



USDA Sanitary Phytosanitary Project

ONION DISEASES I



Botrytis brown stain
Fungus: *Botrytis spp.*
Dari

Pathogen/Disease description: The fungus causes shallow white flecks on older, senescent leaves of onion that may be mistaken for insect injury or spray burn. It generally does not infect healthy leaves. Blub infections do not cause decay but the spores may produce a brown stain that reduces market value.

Cultural control: Make sure cull (waste) piles of old plant material are not left in the field. Bury or compost old material. When harvested bulbs are dry the outer scales can be removed to usually remove the brown stain.

Chemical control: None needed



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ONION DISEASES II



Sclerotium bulb and stem rot

Fungus: *Sclerotium rolfsii*

Dari

Pathogen/Disease description: The fungus lives in the soil and infects the stem at the top of the bulb, causing decay of the bulb and stem collapse. Small round sclerotia are formed later in the season on the stem and soil surface. About 2 mm diameter; they are white at first then tan or brown.

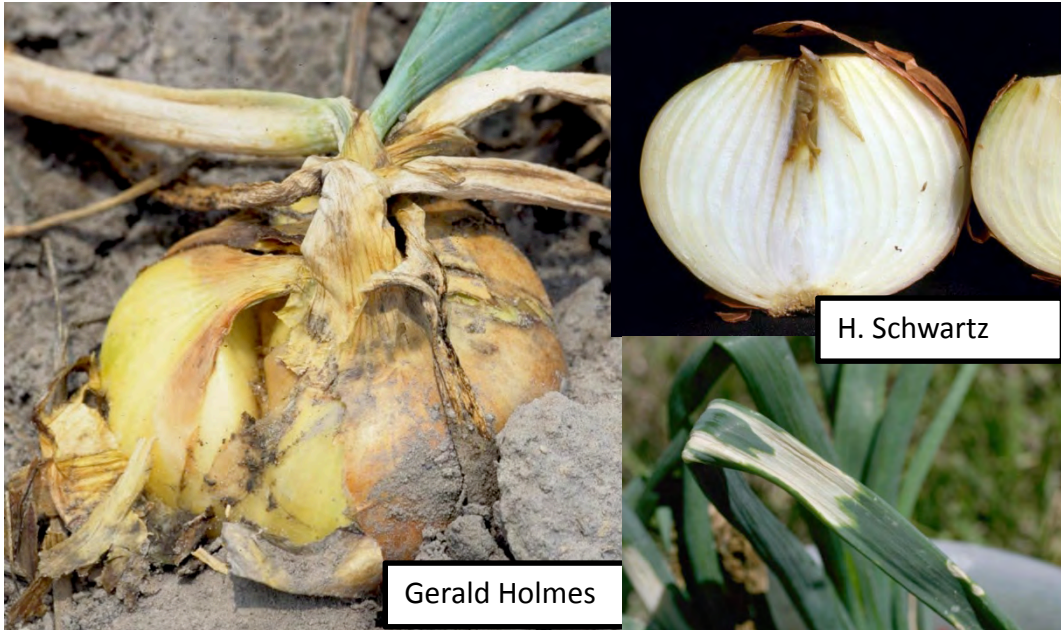
Cultural control: Long rotations to non-host crops such as small grains may help. Avoid moving soil and plant debris from infested fields to clean fields.

Chemical control: Few fungicides are available for this disease. A.I. for Padgent or Heritage???



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ONION DISEASES III



Bacterial Soft Rot

Bacterium: *Pectobacterium carotovorum* subsp. *carotovorum*

Dari

Pathogen/Disease description: Decay occurs mostly on mature bulbs in storage but may also appear on bulbs in the field following rain. Affected layers turn light yellow, gray or white and appear full of water. They later become soft and sticky and the inside of the bulb rots and smells bad.

Cultural control: Control insects that may damage bulbs. Harvest after leaves are mature and handle bulbs carefully to avoid physical damage. Store bulbs with good ventilation and only after they are properly dry.

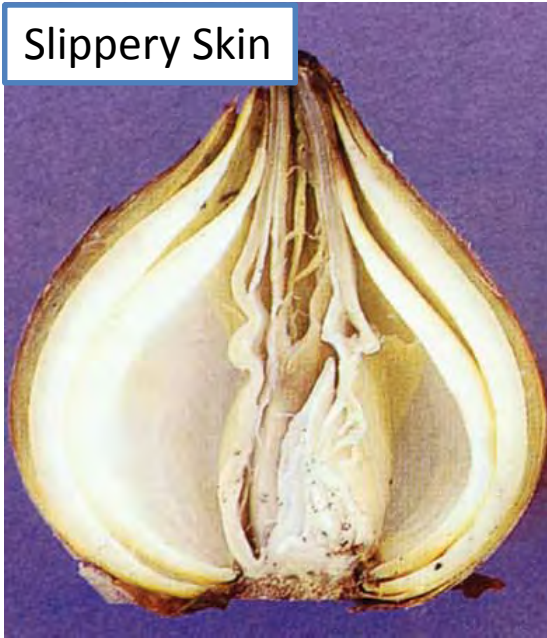
Chemical control: Copper-based products may reduce spread.



