

# Summertime Stress on Bermudagrass



Typical putting green appearance due to summer stress conditions. Photo by Todd Lowe.

Even though bermudagrass is a warm-season species, it can also experience environmental stress during the summer. Bermudagrass is sensitive to reduced light and requires at least eight hours of full-sun each day. Factors that decrease sunlight penetration like trees and clouds are stressful to bermudagrass and decrease food reserves (photosynthates). Closely-mown surfaces like putting greens become more easily stressed as less chlorophyll is available to intercept the sunlight.

Periods of cloudy, rainy weather produce chlorotic bermudagrass putting greens when lower mowing heights are maintained without regard to reduced sunlight and photosynthetic activity by the turfgrass. Chlorophyll is sunlight-dependent and initial signs of stress include loss of color and eventual yellowing and thinning. Aeration holes and low-set plugs often remain greener than the surrounding putting surface simply because of the increased leaf tissue in these areas.

Nature is trying to tell us something.

Raising mowing heights during this time compensates for reduced amounts of sunlight and is the best means to improve putting green quality. Even slight increases in mowing height significantly improve chlorophyll production. This past summer

was especially cloudy and courses that weathered best were those that gradually raised mowing heights throughout the summer as daily afternoon showers began to occur. Courses that maintained low mowing heights experienced more stress as was evident in yellowish, thin putting surfaces.

It is important to limit other stresses during this time until the putting surfaces have improved. Avoid aggressive cultural practices (low mowing, core aeration, verticutting) during periods of stress as they further weaken putting surfaces and prolong recovery. Instead, light topdressing, weekly spiking and frequent foliar fertilization should be applied to aid turf quality. Also, secondary pathogens may take advantage of the weakened state of the putting surfaces, so keep a watchful eye and treat as necessary.

Previous research with zoysiagrass has shown the plant growth regulator trinexapac-ethyl (Primo) to be useful in shady situations. However, little is known about its effect on bermudagrass in reduced light. Research at Clemson University is evaluating Primo on shaded TifEagle putting surfaces and preliminary results are promising.

Todd Lowe

## WINTER PINES GC

### Fourth of July Color is 'Pea Green' on Push-up Greens

The stress on the Tifdwarf bermudagrass greens we have been seeing the past few years at Winter Pines has been on the greens that were the push-up style construction built without drainage back in 1968. They are still relatively free from any mutations or off-types, but certain dwarf strains start to turn a pea green around the 4th of July each year. Then they turn yellowish green and eventually, a straw color and die if not treated.

No amount of fertilizer, aeration or other cultural practices seems to be able to stop it. Areas on the greens that we cut out and resodded don't seem to be affected again.

These past few years we have sprayed the problem greens with Heritage at the .4 lb rate to try to prevent the onset of the problem, and it seems to be working. We have also used Heritage as a curative treatment and that also worked very well. One application each summer seems to do the trick. Spot spraying with a 3-gallon sprayer is used to retreat persistent areas.

The control program that has worked best for us is triggered by observing the greens. When they go off color and don't respond to normal fertilizer and water then we make our fungicide applications. So far none of the new bermudagrass greens we have rebuilt and replanted seem to be affected.

Joe Ondo, CGCS

## JOHNS ISLAND WEST GC

### Follow the Basics, And Pay Attention to Weather, N:K Ratio

Our greens were converted from Tifdwarf to TifEagle during the summer of 1999. Since then it has been a learning experience. I have nothing but good things to say about TifEagle; sure there have been some troubling moments, but with Nature dealing the cards, you can't always win.

We experienced a severe breakout of

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*Helminthosporium* of the greens around August or September in the first year. By the time it was stopped, we had lost some turf, enough to warrant sodding a couple of areas. Since then we have increased the potassium level tremendously. Our goal is to maintain around a 1 to 4 ratio of nitrogen to potassium. Since incorporating this practice, our disease problems have all but disappeared.

Between the two assistants and me, one of us is on every green every day, monitoring and watching for any problem that might develop. About the only time a fungicide is applied is if we are forecast for three to five days of rainy, overcast weather.

Our mowing practices vary throughout the year from the lowest setting of .105 to about .140 being the highest setting. We typically will keep heights up a bit during the summer, usually around .125. If it looks like we're going to have a few of those cloudy, nasty days we will bump the mowers up a little and then, as conditions improve, drop them again. It's been our opinion that the grass seems to thrive better the lower we keep it, again depending on the weather.

With the use of Primo we have managed to keep very acceptable green speeds during the summer without having to drastically lower mowing heights. The lower heights and Primo use have enabled us to keep a very dense stand of grass. The only thin areas we typically develop are in very shady spots, and of course, algae can invade. These areas are spiked as frequently as possible and chemically treated as needed.

