

Coping with

Summer Heat

by Tom Curran and Bill Murphy

Coping with summer heat can be a constant balancing act. There's no single turf maintenance program that acts as a cure-all when temperatures rise. Variables come into play at the point of turf variety selection and continue through the fine-tuning of the maintenance program.

Success requires a thorough understanding of all factors that contribute to heat stress in the field. Superior observational and diagnostic skills, and the ability to act quickly to make necessary adjustments are a must. Balancing all of these variables and doing it within a predetermined budget are part of the challenge of sports turf management. Consider the differences and similarities in the programs outlined here.

Pompano Beach, FL

Florida is hot. It may be hot and wet, hot and dry, or hot and humid, but except for the relatively mild winter period, heat constantly affects turf growth and maintenance practices.

Pompano Beach has 13 baseball/softball fields and four football/soccer/multi-use fields. Some of the baseball outfields become soccer and football fields once baseball season is over, and even during the season if

there are any unscheduled breaks in the packed field-use schedule.

Our athletic fields are basically composed of 419 bermudagrass with some common bermudagrass mixed in. This gives us a tough, dense cover that thrives on heat. Our irrigation, fertilization, aeration, and mowing practices all focus on developing strong, deep root systems that make the best use of available water and help sustain the plant during dry periods.

Population growth has drained water supplies all across Florida. Eight of our athletic fields are irrigated with effluent water. The city's golf course, which has its own staff and budget, also uses effluent water. The remaining athletic fields and other parks and recreation facilities are irrigated with city water.

The effluent water is a by-product of our sewage-purification system. Dispersing it through irrigation systems is the most efficient and cost-effective way to dispose of the water. If we weren't using it for irrigation, the effluent water would need to be dispersed elsewhere.

Our use of effluent water reduces demand on the city's potable water supply and allows us to irrigate the fields when water restrictions are in effect. During extended droughts, we



Drought conditions are common in Pompano Beach, FL. The City must battle summer heat aggressively to avoid this kind of damage to sports turf areas. *Courtesy: City of Pompano*

work with the media to explain to the public why we continue to water park and recreation areas when their own water use is limited.

Our effluent water must meet health department standards. We bring it to near potable levels and quality is monitored closely.

Effluent water provides some nutrients to the turf, but it's also high in



Effluent water helps keep Pompano's fields in shape, but during periods of extended drought, the city must allow turf to brown.

Courtesy: City of Pompano

salts. A good, sustained rain will wash the salts from the turf and flush them from the system. This generally happens frequently enough to keep the salt buildup from affecting turf health. However, the salts are hard on equipment and they react with any unprotected metal surface. We wash mowers and other maintenance equipment with the city's potable water immediately after use.

We have an annual water budget of \$365,000, and any additional irrigation costs must be absorbed by other areas of funding. This is difficult under normal operating conditions, and even harder during periods of extreme heat. To help cut costs, all of our irrigation systems are equipped with sensors that shut off the watering cycle when it rains.

Despite constant checking and frequent audits of sprinkler system coverage and efficiency, the strong and often erratic winds in our area cause uneven water coverage and result in dry patches of turf. Unfortunately, our budget and staff size prevent us from spot watering to control this.

There are also times of extended drought when it's necessary to cut irrigation to specific areas that don't use effluent water. In these cases, we must simply accept the browning of the bermudagrasses. So far our turf has been vigorous enough to snap back when natural rainfall occurs or when we are able to resume irrigation.

Humidity levels tend to remain high. They reach into the 80- and 90-percent range on many spring and fall days, and nearly every day in the summer. Levels seldom drop more than 10

to 15 percent at night, even during relatively long dry spells. There's often so much dew on the turf in the early morning that it looks as if rain has fallen.

