



Pest e-alerts



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Update on Cool-season Turfgrass Diseases

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As things heat up outside, the number of samples coming into the OSU Turfgrass Diagnostic Laboratory (<http://turf.okstate.edu/turfgrass-diagnostic-laboratory-1/turf-sample-submission>) have increased. Currently, most of the samples arriving in the laboratory are cool-season turfgrass species (tall fescue and creeping bentgrass). Many of the submitted samples are suffering from summer-heat related stress and are in general decline. Remember that cool-season grasses, especially tall fescue and creeping bentgrass grow best during the cooler seasons. When ambient air temperatures

become hot (90°F+), growth of these grasses will dramatically slow or stop and can go into rapid decline. Root growth of cool-season grasses will cease when soil temperatures are above 80°F.

Currently, the average 2-inch under-sod soil temperatures for much of Oklahoma are in the low-to-mid 80s according to the Oklahoma Mesonet weather station network (Fig 1). In Stillwater, we are averaging in the mid-80s°F. Thus, root growth on cool-season grasses is not occurring. Research has also shown that as air and soil temperatures rise above 90°F roots will start to die. With high temperatures over the last several weeks (Fig 2) in the triple digits and low temperatures not falling below 70°F (except for the pan handle) throughout Oklahoma (Fig 3), root mortality on cool-season grasses is going to be common. For some areas the situation has been made worse due to prolonged drought and early onset of heat. According to the Oklahoma Climatological Survey, the month of June was the 2nd warmest and 4th driest on record since 1895. We have an average statewide precipitation deficit of almost 8 inches for 2011!

Turfgrass plants that entered summer without a sufficient root system are more likely to not sustain growth, turn yellow or brown and go into general decline. Symptoms of decline can resemble diseases caused by pathogens. Turf can appear off color or golden brown. When roots are examined no evidence of the pathogens that cause diseases are typically present. Also beware that while it may appear to the naked eye that the grass plant has deep or healthy roots this may not be the case. The vascular portion of the root is resistant to decay and may appear to be healthy when in fact it is dead.

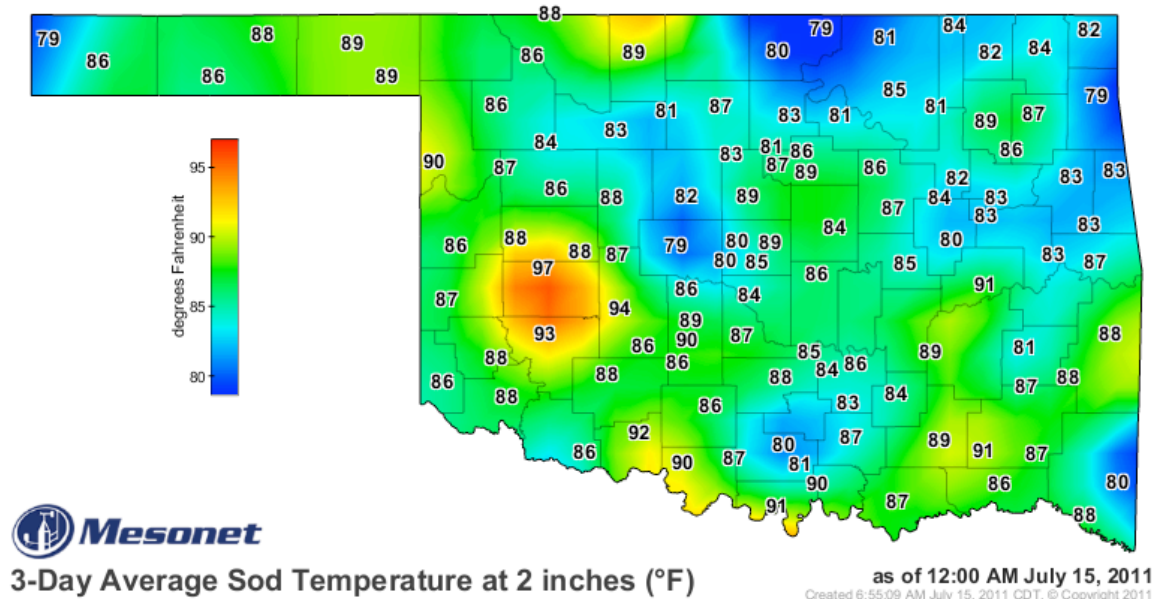


Fig 1. 3-day Average Sod Temperature at 2 inches.

