LEC. 7 BANANA – MAJOR PRODUCTION CONSTRAINTS – PHYSIOLOGICAL DISORDERS, PESTS AND DISEASES AND INTEGRATED MANAGEMENT PRACTICES

Physiological disorders

Kottavazhai

In certain pockets of Tamil Nadu, the banana cv. Poovan is manifested with a peculiar development disorder which is characterized by the presence of distinctly conical and ill filled fruits with a prominent central core having many under developed non viable seedy structures rendering the fruits inedible. This disorder can be overcome by spraying 2,4 D 20 ppm when the last hand of bunch is opened. The same chemical at same dose and same stage results in increased bunch weight and uniform grade especially in cvs. Nendran and Monthan.

Hard lump

It is characterized by pinkish brown, firm pulp than the usual soft pulp occurs in cv.Rasthali, tastes like immature or unripe fruits. Spraying the bunches uniformly with 2,4 D at 1000 ppm or dipping the cut end of peduncle of the bunches for a period of 5 minutes appears to favour the reduction of lumps and improve the size.

Sunscald

- The peduncle of the bunches may be covered with flag leaf to prevent
- 'main stalk rot' and also the bunches with banana leaves to avoid sunscald.

Nematode

Bunchy top virus – *Pentalonia nigronervosa*.

Crop duration : bunches will be ready for harvest after 12-15 months of planting.

Viral diseases of banana

1. **Bunchy top –** transmitted by Aphid *Pentalonia nigronervosa*

Infected plants show short and narrow leaves together at the top of the pseudostem to form a bunch, hence this disease is known as 'Bunchy top'. The margins of leaves become wavy in advance stage of infection and roll upward.

Management :a) Remove all the affected plants along with complete rhizome, planting of virus free suckers.

b). control of banana aphid - spray 0.3% Rogar or Phosphomidon

Monocrotophos – 0.05% spray

2. **Banana bract mosaic virus** – transmitted by *Aphis gossypii*

Pentalonia nigronervosa

The name is derived from the conspicuous discolouration and necrotic streaks that develops on the bracts of the male bud. Spindle shaped discolouration found on the pseudostem.

Management : Effective control is similar to that of other viral diseases. It requires early detection, and immediate eradication of infected plants.

3. **Banana Streak -** Transmitted by citrus mealy bug –*Planococcus citri*

Foliar symptoms resemble those of banana mosaic, especially in the early stages. Later, development of necrotic streaks

Fungal diseases of banana

1. Panama wilt *(Fusarium oxysporum f.sp.cubense)*

Yellowing of leaf blades, leaves wither and petiole breaks or buckles and hang around the pseudostem. Longitudinal splitting of pseudostem and subsequent death of entire plant.

Management :

- Removal of infected plants and application of lime @ 2kg/pit and leave it fallow for 6 months
- Growing resistant varieties like Dwarf Cavendish, Poovan and Nendran
- Crop rotation with paddy in wet land cultivation
- Capsule application of 50-60mg of carbendazim applied to the hole made at an angle of 45 degree diagonally in the diseases corm.

2. Sigatoka leaf spot disease – *Mycosphaerella musicola*

Yellowish green streaks appear along the veins which later on enlarge into elongated/cylindrical spots. Several spots join together and cause drying of the leaves.

Management

- Spray copper oxy chloride or carbendazim @ 500g/ha
- Avoid close planting

Bacterial diseases

1. Moko wilt (*Pseudomonas solanacearum)*

On leaves, yellowing starts from the inner leaf close to petiole and slowly spreads up ward. All the leaves turn yellow and wilting occurs

Management

- Good drainage facilities
- Supress the wilt by bacteriazation with *P.inflorescens*
- Crop rotation with sorghum

2. Tip over or heart rot *(Erwinia carotovora)*

- Seen mostly in tissue cultured plants . The middle tender leaf show rotting. Pseudostem easily comes out from corm portion
- Bacterial oozing from edge of corm and pseudostem is also noticed
- Management
- Disease free suckers
- Resistant variety Poovan can be grown

Harvest

Bunches attain maturity from 100-150 days after flowering.

Yield (t/ha/year)

Poovan – 40-50

Monthan – 30-40

Robusta – 50-60

Dwarf Cavendish -50-60