

Optimal Conditions for Organisms

Let's face it. People, like plants and turf, are organisms. We are most comfortable and maintain the best health in environments where mild conditions (moderate temperatures, moderate exposure to direct sunlight etc.) and minimal stress exists. Our bodies experience the least discomfort when we are continually fed balanced diets on a routine basis where our enzymes can predictably break down inputs as they enter our system.

When an organism's immune system is challenged, for example, environmental fluctuations such as extreme temperatures or bacterial threats, the organism begins working harder to compensate or combat the external threat. In times like these, it can be more detrimental than beneficial to begin taking 'last resort actions' (i.e. excessive intake of vitamins at the onset of a cold) and overload one's system to forcefully revert back to a healthy state.

Similarly, when managing turf in extreme environments, we must proceed with caution, as the risk of inducing additional stress exists.

Extreme environmental conditions

Throughout the summer of 2010, turf grasses in many parts of the Northeast U.S., Midwest U.S., and Canada have experienced extreme temperatures and humidity.

As noted in USA Today on July 30, 2010, July was shaping up to be the hottest month ever.

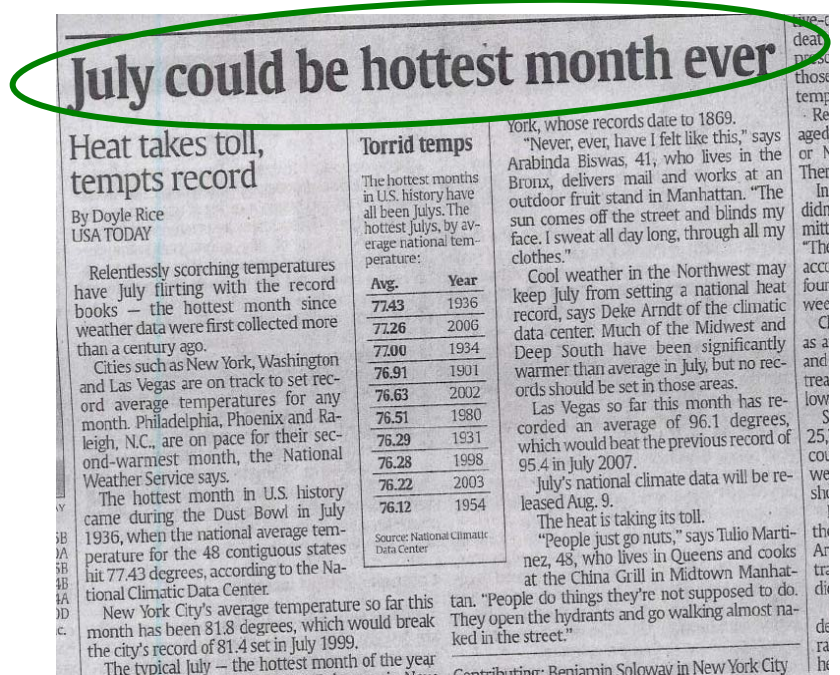
All turf grasses within this environment are considered to be under extreme stress and therefore organisms are very sensitive. Additional maintenance can further agitate and worsen the state of the turf.

What is the role of CIVITAS?

CIVITAS has demonstrated the ability to enhance turf health when applied consistently throughout the growing season. It is this consistent application that boosts the turf's immune system and enables the plant to fight off disease and increase turf quality.

However, in tough conditions, turf managers must exercise caution when executing cultural practices, applying control products, and also when applying CIVITAS. When turf is under extreme stress all products, within a tank mix or alone, have the ability to further agitate already stressed turf. CIVITAS should not be considered a solution to revive turf undergoing extreme stress.

CIVITAS has been known to stimulate the turf's health but in order to maximize the benefit of the plant health platform, CIVITAS is recommended to be used in a preventative program *starting at the beginning of the season and continuing through to the end of the season within a regimented integrated pest management program.*



Summer 2010 - USGA and CGSAA provide helpful tips to manage stressed turf

Suggested defensive management programs during this period of extreme stress:

- **Raise mowing heights and use sharp mowers.** This can help the grass survive, most notably on putting greens.
- **Mow less...roll more.** The goal is to reduce mechanical stress to the grass plant. Consider alternating daily practices of mowing and rolling putting greens, with consideration to skipping a day if the schedule of play allows.
- **Switch from grooved rollers to solid rollers** and protect collars from the turning of mowers. Forgo double mowing, topdressing, verticutting or grooming greens.
- **Spoonfeed the grass.** Spray weekly with light rates of nutrients, iron (to keep the grass green), and growth regulators. Excessive grass growth depletes carbohydrates (plant food).
- **Facilitate air drainage.** On shaded or pocketed greens, prune limbs, use fans and generally keep the air moving. When you are hot, you stand in front of a fan to cool yourself. When the grass is stressed, it needs good air movement as well. Drier turf is also less prone to disease.
- **Do Not Over Water.** Hand water if possible. Lightly syringe the turf with the nozzle -- never going past horizontal. Any mid-day watering should be focused on cooling the canopy. If you are wetting the soil, it's too much! Remember, you can always add more water, but wet, saturated soil can damage roots, increase disease and contribute to turf loss via the Wet Wilt Syndrome. If corrective watering needs to be done for dry spots, the extra water should be applied in the early morning or late in the evening. Do not over-water the grass in mid-day heat. If a green has a dry spot or two, superintendents can hand water the dry spots only and should not water the entire green. When the entire green shows stress from a lack of water, use the overhead sprinklers and water the entire green.
- **Surface aerate the greens.** This allows the soil to breathe, excess moisture to escape, and roots to regrow, thereby helping the grass to survive. Avoid aerifying using large diameter tines that penetrate deeply into soil and remove a core of soil. If you feel the putting surface is sealed, vent using small diameter solid tines or other similar techniques
- If fertilizer is required, **apply small amounts of fertilizer** via a sprayer and observe the response before fertilizing again.
- Monitor and **adjust golf car traffic patterns** to minimize stress to turf.
- **Compress spray programs.** With heat, humidity and thunderstorms, fungicides do not last as long and disease pressure is greater. There is no better money spent than to protect the grass from disease.

For more information and to read the entire stress management articles visit:

USGA: http://www.usga.org/course_care/regional_updates/regional_reports/midatlantic/Special-Notice---July-2010/

CGSAA: <http://www.gcsaa.org/news/NewsReleases.aspx?id=950d62b6-f501-42d5-afe2-9ad8f5922bf6>

Overview

Despite the uncontrollable aspects of the environment in which the turf community is challenged to operate, we can continue to treat turf like any living organism. We can and continue to optimize our practices to enhance the overall health on a daily basis in order to enable turf to withstand extreme conditions and to more easily recover from stress as it arises.

CIVITAS fungicide enables turf to fend off disease by turning on the plants natural defenses. CIVITAS enhances overall turf health; enhancing root mass and providing faster recovery. CIVITAS is both xylem and phloem mobile which ensures root to tip protection of turf blades and facilitates efficient uptake of nutrients and water.

For more information, visit www.civitasturf.com