

Aerification never hurts And should be a benefit this spring

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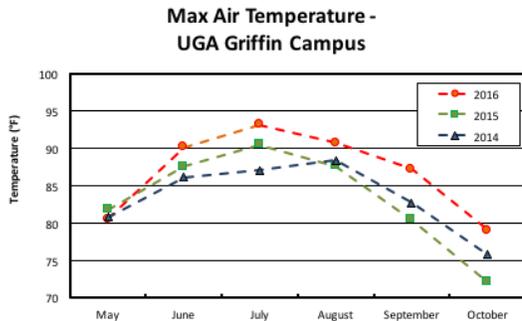


Figure 1.

Maximum air temperature for the past three years when warm-season species were actively growing in Griffin, GA.

Data from the Georgia Automated Environmental Monitoring Network <www.GeorgiaWeather.net>.

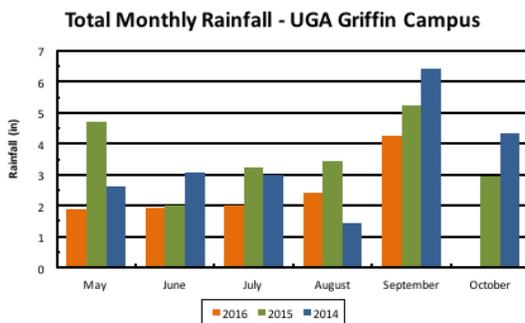


Figure 2.

Total monthly rainfall for the past three years when warm-season species were actively growing in Griffin, GA.

Data from the Georgia Automated Environmental Monitoring Network <www.GeorgiaWeather.net>.

Summer 2016 was hot and dry!

Georgia is a large state and weather conditions were variable from South Georgia to North Georgia but in general, the average, monthly, maximum air temperatures were higher than the previous two years. Figure 1 shows temperatures during the growing season for warm-season grasses for the last three years in Griffin, Georgia. Compound hot temperatures with low rainfall (Figure 2), and the result was weak turf as it entered dormancy last fall.

In Georgia, irrigation is a supplement to rainfall. When rainfall and irrigation cannot meet plant needs the result can

cause the grass to enter into a drought-induced dormancy (Figure 3). Through altering various physiological processes within the plant, even warm-season grasses will protect themselves during periods of drought stress.

Environmental and biochemical signals trigger the plant into a “conservation mode” where it only uses the resources it needs, ensuring the survival of the species.

Signs include grass losing color, a thinning canopy, and ability to see soil that is typically covered by turf. The grass plant does what it can to keep areas like the crown, stolons, and rhizomes minimally hydrated to sustain life.

Fortunately, species like bermudagrass and zoysiagrass have stolons and rhizomes, which allow them to tolerate stresses and resume growth once environmental conditions become favorable. Centipedegrass and St. Augustinegrass do not have below-ground rhizomes, making them more susceptible to stresses. However, all warm-season species are fairly resilient to environmental extremes but prolonged stress can have a compounding effect on recovery.

This compounding effect can be worsened when the stress, in this case heat and drought, extends into the time of year when the grass should be producing and storing reserves. For warm-season species, late summer and throughout the fall is when grasses accumulate carbohydrates in stolons and rhizomes to aid in spring green-up.

In 2016, for many lawns across the state there may not have been sufficient opportunity, too little rainfall, for the grass to grow, photosynthesis, and make carbohydrate reserves. If that was the case, lawns will likely be slow to green-up this spring. If environmental conditions are “normal” this spring, lawns will recover but it could be at a slower rate because the production of reserves was compromised last fall. For example, a lawn that would typically be fully green and growing in mid-May, it might be late May or June before it is covered. **A two- to four-week delay in green-up of warm-season grasses might be common this spring.**

Aerification to the rescue

Is there anything that can be done to improve green-up and growth? There is.

Core aerification is a cultivation practice that opens the soil, allowing moisture and air into the root zone. Timed and performed correctly, aerification can stimulate rhizomes to initiate growth, causing the grass to grow sooner.

Aerification never hurts, but the “typical” warm-season lawn does not need regular, or annual, aerification. However, this spring may be an exception.

To stimulate growth and achieve surface coverage as early as possible, core aerification in late April through mid-May will likely benefit many lawns that suffered through one, or multiple, drought-induced dormancy periods last summer and fall.

If ever there was a year to seriously consider core aerification, this is the year!

Would core aerification help centipedegrass and St. Augustinegrass that does not have rhizomes? The simple answer is “Yes”!

While the practice would not stimulate shoot growth from rhizomes that these species do not have, aerification relieves compaction that generally stimulates rooting and promotes deeper roots that pull water and nutrients



Figure 3. Non-irrigated bermudagrass suffering from drought-induced dormancy.



Figure 4.
Hollow tine aerification of residential lawn.

from a greater soil volume. For the stoloniferous species the typical result from aerification is increased lateral growth and a healthier plant.

Two types of aerification

There are two basic types of aerification: hollow and solid tine.

With hollow tine aerification, a soil core is removed (Figure 4), while with solid tine aerification a hole is created and no core is removed.

With both types, a void in the soil is created that allows air and water to more deeply penetrate the root zone. However, with hollow tine aerification the aeration benefits are longer lasting due to the removal of the core.

With either technique, the deeper the aerification holes the better. Ideally, cores, or plugs, are 3 to 4 inches in depth and a half-inch diameter. With time, the surrounding soil relaxes back into the void, opening pore space in the surrounding soil. This lends toward an overall improved air exchange and better water infiltration within the soil.

If there is a choice between hollow tine and solid tine, choose hollow tine and remove a soil core.

Soil wears metal tines. To optimize the benefits or core aerification, **tines should be changed regularly and once they cannot effectively pull a 3-inch core.** If homeowners choose to rent an aerifier and do the job themselves, they should inspect the tines and choose the piece of equipment with the longest tines. Or, ask the rental agency to replace the tines with a new set.

Best management practices

Core aerification is only part of a sound agronomic program. This spring it can aid in green-up but other basic turfgrass management practices are also important.

- ▶ The fertility program specific to the each turfgrass should not be neglected. Visit www.GeorgiaTurf.com to find lawn care calendars that include fertility recommendations for each grass species.
- ▶ Keep in mind the grass is likely less vigorous this spring as a result of last summer, avoid applying nitrogen fertilizer to warm-season grasses until soil temperatures at the 4-inch depth are consistently 65° F and rising. This will likely coincide with the appropriate timing for core aerification.
- ▶ To check if the soil pH, phosphorus, and potassium levels are within recommended ranges for optimum growth, contact your local county extension agent <<http://extension.uga.edu/>> for submitting a soil sample to the UGA Agricultural and Environmental Services Laboratories.

Preparing for the next stress

Not only could aerification hasten green-up and coverage, but by stimulating the grass to produce more shoots it can make the grass more sustainable.

Once the grass has leaves, it can begin photosynthesizing and producing carbohydrates. In the spring and summer the plant will use some of these reserves and some will be partitioned to rhizomes and stolons. With a potential depletion, or decrease of accumulation, of carbohydrates as a result of 2016, restoring carbohydrate reserves is important to help the grass make it through the next stress. 🌿