



Arkansas Plant Health Clinic Newsletter

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Onion

Downy Mildew, caused by *Peronospora destructor*, affects all Allium crops: onions; garlic; chives; and shallots. This disease can be very destructive during periods of cool, humid weather. Initial symptoms are elongated, slightly paler patches on the leaves. The patches turn light brown to tan with a grayish-violet fuzzy growth during wet weather. The diseased section of the leaf eventually turns yellow/brown, collapsing and folding over. Seed stem lesions are circular or elongate, often only on one side of the stem. This causes the stem to break over from the weight of the seed head, resulting in the withering of the seeds. Systemically infected plants produce bulbs that are soft and shriveled, with the outer fleshy scale becoming amber colored, wrinkled and watery. Other infected bulbs remain firm but sprout prematurely. The foliage of such bulbs is an abnormal light green color. Downy Mildew overwinters on volunteer onion plants and persists on stored bulbs and seeds. Spores are blown or splashed up onto new plants in the spring. For infection to occur, relative humidity must be greater than 95%. New spores are produced at night. Typically, the infection cycle is characterized by latent periods of 9-16 days

and 1-2 days of sporulation. Foliage in the field may be destroyed during/after 4 infection cycles. Cultural controls are critical in controlling Downy Mildew. All crop debris, volunteer plants, and unthrifty bulbs should be removed and destroyed. A strict crop rotation schedule should be followed, with 3-4 years between Allium crops. Good drainage in the field is essential. It is recommended that rows face the same direction as prevailing winds to help avoid prolonged leaf wetness. For the same reason, overhead irrigation must be avoided. Fungicides such as Pristine, or Cabrio, or Revus, are available to commercial growers. Fungicide applications must be frequent as new foliage is constantly being produced. Homeowners must depend on practicing good sanitation and crop rotation.

Onion Downy Mildew-*Peronospora destructor*



Photo by Howard F. Schwartz, Colorado State University, Bugwood.org.jpg



Onion Downy Mildew-*Peronospora destructor*



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

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Turf

Many areas of the state have experienced severe winter injury to Bermudagrass and Zoysiagrass. There are many factors involved in winter damage to lawns and golf greens. Early winter damage is associated with turf being subjected to a sudden severe freeze while still succulent and green. In such a scenario, 50% or more stand losses occur between 18 and 23°F. Winter kill can also occur in the spring as grass is greening up if a severe cold snap occurs. In the early spring sugars and carbohydrates have not been completely converted into more cold-tolerant starches. Freezes are also associated with dry windy conditions that desiccate the crowns, causing them to be more liable to injury. Alternatively, rain accompanying cold fronts causes freezing of the crowns which causes them to be easily crushed by foot traffic. The factors most often associated with extensive



winter kill are excessive traffic; standing water; drought; potassium deficiency; excessive thatch; excessive fall nitrogen fertilization; excessive windy conditions; close mowing; shade; pest or pesticide damage; and turf cultivar. Let us address a few of these factors in more depth. A winterizer type fertilizer is important in the fall. Potassium levels should indicate medium to high levels with leaf tissue analysis indicating at least 1.5% potassium. Excessive thatch levels cause turf to root above the soil in the thatch layer, making the turf more susceptible to winter injury. De-thatch during the growing season if thatch is greater than 1/2". Avoid excessive fall nitrogen fertilization as this promotes succulent growth that is more easily injured. Close mowing and shade both reduce carbohydrate levels and contribute to winter kill. Disease and insects weaken the grass, making it more susceptible to freeze injury. The multitude of factors that can cause winter injury may mean that one homeowner has a beautiful stand of turf while the neighbor next door has 90% winter kill. Growing cold tolerant cultivars lessens the incidence and severity of winter injury. Vamont, Midiron, TifSport and Quickstand bermudagrasses are cultivars which have increased cold tolerance. Some of the zoysiagrass cultivars that have been found to have more cold tolerance are Korean Common, Zenith, Meyer, Belair, and El Toro.

Turf Winter Injury-Abiotic



Photo by David Freeze, University of Arkansas Cooperative Extension

Turf Winter Injury-Abiotic



Photo by Brannon Thiesse, University of Arkansas Cooperative Extension

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Magnolia

The plant Health Clinic has received several samples of Southern Magnolia with freeze injury. Below normal temperatures in many parts of the state damaged buds. Symptoms are reddish-brown necrotic streaks and mottling on buds that received the most exposure. For the most part, this is cosmetic damage. Affected trees should recover.

Magnolia Freeze Injury-Abiotic



Photo by Sherrie Smith, University of Arkansas Cooperative Extension

Yew

Yews are relatively slow growing but long-lived evergreen shrubs. They are very desirable landscape plants as they can tolerate intense shearing. Yews can also tolerate a wide range of soils, and grow in both shady and sunny locations, preferring some afternoon shade. They absolutely cannot tolerate soggy soils. Under soggy conditions, root rot, caused by *Phytophthora* species is inevitable. The foliage of infected plants will begin to yellow and wilt.

Finally, the entire plant will become brown as most or all its roots die. When the roots are examined, grayish black to brown streaking and discoloration of the wood may be observed. Wilted plants are not savable. Yews should only be planted in soils with superior drainage. Slightly affected plants may be saved if overwatering is avoided, and drainage is improved. Subdue Maxx, or Aliette, or mancozeb may be used.

Yew Phytophthora Root Rot-

Phytophthora spp.



Photo by Sherrie Smith, University of Arkansas Cooperative Extension



Yew Phytophthora Root Rot- *Phytophthora* spp.



**Photo by Sherrie Smith, University of Arkansas
Cooperative Extension**

This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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