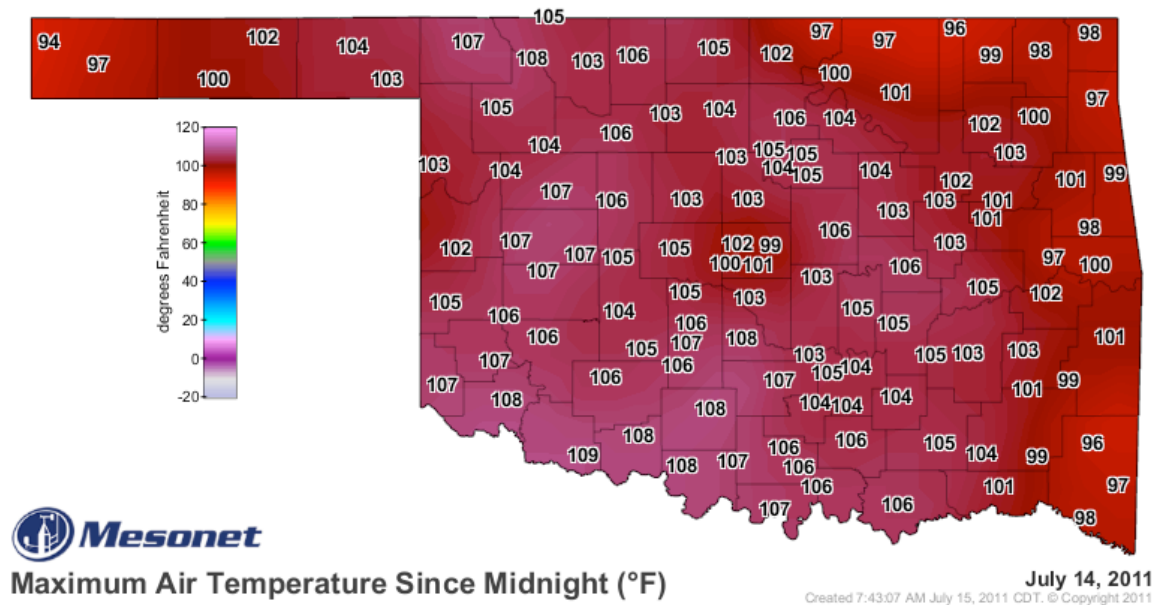


Fig 2. Maximum Air Temperatures on July 14, 2011.

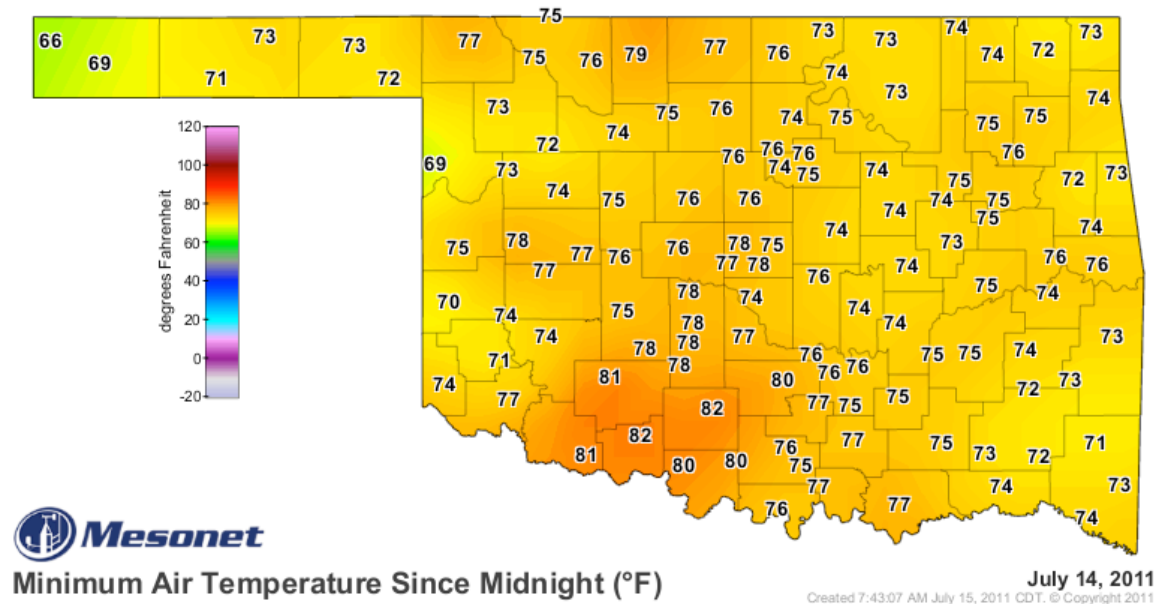


Fig 3. Minimum Air Temperatures on July 14, 2011.

To manage summer stress we are recommending good water and fertility management. Where appropriate, water very deeply and as infrequently as possible. Also, mowing heights should be around 3 inches for tall fescue. Excessive or unnecessary mowing should be avoided.

