



Sree Narayana Mangalam College Maliankara

(Affiliated to Mahatma Gandhi University, Kottayam)

CERTIFICATE COURSE SYLLABUS

COMMERCIAL PLANT PRODUCTION TECHNIQUES

Sree Narayana Mangalam College
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Certificate course on Commercial Plant Production Techniques

Objectives of the Course:

- ✓ Provide basic information about the business opportunities in plant sciences.
- ✓ Understand the propagation and cultural practices of useful vegetable, fruit and garden plants
- ✓ Understand the methods of crop improvement
- ✓ Hands on training will be provided in budding, grafting, layering and tissue culture techniques

Course Overview:

The purpose of this course is to enlighten the knowledge on various commercial plant production techniques. Plant propagation is the skillful integration of science and art. Through commercial nurseries, basic knowledge and expertise might be a greater source of revenue. It aids in the conservation of plant species and the preservation of endangered (extinct) species. Various propagation techniques have been devised with the goal of achieving crop uniformity, early bearing, higher production, resistance to pests and diseases, and introducing specific characteristics into subsequent generations. These goals have made plant propagation both interesting and difficult. The most popular artificial propagation methods include budding, layering, grafting, and budding, all of which need specialised ability and varies in different plants. Growing of tissues in controlled conditions is an advance and recent method of vegetative propagation. It is known as 'tissue culture'. It is a highly specialised technique of propagation. By using this technique, a large number of true-to-type virus-free saplings can be produced in a short span.

Duration of the course: 38 Hours (Theory: 8 hours + Practical: 30 hours)

Module I

Vegetative propagation - advantages and disadvantages. Natural methods of vegetative propagation. Artificial methods – budding, grafting and layering. Budding- Shield budding, Ring budding and Patch budding (**Theory – 2 hrs; Practical- 7 hrs**)

Module II

Grafting- Principles and techniques of grafting; Types- Veneer grafting, Side grafting, Wedge or cleft grafting (**Theory – 2 hrs; Practical- 7 hrs**)

Module III

Layering- Principles and techniques of layering. Types- Simple layering, Compound layering or Serpentine layering, Air layering. Familiarization of common garden tools and implements (**Theory – 4 hrs; Practical- 8 hrs**)

Module IV

Plant tissue culture- Concept of totipotency, infrastructure of a tissue culture laboratory, Solid and liquid media – composition and preparation, Sterilization techniques, Explant- inoculation and incubation techniques, Stages of micropropagation- hardening and transplantation. Packaging and transportation of tissue culture regenerated plantlets **Theory – 2 hrs; Practical- 6 hrs**)

Suggested readings

- Adams et al., 2013. Principles of horticulture, Elsevier
- John Preece and Paul Read, 1993. The biology of horticulture, Wiley.
- George Acquiciah, 2004. Horticulture: Principles and Practices (II Edn). Prentice Hall. India.
- Gopal Chandha De, 2002. Fundamentals of Agronomy. Oxford and IBH Publishing House.
- Hudson T, Hartmann, Dale E Kester, 2001. Plant Propagation, Principles and Practices (VI Edn). Prentice Hall, India.
- Kalyan Kumar De, 1996. Plant Tissue Culture. New Central Book Agency (P) Ltd.
- Kunte, Kawthalkar, Yawalker, 1997. Principles of Horticulture and Fruit Growing. Agri – Horticulture Co
- Purohit S S, 2005. Plant Tissue Culture. Student Edition.
- Razdan M K, 1995. Introduction to Plant Tissue Culture (II Edn). Oxford and IBH Publishing Co.
- Sharma R R, 2005. Propagation of Horticultural Crops. Kalyani Publishers.

