

**LEC. 5 MANGO- MAJOR PROBLEMS, PHYSIOLOGICAL DISORDERS,
PESTS AND DISEASES AND INTEGRATED
MANAGEMENT PRACTICES**

DISORDERS

Alternate bearing

Alternate bearing has been one of the major problems. Most of the south Indian varieties are regular-bearer, whereas north Indian ones alternate-bearer. Paclobutrazol is a promising chemical for flower induction in mango. Soil drenching with paclobutrazol (5g -10g/tree) results in minimum outbreak of vegetative flushes during September to October giving an early and profuse flowering and more annual yield without affecting fruit size and quality.

Mango malformation

It is one of the most important disorders, causing huge losses. It is a major problem in Punjab, Delhi and Uttar Pradesh. However, it has also been noticed in Gujarat, Maharashtra, Bihar, West Bengal and Orissa. Of the 2 types of mango malformation, vegetative malformation is more common in nursery seedlings and young plants. Floral malformation affects trees at the bearing stage. In **vegetative malformation** or bunched top, compact leaves are formed in a bunch at the apex of shoot or in the leaf axil and growth of shootlet is arrested. **Floral malformation** directly affects the productivity. The incidence of disorder varies from variety to variety. Deblossoming alone or coupled with a spray of 200ppm NAA lowers the number of malformed panicles significantly.

Black tip

This disorder is mainly noticed in Punjab, Uttar Pradesh, Bihar and West Bengal. The distal-end of the affected fruits turns black and becomes hard. These fruits ripen prematurely and become unmarketable. This disorder is caused by the smoke of brick-kilns located within a distance of 600m. Gases like carbon monoxide and carbondioxide, sulphur dioxide and acetylene cause these symptoms. It can be controlled by raising the height of the chimney of the brick-kilns. Spraying borax (0.6%) at 10-14 days intervals starting from fruit set also controls it.

Clustering (*Jhumka*)

This malady is characterized by a cluster of fruitlets at the tip of the panicle giving an appearance of bunch tip called *jhumka*. These fruitlets are dark green with a deeper curve in the

sinus beak region compared with normally developing fruitlets. These fruitlets grow to marble size after which their growth ceases. One of the main reasons for clustering is the adverse climate during February-March, particularly the low temperature. Most of the fruits are aborted with shrivelled embryos and do not develop further, signifying the role of normal embryo growth in the development of fruits.

Spongy tissue

It is specific in Alphonso mango. Fruits from outside look normal. but inside a patch of flesh becomes spongy, yellowish and sour. This disorder has brought down the export of this variety. Inactivation of ripening enzyme due to high temperature, convective heat and post harvest exposure to sunlight are the causes. Use of sod culture and mulching are useful in reducing its incidence. Mango hybrids Ratna and Arka Puneet which have Alphonso like characters do not suffer from this malady. Harvesting mangoes when they are three-fourths matured rather than fully matured ones also reduces this malady.

Use of Growth Regulator

Due to the various causes, fruit drop occurs in mango rather at a higher rate, even upto about 99 percent in various stages of growth, more during the initial four weeks.

The extent of fruits drop can be reduced significantly by (a) Regular irrigation during the fruit development period (b) Timely and effective control measures against major pests and diseases, and (c) Through the application of growth regulators like NAA (50 ppm) and 2,4-D (20 ppm) during off years about six weeks after fruit set.

Pest and Diseases

Mango hopper (*Amaritodus atkinsoni*)

Spray phosalone @ 0.05% or carbaryl 2 g/ lit or phosphamidon 1 ml/litre.

Nut weevil (*Cryptorrhynchus mangiferae* and *C.gravis*)

General cleanliness in the orchard, destroying the adults in the bark crevices and holes and spraying with Fenthion 0.1%

Stem borer (*Batocera rufomaculata*)

Padding with monocrotophos 36 WSC 10ml in 2.5 cm per tree soaked in absorbant cotton

Application of carbofuron 3G 5g per bore hole and plugging with mud.

Fruit fly (*Dacus spp*)

Plough the inter spaces to expose pupae.

Monitor with Methyl Eugenol traps.

Remove the fallen fruits now and then and bury them deep into soil.

Powdery mildew (*Oidium mangiferae*)

Apply sulphur dust (350 mesh) in the early morning to protect new flush or spray wettable sulphur 0.2% or Tridemorph 0.05%

Anthracnose and stalk and end rot (*Collectotrichum gloesporioides*)

Spray Mancozeb 0.2% (1kg /ha) or Carbendazim 0.1% as preharvest spray, 3 times at 15 days interval.

Sooty mould (*Capnodium sp*)

Spray Dimecron 0.03% + Maida 5% (1kg maida or starch boiled with one litre of water and diluted to 20 litre).