

Rescue 911

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July heat has arrived. Unwanted rain pours every afternoon. The bentgrass putting greens are heading south. The root system is nowhere to be found and the member/guest looms in four weeks. All of a sudden, one day at a time takes on new meaning. This scenario is about as bad as it gets for a golf course superintendent. This article will offer the best crisis management tips we have accumulated over the years. These tips are not intended as a replacement for sound agronomic practices and good construction nor are they guaranteed. They are designed to give the putting greens the best chance to make it to the end of the summer with as much turf as possible.

Venting

Rapid root dieback during the summer months can seal off bentgrass putting greens. To make this bad news even worse, oxygen demand in the rootzone is high. The process of plant respiration takes stored carbohydrate reserves and converts them to energy for plant growth. Oxygen is a crucial element in this process and the root system is the main site for oxygen uptake. If the macropores in the putting greens are clogged with swollen, decaying roots, soil oxygen levels are going to decrease. Rapid root dieback creates a scenario where oxygen demand is at its highest, but supply is limited.

The most rapid and cost effective method to increase soil oxygen levels is to use either solid aeration tines or the Hydroject to vent the putting greens with thousands and thousands of tiny holes to increase the flow of oxygen into the rootzone. This is a golfer friendly practice that causes little disruption to the putting surface. Dr. Bob Carrow of the University of Georgia has confirmed the value of this practice through his research. The standard recommendation is to perform this practice every 21 days beginning eight weeks after spring core aeration.

Water Management

Summer heat is not kind to the root system of creeping bentgrass. A significant root loss is expected and a catastrophic root loss is a real possibility when any combination of high temperatures, excess rainfall, high organic matter, and poor internal drainage are combined. Irrigation practices must be altered as a root system dies back. A four inch root system has a soil moisture reservoir four inches deep. A three quarter inch root system can only access moisture three quarters of an inch deep.

Evaluate your root system and adjust irrigation practices accordingly. Deep and infrequent can take on a whole new meaning with a shallow root system. Many golf course superintendents with bentgrass putting greens in the southeast have success with daily watering in the summer months.

If your root system is gone and they can not go more than one day without water, set your overhead irrigation system up based upon the wettest portion of the putting green. Because no watering system has one hundred percent uniformity, there will be areas that need supplemental hand watering which will need to be done in the morning before the grass goes under any drought stress. A sign that the proper amount of water has been applied on the greens is that they have just the right amount of moisture when checking them in mid to late afternoon the day following irrigation.



Venting is an important tool to help bentgrass putting greens survive difficult summer conditions.

Mowing Practices

Mowing is an essential part of turfgrass management. It also mechanically injures the turf and creates points of entry for pathogens. Sharp reels are an advantage any time of year, but are even more important in times of stress. Would you like a surgeon cutting you open with a scalpel or a rusty nail?

Mowing height is another variable that can impact summer survival. Keep in mind that as heat increases, the rate of photosynthesis decreases (food production) in creeping bentgrass and the rate of respiration (food consumption) increases. No plant can continue forever if respiration occurs faster than photosynthesis. Research by Dr. Bingru Huang of Rutgers University has shown that by raising the mowing height, more leaf surface area remains, and photosynthesis levels are higher. If your greens are in trouble, an immediate increase in mowing height of 10 – 20 percent is a good start.

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Mowing frequency is another variable that can be adjusted to promote better summer survival. Dr. Thom Nikolai of Michigan State University has found that when greens are under heavy stress, substituting one or two mowings with rolling will not impact green speed, but will improve turfgrass quality.

Fertility

Plants have relied on their root system for millions of years to supply nutrients. What happens when 90 percent or more of the root system is dead? Answer: The plant has less capacity to take up nutrients and the soil reservoir of plant available nutrients is much smaller. When the root system dies back, continue spoon feeding all nutrients frequently and in small quantities.

Fungicides

There are a wide variety of fungicides available for disease control with different modes of action. When the plant is sick,

understanding the mode of action and the best method of application can mean the difference between wasting money and buying another week of survival for the bentgrass. For example, if rain is forecast shortly after fungicide application, contacts and localized penetrants will not be as effective if they do not have time to completely dry. A systemic fungicide may be a better choice. When selecting a fungicide, understand the mode of action and take note accordingly.

Another variable with fungicides is the amount of spray volume recommended and nozzle type. Read the label carefully. A specific volume of solution will be provided. Nozzle manufactures such as Tee Jet have charts that recommend nozzle types based upon whether the fungicide is a contact or systemic. Droplet size can make a huge difference in coverage and ultimately, disease control. One size does not fit all in the nozzle department.

Air Movement

Hopefully, the fans around your bentgrass putting greens have been operational all

summer. If a given site is suffering without a fan, do whatever is necessary to install one or more temporary fans around the green. We have seen temporary fans used with some success. Most superintendents find it necessary to position the temporary fan on the edge of the greens and move the it every few hours to prevent an area from drying out. It is labor intensive, but it can be effective.

Conclusion

This article has provided a few basics of summer crisis management. Before summer arrives, study each of these components. Go to the Turfgrass Information Center at Michigan State <http://tic.msu.edu/> and retrieve more information. Better yet, schedule a USGA Turfgrass Advisory Visit and we can discuss these topics in greater detail while offering site specific recommendations.