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Rust of Arkansas Turfgrasses

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Introduction

Most rust diseases of turfgrass are caused by several fungal species of *Puccinia* and *Uromyces*. These two groups are distinguished from each other by microscopic characteristics. Disease symptoms of the two fungal groups are indistinguishable from each other.

Symptoms

In Arkansas, symptoms usually become visible in mid to late summer. The early symptoms of rust infection will often appear as irregular light-yellow colored areas (**Figure 1**). Infections usually begin in shady, wet locations or anywhere the lawn may be stressed. Walking through infected areas will often leave an orange-brown dusting on your shoes. Close examination of individual yellowed leaves will show the presence of raised brick red to yellow-orange colored "pimples" or pustules that are scattered over the leaf surface (**Figure 2**). These pustules contain very small spores that can become wind-borne and are responsible for spreading the fungus to other locations. Rust pustules usually appear on the leaves first and then spread to the stems. When infection is severe, these powdery spore masses can easily rub off on shoes or fingers, giving them a brown, dusty color. Heavily infected lawns will often develop thin areas, and death of the grass is possible during severe infections. These affected areas are more susceptible to winter damage. Symptoms tend to be especially visible during drought stress conditions or when grass is growing slowly.

Figure 1. Thin and yellow rust-infected turf areas

Figure 2. Rust pustules on leaves
(Courtesy R. Latin)

Disease Cycle

All of the rust fungi that infect turfgrasses in Arkansas can survive the winter in infected plant material as spores (urediniospores). These spores can be important sources of the disease each season. In addition to these spores that overwinter in infected plants, the disease can also be introduced each year by wind-borne spores from other areas. Leaf infections usually occur during

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moderate temperatures (68 to 86 degrees F). NOTE: There is one species of crown rust fungus which can affect bluegrasses in the spring and early summer during cooler temperatures.

Management

Management efforts should focus on both cultural and chemical methods. The most important cultural control is to select species and cultivars with good resistance to rust pathogens (**Figure 3**). Typically, rusts are less of a problem on tall fescue (*Festuca arundinacea*), bermudagrass (*Cynodon* spp.) and zoysiagrass (*Zoysia* spp.) turfs. Kentucky bluegrass and perennial ryegrass are more susceptible to rusts in Arkansas. When planting a cool-season lawn, make sure not to use more than 10 percent perennial ryegrass (*Lolium perenne*), 10 percent Kentucky bluegrass (*Poa pratensis*) or 10 percent hybrid bluegrass in a mixture with tall fescue. Additionally, it is important to select cultivars with low susceptibility to rust pathogens (**Table 1**) if the intended area is low maintenance or you anticipate using a reduced nitrogen fertility program.

Figure 3. Difference in rust susceptibility among Kentucky bluegrasses *(Courtesy M. Richardson)*

Maintain adequate fertility based on a recent soil test. Rust is typically more severe on lawns that receive little to no nitrogen fertilization. See FSA2114, *Fertilizing Your Lawn*, for more information on amount and timing of nitrogen applications for tall fescue lawns. Avoid late evening or nighttime

