MAINTAINING TWO FRUIT SPECIES FROM FLOWERING TILL FRUITING

Exercise

Selecting at least two fruit species and maintaining them from flowering to fruiting.

Objectives

• To know about different cultural operations from flowering to fruiting in two fruit species.

Delivery schedule: 02 periods

Student expectations/learning objectives

- To know about management operations in fruit orchards during flowering and fruiting.
- To acquire skill of performing cultural operation in fruit orchards.

Handouts/material/equipment's & tools required: Practical note book, pen, and pencil to note down the important points on cultural operations from flowering to fruiting.

Pre-learning required: Pre-requisite knowledge about cultivation of fruit trees and management in fruit orchards.

Introduction

The main aim of growing fruit trees is to obtain good quality nutritious fruits. These fruits may be consumed fresh or sold in the local or distant markets. The flowering is an important developmental phase of fruit trees which decides the productivity of fruit trees. Management of fruit trees during flowering and fruiting is very important. Various cultural operations like irrigation, fruit drop control measures, control of diseases and insect pests, weeding, nutrition are important to realize better harvest of quality fruits.

It is expected from the horticulture students that they should know different cultural operations during flowering and fruiting in

For teachers...

- Ask students to make a schedule of different cultural operation in fruit tree species grown in their locality.
- Practically show different cultural operation in fruit orchards during flowering

commercially grown fruit trees of the locality. In the present practical examples are given for mango and apple orchards. Students can prepare their own schedule of operations during flowering and fruiting in other fruit species grown in the locality.

Cultural operations during flowering and fruiting (Mango)

Stage 1

• Chemical control of diseases, if symptoms are seen.

- Need not to irrigate trees during flowering.
- No insecticide sprays to control insects. This may kill beneficial insects like honey bees etc. which help in pollination.
- Try to keep basin near tree trunk free from weeds.
- Keep honey bee boxes in the fruit orchard from better pollination.

Stage 2

- Irrigate fruit trees at weekly intervals.
- Spray plant growth regulators like NAA, 2,4-D etc., for control of fruit drop.
- Application of fertilizers as per requirement.
- Chemical control of diseases (powdery mildew, anthracnose), if symptoms are seen.
- Chemical control of insects and pests (mango hopper, mealy bug etc.).
- Keep basin near tree trunk free from weeds.

Stage 3

- Irrigate at regular intervals for better fruit growth.
- Spray of micronutrients (Zn, Fe, B, Mn etc.) to minimize fruit disorders.
- Chemical control of disease (powdery mildew, anthracnose etc.), if symptoms are seen.
- Chemical control of insect and pests (mealy bug, mango hopper etc.).



Harvested and cleaned fruits of mango



Grading of mango fruits



Ripened fruits of mango



Fruit tree in flowering



Fruit setting and fruitlet development



Fruit development



Packaging of fruits

Stage 4

- Harvesting of mature fruits on the basis of harvest indices recommended.
- Washing of fruits and pre-cooling to remove field heat.
- Grading of fruits in different class on the basis of size, shape and colour.
- Ripening of fruits using ethylene chambers ethrel solution.
- Packaging of fruits for marketing.

Cultural operations during flowering and fruiting in citrus

Stage 1

• No insecticide sprays to control insects. This may kill beneficial insects like honey bees etc. which help in pollination.

• Aphid and leaf minor infestation is common at this stage. Soil application of phorate insecticide can be done to control aphids.

- Need not to irrigate until fruit set.
- Try to keep basin near tree trunk free from weeds.
- Keep honey bee boxes in the citrus orchard from better pollination.

Stage 2

- Irrigate fruit trees at weekly intervals.
- Spray plant growth regulators like NAA, 2,4-D etc. for control of fruit drop.
- Application of fertilizers as per requirement.
- Cultural and chemical control of insects and pests (mealy bug, sucking moth etc.).
- Try to keep basin near tree trunk free from weeds.



Citrus in flowering



Fruit setting and fruitlet development in lemon

Stage 3

- Irrigation at regular intervals for better fruit growth.
- Spray of micronutrients to minimize fruit disorders.
- Chemical control of discases (phytophthora, citrus canker etc.), if symptoms are seen.
- To avoid fruit cracking, ensure regular water supply and arrange for borax or potassium sulphate or gibberellins spray.
- Spray 2,4-D or NAA to control pre-harvest fruit drop.
- Try to keep basin near tree trunk free from weeds and



Fruit development

avoid water stagination near tree trunk.

Stage 4

- Harvesting of mature fruits on the basis of harvest indices like colour development or TSS: acid ratio.
- Cleaning of fruits.
- Grading of fruits in differents class on the basis of size, shape and colour.
- Packaging of fruits for marketing.





Harvested Kinnow fruits

Grading of Kinnow fruits

Students activities

1. Select two fruit species grown in your locality and make a schedule of cultural operations (as per exercise table 1) practiced from flowering till fruiting.

Study material

• Bose, T. K., Mitra, S. K. and Sanyal, D. (2001). Fruits: Tropical and Subtropical (Vol. 1). Noya Udyog, Kolkatta-6.

- Bal, J. S. (2007). Fruit growing Kalyani Publishers, Ludhiana, India.
- Chattopadhyay, T. K. (2008). A textbook on Pomology, Vol. 4 (Sub-tropical fruits), Kalyani publishers, Ludhiana, India.
- Sharma, R. R. (2006). Fruit Production: Problems and Solutions. International Book Distributing Company, ISBN 81-8189-102-3

Exercise table 1.

Fruit species	Flowering Duration	Fruiting Duration	Disease(s) observed	Disease(s) control measures adopted	Insect/pest infestation observed	Insect control measures adopted	Micronutrient spray details	Plant growth regulators spray details
1								
2								