

Summer Swelter Stresses Iowa Lawns

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Mild growing conditions in the spring and early summer produced beautiful lawns across Iowa, but excessive heat and rainfall has produced some weary and weedy lawns that will need assistance to recover this fall. It seems like every year we have some type of weather related disaster in Iowa. The Parkersburg Tornado, Eldora hail storm, and Cedar Rapids/Iowa City floods are just a few recent memories. Ames and parts of the ISU campus took a direct hit from this year's deluge of rain. Precipitation and flooding seem to be localized depending on the watershed you live in. Regardless, statewide precipitation rates well above normal provided ample water for lawn growth, but while your sprinklers may have been growing cobwebs, lawns in Iowa were being set up for decline from diseases, weeds, insects, and the pressure of summer stress.

Disease

In June I reported <http://iaturf.blogspot.com/2010/06/ascochyta-leaf-blight-scorches-iowa.html> on a rather unusual outbreak of Ascochyta caused by, of all things, dry conditions and heat. Lawns damaged by Ascochyta recovered in varying degrees but it is important to remember that summer stress accumulates and lawns are generally weakest by late August. Dollar spot and red thread were active through June, but the more deadly brown patch and Pythium have reared their ugly head in late July and August to finish off some of the weaker lawns.

Weeds

This year was certainly the year for crabgrass and yellow nutsedge. Pre-emergence herbicides generally give 85 to 100% control of crabgrass, but this year excessive rain and high temperature reduced efficacy from crabgrass control products. High moisture and high temperature are two factors that increase the activity of soil microorganisms that ultimately ingest the herbicide and render it inactive for season long weed control. Post emergence weed control products like Acclaim, Drive, and Tenacity give us the option of waiting until May or June to see if we even need crabgrass control. This is a great Integrated Pest Management strategy that potentially reduces lawn herbicides. However, lawns inundated with crabgrass by August 2010 would benefit from pre-emergence crabgrass control in spring 2011 to reduce the infestation of crabgrass that is eminent; seed from this year's heavy infestation will germinate next summer and the cycle of crabgrass will continue. Should you try to kill the heavy infestation of crabgrass that is occurring in August? When crabgrass covers less than 25% of the turf area it can be left alone because it will die after the first frost and the Kentucky bluegrass will usually fill in the areas through the dead crabgrass. However, this year the Kentucky bluegrass is being smothered beneath a layer of crabgrass that covers nearly 50 to 100% of the visible lawn surface. In this case a product like Tenacity can be used to suppress or kill enough of the existing crabgrass in August so that the turf can be power raked and reseeded in early September. Seeding can occur at the same time or prior to Tenacity application. This is necessary because the heavy infestations of crabgrass that we are experiencing this year will not allow existing or reseeded turf to reestablish in September unless the crabgrass is sufficiently weakened. The thick, uncontrolled mat of crabgrass will dominate the turf until the first killing frost that usually occurs in October; then it will be too late to establish Kentucky bluegrass from

seed. Tenacity is currently labeled for weed control in golf courses, sod farms, sports turf and commercial turf. A label for residential weed control is anticipated next year.

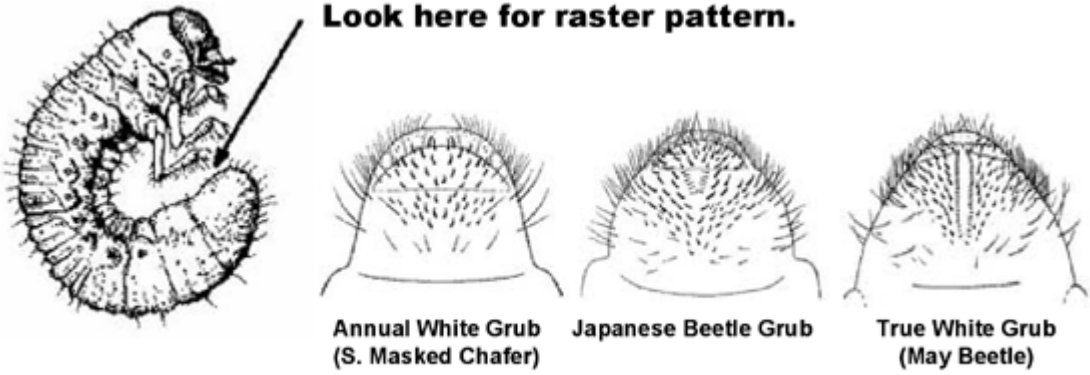


Picture taken August 2010 shows darker green Kentucky bluegrass that is heavily infested with crabgrass. Crabgrass will first turn white and then brown after being treated with Tenacity. The Kentucky bluegrass area did not receive pre-emergence herbicide for two years and it has transitioned from 100% Kentucky bluegrass to nearly 75% crabgrass.

