

# ICAR Krishi Vigyan Kendra

(Tamil Nadu Board of Rural Development) Kilnelli village, Thiruvannamalai District



## **IIHR Vegetable Special Technology**



Vegetable cultivation serves as a major income source for a large number of farmers in several areas of Tamil Nadu and there is a considerable area under vegetable cultivation in the state. However, farmers are currently using fertilizers recommended by the local agri input retailers, which do not align with the recommendations provided by the university and other stakeholders. Additionally, farmers lack of awareness regarding the application of micronutrients in vegetable cultivation, leading to suboptimal yields under field conditions.

To address these issues and to provide higher yield among vegetable growers., the Krishi Vigyan Kendra, Thiruvannamalai has introduced IIHR micronutrient formulation technology in the year 2014. This led to 20-30% higher yield in vegetable crops and improved quality produce.

V.Suresh, R.Vijayakumar and P.Narayanan from KVK Thiruvannamalai share their experiences with promotion of IIHR micronutrient formulation technology in this Good Practice Note.

## Context

The area under vegetable cultivation has been significantly increasing for the past few years in the district. The crops like chillies, brinjal, bhendi and gourds have been cultivated in an area of 12423 ha in the district with an average productivity of 11.86 MT which is 26% lower than the state average. Farmers in Thiruvannamalai district are investing a significant amount of money in fertilizers, each farmer spending approximately 60-70% of the production cost solely on fertilizers. A random survey conducted by KVK in the vegetable cultivation area of the district revealed that farmers are applying fertilizers



without any consultation with the experts. Most of the farmers are not familiar with the recommended fertilizer dosages for vegetable crops, and only a few are aware of the importance of micronutrients. As a result, vegetable yields and income levels have become inconsistent.

The Krishi Vigyan Kendra, Thiruvannamalai has been working with the vegetable growers for more than a decade and wanted to improve the production, productivity and quality of the end produce. In the year 2014, KVK has made a MoU with Indian Institute of Horticulture Research, Bengaluru for the commercial production and supply of micronutrient formulation with the financial assistance by NABARD.

## IIHR Vegetable Special Technology

#### Description

A unique, safe and cost effective crop specific foliar Micronutrient Technology developed by ICAR-Indian Institute of Horticulture Research, (ICAR-IIHR) Bangaluru, Karnataka state. This technology has been developed based on the soil analysis, crop analysis and physiological studies of vegetables grown in all the major agro-climatic zones of the country.



## **Unique Benefits**

 It avoids fixation of applied nutrients in the soil & avoids leaching of nutrients to the plants.

- Quick response of crop if plant is in hidden hunger stage.
- Reduces chance of toxicity.
- Quick results than any other multi-micronutrients.
- Receive early flowering with 20-30% higher yield.
- Reduce flower & fruit drop.
- Recommended for all vegetable crops at different doses.
- Can be mixed with any Fungicide or insecticide.
- Contains most of the Micronutrients such As Zn, B, Fe, Cu, Mn, Mo and Cl
- $\checkmark$  Contains most of the secondary nutrients such as Ca, Mg, S and K
- Enhances fruit quality in terms of fruit appearance, fruit keeping quality and taste.



## Foliar Application Dosage:

- Tomato, Cabbage, Cauliflower, Capsicum 5 g/ Ltr water.
- Chilies, Brinjal, Onion, Potato & winter Vegetable 3 g/ Ltr water.
- ✤ Beans, Lady's Finger, Cowpea, Garden pea 2 g/ Ltr water.
- Cucurbits, Cucumber, Watermelon, Muskmelon, Bottle gourd, Ridge gourd 1 g/ Ltr water.

## **Good Practices**

#### **Problem Identification**

The KVK undertook several measures since 2014 to promote the IIHR Vegetable Special Technology in the district, farmers were not willing to use it in their fields

initially. The KVK has been continuously creating awareness about the technology in the training and other extension activities in collaboration with Department of Horticulture.

## Testing the Technology in Farmers field

The KVK has included vegetable special as one of the important critical inputs in its activities related to vegetable crops under On Farm Trial, Front Line Demonstration, trainings and other extension activities since 2015. The following table shows the number of activities carried out by the KVK in promoting IIHR Vegetable special Technology from 2015 – 2023.

Name of the activity	No. of programmes	No of farmers benefitted		
On Farm Trial	14	247		
Front Line Demonstration	26	280		
Trainings	132	1547		
Extension activities	36	2415		
Total	208	4489		

Apart from the above activities, awareness on vegetable special technology being created through various in house, off campus and sponsored trainings in collaboration with Department of Horticulture across the district.



### **Technology Promotion**

The success of the assessment and demonstration on IIHR vegetable special technology conducted in the farmers fields since 2015, it encouraged the KVK to further popularize it other collaborative programmes involving horticulture department, NGOs and other stakeholders in the district. The KVK itself produced and supplied on an average of 1.5 to 2 tonnes of Vegetable special formulation to the farmers, departments and other KVKs in the state. The technology further taken in to almost all the vegetable growers through various activities in the district with the help of horticulture department.



#### Impact

- Farmers stated that an increase in yield by 20 to 30% was recorded in tomato, brinjal, chillies and gourd crops after using recommended quantity of vegetable special as foliar spray for 3-4 times.
- By using the technology, farmers are expressed that the quality of the produce in terms of size, weight and taste was also improved.
- The cost on fertilizer also minimized by 15% as the technology has all the required micronutrients.
- The technology also proved that it gives more resistance to crop against pest and diseases.

## Effect on yield and income

Parameters	Tomato		Brinjal		Chillies		Gourds	
	BI	AI	BI	AI	BI	AI	BI	AI
Yield (Q/ha)	463.35	596.12	271.38	344.61	24.63	29.53	342.62	428.20
Yield increase (%)	-	28.65	-	26.98	-	19.89	-	24.98
Net income (Rs.)	176908	270247	210855	246331	85249	153962	234332	349721
BCR	2.27	2.98	2.57	2.92	1.86	2.59	2.41	3.15

**Note : BI** : Before Intervention, **AI** : After Intervention

There has been a constant increase in the area and productivity of vegetables in Thiruvannamalai district. Use of IIHR vegetable special is directly contributing an average yield increase by 20-30 % in vegetable crops.

## Outcome

The IIHR Vegetable special technology has spread over an area of 4260 hectares in Thiruvannamalai district covering 8362 farmers as of now, due to the effort taken by KVK in collaboration with State Department of horticulture and it is expected to reach all the vegetable growing area of the district.

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