

Onion Disease Identification



Pink Root

- Infected roots are light pink colour turning reddish-purple as roots disintegrate.
- Leaves turn yellow or brown starting at tips and eventually die.
- Bulbs from infected plants usually undersized in susceptible varieties.
- Fungus can be spread through soil movement and surface water.
- **Control:** Resistant cultivars should be planted where possible. Long-term rotation with non-host crops.



Fusarium Basal Rot

- Above ground symptoms are yellowing, curling and necrosis at leaf tips.
- Older leaves are affected first and eventually wither and decay.
- Infected roots are dark brown, flattened, transparent and sometimes hollow.
- Affected bulbs cut vertically show a watery, brown discolouration of the outermost layer of the stem plate, which may progress up through the storage leaves.
- **Control:** Long-term rotation with non-host crops. Resistant cultivars should be planted where possible.



White Rot

- First symptoms include yellowing, wilting and dropping of older leaves.
- As fungus invades the root system and basal plate, it causes a rot, resulting in foliage collapse.
- Soft rot develops in the bulbs and a thick white mycelial growth develops on the bulb base.
- Numerous sclerotia form on the diseased tissue.
- Usually appears on groups of plants in the field that are often widely spaced.
- **Control:** Avoid planting in contaminated fields.



Downy Mildew

- Typically starts as brownish-purple velvet-like sporulation on healthy green leaves.
- Lesions slightly paler than normal leaf colour, enlarge and may girdle the leaf.
- Lesions progress to a pale yellow followed by brown necrosis resulting in leaf tissue collapse.
- Bulbs can be infected and may rot in storage or if planted, give rise to pale green foliage.
- **Control:** Destroy plant debris and cull piles; employ a three to four-year crop rotation; regular fungicide program based on climatic conditions can reduce crop losses.



Stemphylium Leaf Blight

- Small, light yellow to brown, and water-soaked initial infections on leaves and leaf sheaths.
- Lesions expand, causing extensive blighting of leaves.
- Lesion centres turn brown to tan, then dark olive brown and finally black.
- Symptoms very similar to Purple Blotch.
- Bulb size can be greatly reduced due to loss of foliage.
- **Control:** Fungicides are effective in reducing disease development.



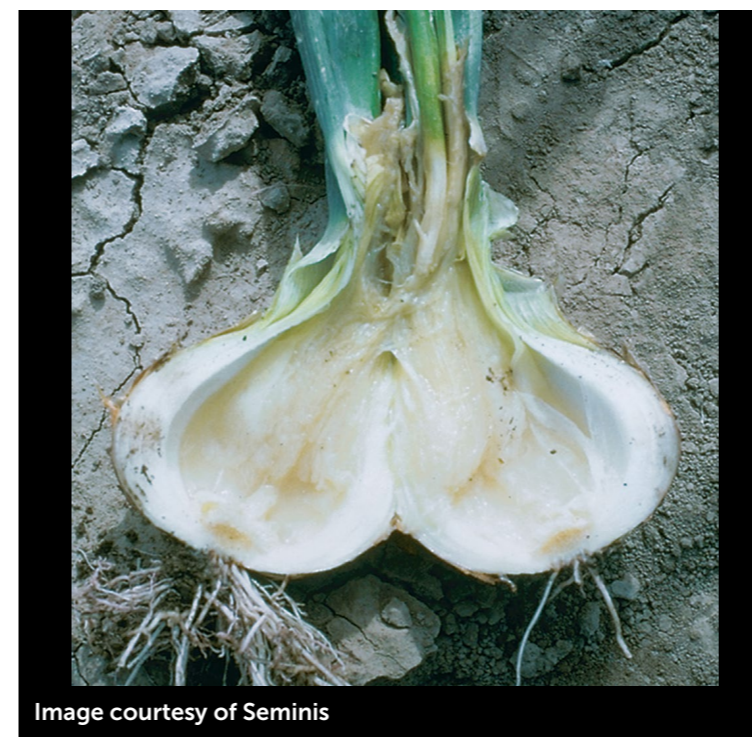
Botrytis Brown Stain

- Can infect the outer scales of storage onions.
- Fungus spores germinate on onion leaves, producing enzymes that result in superficial flecking.
- Fungus growing into bulb scales causes a brown stain on the neck and outer scales.
- **Control:** Destroy cull piles; A fungicide spray program to control leaf blight and downy mildew provides adequate control of brown stain.



Botrytis Leaf Blight

- Primarily attacks leaves, appearing as small white spots surrounded by a greenish halo.
- Centres of spots often are tan. Lesions expand with age and may cause leaf tips to dieback.
- Bulbs from infected plants may be small because growth is reduced by leaf loss.
- **Control:** Destroy onion or debris cull piles; A good preventative fungicide spray program is important.



