

K-State Turf

July 14 2008

Diagnostic lab:

In the past week or so I have received numerous samples of brown patch from fescue lawns and perennial ryegrass fairways.

I have also seen some anthracnose in putting green samples. For anthracnose, remember that this is a "stress pathogen" and there is usually something else going on. One contributing factor is excess soil moisture. We can get excess soil moisture when there is compaction or a buildup of organic matter. In fact, I've had a couple of golf course samples come in where the build up of organic matter alone was leading to decline due to moisture retention. No oxygen = unhappy roots. At our Rocky Ford Turf Research Center we did some aerification this morning and I'm sure those roots are cheering.

Pythium blight:

I haven't seen it yet myself this year, but it is the season for Pythium blight as well. Attached is a pdf file with information in diagnosis and management for this much-feared disease. Pythium blight can look like brown patch and other problems. If you have any doubts you can send a sample in to the lab.

Dollar spot:

Dollar spot has really gotten severe at our research farm, and I've been hearing dollar spot woes from around Kansas. And, speaking of dollar spot, we are always looking for samples of the pathogen for an ongoing study. If you have some you can send let me know.

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Megan Kennelly
Assistant Professor
Extension and Research: horticultural crops

4603 Throckmorton PSC
Dept of Plant Pathology
Kansas State University
Manhattan, KS 66506

phone: 785-532-1387



Pythium blight of turfgrass

Pythium blight, sometimes called cottony blight, is one of the most destructive turfgrass diseases. It is caused by several species of Pythium, a fungus-like water-mold (oomycete). Disease can “explode” in only a few days if conditions are right. Perennial ryegrass and tee- or fairway-height creeping bentgrass are the most common hosts in Kansas. Tall fescue can be infected as well. Kentucky bluegrass, bermudagrass and zoysiagrass can become infected but this is rare.

Symptoms:

In fairway-height bentgrass and perennial ryegrass the first symptoms are irregularly-shaped, water soaked, greasy patches up to 4 inches in diameter. If it is humid, a cottony growth may be present early in the morning (Figures 1 and 2). The patches may merge into larger blighted areas (Figure 3). The pathogen can be spread by equipment (Figure 4) and in water drainage patterns. Diseased plants eventually turn straw color and wither, resulting in crater-like depressions in the turf.



Figure 3: Blighting caused by Pythium.
by M. M. Kennelly



Figure 4: Pythium blight can follow mowing patterns and water/drainage flow. By R. St John



Figure 1: Cottony mycelium. Turf sometimes appears matted down and greasy. By M.M. Kennelly



Figure 2: Cottony mycelium. Turf sometimes appears matted down and greasy. By J. Pierzynski

Pythium blight is believed to be common on creeping bentgrass putting greens.

However, in Kansas this disease rarely occurs on bentgrass mowed less than ¼ inch in height. It is not uncommon to find Pythium blight on the putting green fringe yet see no damage on the putting surface.

Pythium blight occasionally affects tall fescue during hot, humid weather. Softball-sized patches of water-soaked turfgrass form during hot wet conditions. Diseased grass blades within the patch tend to stick to one another and have a mushy texture. Spots may coalesce and streaks may also form along drainage patterns. Affected plants eventually wilt and die to the crown. However, crowns and roots may not be killed and plants may recover after several weeks.

Pythium blight can cause of damping off and seed rot in plantings of cool-season grasses that are established in late spring or summer. Young, succulent tissue is vulnerable to the pathogen, and new plantings are often kept wet which further increases the risk.

Look-alikes: Pythium blight can be confused with brown patch, damage due to thick thatch, drought

stress, or grubs.

Conditions for Disease Development

The risk of Pythium blight is highest during humid weather when day temperatures are 86 to 95 degree F and overnight lows are consistently at least 68 degree F. The disease is most common when soil is saturated with water following extended periods of rain. Long dew periods, high relative humidity, and lush, dense turfgrass growth also favors disease development. Low areas, sites with poor air flow, and sites with poor drainage are particularly vulnerable.

