DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System
Sherrie Smith

SPDN
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Arkansas Plant Health Clinic Newsletter

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Japanese Maple
by Manoj Pun

Japanese maples are wonderful, pretty, and easy to grow in the yard. The attractive foliage adds beautiful color to the landscape and compliments other plantings. These plants rarely have disease problems when grown in the right location, right soil and in right way. Sometimes newly planted Japanese problems develop leaf scorch problems due to environmental issues. Leaves may develop browning around the edges. This may be due to overwatering, or the tree was planted too deep or not enough water. Japanese maples do poorly in full sun when temperatures are extremely high. They do best in semi-shaded locations with moist, leafy soil and protection from damaging winter winds. Abiotic Leaf Scorch is a noninfectious disease or disorder. The most common cause of scorching is due to overwatering during summer coupled with poor drainage or often occurs following prolonged periods of dry, windy weather or bright sunshine when the roots are unable to supply water to the foliage as rapidly as it is lost by transpiration from the leaves. Unfavorable locations, such as sandy or gravelly soil, near obstructions or pavement that restrict root growth, or exposed windy slopes usually promote scorch. Japanese maple should not be over fertilized. It is better to grow in good soil without any application of fertilizer.

Japanese Maple Leaf Scorch-
Abiotic

Photo by Manoj Pun, University of Arkansas Cooperative Extension

Corn
by Samantha Roberson

Herbicide injury on corn causes many symptoms based on the mode of action of the herbicide. The sample shown here shows severe burning or chlorosis/necrosis of the leaves. This can be caused by a photosynthetic inhibitor like Bromoxynil. The general conditions that cause damage are misapplication or blow over from nearby fields, or the herbicide is applied post emergence on days with high temperatures and high relative humidity.

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Corn Herbicide damage-Abiotic

Photo by Samantha Roberson, University of Arkansas Cooperative Extension

Turf

by Terea Stetina

Take-all patch, caused by the fungus *Gaeumannomyces graminis* var. *graminis*, is a serious disease of St. Augustine grass and can also cause problems in bermudagrass, Zoysia, and bent grass. Infection and disease development occurs when soils are cool (between 55°F and 65°F) and wet. Symptoms become evident in mid-spring to early summer when temperatures are high, and grass is drought-stressed. Initial symptoms are the yellowing of the leaves and a darkening of roots. Infected plants wilt and die, forming orange-tan patches of dead grass with gray-green borders. Patches are usually circular due to the radial growth of the fungus and are approximately 8 to 24 inches in diameter. Brown fungal hyphae can be observed on the stolons using a hand lens. Turf becomes thin as roots, nodes, and stolons become infected and plants decline. Infected stolons may be separated from severely rotted roots easily pulled from the ground. Symptom development is greatest under high stress conditions which include lawns with a high sand content, compacted soil, a pH above 6.5, potassium/phosphorus deficiency, or a thick thatch layer. In severe cases, patches may coalesce forming large, irregular patches of dying turf. Take-all patch can be distinguished from brown patch by the darkened appearance of infected roots and stolons. Leaves of plants infected with brown patch are easily separated from the plant, while roots and stolons remain healthy in appearance. All creeping bent grass varieties are susceptible to take-all patch infection. However, Take-all patch occurs less frequently on bent grass stands which are more than ten years old. A naturally complex soil microbial environment may suppress the disease in a phenomenon known as take-all decline. Control efforts should include both cultural and chemical methods and are more cost-effective when concentrated on problem areas.

- Core to improve drainage and root zone aerification.
- Irrigation to reduce drought stress.
- De-thatch when thatch layer is thicker than 0.5 inches.
- Acidification of the soil with ammonium sulfate or manganese sulfate to achieve optimum pH of 6.0-6.5.
- Avoid high doses of nitrogen and use a balanced fertilizer.

- Apply two applications of fungicides 28 days apart in mid-spring and early fall when the fungus is most active.

Heritage, Eagle, Insignia, Disarm, and Torque are labeled for Take-all patch in Arkansas. Maxide Disease Killer, Ortho Lawn Disease Control, Monterey Fungi-Fighter, Bayer Advanced Fungus Control for Lawns, and Bonide Fung-onil Lawn Disease Control are available to homeowners.

Turf Take-All Patch-
Gaeumannomyces graminis* var. *graminis

Photo by Terea Stetina, University of Arkansas Cooperative Extension

Turf Take-All Patch-
Gaeumannomyces graminis* var. *graminis

Photo by Terea Stetina, University of Arkansas Cooperative Extension

Turf Take-All Patch hyphopodia-
Gaeumannomyces graminis* var. *graminis

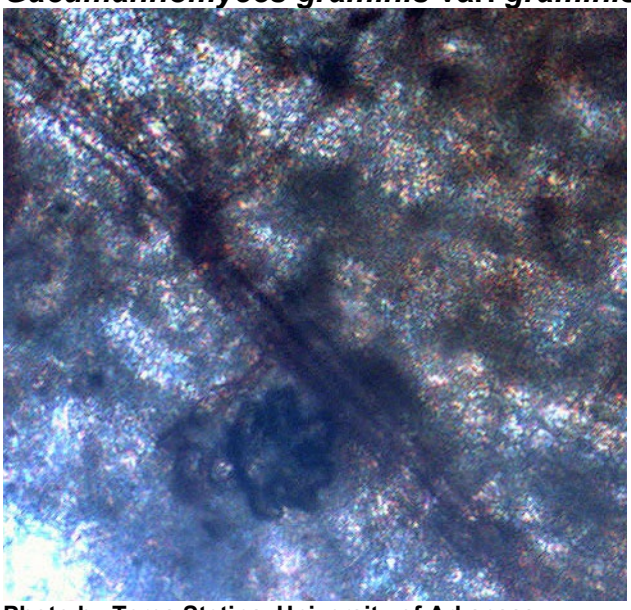

Photo by Terea Stetina, University of Arkansas Cooperative Extension

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Soybean

by Felix Rotich

Splitting at the hypocotyl region, poor root development and poor nodulation are symptoms of oxygen deficiency. Soil oxygen deficiency limits the activity of rhizobia and root development. Soil pH also influences nodulation, with optimal soil pH for rhizobia activity being 6 to 7. Aluminum toxicity and calcium deficiency can also inhibit nodulation. Fields that have never been planted with soybeans could be lacking *Bradyrhizobium japonicum,* which is required to initiate the symbiotic association leading to nodulation. Water stress on plants may also contribute to absence of root nodulation. Soil oxygen deficiency can occur because of over saturated soils or soil compaction. Irrigation should be regulated to avoid over saturation or water stress. If the field has not previously been in soybean, it will need an initial inoculation with *Bradyrhizobium japonicum*. Soil compaction can be rectified by soil cultivation.

The bronzing, mottling and interveinal chlorosis on leaves is indicative of zinc deficiency. Soil tests are recommended to ascertain the soil pH and levels of zinc. Availability of zinc is limited in alkaline soils.

Soybean Zinc Deficiency-Abiotic

Photo by Felix Rotich, University of Arkansas Cooperative Extension

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Soybean Oxygen Deficiency-
Abiotic

Photo by Felix Rotich, 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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