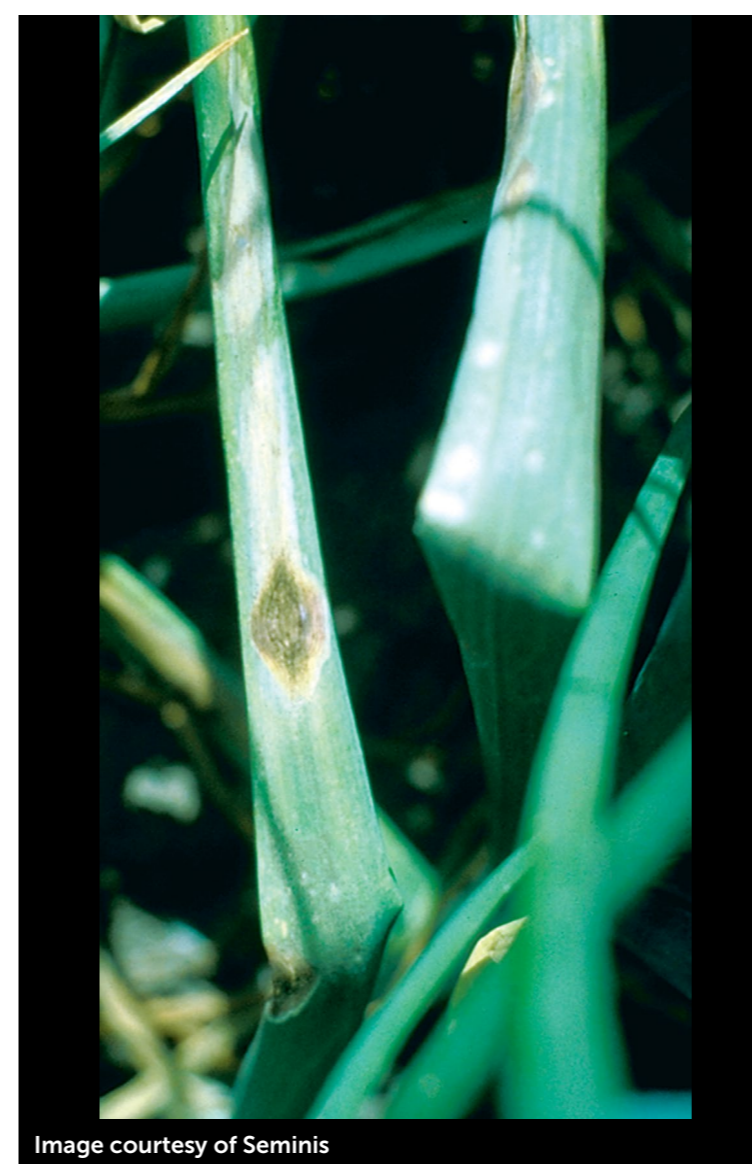
Bacterial Soft Rot

- Mainly a problem on mature bulbs. Affected scales first appear water-soaked and pale yellow to light brown or bleached grey to white.
- Invaded fleshy scales become soft and sticky with the interior of the bulb breaking down.
- A watery, foul-smelling liquid can be squeezed from the neck of diseased bulbs.
- **Control:** Avoid overhead irrigation where possible; control insect pests such as onion maggot. Copper-based bactericides may reduce disease spread and infection.



Botrytis Neck Rot

- Very destructive on stored onions. Fungus usually infects the neck directly or through wounded tissue.
- Tissue becomes soft and spongy as fungus continues to grow into the bulb.
- Affected parts of the bulb are brown and water-soaked, and diseased tissue eventually collapses.
- **Control:** Harvest when top fall is 90 to 100 per cent, and ensure cured onions are stored in cool, low humidity conditions.



Purple Blotch

- Symptoms begin as water-soaked lesions, usually with a white centre.
- Edges of lesions become brown to purple; leaf turns yellow above and below the lesions.
- Dark brown to black concentric rings form throughout lesions. Lesions may girdle the leaf causing it to collapse and die.
- Similar symptoms occur on seed stalks and infected stalks can collapse resulting in shrivelled seed development.
- When bulb infection occurs, it is normally through the neck. The infected area of the bulb is initially bright yellow, but eventually turns a characteristic red wine colour.
- **Control:** A fungicide spray program with broad spectrum protective fungicides applied prior to infection can provide good protection; Use surface rather than sprinkler irrigation.



Damping-Off

- Water-soaked lesion develops on lower stems of 1-2 leaf seedlings and watery rot occurs on roots.
- Can also attack seeds before emergence and cause watery decay.
- Older infected plants are stunted and yellowing and wilting of leaves may occur during severe infections.
- **Control:** Use fungicide-treated, high-vigour seed; use good on-farm sanitation.



Black Mould

- Generally develops on the outer fleshy bulb scale of harvested bulbs.
- Infected bulbs develop a black discolouration on the bulb scales.
- Clusters of black spores generally form along veins and on or between the outer papery scales of bulbs.
- Infected tissue first has a water-soaked appearance and over time will dry and shrivel.
- **Control:** Fungicide applications to seeds, seedlings and bulbs may be helpful. Storage conditions should be cool and dry and bruising of bulbs should be avoided.