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## VERMICOMPOSTING: RECYCLING SOLID WASTE INTO ORGANIC FERTILIZER

Vermicomposting is globally becoming a popular solid waste management technique. It is a simplistic microbiological composting method in which certain earthworm species are employed to enhance the waste conversion process and produce a better end product. Earthworms consume organic matter (straw, agri-residues, waste) and generate a product called vermicompost.

**Preparation of Vermicompost:** A cost-effective model of vermicomposting adopted by KVK, Kota consists of two chambers 10x6x1.5 ft having partition walls with small holes to facilitate easy movement of earthworms from one chamber to another. This facilitates harvesting of vermicompost, saves labor for harvesting and introducing earthworms.



### Nutrient Composition of Vermicompost

Nutrient element	Availability in Vermicompost (%)
Organic carbon	9.8–13.4
Nitrogen	0.51–1.61
Phosphorus	0.19–1.02
Potassium	0.15–0.73
Calcium	1.18–7.61
Magnesium	0.093–0.568
Sodium	0.058–0.158
Zinc	0.0042–0.110
Copper	0.0026–0.0048
Iron	0.2050–1.3313
Manganese	0.0105–0.2038

### Favourable conditions for earthworms in the composting material

- pH: Range between 6.5 and 7.5
- Moisture: 60-70%
- Aeration: 40-50% from the total pore space
- Temperature: Between 18 to 35 °C

### How to use Vermicompost?

Vermicompost can be used for all crops: agricultural, horticultural, ornamental and vegetables at any stage of the crop.

- For general field crops: Around 4–5 ton per hectare vermicompost is used for broadcasting application before sowing or even may be used in standing crop if required.
- For fruit trees: 5 to 10 kg per tree depending on the age of the plant.
- For vegetables: For raising seedlings to be transplanted, vermicompost at 1 ton per hectare is applied in the nursery bed. This results in healthy and vigorous seedlings.

**Source:** Krishi Vigyan Kendra, Kota (Rajasthan) 324001, Intensive Agriculture July - September, 2022

## IHT EDUCATION AND TECHNOLOGY DEMONSTRATION

### Entrepreneurial Capacity Building Trainings

**Commercial Hydroponics:** Hydroponic is a technology solution for India's aid in agriculture. Compared to the conventional farming, smart farms use 90% less water. Hence hydroponic farming is emerging as one of the better alternative new techniques in agriculture and gaining foothold India. However, for successful hydroponics farming, one needs to understand the protected structures for this, climate control, production technologies for hydroponic crops, plant protection, water distribution, nutrient management and post-harvest management. With this view, two weeks training programmes on "Commercial Hydroponic" were organized in July 2022 by IHT from 4th -16th and 18th – 30th, through online cum offline mode.



*Trainees Undergoing Hands on Training on Nursery Production and Nutrient & Water Management Hydroponic During the Training Programme*

### e-Training Programme on Protected Cultivation:

Modern farming technologies like protected structures provides full or partial protection from adverse weather conditions and enable crops to be grown all year around. They are also helpful in production of uniform quality crops, provide protection from birds, animals and human activities. Through these structures the productivity increases upto 8-10 times and enable appropriate management of insect pests, diseases and weeds. Protected cultivation minimise inputs such as labour and provides better income in a short period of time. For providing basic technical skills & knowledge about protected cultivation IHT conducted one-week online training program with the aim to develop an overall understanding of protected cultivation structures, climate control systems, planning and maintaining the crops, irrigation and fertigation, automation in polyhouse and plant protection inside greenhouse.





## TECNOLOGY DEMONSTRATION

IHT, Mandira, Assam is a partner in project *“Catalysing Complementary Olericulture in Assam, Arunachal Pradesh and Nagaland for Livelihood Security by Provisioning Quality Seed and Seedling of Indigenous and Commercial Vegetables Generated through Hi Tech Mini Plug Nursery and Conventional Means and Promotion of Bio- Enterprise”* led by Assam Agricultural University through one of its component research station, viz., Horticultural Research Station (HRS) based at Kahikuchi, Guwahati and the Department of Horticulture, Jorhat. The other partners in the project are Indian Institute of Entrepreneurship, MoSD & E, GoI, Guwahati; Defence Research Laboratory, Tezpur; Krishi Vigyan Kendra, West Kameng District, Arunachal Pradesh and North East Initiative Development Agency, Kohima, Nagaland.

IHT is working in vegetable clusters in Assam and after visiting the famers' fields in vegetable cluster in Goalpara, Barpeta and Baksa districts of Assam observed that the famers use open pollinated (OP) seeds of different vegetables but desired to use quality hybrid seeds for better returns. They had some information w.r.t some hybrid vegetable varieties but had never grown them. Based on our mandate in the project for providing hybrid vegetable seedlings to the beneficiary farmers we provided plug type seedlings of the commercial vegetable varieties of pumpkin, bottle gourd, ridge gourd, sponge gourd, bitter gourd to the identified farmers of the district.



*Selected Beneficiary Farmer's Field Site View*

## Establishment of disease free elite Khasi Mandarin and Sweet Orange genetic stocks through Shoot Grafting (STG) and Mass Production of Quality Planting Material for NE States of India.

During the month institute organized training program for framers of Assam under the collaborative project on “Establishment of disease free elite Khasi mandarin and sweet orange genetic strokes through shoot grafting (STG) and mass production of quality planting material for NE states of India”. The training included micro budding, grafting techniques, inputs required like budding tape, hand pruner or secateurs, budding knives etc. The overall objective behind this project is to produce quality planting material.



### Upcoming Training Programmes:

S. No.	Title	Duration	Mode of Training
1.	Landscape Horticulture	2 Week	Online cum Offline
2.	Commercial Hydroponics	2 Week	Online cum Offline
3.	Microgreens Production	3 Days	Offline
4.	Online Basic Hydroponic	3 Days	Online
5.	Ornamental Nursery Production	3 Days	Online
6.	Mushroom Production	3 Days	Online
7.	Protected Cultivation of Vegetables Crops	1 Week	Online and Offline

\*Customized courses are also offered on demand.

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