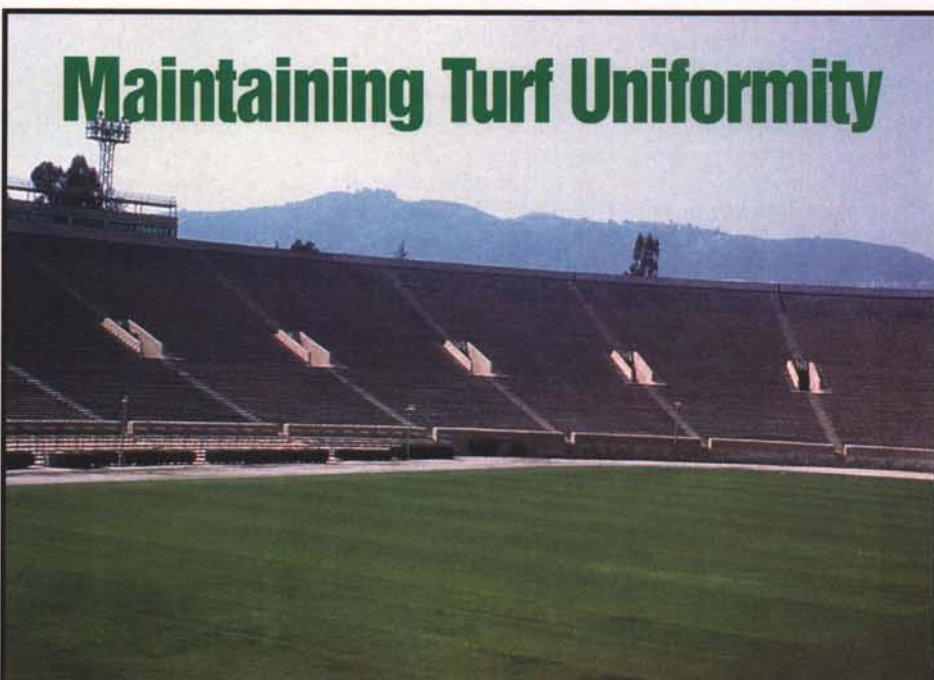
When dew is particularly heavy, we sometimes run a short syringe cycle in the morning to help wash the moisture beyond the grass blades and alleviate disease pressure. Because of the heavy usage of our green space, we apply chemical controls only as the last step

of our standard IPM procedures, and only when turf survival is threatened.

Tom Curran is grounds supervisor for the City of Pompano Beach, FL.

Scottsdale, AZ

Coping with Arizona's intense heat becomes increasingly difficult when temperatures jump from the 60°F



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range of spring into the 90s within a couple days, as they did this year. March temperatures normally stay in the mid-80s, but this year our cool-season perennial ryegrasses were just phasing out and the bermudagrass showing some active growth when the 90°F temperatures hit.

Scottsdale Stadium hosts the San Francisco Giants during spring training, so it sees heavy use between mid-January and May. Then, the local high school plays on the field until its season wraps up. A ladies professional baseball league moves in for practices in June, and for practices and games from July through September. The Arizona Fall League takes over on the first of October and plays until mid-November. We also work-in a few concerts and community events whenever the stadium schedule permits.

On our stadium field of 419 bermudagrass, we drop our mowing height, aerify, and fertilize with urea to help explode the rye. However, we have to make sure it doesn't go down too quickly because the bermudagrasses usually don't kick into the summer growth cycle until May.

Between May and July, day-time temperatures exceed 100°F and only drop to 80° or 85°F at night. Humidity is relatively non-existent. We use regular applications of balanced, slow-release fertilizer, and supplement with a variety of liquid and granular fertilizers to control the growth rate. The low humidity gives us the advantage of low disease pressure.

Monsoons flair up around the end of July and continue into August. They bring high levels of humidity and big, puffy clouds that promise rain. When the rains do come, we may get a splash of water or a downpour of 1/2 to 1 inch within an hour. Irrigation cycles must be adjusted frequently.

Mid-October is the optimum time for overseeding here, but we have to wait until a few days before Thanksgiving because of game schedules. We verticut and fertilize in September, and then begin pouring on the potassium in October and November. A 1:1 ratio of nitrogen to potassium builds up the hardness necessary to withstand our temperature extremes and the stress of heavy use. Finally, we verticut again lightly and mow to scalping levels to achieve good seed-to-soil contact for our overseeding.

We maintain a 1-inch infield turf height for practice schedules, and drop to 3/4 inch for play in mid-May. We're experimenting with the end-of-season height to retain as much color as possible during the transition from cool- to warm-season turf.

It's a continual learning curve since conditions are never quite the same from year to year.

The Giants hold spring training practices and extended-league and institutional-league play at Scottsdale's Indian School Park. The facility's 4-1/2 fields also host Little League baseball and soccer in the summer and Pop Warner football in the fall.



Scottsdale must keep its stadium in top form to host Spring Training games despite arid early season conditions.

Courtesy: City of Scottsdale

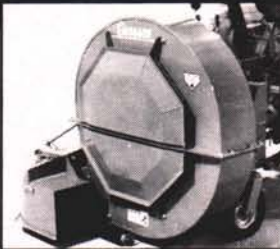
For these fields we plant 328 bermudagrass in the infields and use common bermudagrass in the outfields. We use a balanced, flexible fertilization program to minimize the wear and stress of play.

We irrigate both the stadium and practice fields with a combination of Hunter I-40 and I-25 rotor heads. Our water usage is mandated to a maximum of 160 acre feet per year, and we attempt to reduce our water use each year through astute management practices.

The next water management act is scheduled to go into effect in 2000, and we want to be prepared to handle any mandated reductions. We have water auditors on staff to monitor the irrigation systems. We've cut usage by gradually tightening irrigation-cycle times, by taking some areas out of turf, and by adopting xeriscape concepts. Over the last few years our usage rate has averaged between 144 and 147 acre feet per year. □

Bill Murphy is service area manager, community maintenance and resources, for the City of Scottsdale, AZ.

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