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ONION DISEASES IV

Slippery Skin



Sour Skin



Slippery Skin: *Burkholderia gladioli* pv. *alliicola*
and Sour Skin: *Burkholderia cepacia*
Dari

Pathogen/Disease description: These bacteria are found worldwide. They are favored by high temperatures, rain, excessive irrigation and damaging wind or hail. The bacteria live in the soil and splash onto the neck of the onion and may enter wounds such as those caused by high winds, hail or wind-blown sand. The infection moves within the infected scale from the neck of the bulb downward. Bulbs may decay within 10 days after infection in the field or in 1-3 months under dry storage conditions. **Slippery Skin:** Inner scales are affected first **Sour Skin:** One or two leaves turn light brown then rot moves into the neck and the outer scales. Infected bulbs have a sour vinegar-like smell due to secondary yeast infections.

Cultural control: . Harvest after leaves are mature and handle bulbs carefully to avoid physical damage. Store bulbs with good ventilation and only after they are properly dry. Avoid irrigation near harvest. Store at low temperatures (1-2 C) with good ventilation.

Chemical control: None



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ONION DISEASES V



Xanthomonas leaf blight

Bacterium: *Xanthomonas axonopodis* pv. *allii*

Dari

Pathogen/Disease description: Leaf symptoms begin as elliptical white spots or long narrow streaks that appear water-soaked and later turn brown and blight the entire leaf under wet conditions with temperatures above 26 C. The pathogen is spread by seeds and crop debris.

Cultural control: Remove and destroy infected plant material. Work in the field only when foliage is dry. Clean tools and equipment after working in an infested field. Control volunteer onions, beans and other weeds. Rotate to non-host plants such as small grains for two years. Use only disease free seed.

Chemical control: Copper based sprays can help reduce spread



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ONION DISEASES VI



Powdery Mildew

Fungus: *Leveillula taurica*

Dari

Pathogen/Disease description: Typical powdery gray growth forms patches on the leaves. Necrotic tan lesions also form on older leaves. The fungus is spread by spores in the wind. Warm temperatures with low humidity favor the disease.

Cultural control: Remove old crop debris or bury it each fall. Rotate to other crops for at least one year. Irrigate as needed but do not apply too much nitrogen fertilizer.

Chemical control: Fungicide sprays may be needed.



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ONION DISEASES VII



Gerald Holmes

Black Mold (Black Mildew, Smut)

Fungus: *Aspergillus niger*

Dari

Pathogen/Disease description: The fungus infects bulbs through infect leaves or through breaks in bruised or wounded outer scales. Black areas of spores develop between layers of dry outer scales. Infected tissue appears water-soaked at first and soft rot may follow. Favored by temperatures >30C.

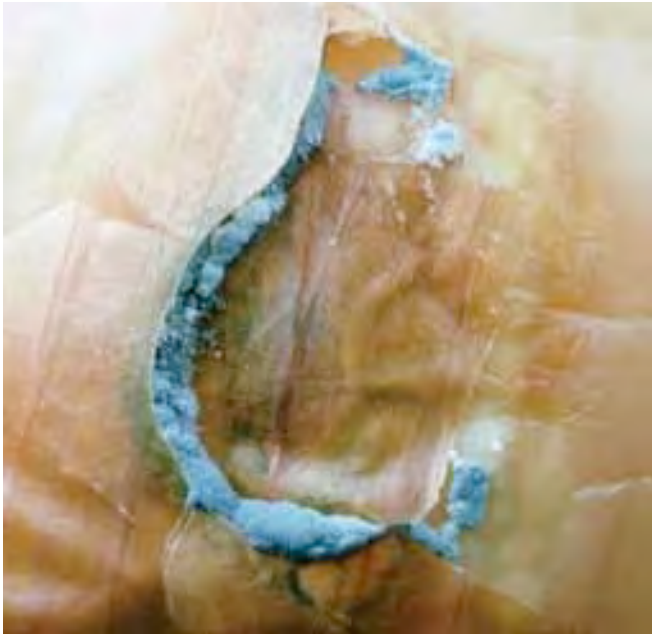
Cultural control: Store bulbs in a cool, dry area and avoid bruising. Remove infected onions from other bulbs.

Chemical control: Fungicides are not generally needed unless the problem becomes severe.



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ONION DISEASES VIII



Blue Mold Rot

Fungus: *Penicillium spp.*

Dari

Pathogen/Disease description: This fungus is found world wide. Symptoms begin as soft watery spots, followed by blue to blue-green spore masses at the infection site. Later the decay moves through the bulb. Favored by 21-24 C and moisture.

Cultural control: Store bulbs in a cool, dry area and avoid bruising. Remove infected onions from other bulbs.

Chemical control: Fungicide treatment of harvested bulbs is effective unless fungicide resistant strains are present.



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ONION DISEASES IX



Smudge (Anthracnose)

Fungus: *Colletotrichum circinans*

Dari

Pathogen/Disease description: Smudge is caused by the soil-borne fungus *Colletotrichum circinans*. White onions tend to be more susceptible and it is usually on the dried outer scales. Lesions are black and may have concentric rings.

Cultural control: Store bulbs in a cool, dry area and avoid bruising. Remove infected onions from other bulbs. Provide good soil drainage and rotate to other crops.

Chemical control: None



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ONION DISEASES X



Downy Mildew

Fungus: *Peronospora destructor*

Dari

Pathogen/Disease description: The downy mildew pathogen is spread by spores in the air and survives winter as spores in seed and plant debris. Disease is favored by cool temperatures and rain or dew on leaves and high humidity.

Cultural control: Use disease free seeds and plants, rotate to other crops, irrigate on surface of soil or in trenches and clean up or bury old cull piles. Turn under crop debris each fall.

Chemical control: Fungicides may be needed where this disease has been a problem in past years.