TifEagle is a relatively high-thatch produc-

er. The first summer we were not as aggressive as we should have been with thatch removal. Since that first summer, much to the mechanic's dismay, we have become very aggressive with cultural practices. We'll try to pull cores at least four times, verticut lightly about once every other week and verticut very heavily about three times during the course of the summer.

When we do our heavy verticutting, the greens are unplayable for at least a week; fortunately we have a couple of periods during the summer that we are closed for an extended amount of time. As far as topdressing is concerned, the more sand we can keep on them the better. During this time we topdress heavily after aerifications, and lightly once a week thereafter.

Our fertility program is basic. We apply a granular product year around on a typical five- to six-week basis. This is supplemented with liquids as needed. The majority of nitrogen is in a slow-release form, and potassium is supplied strictly through quick-release forms, usually being applied once per week. We try to coordinate fertilizer applications and watering simultaneously if possible. When we water, it is typically a heavy cycle sometimes as much as 60 minutes of water. The principle, of course, is to water as infrequently and as deeply as possible.

All in all with just following the basics and paying attention to weather forecasts, we really have not had too many problems, yet.

John Curran

ROYAL POINCIANA CC

## Begin in May To Prepare for September Stress

When I started to think about this article on summer stress on ultradwarf bermudagrass, it didn't sound quite right. It should be *September* stress management on ultradwarf bermudagrass.

September is the worst month of the year to grow grass in Southwest Florida. The key factors in battling stress during the summer months are high temperatures, high humidity, cloudy days, lots of rainfall, the threat of numerous tropical storms, and an occasional hurricane; the month of September has all of them. Did I mention that the northern members return from their lush, prime-conditioned home courses on the first of October?

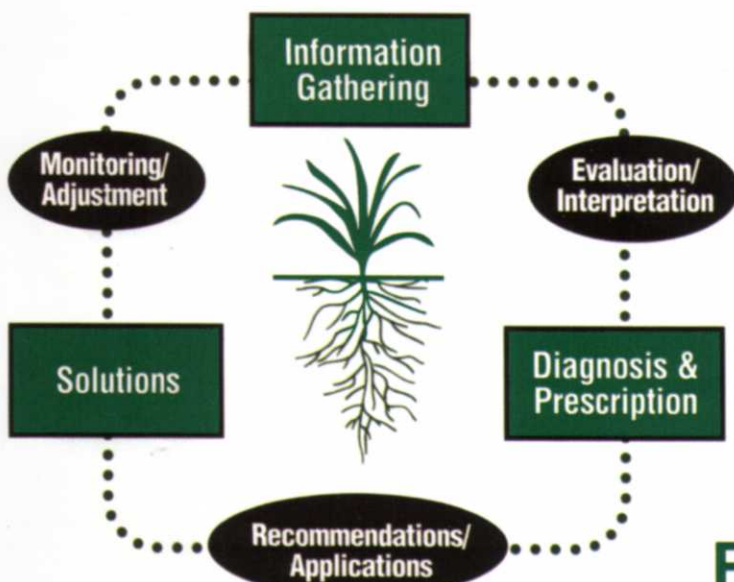
For those and many more reasons, managing our Champion Bermudagrass greens through the month of September always seems to be a challenge.

We begin our preparation for summer stress in early May by verticutting aggressively with Mataways. Some superintendents use vertical mowing machines called Gradens. I prefer the Mataway because it removes more material and causes less damage to the root system.

After using the Mataways we aerify the greens with 1/2-inch tines, leaving the holes open for 24 hours to permit gas exchange. Then we add any needed

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*'I firmly believe in going out in May as early as possible so the greens have time to heal before the true summer weather sets in. From past experience, I have found that verticutting after May will not allow the turf enough time to recover before the summer weather arrives.'*

amendments (along with an organic fertilizer) before the greens are topdressed. Typical amendments include dolomite, 0-0-30 and Pro-Mag.

Then the greens are topdressed and dragged in with the amendments. The next day we do a follow-up application of 21-0-0 at 1/2 lb N/1000 sq ft. Two days after the greens are topdressed, they are double rolled. Then on the third day they are mowed with a double wheiler Triplex mower usually set at .150. Rolling is a vital step in this process to avoid scalping after aeration.

I firmly believe in going out in May as early as possible so the greens have time to heal before the true summer weather sets in. From past experience, I have found that verticutting after May will not allow the turf enough time to recover before the summer weather arrives. We will follow the same aeration process at least three times during the summer months, but the heavy verticutting is only done once in May.

During June, July and August we lightly

verticut every two weeks and topdress as weather permits. If we are experiencing cloudy wet weather, we may opt to skip the verticutting and just topdress to decrease the potential for disease and stress. If the greens begin to thin out, we will stop the verticutting (remembering that we would like to have grass on them by November) and raise the cutting heights up to .135 or higher if needed.

