



**FACULTY OF AGRICULTURAL SCIENCES AND ALLIED INDUSTRIES**

**DISEASES OF FIELD&HORTICULTURAL CROPS&  
Management 1 PPA - 312**

## LECTURE 05

### 1. NAME OF DISEASE – ALTERNARIA LEAF SPOT

**Casual organism**-*Alternaria brassicola*, *A.brassicae*, *A.raphani*

-Common on cabbage and cauliflower

#### Symptoms

- ✓ Symptoms usually on older leaves
- ✓ Spots are small, dark coloured
- ✓ They enlarge, soon become circular
- ✓ Under humid conditions groups of conidiophores will be formed in the spot
- ✓ Spots develop concentric rings
- ✓ Finally the spots coalesce leading to blighting of leaves
- ✓ Shot holes may be formed due to falling off of infected spot tissue
- ✓ The fungus is seed borne and cause shriveling of seeds and poor germination
- ✓ Linear spots also appear on petioles, stems and pods



#### Survival and spread

- ✓ **Primary:** Dormant mycelium or conidia on seed or in infected plant debris
- ✓ **Secondary:** Wind borne conidia

### **Favourable conditions**

- ✓ Relative humidity > 80%
- ✓ Less vigorous plants
- ✓ Late in the season

### **Management**

- ✓ Hot water treatment at 50 degree c for 30min
- ✓ Seed treatment with Thiram or Mancozeb
- ✓ Foliar spray with Mancozeb 0.25% or Coper oxychloride 0.2% twice

## **2. NAME OF DISEASE – BLACK ROT**

**Pathogen-***Xanthomonas campestris* pv. *campestris*

- ✓ Serious on cabbage, cauliflower, knol-khol and raddish

### **Symptoms**

- ✓ First appear as chlorotic or yellow (angular) areas near the leaf margins
- ✓ Yellow area extends to veins and midrib forming characteristic 'v' shaped chlorotic spots which later turn black
- ✓ Veins and veinlets turn brown and finally black
- ✓ Vascular blackening extend beyond affected veins to midrib, petiole and stem
- ✓ In advanced stages, infection may reach the roots system and blackening of vascular bundles occurs. Bacterial ooze can also be seen on affected parts
- ✓ If the infection is early, the plants wilt and die
- ✓ If the infection is late plants succumb to soft rot and die.



### **Survival and spread**

- ✓ **Primary:** Bacterial cells internally seed borne and soil borne
- ✓ **Secondary:** Bacterial cells dispersed through irrigation water and rain splashes

### **Favourable conditions**

- ✓ Relative humidity > 90%
- ✓ High soil moisture

- ✓ Frequent rains

### **Management**

- ✓ Hot water treatment at 50 degree c for 30min, for killing seed borne inoculum followed by a 30min dip in streptocycline 100 ppm
- ✓ Spray Agrimycin or Streptocycline 100 ppm at transplanting, curd formation and pod formation
- ✓ Crop rotation for 2-3 years with non cruciferous crops
- ✓ Drenching seed bed with antibiotic solution in nursery beds
- ✓ Resistant varieties: Cabbage: Cabaret, Defender, Gladiator, Pusa Muktha Cauliflower: Pusa ice, Pusa snow ball-K-I-F, Sel-12