along the drip line/ canopy periphery during May-June at the onset of monsoon, every year. For the soil pH > 6.0, this may be applied during alternate years.
- Apply nitrogen, phosphorus and potassium fertilizers at the rates recommended based on soil test values: 800 g Urea, 500 g Factamfos and 1.50 kg Muriate of Potash in two equal splits (rates based on Nutrient Index of Ernakulam District).
- Enrich 100 kg of FYM: neem cake mixture (mixed in 9:1 proportion) with Trichoderma harzianum @ 1-2 kg formulation per 100 kg and apply @ 20-25 kg of enriched mixture per tree during the onset of monsoon.
- Apply foliar spray of IISR nutmeg micronutrient mixture - @ 5 g/ L water at flowering and flower development stages at monthly intervals (2-3 sprays).
- Cut and remove the dried or infected branches (due to thread blight infection) and spray Bordeaux mixture (1%) on leaves at the onset of monsoon (May-June).and repeat the spray one month after first application.

Conclusion

The economic viability of the technology intervention packages including the best management practices in nutmeg clearly demonstrated the superiority of the technologies in enhancing output while maintaining economic viability. The technology dissemination efforts need to highlight the economic viability of the technology package to draw the farming community towards adoption of these technologies. Soil test based site specific nutrient management can enhance the yield levels in nutmeg across the state and enhance the supply of the commodity.

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Enhancing sustainability of spices under coconut based land use systems through site specific nutrient management

Nutmeg

Multi Institutional Collaborative Project

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Background

Nutmeg can be successfully grown as an intercrop in multiple cropping system based on coconut. The available space and shade in the coconut gardens which are more than 15 years old can be best utilized by planting nutmeg as the it is a shade loving plant. Adoption of such multiple cropping system emerges as the viable way for improving the economic status of farmers. The current levels of output of nutmeg from coconut-nutmeg intercropping system can be enhanced through technology interventions. Our studies on agro-ecology and soil qualities pointed to the fact that factors like strong soil acidity, extensive deficiency of secondary nutrients like calcium and magnesium and wide spread deficiency of micro-nutrients tend to limit the productivity. Therefore, site specific nutrient management in the nutmeg-coconut intercropping system was attempted which was expected to mitigate the limitations arising from soil related factors.

Objectives

To demonstrate that productivity of coconut–nutmeg intercropping system in Kerala can be substantially enhanced through appropriate external inputs and site specific nutrient management at minimum cost and effort, while maintaining plant health at optimum levels.

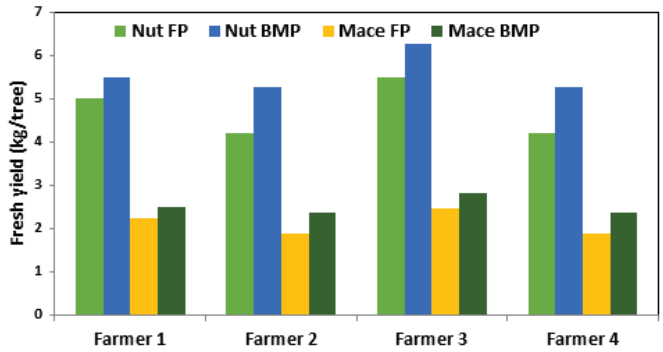
Key Project milestones

- Scientific documentation of soil related constraints in cultivation of nutmeg as an intercrop in coconut garden.
- Development of Best Management Practices (BMP), from scientific study based on analysis of soil nutrient status and plant tissue samples from nutmeg gardens in agro-ecological units 9.
- Successful validation and demonstration of the BMP for enhancing crop production in farmer's fields in the selected agro-ecological units

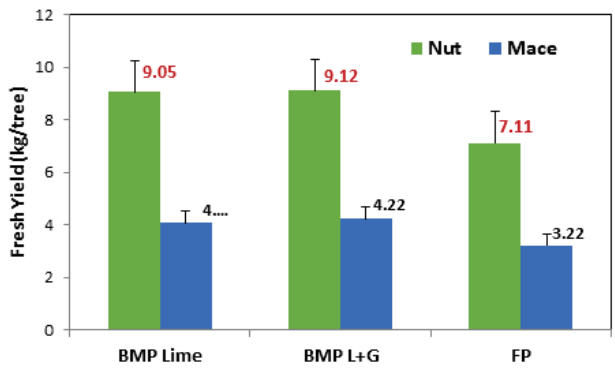
Elements of Best management Practice
Lime/ Dolomite (based on soil analysis) – 2000 g/tree
Urea/Rock Phosphate/MOP – based on the soil test per tree basis (500: 250: 1000 g of NPK is the recommendation per tree of 10 years & above)
Micronutrient spray – thrice (Jan/Feb, March/April and May/June - @ 5 g/ L)
Application of Bordeaux mixture (at onset/ post monsoon)

Key findings on soil reaction and nutrient status

- The soil pH in both surface layer and subsurface soil improved significantly over the initial value with application of Lime (L) or Lime + Gypsum (G).
- With the application of BMP there was a significant increase in the soil available K status over the Farmers practice (FP) and the initial status
- The BMP improved the balanced availability of P to its optimum range of 14-22 mg/kg which was slightly higher than in FP.
- The available Ca and Mg in the soil increased significantly with the application of L and L+G amendment and the increase was 2 fold in Ca as compared to FP
- Along with other micronutrients, availability of Boron also showed significant improvement with the increase of soil pH on addition of L+G.



Comparison of yield in demo plots and under farmers practice



Effect of BMP treatments on nut and mace yield

The yield increase was up to 22% in the treated plots in the experimental condition for nut and mace yield. An yield increase of 10-25% in nut and mace from farmer's demonstration plots were observed as compared to the farmers practice.