



Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya , Gwalior (MP)

VSC 508

Organic Vegetable Production Technology (1+1)

M.Sc.(Agric.) Hort. Vegetable - Science

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VSC 508

Organic Vegetable Production Technology

Theory

UNIT I

Importance, principles, perspective, concept and component of organic production of vegetable crops.

UNIT II

Organic production of vegetables crops, viz., solanaceous crops, cucurbits, cole crops, root and tuber crops.

UNIT III

Managing soil fertility, pests and diseases and weed problems in organic farming system; crop rotation in organic horticulture; processing and quality control for organic foods.

UNIT IV

Methods for enhancing soil fertility, mulching, raising green manure crops. Indigenous methods of compost, Panchagavya, Biodynamics, preparation etc Pest and disease management in organic farming; ITK's in organic farming. Role of botanicals and bio-control agents.

UNIT V

GAP and GMP- Certification of organic products; organic production and export - opportunity and challenges



Importance, principles, perspective, concept and component of organic production of vegetable crops.

UNIT I

Lecture-1

- ▶ Meaning of organic, organic farming and its importance

Lecture-2

- ▶ Concept of organic production and Principles of organic farming

Lecture-3

- ▶ Component of organic production of vegetable crops



Lecture-1

▶ **Meaning of organic, organic farming and its importance**

UNIT I

- ▶ Organic farming based on “Nature can provides for everyone's need but not for greed”**Mahatma Gandhi**
- ▶ Organic farming-In agriculture, the word organic has come to mean “ foodstuff grown or raised without synthetic fertilizers or pesticides or hormones”
- ▶ **According to the USDA** National Organic Standard Board, organic agriculture is an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity: is based on minimal use of off farm inputs and on management practices that restore, maintain or enhance ecological harmony: has a primary goal of optimizing the health and productivity of Interdependent communities of soil life, plants, animals and people.



Synonyms of organic farming

UNIT I

Lecture-1

- ▶ **Organic Farming or Soft Agriculture:**

It is depend on soils natural fertility enhanced by compost and vermiculture.

- ▶ **Alternative Agriculture:** It is farming without chemicals.

- ▶ **No-till or Natural Farming:** In this farming even ploughing of the field is also not allowed.

- ▶ **Nature Farming:**

Another Japanese farmer Mr. Mokicho Okada in the mid 1940s grew out the methodology based on universal life giving powers water, earth and fire. It is common in North America. It is similar to organic farming in as soil is build through composting, mulching and green manuring.

Permaculture: Coined by an Australian Mr. Bill Mollison ,the planting of perennial tree crops and employ environment in planning farm activities.



Synonyms of organic farming ...Contd.....

UNIT I

Lecture-1

- ▶ **Biodynamic Farming:** Dr. Rudolf Steiner is considered as a father of Biodynamic farming. Exploits the bio and solar rhythms in farming.
- ▶ **Bio-intensive Agriculture:** Employs double digging or deep dug beds for intensive garden cultivation.
- ▶ **Indigenous Agriculture:** Farming based on successful and time-tested non-western technologies and knowledge.
- ▶ **Sustainable Agriculture:** Promotes farming practices, which enable a sustainable exploitation of the soil without degrading it.
- ▶ **Alley Cropping:** Planting trees and crops in alternate rows so that they give mutual benefit to each other.
- ▶ **LEISA:** Low External Input Sustainable Agriculture, which originated by Dutch farmers and Scientists committed to soft agriculture.



Synonyms of organic farming ...Contd.....

UNIT I Lecture-1

- ▶ **Albert Howard** was Imperial Economic Botanist to the Government of India from 1905–1924. He worked in India as agricultural adviser and was in charge of a government research farm at Indore. Though he journeyed to India to teach Western agricultural techniques, but he found that the Indians could in fact teach him more. Howard has been called the father of modern composting, for his refinement of a traditional Indian composting system into the Indore method.
- ▶ He went on to document and develop organic farming techniques, and spread his knowledge through the **UK-based Soil Association**, and the **Rodale Institute in the US**.



Historical background

UNIT I Lecture-1

- ▶ The concept of organic agriculture is not alien to India. In fact, the first scientific approach to organic farming dates back to the Vedas of the later Vedic period, the essence of which is to live in harmony with, rather than exploit, Mother Nature.

Period	Description
Ancient period	Oldest practice 10000 years old, dating back to Neolithic age, practiced by ancient civilization like Mesopotamia, Hwang-Ho basin etc.
Ramayana	All dead things - rotting corpse or stinking garbage returned to earth are transformed into wholesome things that nourish life. Such is the alchemy of mother earth - as interpreted by C. Rajagopalachari
Mahabharata	Mahabharata (5500 BC) :Mention of Kamadhenu, the celestial cow and its role on human life and soil fertility.



Historical backgroundcontd....

Period	Description
Kautilya	Artha-shastra (300 BC) Mentioned several manures like oil cake, excreta of animals
Brihad-Sanhita	Varahmihir: Described how to choose manures for different crops and the methods of manuring
Rig Veda (2500–1500 BC)	Mention of organic manure in Ria Veda 1, 161, 10, 2500–1500 BC, is Green Manure in Atharva Veda II 8.3, (1000 BC). In Sukra (IV, V, 94, 107–112) it is stated that to cause healthy growth, the plant should be nourished by dungs of goat, sheep, cow, water as well as meat. A reference of manure is also made in Vrksayurveda by Surpala (manuscript, oxford, No 324 B, Six, 107-164)
Holy u;-an	At least one third of what you take out from soils must be returned to it implying recycling or post-harvest residue. (590 AD)

(Source: *Bhattacharyya and Chakraborty, 2005*)



Importance of organic farming

UNIT I

Lecture-1

- ▶ Organic farming maintain soil quality. The chemical use is hitting the sustainability in soil and decreasing its potency. Applying organic manure is the only solution to improve the soil organic carbon productivity in the future.
- ▶ It enhances more biodiversity than other system.
- ▶ Organic foods are proved to have superiority in terms of health and safety. Pest and disease incidence is less in organic farms when compared to conventional farms.
- ▶ It make sure to make sure the right soil cultivation at the right time.



Importance of organic farmingcont...

UNIT I

Lecture-1

- ▶ keep and build good soil structure and fertility.
- ▶ Organic farming helps to prevent environmental degradation and can be used to regenerate degraded areas.
- ▶ Organic manures produce an ideal condition in the soil for high yields and good quality of crops.
- ▶ They cut the need for purchased inputs.
- ▶ They improve the soil chemical properties such as supply and retention of soil nutrients and promote favorable chemical reactions.
- ▶ Organically grown plants are more resistant to diseases and insect and hence only a few chemical sprays or other protective treatment are required.
- ▶ Poison – free.
- ▶ Sustainability over the long term.