Weather conditions in general have been too hot and dry for most turf pathogens. However, we have seen both brown patch and Pythium blight in our diagnostic laboratory. Our brown patch research trials are in full swing and we have a nice epidemic raging on our plots.

Pythium blight

Although all turfgrasses are susceptible to Pythium blight, cool-season grasses (e.g. tall fescue) are typically damaged more than warm-season grasses. Pythium blight diseases are typically more problematic on intensively managed turfgrasses that are watered, mowed, and fertilized frequently. Symptoms of Pythium foliar blight appear as small (1-2 in. in diameter), circular spots but patches can sometimes be larger (6 in. in diameter). Leaves may have mycelium on their surface, appear water-soaked, dark, and sometimes feel “greasy” when rubbed between fingers (Fig 4). Symptoms may also appear in streaks or patterns associated with equipment movement across the turfgrass. Foliar blight symptoms can appear very quickly and affected areas can be quite large, contiguous areas of symptomatic plants.

The driving force for Pythium blight is excessive moisture. When relative humidity exceeds 90% for at least 14 hours Pythium blight will be of concern. The most dramatic damage to turfgrass will occur when these moisture conditions coincide with hot weather (daytime temperature >85°F and nighttime temperatures >68°F) over several days. Symptoms alone may not be

diagnostic for Pythium blight. Microscopic examination and laboratory culturing may be required to definitively diagnose Pythium blight.



Fig 4. Mycelium of a *Pythium* sp. on turfgrass foliage.

Management Options for Pythium foliar blight

- 1) Avoid excessive nitrogen rates during periods of susceptibility. Excessive nitrogen tends to make the grass more lush thus increasing its susceptibility.
- 2) Avoid mowing blighted areas during the morning as the pathogen is more easily spread when dew or excessive moisture is present.
- 3) Fungicides applied as part of a preventative program are usually more effective than when applied in a curative program. Commercial fungicides containing azoxystrobin, cyazofamid, mefenoxam, fosetyl-AL, or propamocarb have been shown to be effective where these diseases have been a chronic problem in turf.

Brown patch

Brown patch is most likely to develop when humidity is high and/or excessive soil moisture prevails. Warm temperatures (more than 85°F) encourage the development of brown patch, although symptoms can develop as long as temperatures are above 68°F. Excessive use of nitrogen fertilizer can exacerbate development of the disease.

Brown patch is caused by the fungus *Rhizoctonia solani*. The fungus overwinters using a survival structure (bulbils), specialized cells, or thickened mycelia (fungal body) in plant material. The fungus can be transmitted by the movement of infested plant debris by equipment, animals, water, and wind.

On taller grasses like tall fescue, brown patch symptoms will manifest as bronze spots less than 6 inches in diameter and irregularly shaped. Initially plants will appear purplish green in color, which quickly fade to brown or bronze (Fig 5). Leaf lesions may be present and will appear as tan, irregular spots bordered by dark brown margins (Fig 6). In Oklahoma, symptoms typically appear in the middle of the summer when temperature and humidity are continuously high.



Fig 5. Symptoms of brown patch on tall fescue.



Fig 6. Leaf symptom of brown patch on a tall fescue plant. Note the beige leaf lesion with the dark brown irregular border (see arrow).

Management Options for Brown Patch

To control brown patch, excessive amounts of nitrogen should be avoided. Applying nitrogen fertilizer to cool-season grasses in late spring and summer is not advised in Oklahoma. Other elements such as potassium and phosphorus should be applied based on a soil nutrient analysis.

Reducing long periods of leaf wetness and adjusting irrigation to water deeply and infrequently will help reduce the severity of brown patch. Improving airflow and amending obstacles in the landscape to improve air movement will help reduce leaf wetness. Improving drainage in areas where water pools or soils remain saturated for long periods of time will also reduce the likelihood of brown patch development.

Fungicides should be used preventatively and only during periods when weather is conducive for brown patch development. There are numerous fungicide products available for commercial turf applicators and golf course superintendents. Many of these products are highly effective. Fewer effective products are available or priced competitively for homeowner use.

We have conducted fungicide evaluations at the Oklahoma State University Turfgrass Research Center in Stillwater, which have focused on some of the products suitable for control of brown patch on tall fescue from 2008-2010. In our trials over that three-year period we found that commercial products such as Heritage 50WG, Heritage G, and Trinity were far superior to products readily found at garden centers such as Fertilome Liquid Systemic Fungicide, Scotts Fungus Control, Spectracide Immunox Disease Control, or Bayer Advanced Fungus Control. In fact these latter fungicides provided no control compared to not treating, in our trials. We recommend that homeowners find a reputable lawn care company with the capabilities to spray a commercial-grade fungicide product, should cultural practices alone, not be sufficient for controlling brown patch.

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