Management:

Pythium thrives in water, so water management is the key to Pythium blight control. These following practices will reduce the risk of other diseases, too:

- *Improve drainage in areas where water is likely to stand for any length of time.
- *Avoid overwatering, especially during hot, humid periods.
- *Promote rapid turfgrass drying by proper spacing and pruning of shrubs and trees.
- * Fans can improve airflow in particularly closed-in areas where collars and approaches have a history of disease.
- *Irrigate in the early morning to reduce the number of hours of leaf wetness

Excessive nitrogen fertilization stimulates lush growth that is more susceptible to Pythium blight. Maintain a proper balance of nutrients and avoid fertilizing during periods of Pythium blight activity.

If active mycelium is present, avoid mowing which can spread the pathogen around.

Preventive fungicide applications during the summer months may be necessary on perennial ryegrass or creeping bentgrass golf fairways, but are not normally needed for putting greens or residential lawns in Kansas.

Perennial ryegrass seeded in the late spring is susceptible to Pythium because of its succulent, juvenile condition. Preventative applications may be beneficial. (For fall-seeded plantings this not necessary because weather conditions at that time do not favor Pythium.)

Table 1: Fungicides labeled for Pythium: It is the responsibility of the user to read, understand, and follow the label. Labels can change over time.

Active ingredient	Fungicide group	Efficacy and notes	Typical application interval (days)	Examples of products
azoxystrobin	QoI (strobilurin)	Good, <i>at risk for fungicide resistance</i>	10-14	Heritage
chloroneb	aromatic	Limited data available	5-7	Terraneb SP, Proturf Fungicide V
copper hydroxide + mancozeb	Copper + EBDC*	Limited data available	7-14	Junction
cyazofamid	cyanoimidazole	Consistently good to excellent	14-21	Segway
ethazole (etridiazole)	Triadiazole	Inconsistent, sometimes performs well	5-10	Koban, Terrazole
fluoxastrobin	QoI (strobilurin)	Good to excellent in most trials, <i>at risk for resistance</i>	14	Disarm
fosetyl-al	Phosponate	Good	14-21	Chipco Signature, Prodigy

mancozeb	EBDC*	Fair to good	5	Fore, Protect T/O, Mancozeb, Dithane
mefenoxam	phenylamide	Good to excellent in most trials, <i>at risk for fungicide resistance</i>	7-21	Subdue MAXX, Quell
metalaxyl	phenylamide	Good to excellent in most trials, <i>at risk for fungicide resistance</i>	7-21	Subdue 2E, Proturf Pythium Control
phosphite (salts of phosphorous acid)	phosphonate	Good to excellent, some variation among the products	14	Magellan, Biophos, Resyst, Alude, Vital
propamocarb	carbamate	Good to excellent in most trials, <i>at risk for fungicide resistance</i>	7-21	Banol
pyraclostrobin	QoI (strobilurin)	Good, <i>at risk for fungicide resistance</i>	10-14	Insignia

*EBDC = Ethylene bis-dithiocarbamate

Some notes on fungicides:

*In some studies, flutolanil (Prostar) and azoxystrobin (Heritage) applied to control brown patch have increased damage from Pythium.

*Under high disease pressure use shorter spray intervals

*In research trials, mefenoxam and propamocarb have performed well for curative situations

*Ethazol can cause phytotoxicity during hot weather especially at low water rates: see label.

*Fosetyl-al often provides poor curative control. For preventative control, 2-3 consecutive applications may be needed if disease pressure is high.

Resistance: Follow label instructions for resistance management for all fungicides:

* Resistance to mefenoxam and metalaxyl in turfgrass Pythium has been reported in some regions. In addition, many Pythium species in crop and ornamental production have developed resistance to these materials.

* Resistance to QoI (strobilurin) fungicides has been reported in Iowa, and these fungicides have been shown to be at risk to resistance for many other pathogens.

*Resistance to propamocarb has been documented in Pythium isolates in ornamentals, suggesting a potential for resistance in turfgrass Pythium.

References to products are not intended to be an endorsement to the exclusion of other products that may be similar. Any person using pesticides assumes full responsibility for their use in accordance with the label.

References:

**Fungicide table modified with permission from Chemical Control of Turfgrass Diseases 2008 by P. Vincelli and A.J. Powell, University of Kentucky*

**Compendium of Turfgrass Diseases, Third Edition. 2005. RW Smiley, PH Dernoeden, BB Clarke. APS Press*

Identification & Management of Turfgrass Diseases. Corwin, B, Tisserat, N, and Fresenburg, B. 2007. University of Missouri.

Original fact sheet by N. Tisserat. Revised by M.M. Kennelly, July 2008

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