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इंस्टीट्यूट ऑफ़ हॉर्टीकल्चर टेक्नोलॉजी
Institute of Horticulture Technology
Recognised by Ministry of Agriculture & Farmers Welfare, Government of India

Monthly Newsletter I.H.T
Newsletter
June 2021 Volume 4 no.06

## Contents



# PROBLEM OF PESTICIDE RESIDUES IN FOOD

A balanced diet must include a good portion of fruits of vegetables for the nutritional value it adds to the human body. However, according to a March-2020 report by the Environmental Working Group (EWG), an America activist group, close to 70% of the fresh foodstuff sold in the United States contains residues of toxic pesticides. In India too, the presence of residues in food, water and fodder is of serious concern, studies carried out by various institutions across the country indicate that 50-70 per cent of vegetables are contaminated with insecticide residues and 11 per cent of these samples had residues above MRL. Pesticide residues mainly occur due to over usage and indiscriminate spraying on crops.

Institute of Horticulture Technology has been providing hands on trainings to the farmers and extension officials across different states of India and making the trainees aware of the danger pesticides pose, the importance of following waiting periods after spraying pesticides and need PPE during application of the pesticides in crops.

India is the second largest producer of vegetables in the world (ranks next to China). In fiscal year 2020, the total production of vegetables in India accounted for approximately 189 million metric tons. The increase in population and urbanization and the rising income have given great importance to the cultivation of vegetable crops, but growing vegetables without pesticide or with good agricultural practices is a challenge as mostly farmers are not aware about the banned insecticides or the restricted use of the pesticides as per CIB guidelines.

Ministry of Agriculture and Farmers Welfare, Government of India has issued a draft order intending to ban 27 pesticides on May 14 and sought comments and suggestions from those who are likely to be affected by the decision. The list of pesticides, according to the draft order, proposed to be banned include insecticides, fungicides and weedicides which have been or are being extensively used in India, they include 2,4-D, acephate, atrazine, benfuracarb, butachlor, captan, carbendazin, carbofuran, chlorpyriphos, deltamethrin, dicofol, dimethoate, dinocap, diuron, malathion, mancozeb, methimyl, monocrotophos, oxyfluorfen, pendimethalin, quninalphos, sulfosulfuron, thiodicarb, thiophante methyl, thiram, zineb and ziram.

The aforesaid pesticides are in common use in India so there is need of multimedia awareness activities in local language conducted on the dangers posed by pesticides contamination in the food and need of PPE for the persons spraying the chemicals. Proper legislations on handling of pesticide should be introduced and practiced. Measures must be enforced to stop the use of forbidden pesticides. Integrated pest management or Integrated Crop management must be adopted in order to decrease amount of the pesticide and improve human health.

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# IHT EDUCATION AND TECHNOLOGY DEMONSTRATION

Institute of Horticulture Technology provides training on latest technologies in protected cultivation of vegetable, flowers and modern young plant production in protected conditions. The objective of different courses offered acquaint the technical manpower for horticulture crop production by adopting latest technologies. One of the biggest challenges facing the horticulture sector is inadequate skilled manpower.

The need for sufficiently skilled, permanent and seasonal human resource on farm is important to ensure business viability, productivity and reducing pressure on existing staff. Employment opportunities exist in sales, post- harvest management, processing, agriculture chemical industries and extension.

These trainings are the step towards the upcoming startups being set up by the prospective entrepreneurs. For starting greenhouse crop production people need some trainings for the better understanding of the technology. These training programs help in enhancing the competence level and talent of the trainees. These courses aims to develop ability to grow crops in greenhouse and the challenges in it.

# IHT EDUCATION AND TECHNOLOGY DEMONSTRATION

### Pilot Scale Demonstration of Strawberry Cultivation with Sustainable Agro-technological Interventions in Farmers Field of Meghalaya

Under this project appropriate crop production modules/agro-technological packages are being demonstrated to farmers at Bio-Resources Development Centre- BRDC, Meghalaya and farmers' fields in districts of West and East Khasi Hills, Jaintia Hills, Garo Hills districts of state. These interventions will help the farmers to produce quality strawberry which will in turn fetch good market returns. Training program and exposer visit at BRDC main hub were also conducted during every age of plants and before plantation and field preparation.

Technology Demonstrations in Farmer's Fields

Glimpses of Training on "Technological Intervention on Strawberry Sweet Plantation in Meghalaya"

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# CAPACITY BUILDING PROGRAMMES

## Commercial Hydroponics

The growth rate for a hydroponic plant is 30-50 percent faster than a plant grown in soil. With hydroponics, nutrients are more easily available for the plant to absorb. The grower can control light, heat, nutrients, hydration, pests, and all other aspects of the growing process. It does require a greater level of technical knowledge than other forms of horticulture; IHT organized various training programs for entrepreneurs in hydroponic technology.

The course are being delivered 50% online and 50% offline, i.e. hands on training in institute, supported with online and offline resources. The trainees were encouraged to follow the principle of 'Learning by Doing' wherein trainees get wide exposer through field visit and hands on trainings. Through these training programs trainees were explained to manage pH and nutrients to make sure plants are getting the exact nutrients. There were interactive lectures on climate control system in hydroponic crop production.

Glimpses of Hands on Training on Commercial Hydroponics

## Protected Cultivation of Vegetable Crops

The major components of the course were soil health management, soil sterilization, solarization, nursery production, soil and soilless bed preparation, amendments, pH, EC correction, mulching, nutrient management, integrated pest management, post-harvest handling, storage in zero energy chambers. The trainees found the program a practical based and helpful in understanding the operations of a protected cut-flower and vegetable production for developing their entrepreneurial skills. The trainees found the program a practical based and helpful in understanding the operations of a protected vegetable production for developing their entrepreneurial skills. This course helps prospective entrepreneurs to know as how to grow crops in protected structures, IHT experts give step-by-step guide for startup Protected Cultivation farming.

Tomato cultivation in protected condition

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## Vegetables Nursery Management

Training program for entrepreneurs/students on "Vegetables Nursery Management" was conducted in June 2021. The major training sessions were planting material, nursery production, plant propagation, soil health management, bed preparation, moisture conservation, soil solarization, irrigation and fertigation, disease, pest and nutrient management, training. The trainees found the program very useful being practical oriented with hand on experience.

## Mushroom Production Technology

Institute organized 3 days training program for trainees from different areas from India. Institute of Horticulture Technology conducted various trainings in "Mushroom Production Technology". It doesn't matter if you live in an urban or rural area; you can reap the benefits from growing mushrooms in a personal garden or on a commercial farm. The process of mushroom production is interesting, fun, inexpensive, and quick. Anyone can start small and grow as big as you feel comfortable.



## Upcoming Campus Trainings Programmes:

| S. No. | Title | Date | Duration |
|---|---|---|---|
| 1. | Online Commercial Hydroponics | 5th – 10th July 2021 | 1 Week |
| 2. | Protected Cultivation of Vegetable Crops | 5th – 10th July 2021 | 1 Week |
| 3. | Horticultural Plant Nursery | 5th – 10th July 2021 | 1 Week |
| 4. | Home Gardening | 12th – 14th July 2021 | 3 Days |
| 5. | Landscape Horticulture | 12th – 17th July 2021 | 1 Week |
| 6 | Forest Plant Nursery Management | 19th – 21st July 2021 | 3 Days |
| 7. | Commercial Hydroponics | 19th July 2021 | 2 Week |

**Customized courses on protected cultivation of vegetable crops, commercial hydroponics, mushroom cultivation, vegetables nursery production, forest plant nursery management, commercial hydroponic also offered on demand.*

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