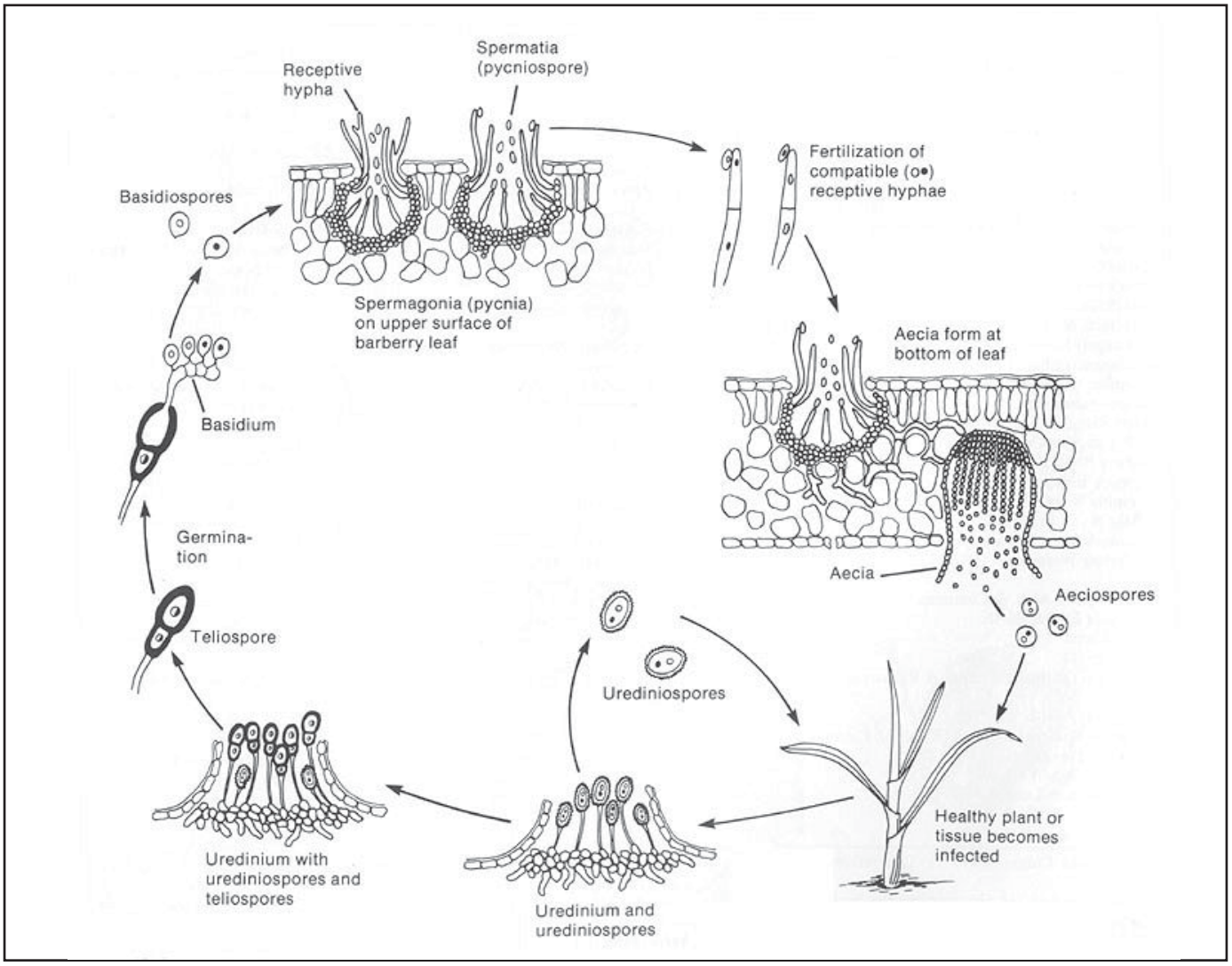

Figure 4. Rust disease cycle (*Compendium of Turfgrass Diseases*, 2nd Edition, APS Press)

Table 1. Recommended perennial ryegrass, Kentucky bluegrass and zoysiagrass cultivars† showing resistance to leaf, stem or crown rusts. Visit www.ntep.org for the most up-to-date information.

Species	Cultivars with low susceptibility to rusts
Kentucky bluegrass	'Alexa', 'Award', 'Barnique', 'Barrister', 'Bedazzled', 'Beyond', 'Blackstone', 'Bluestone', 'Blue-tastic', 'Courtyard', 'Delight', 'Diva', 'Everest', 'Everglade', 'Excursion', 'Freedom II', 'Freedom III', 'Glenmont', 'Impact', 'Langara', 'Liberator', 'Midnight', 'Moon Shadow', 'Nu Destiny', 'Nuglade', 'Odyssey', 'Royale', 'Rugby II', 'Skye', 'Sorbonne', 'Tsunami', 'Unique', 'Unknown', 'Valor'
Hybrid bluegrass	'Longhorn'
Perennial ryegrass	'All-Star 2', 'Amazing', 'Applaud', 'Arrival', 'Blazer IV', 'Charaismatic', 'Citation', 'Gator 3', 'Inspire', 'Jet', 'Kokomo', 'Mach 1', 'Pentium', 'Pinnacle II', 'Pizzazz', 'Quest II', 'Seville II'
Zoysiagrass	'Meyer', 'Zorro', 'El Toro'

† Rust susceptibility data does not exist for all commercially available cultivars. Only cultivars evaluated for rust susceptibility were considered for this table.

watering which will lengthen leaf wetness periods and can increase disease severity. Irrigate turf deeply, but infrequently, to minimize stress conditions. Inexpensive rain gauges placed in several areas of the turf can be used to monitor irrigation levels. Prune nearby shrubs or trees to encourage good airflow and sunlight penetration. Consider raising the lawnmower cutting height by 0.5 to 1.0 inch. Avoid close mowing or scalping of the turf, and always be sure to use a sharp lawnmower blade. A dull blade can tear or shred the grass, creating a stressed stand of turfgrass. Avoid mowing grass when it is wet. Clipping removal may be useful when pustules are actively producing spores.

Fungicides containing propiconazole, triadimefon, mancozeb, azoxystrobin, thiophanate-methyl or myclobutanil are labeled for rust management. See Extension publication MP154, *Arkansas Plant Disease Control Products Guide*, for a current listing of available professional and homeowner products. Fungicides are more effective when applied as preventatives rather than after the disease becomes established. Products with the same active ingredients may also be available for commercial lawn applications. Always read and follow label instructions. For more information about rust and other turfgrass diseases, contact your local county Extension office.

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