One issue that we battle is not letting the greens get too much thatch on them at this height of cut or it will be tough to get them back down to our normal cutting heights of .100 to .120 in October. The amount of nitrogen applied to the greens during these months is something we monitor closely. We do not have a set schedule as to how much we will apply in one given month.

One way to monitor the growth is to watch the clipping return in the mower baskets, then fertilize with nitrogen accordingly. We continue a program of Sul-Po-Mag, White Gold and Harrell's 0-0-30 to keep our potassium and calcium levels up during the summer months. Liquid fertilizer is used weekly (if needed) to spoon feed small amounts of nitrogen and other nutrients to the leaves and shoots. Remember the root system is under stress during these difficult times.

Water management during the summer months is as critical as nitrogen management. During hot summer days, canopy temperatures can rise to well over 100 degrees, especially in areas that might already have been thinned because of other stresses. Once this

happens, it seems to be a never-ending ordeal to get those thin areas back. We may hand-water these areas two or three times per day if needed to cool them down during the hottest part of the day.

When areas become thin, switching to solid front rollers on our walk mowers keeps the wheeler rollers from continuing to thin the weak areas. Pitch forking is also done in these areas to help control the algae that may develop. Hand topdressing will help by giving the new runners a place to tack down to, as well as providing protection to the crowns.

During August and September, disease can be a major problem. I have tried many approaches to managing preventive fungicide programs with ultradwarfs. I honestly think that because of bermudagrass's ability to recover quickly from most disease with the exception of bermudagrass decline, most diseases can be treated curatively if caught in the early stages. From our experiences, bermudagrass decline usually stems from poor cultural practices, causing the turf to thin and become susceptible to this pathogen.

Even after managing ultradwarf bermudagrasses (mainly Champion) since 1997, I still do not have all the answers to overcoming "September Stress." One thing I am sure of, is that by starting in early spring with proper timing of cultural practices and managing the greens during the summer to avoid needless stress, I will lose less sleep during the worst month of the year.

Matt Taylor

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**SUPER TIPS**

**Handling the Unwanted Guest... With Safety and Good Stewardship**

Almost everyone who lives in Florida for any period of time has had to deal with a snake at some time. In today's environmentally-conscious world, the three-iron slap shot is not always the best way to eliminate the problem. We handle our unwelcome slithery guests with a homemade snake stick.

All you need to make a world class snake stick is a hollow tube (like an old dew whipping pole), some starter cord, a small bolt with a locking nut, and a golf ball. Every course has old dew whipping poles lying around with the fiberglass insert splintered and no longer usable. The hollow aluminum-tube base is ideal for making your snake stick.

When deciding on how long to make your snake stick, remember this rule of thumb: snakes can only strike about two-thirds the length of their bodies. Therefore, it might not be important to make the pole 10 feet long. We use one that is 4 feet long, and it works great.

Once the pole is cut to size, drill a hole as close to one of the ends as possible to insert a bolt through the tube. The bolt will act as a stopper so the cord does not get pulled up inside the pole when not in use.

Next, double the starter cord and make it longer than the pole by 3-4 feet. You need the extra cord to make the lasso; plus enough to pull the lasso closed. After the cord is cut, melt the ends to prevent fraying and feed the cord down the hollow pole with the loop end sticking out of the end where the hole is drilled. Put the bolt in and secure it, being sure to split the doubled-up cord.

The last thing to do is drill a hole in the golf ball large enough to thread both ends of the cord through, and tie it off.

To capture a snake, make a loop with the cord on the end where the bolt is. When the snake coils up, slip the loop over its body and pull on the golf ball. Be sure not to pull too hard. You only want to secure the snake. Once the snake is secure, simply pick it up and place it into a container with a lid.

The next time someone spots a snake on the course, instead of giving it the three-iron slap shot; you can relocate it. Be cautious, and learn the various species that reside around your property. Be extremely careful when capturing poisonous species.

When we capture a poisonous snake, it is taken to a local facility to be put on display for educational purposes. Check with the local community for opportunities to relocate the snake to botanical gardens, zoos, wonder gardens, or other places where the snake can be used for education.

*William Davidson, Jr.*



*Use common sense and caution when handling poisonous snakes. Keep in mind snakes can strike about two-thirds of their body length. Photo by Bill Davidson, Jr.*



*A small bolt acts as a stopper for the cord lasso on the end of the snake stick. Photo by Bill Davidson, Jr.*



*Pigmy Rattlesnake*



*An effective snake-handling tool can be made from an old dew whipping pole, some starter cord and a golf ball. Photo by Bill Davidson, Jr.*

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