

# BALANCED NUTRITION FOR ENHANCED CROP PRODUCTIVITY

Success Story/2022-11

## SUCCESSFUL VEGETABLE PRODUCTION UNDER INTEGRATED NUTRIENT MANAGEMENT FOR IMPROVING THE LIVELIHOOD OF SMALL AND MARGINAL FARMERS

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### PROBLEMS/CONSTRAINTS

The small and marginal farmers under hill slopes of Goa have problem of soil erosion and nutrient leaching due to higher rainfall during Kharif season. This situation leading to deficiency of macro and micronutrients affecting crop growth. In addition, an improper use of chemical fertilizers and neglecting the usage of micronutrients especially zinc and boron greatly affected the flowering in vegetable crops. This condition further exposes crop to various pests and diseases. SO, adaption of integrated nutrient management is very imperative to boost the production and income from these farms. At Bandora village in Ponda, North Goa, 30 farmers were selected in an area of 15 acre and technological input regarding integrated nutrient management was given.

### INTERVENTIONS

ICAR Scientist guided the farmers for vegetable production under integrated nutrient management (INM). The balanced use of farmyard manure and chemical fertilizers along with micronutrient mixtures were encouraged. The sowing of vegetable seeds were done along the contour during pre-monsoon showers to reduce the soil erosion.

### IMPACT

The vegetables such as bitter melon, cucumber, snake gourd, pumpkin, bhendi, tendli, cluster bean, vegetable cowpea, brinjal, radish, chili were grown as main crop. In addition leafy vegetables like spinach, red amaranth, curry leaves were grown in smaller area for household consumption. All along the border of the field banana, papaya, lemon, sapota and mango were grown. In some areas gliricidia was grown in close spacing as greenleaf manure and to protect the crops from wild animals. Approximately, 300 quintal of vegetable was harvested from an available area (15 acre) in intervals, along with Banana, Papaya, lemon, sapota, and mango. The household requirements of vegetables (Tendli, Cucumber, Pumpkin, Red amaranth, palak) were met from the kitchen garden. The use of organic reduced the fertilizer consumption by 50% and reduced the input cost to the tune of 28%. The usage of micronutrient mixture reduced flower and fruit drop in the vegetables and decreased the pest infestation significantly. Change in planting alignment reduced the soil erosion significantly and also reduced the crop lodging during heavy rainfall. The farmers also self-motivated to prepare the compost unit by using available crop residues in the field for the next crop. The each farmer got an annual net come of Rs. 1.5 lakh in a season from the sale of vegetables and farmers got full season employment.

The INM enhanced resource and organic waste recycling, created wealth from waste, and also reduced the off-farm dependence for nutrient input. The benefit cost ratio for the 15 acre farm was estimated to be 3.6. By adopting INM practices, the farm income has been doubled compared to previous year. The initiative proved to be a real helping hand in doubling the farmers' income based upon the area under cultivation and management practices adopted. The success story would encourage the adjoining farmers to undertake INM for enhancing crop productivity and income.



Vegetable cultivation in terrace



Machan system of vegetable cultivation



Happy vegetable growers



Vegetable produce after harvest