

JOB ROLE – FLORICULTURIST (PROTECTED CULTIVATION)

Sector – Agriculture

(Qualification Pack Code: AGR/Q0702)



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UNIT 3: PREPARATION OF MEDIA AND CONTAINER FOR COMMERCIAL CULTIVATION IN GREENHOUSES

Session 2 & 3: Sterilization of Growing Media and Preparation of Beds and Containers

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Session Objectives

The student will be able to

- Explain media sterilisation
- Describe methods of soil disinfestations
- Prepare raised bed

Introduction

Sterilisation can be defined as the process of removal or destruction of all forms of microbial life. Any sterile item in the microbiological sense actually has to be free of any living micro-organisms. Micro-organisms can be killed, inhibited or removed by exposing material to lethal agents which may be physical and chemical.

Bed preparation in a greenhouse, polyhouse, net house or a tunnel is very important and it plays a crucial role while growing plants.

The use of containers in greenhouse production carries significance because the duration of a crop in the greenhouse is the key to make the greenhouse technology profitable.

Soil Sterilisation

Sterilization can be defined as the process of **removal or destruction** of all forms of microbial life from media.

Methods of Soil Disinfestations

Soil disinfestations

Soil solarisation

By chemical

Formaldehyde

Hydrogen peroxide

Methods of Soil Disinfestations

Soil solarisation

A nonchemical method for controlling soil borne pests and disease using high temperatures by capturing radiant energy from the sun.

Methods of Soil Disinfestations

Procedure

- Soil should be ploughed first
- Irrigate the field very lightly
- Cover the field with transparent UV- stabilised 25 micron polyfilm for 20-30 days
- The sides of the film should be covered with soil

Methods of Soil Disinfestations

Soil Sterilisation by Formaldehyde:

- An excellent sterilising agent for controlling harmful soil microbes.



Soil Sterilisation by Formaldehyde:

Procedure

- Loosened the soil and apply the formaldehyde solution
- Covered the bed with plastic film for 7 days
- Exposed the soil for 15-20 days to evaporate of formaldehyde
- After that, sowing and planting should be done

Methods of Soil Disinfestations

Soil sterilisation by hydrogen peroxide:

- Hydrogen peroxide can be used for sterilisation in moist soil @ 35-40 ml/sq m
- It can also be applied with drip irrigation
- Advantage of this method is planting can be done the next day

Bed Preparation

Step 1

- Plough the soil
- Add organic and inorganic manure and fertilisers
- Mix them thoroughly

For one acre following must be add

- Vermi compost/FYM : 3 truck
- Rice husk: 2 tonnes
- Neem Cake : 1 tonne
- Bone/fish meal : 0.25 tonne
- After mixing cover it with polyfilm for solarisation (2-3 Weeks)

Step 2

- Preparation of raised beds either mechanically or manually



Bed dimensions for flower cultivation:

- Bed height: 30-45 cm
- Bed width: 75-90 cm
- Path width between two beds: 50 cm
- The beds top should be levelled uniformly

- Place 2-3 drip laterals on each bed depending upon the crop
- Spray fungicides & insecticides (2 ml/l)
- Transplant the seedlings



Transplant of seedlings

Containers for Greenhouse Production



Containers for Greenhouse Production

Types of containers:

- Polyurethane foam
- Pro-trays
- Polyethylene bags
- Plastic pots
- Other material Pots etc
- At the bottom of these containers a small hole is provided for proper aeration and drainage

Advantage of Using Containers

- Easy in sanitisation and safety to plants
- All kinds of cut flowers can be cultivated
- Easy to manage and feed the plants
- Possible to have roof top gardening of plants
- Reusable

Summary

In this session you have learnt about the Soil sterilisation, methods of soil disinfestations, preparation of raised bed and plant growing containers

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