



K-State turf: July 22 2008

The summer heat and humidity continues. Weather is favorable for brown patch and Pythium. Dollar spot is still pretty active at our research plots.

Speaking of diseases, I'll be gone July 24-30 at a national plant pathology conference in Minnesota. As a native of more northerly climes, I must admit I won't be sad to miss a few hot Kansas days though all of sultry August will be waiting for me when I return. Judy O'Mara will be here to handle samples in my absence. If you have something urgent, you might email her at jomara@ksu.edu to let her know it is on the way, or to send photos.

In addition, the conditions are downright stressful even in the absence of disease organisms. I put the following table together using data from K-State weather stations to represent conditions at a few locations around the state.

Weather summary for July 14-21, 2008:

Weather Station	Ave max air temp	Ave min air temp	Ave RH	Ave soil temp, 4"
Manhattan	92.6	69.3	72.3	82.0
Colby	91.8	64.3	61.6	82.7
Hesston	91.0	68.0	80.0	81.2
Garden City	92.3	65.1	84.6	86.1
Ottawa	90.4	67.2	78.4	80.9

As we all know, turfgrasses have physiological limits on the temperatures at which they can grow. Pay attention to the 4" soil temps above, and keep that in mind as you read with the information below. I borrowed it from an NC State website. Cool-season grasses are getting unhappy. Warm-season grasses are in their prime.

A report published by the North Carolina State University Turf Council ("Soil Temperature Reports Aid Managers" March 31, 2005) shows the impact of soil temperature on cool and warm season turf. Knowing where you are at in this range should help you understand how bad your turf is hurting right now.

Excerpted from the report:

*The following is a partial list of **soil temperatures (F) at the 4-inch depth** that should be of the association with certain biological events.*

Cool Season Grasses

- 90F Shoot growth ceases.
- 77F Root growth ceases.
- 70F Maximum temperature for root growth of any consequence.
- 70F Time to plant grasses in late summer.
- 60-75F Optimum temperature for shoot growth.
- 50-65F Optimum temperature for root growth.
- 40F Shoot growth ceases.
- 33F Root growth ceases.
- 20F Low temperature kill possible if temperature subsequently drops rapidly below 20F

Warm Season Grasses

- 120F Shoot growth ceases.
- 110F Root growth ceases.
- 80-90F Optimum shoot growth.
- 75-85F Optimum root growth.
- 74F Optimum time to overseed bermudagrass with ryegrass in the fall.
Time to plant grasses in the spring.
- 64F Expected spring root decline is triggered and roots turn brown and die within 1 or 2 days.
- 50F Root growth begins to slow below this temperature.
- 50F Chilling injury resulting in discoloration is possible.
- 50F Initiation of dormancy occurs resulting in discoloration.
- 25F Low temperature kill possible.