Insects

White grubs and bluegrass bill bugs are our two major lawn insects. I found some bluegrass billbugs this year but damage was very limited compared to past years and drier conditions. Annual white grubs caused by the Masked Chaffer are showing up in ample supply and right on schedule for Mid-August. If grubs are actively feeding in August and early September then Dylox will be a good choice. It needs to be thoroughly watered into the surface 1.5 inches of soil where the grubs are feeding. It only lasts about seven days in the soil and grubs should begin to die about a week after treatment. I received some calls this year for abnormally large white grubs in June and July. Most people know about the more prolific annual white grub, but don't forget that we also have another white grub caused by the May/June beetle *Phyllophaga* spp that periodically causes turf loss. I see these every year in various stages of growth and they take 3 years to complete their life cycle. Consequently they are in the ground for an entire year as a grub and that is why some of them appear rather large during the middle of the summer. Check the raster pattern to determine which grub you are dealing with. While you are at it look for the V-shaped raster found on white grubs of Japanese Beetles. The adult Japanese Beetles are

becoming an important pest on ornamentals as they spread from east to west across Iowa. The importance of Japanese beetle grubs on turf has not been determined. Please let me know if you are experiencing actual grub damage to lawns from Japanese Beetles.



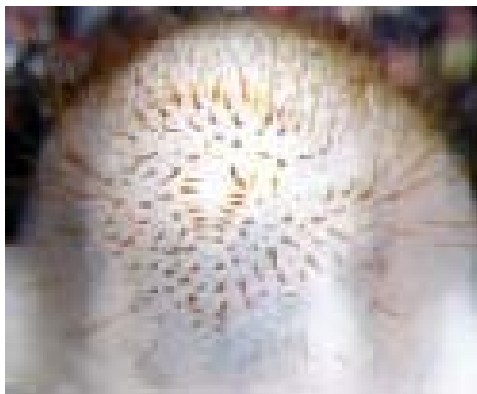
[Line drawings – USDA/Cornell]



Raster pattern of Annual White Grub from Masked Chafer *Cyclocephala* spp.



Raster pattern of True White Grub from the May/June Beetle *Phyllopagea* spp.



Raster pattern of white grub from Japanese Beetle *Popillia japonica*

Summer Stress

High temperature and excessive moisture are a deadly combination that stresses lawns. Cool-season grasses grown in Iowa (Kentucky bluegrass, tall fescue, perennial ryegrass, fine fescue) are what we call C-3 plants. They grow and store energy just fine when temperatures are below 70° F but as temperatures increase, especially above 85°, our cool-season turf uses its reserve of stored carbon and this causes a plant energy deficit. The grass plant is simply starving itself to death when temperature is too high. Crabgrass is a C-4 warm-season plant that continues to thrive and efficiently store energy during hot conditions. This partially explains why crabgrass is more competitive and can overtake Kentucky bluegrass as the summer progresses.

Excessive moisture is another factor that can contribute to lawn decline in the summer. Roots need air to survive. Oxygen is displaced in soggy or flooded soils and this causes anerobic conditions and roots that do not function properly. Imagine lying down in the sun of your front yard in the hottest part of the day on a sunny, soggy and humid bed of grass. You wouldn't last but a few minutes. Grass plants in the sun can't get up and move to the shade. They're stuck, and when the evaporative cooling system begins to shut down the grass plant, thatch, and soil surface quickly heat up to the existing air temperature or higher. Plants can be literally cooked to death by direct heat injury as plant tissue temperatures rise above 95° F. Temperatures this year were sufficient to cause rapid injury directly from high temperatures and indirectly from prolonged periods of high temperatures that eventually depleted stored carbohydrates. Weakened plants with slow growth were often overcome by brown patch and pythium that flourished when night time temperatures were greater than 72° F. Examples of high temperatures in Red Oak (figure 1) and excessive rainfall in Ames (figure 2) represent the difficult growing conditions for lawns in the summer of 2010. To develop a weather profile for your local area go to <http://www.mesonet.agron.iastate.edu/>.

