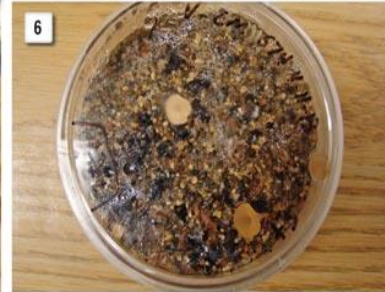


Sclerotinia Stem rot of sunflower:

C.O. : *Sclerotinia sclerotiorum*

Symptoms:

- The disease begins on stems near the soil level.
- White cottony fungal growth on infected stem near soil level observed.
- The roots get rotten with bark shredding symptoms.
- Black sclerotial bodies are formed on or inside the stem.
- The plant shows complete wilting and drying.



- 1: Early water-soaked symptoms of a *Sclerotinia* infected sunflower head.
- 2: Later symptoms of a *Sclerotinia* infected sunflower head showing fibrous strands.
- 3: Sclerotia which survive either in or on the soil.
- 4: Infected stem showing sclerotia on the outside.
- 5: Ripped open sunflower stem showing sclerotia on the inside.
- 6: Apothecia produced by sclerotia on the soil surface.

Sclerotinia head rot

The fungus infects the back of the head during flowering and as the disease progresses, the tissues become soft, light brown and spongy (**Photo 1**). This infection extends into the developing head and down the stalk and eventually only the fibrous strands at the back of the head and upper stalk remains (**Photo 2**). The infected seed at the front of the head eventually falls out of the head due to the sheer weight of the infected seed. Large, black sclerotia (small, bird-dropping like, black particles) (**Photo 3**) develop below the seed layer and around the seeds.

Sclerotinia stem rot

Initial symptoms are sudden wilting of the plant, particularly during grain fill and a light brown, water-soaked area at the stem base will become obvious. The sunflower stem pith is a white, cotton-like tissue, which includes mycelial growth where large black sclerotia form within. Sclerotia can sometimes be seen on the outside of the stalks of sunflower plants when the plants get older (**Photo 4**). The stem will often break at this point of infection and when ripped open, black sclerotia can be seen (**Photo 5**). Heads do not fill properly due to nutrients and water not being taken up by the plant.

Disease cycle:

- Primary source: Black, hard sclerotial bodies perpetuating in the soil and plant debris.
- Secondary spread: Through conidia along with irrigation or rain water.

Management:

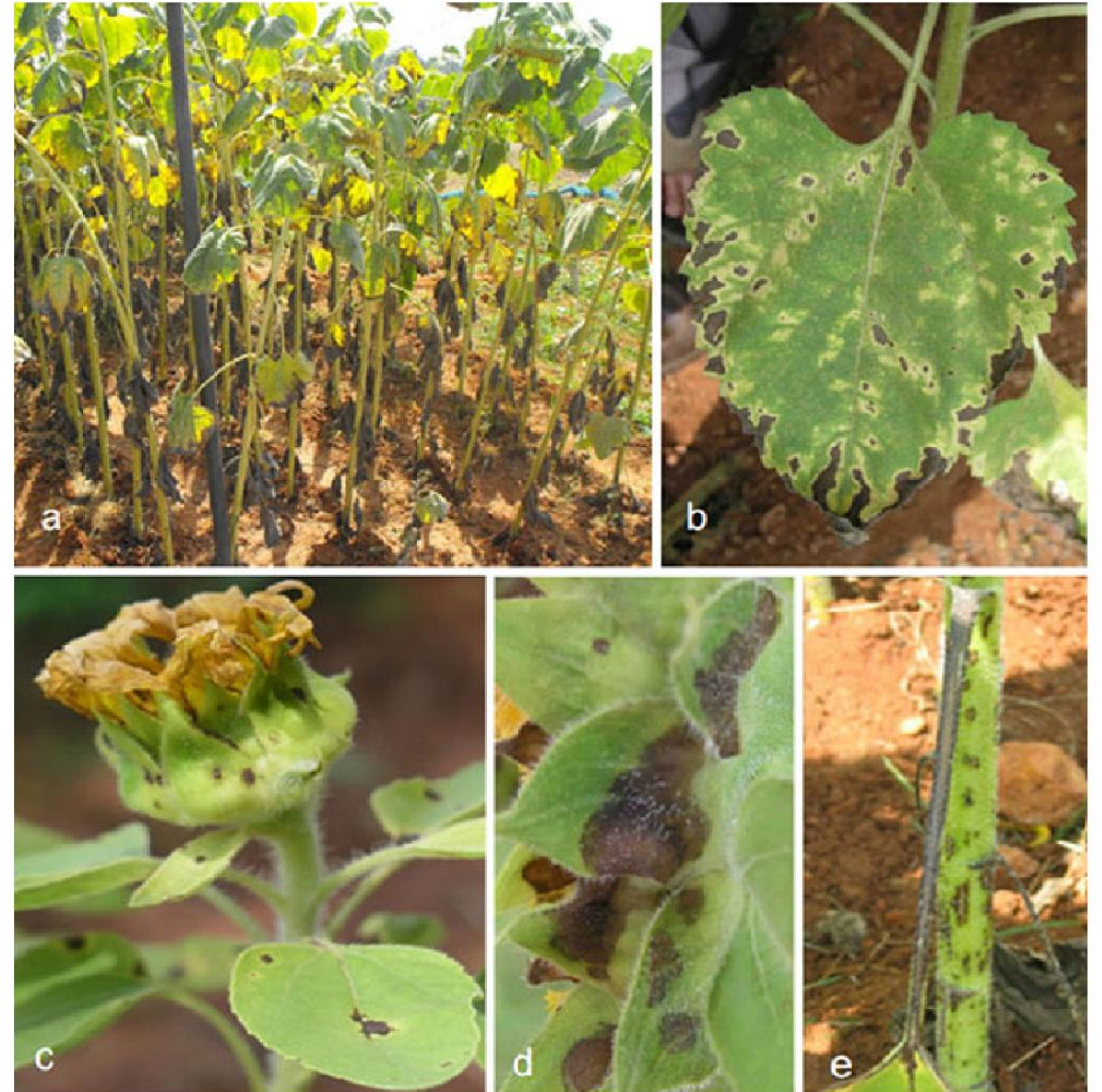
- Seeds contaminated with sclerotia should not be used.
- Follow long crop rotation with non-host crops.
- Deep ploughing in hot summer.

Alternaria leaf blight of Sunflower:

C.O. : *Alternaria helianthi*

Symptoms:

- The fungus produces brown spots on the leaves, stem, sepals and petals.
- The lesions on the leaves are dark brown with pale margin surrounded by a yellow halo.
- The spots enlarge in size with concentric rings and become irregular in shape.
- Several spots coalesce to form bigger irregular lesions leading to drying and defoliation.



Favorable condition:

- ✓ Rainy weather
- ✓ Cool winter climate
- ✓ Late sown crop

Disease cycle:

- The pathogen survives in the infected host tissues and weed hosts.
- The fungus is also seed borne.
- Secondary spread mainly through wind blown conidia.

Management:

- Remove and destroy infected plant debris.
- Rogue out weeds at periodical intervals.
- Sow the crop early in the season (June).
- Treat the seeds with thiram or carbendazim @ 2 g/kg.