

A wide-angle photograph of a vast field of bright yellow mustard flowers in full bloom. The flowers are densely packed and stretch towards a distant, hazy horizon. In the background, a line of dark green trees is visible against a pale, overcast sky. The overall scene is bright and natural, typical of a rural agricultural landscape.

DISEASES OF FIELD AND HORTICULTURAL CROPS – I

SESSION 23

CRUCIFEROUS CROP DISEASES

Important Diseases

❖ Major Diseases

1. Alternaria leaf spot - *Alternaria brassicae*, *A. brassicola*
2. Black rot - *X. campestris pv campestris*

❖ Minor Diseases

1. White rust - *Albugo candida*, *A. cruciferum*
2. Clubroot - *Plasmodiophora brassicae*

Alternaria leaf spot

❖ *A. brassicae*, *A. brassicola*

❖ Symptoms

1. Dark coloured **lesions with concentric rings**
2. Finally the spots coalesce leading to **blighting of leaves.**
3. Spots also appear on petioles, stems, pods & seeds
4. Shriveling of seeds and poor germination
- 5.



Aravind. T, Asst. Professor, MSSOA





Etiology

- ❖ Hyphae – Pigmented and Septate
- ❖ Muriform conidia



❖ Disease cycle

- ❖ **Primary infection** – Seed/ Crop debris
- ❖ **Secondary infection** – **Air born conidia**

❖ Favourable Conditions

- ✓ Close planting
- ✓ Cool weather with high RH
- ✓ Monocropping

❖ Management

1. Use healthy disease free planting materials
2. Field sanitation
3. Remove heavily infected plants
4. HWT – 50 °C for 30 minutes
5. Seed treatment – Thiram @ 3g/Kg seeds
6. Foliar spray – Propiconazole @ 0.1% ; Azoxystrobin @ 0.1%

Black rot

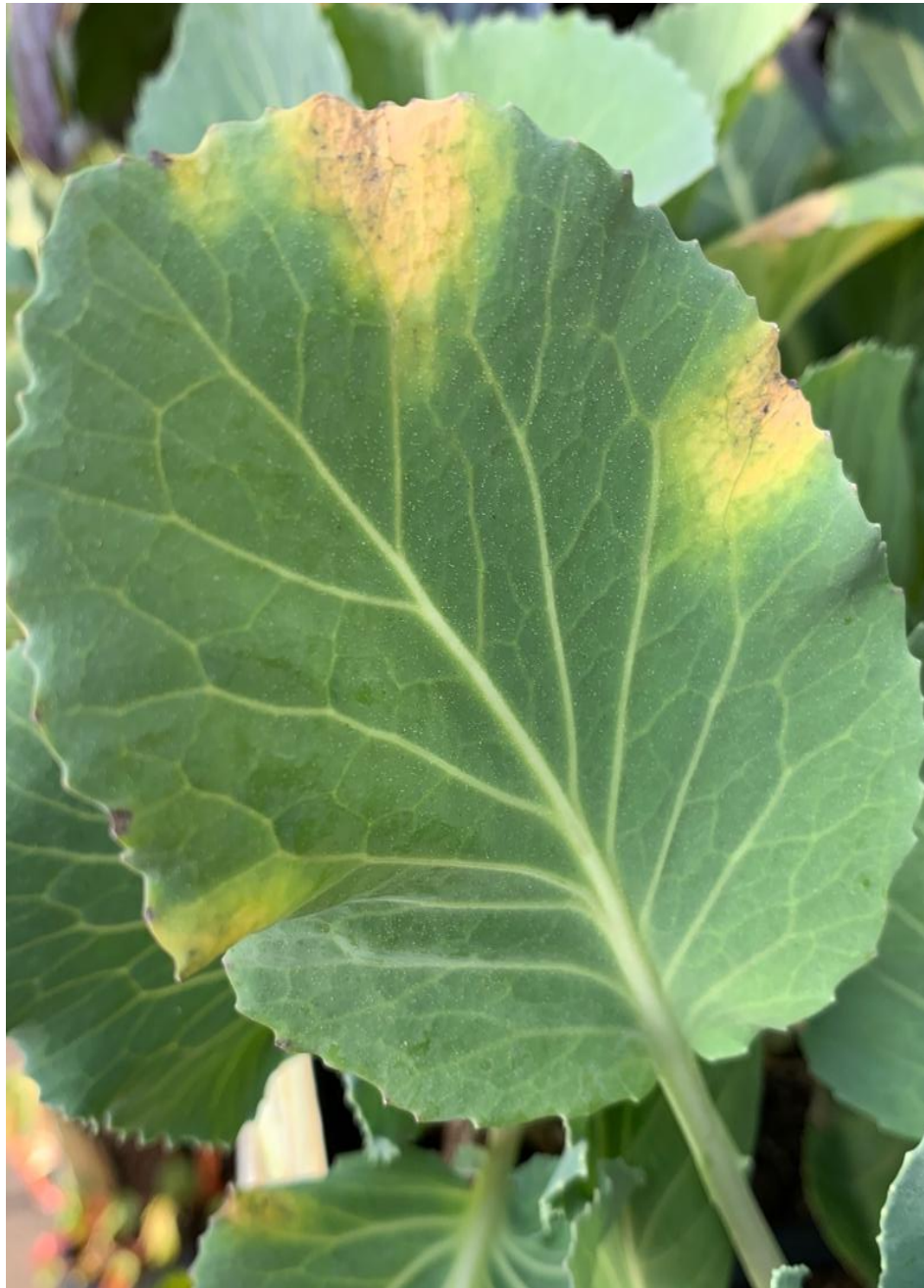
❖ *Xanthomonas campestris pv campestris*

❖ Symptoms

1. Water soaked appearance **and Chlorosis of the leaf margins**
2. The yellow area centre forming characteristic **‘V’ shaped chlorotic spots**
3. Veins and veinlets turn brown and finally black
4. Blackening of vascular bundles occur
5. Bacterial ooze can also be seen on affected parts
6. If the infection is early, the plants wilt and die



Aravind. T, Asst. Professor, MSSOA





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Etiology

- ❖ Gram negative
- ❖ Rod shaped with single polar flagellum
- ❖ Yellow coloured colonies



(c)

❖ Disease cycle

- ❖ **Primary infection** – Seed; crop debris
- ❖ **Secondary infection** – Irrigation water; rain splashes

❖ Favourable Conditions

- ✓ Close planting
- ✓ Cool weather with high RH
- ✓ Frequent rains
- ✓ Water logging

❖ Management

1. Resistant varieties –
 1. Cabbage: Pusa Muktha
 2. Cauliflower: Pusa ice, Pusa snow ball
2. Crop rotation for 2-3 yrs with non cruciferous crop
3. Hot water treatment at 50 °C for 30min
4. Addition of bleaching powder in irrigation water
5. ST with Streptocycline 100 ppm
6. Spray Streptocycline- 300 ppm at transplanting, curd formation and pod formation

White rust

❖ *Albugo candida*



Club root

❖ *Plasmodiophora brassicae*