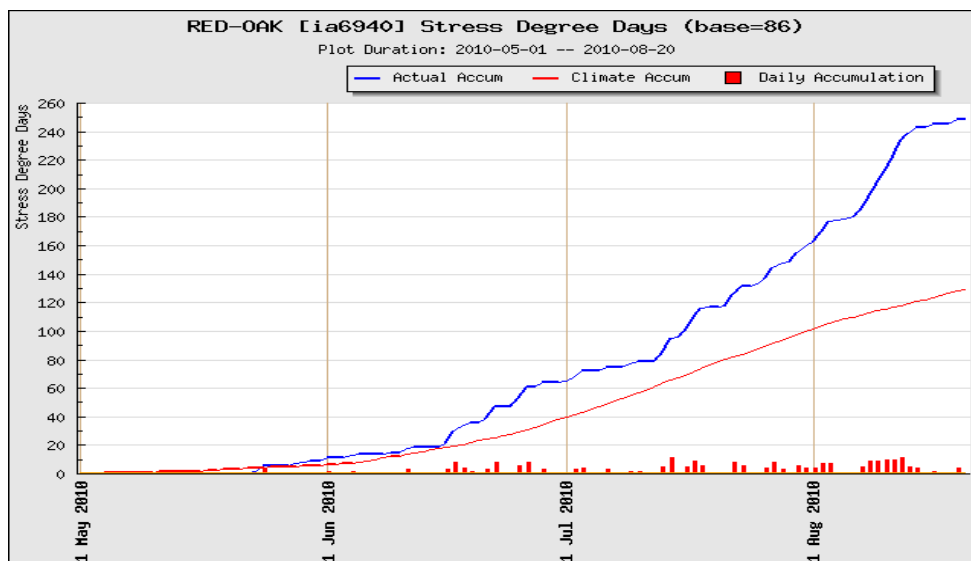


Figure 1. High temperatures can be reported in stress degree days. The actual accumulated stress degree days (blue line) are reported using a base temperature of 86° F. The red line represents the normal stress degree days from long term weather records. In 2010 the Red Oak area experienced a substantial increase in stress degree days during July and August (blue line) compared to the normal amount of stress degree days anticipated from climatological records.

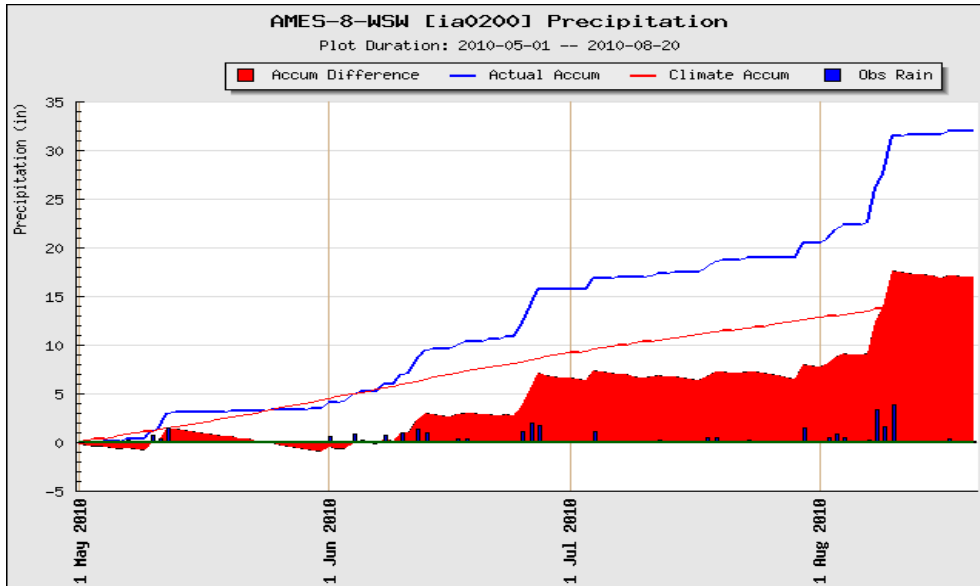


Figure 2. The actual accumulated precipitation in Ames (blue line) compared to the normal average precipitation rate (red line). The near vertical blue line in early August represents the 10 inch rain that caused flooding in Ames.

What to do

The bad news is that several lawns have succumbed to the various woes of summer described above. The good news is that now is the best time to rejuvenate damaged lawns. So if you are tired of that tired old lawn it may be a good time to kill the existing mess and start over with some improved grass varieties suitable for your lawn. Consult your local lawn care professional company to develop a plan to recover your lawn through aeration, slicing, seeding, and fertilizing.