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Without reservation, I can say that August 2009 was one of the worst months I have ever seen for *Poa* greens. Every summer, *Poa* will go into decline. In addition to being susceptible to high heat, it is also the target of anthracnose, summer patch, bacterial wilt and annual bluegrass weevil. Usually it requires some combination of these to outright kill *Poa* in the summer.



Figure 1. *Poa annua* under summer stress and root decline will often begin to turn yellow and turf loss will occur in mottled patches throughout the worst areas of damage.

This year however, nothing but the weather was required. And by the last week of August, there was a lot of dead *Poa annua* on New England golf courses. Everyone from high-end private courses to municipal courses were impacted. Even the URI turf farm lost a significant stand of *Poa*. This summer will forever be known as the Great *Poa* Catastrophe.

So what exactly happened? Put simply, the weather turned against us. Turfgrass managers can manage a lot of things but the weather is not one of them. We are subject to its whims. But blaming the weather without understanding what happened is not terribly satisfying so I will provide a summary.

The Rain. The month of July was not terribly hot. It was an average summer month, perhaps on the cool side, but it was wet. Most of Southern New England received between 12 and 15 inches of rain during this month. Averages vary, but this was at least 2-3 times the monthly average of rain received in most places. And the grass looked great. But all this water did 2 things: reduced rooting depth by slowly suffocating the roots and stimulated summer patch and root *Pythium*, two diseases that eat roots. Both *Poa* and bentgrass lost roots to saturated soils.

The Heat. Once August began, the heat followed. Some areas were still getting rain, some were not. But rain is rarely a good thing in the height of the summer, especially in torrents. URI is located in Kingston, just a few miles from the Atlantic Ocean. It is generally considered a cool maritime climate. Despite this, we were hot and most places were even hotter. August 10, 11 and 12 hit 90°F in Kingston. August 15, 16, 17, 18, 19 and 23 were also 90°F. August 20, 21, 22 were 88°F. Although the number of 90°F days was not excessive for the summer of 2009, they all occurred in basically one solid block. It is important to remember that *Poa* is a weed. While it is inevitable and often becomes a compromise many superintendents are forced to make, it is still a weed and as such, the heat will cause considerable decline in this weedy natural grass.

The Soil. *Poa* does not do well when the air temperatures hit the 90's. But worse still are high soil temperatures. Kingston soil temperatures hit 95°F during this week. Soil temperatures in southern Connecticut hit 102°F. The bulk of any healthy turfgrass plant is in the soil. When soil temperatures reach this level, roots actually cook. Inspection of the roots will reveal that they have turned into brown mush.

The Humidity. To top it all off, the humidity in New England reached a level I have not seen in the last decade. During the two weeks of high heat, the average humidity was 90% or greater almost every day and dew points held in the mid 70's. Humidity is OK if temperatures are low but when temperatures are very high, it can be a death blow to *Poa*. Under high heat, *Poa* wilts and overheats. To control this, turf is syringed. However, under high humidity, transpiration and evaporation shut down and no water leaves the soil. The combination of constant syringing and no evaporation means that soils get wetter everyday. Every oxygen molecule in the soil is used up or pushed out and the soil becomes anaerobic very quickly. High heat speeds the anaerobic process. Soils begin to smell like a swamp and roots die *en masse* as toxic gases diffuse through the soil and roots suffocate. It is a fatal Catch-22.

Aeration. Most superintendents core aerate twice a year. A decade ago, aeration occurred once in the early spring and then again in September or October. Today, most of the aeration that used to occur in the fall now happens in August. Usually, this approach is sound. But every few years, the weather turns suddenly or unexpectedly and August aeration can be a serious problem. Many superintendents began aeration on August 17th. Despite the heat, this did not seem like a bad idea. The heat wave was predicted to break on August 19th. But this did not happen. The heat wave lasted a full week past when it was expected to end. With the stress of high heat, high humidity and soaring soil temperatures, many superintendents lost turf after aeration. If the weather predictions had been accurate, most courses would have been OK.

I understand that the demands of players, tournaments and the need for revenue are a big factor in August aeration. But as with any crop, strict adherence to an artificial calendar can sometimes lead to disaster.

Most of these issues are strictly problems of *Poa annua*. Bentgrass generally produces deeper roots and is much better at withstanding adverse environmental conditions. But *Poa* is inevitable, especially on 100 year old or even 20 year old push up greens. And these are the places that most likely suffered from the high heat of this past August.

Many golf courses have used the August damage to push their memberships into agreeing to regrass. In some cases this may work very well. In other cases, it may not be best solution, especially if drainage, soil quality, trees and other issues are not also addressed.

There is some good news for those courses that have suffered from summer damage: the *Poa* will be back. Much of the damage did not result in death, just large-scale damage. And even if death occurred, there is plenty of *Poa* seed in the soil, just ready to germinate. Recovery will probably be quicker than you expect.



Figure 2. *Poa* decline and turf loss is very common during periods of high heat. Bentgrass in a mixed stand of turf will often appear relatively healthy and exhibit fewer damage symptoms.

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