

Irrigation Strategies During Times of Drought

Towards the end of July, I called on several of our Midwest members to tell us in their own words how they manage their irrigation systems during dry periods. The reader must bear in mind that no two golf clubs in Chicago are identical. What works well for one club may not work for the next. But the ideas and methodologies herein might be helpful in preparing us for another hot and dry season like the one that we have just experienced.

Ed Fischer, Old Elm Club

"My goal is to keep things on the dry side. During these kinds of spells, a wet golf course will look nice and green, but I would rather have things a little brownish, less disease-prone, and playing good. To accomplish this, I water things more frequently, in less amounts, to simply keep the turf alive. Then I will give everything at least one good soaking a week."

Over the years, Ed has had a lot of experience with injecting wetting agents through the water system, but he was never convinced that the same amount of material made it to the outer reaches as to the areas closest to the pump house. In Ed's opinion, it takes too many cycles of injecting to thoroughly charge the entire system equally with the wetting agent. Ed feels that spraying the wetting agents on is a much more efficient delivery method.

When severe dry spots show up at Old Elm, Ed goes out with a solid-tine aerifier, followed by hand-watering. Ed reports that he has done more hand-watering this year than he can remember ever having to do in the past.

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The use of hose-applied wetting agents on "hot spots" is a frequent practice during hot, dry spells.

Jim Holtschult Evanston Golf Club

"At Evanston Golf Club, the soil is high in organic matter, silt and clay, making for a rather dense soil. The soil has a very low infiltration rate, and a very high surface tension, making the soil difficult to re-wet if it dries out.

"Watering deep and infrequently does not apply on my site, as it would on a site with sandy loam soil.

"I seem to have greater success if I irrigate to maintain a reasonable moisture level that will help to pull the irrigation water into the soil profile. Heavy rain or irrigation will sit on the surface of the plant canopy until it evaporates or runs into a surface drain. Thus, Evanston has almost as many square feet of surface drains as it does turf!

"I run my sprinklers by complete rotation. One turn equals three minutes equals 20% times five equals 100% (15 minutes). All adjustments are made in 20% increments. Multiple cycles, spaced apart, seem to work best using sprinklers that have a low precipitation rate.

"My goal is to stay as dry as possible without losing the ability of moving water into the soil.

"Tools required for good irrigation are:

- Knowledge of your root system and species.
- Soil probe.
- Time to evaluate the areas to be irrigated.
- A water hose and cart.
- Reliable irrigation system.
- Good drainage.

"Where I would like to see irrigation technology improve is to provide the superintendent with a true syringe nozzle for your hose that would provide an ultra-fine mist, so we may wet only the plant tissue.

"The new irrigation technology is wonderful, but it's a long way from replacing the look, feel, probe and respond system that most superintendents rely on on a daily basis.

Managing turf, in my mind, is truly an art and science. So keep a soil probe in your holster and a syringe hose in your cart when it's showtime!"

Ron Dohman Pontiac Elks Country Club

"My motto in times of drought is to check the golf course frequently. My assistant, Mike Malsdorf, checks every hole each morning, afternoon and evening. He programs as he checks.

"I would love to drench the golf course but I have a single-row system that does not have the capacity to catch up or to water deep and infrequently, so my times are adjusted throughout the day to replace what has been lost to wind, relative humidity and air temperatures. As we program, we will syringe if we need to. Hand-watering is on greens only, and as needed.

"For my single-row fairway system, I have found that applying wetting agents, at 8 oz., with one pass of the sprayer on the perimeters, has really worked well to provide uniform moisture throughout the entire playing surface.

"Four years ago, we converted our ryegrass fairways to a mix of Penntrio and Pennway, and the bent has done exceptionally well during this stressful season."

Don Cross Skokie Country Club

"Over the last several years here, the goal of the committee has been to keep things fast and firm. I communicate this through our monthly newsletter and the membership seems to accept that to achieve our goal, things are not going to be so lush.

"Our course has some wonderful bump-and-run ground-game features that are much more interesting to play than if we managed the turf more as a soft and lush serial game.

"My general method is to hold off watering in the spring for as long as I can. Usually I am not watering until late June, or even early July, but this year things dried out so fast that we had to water in earnest much earlier. When we get into these kinds of extreme dry weather conditions, our goal of fast and firm is very hard to achieve.

"I am dealing with a fairly substantial amount of *Poa* here, and the heavy and infrequent method of irrigation does not sustain the weaker strains. So my method during these kinds of dry periods is to water lightly every night, supplemented by hand-watering, and hand-syringing during the day, depending on the relative humidity, temperature and wind.

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During extreme heat, syringe cycles cool the turf surface by as much as 10 degrees.

“When the turf is managed this dry, the response time to a failure in the field is more critical. If anything goes wrong, we have to react quickly. The radio handheld system of control that we now have makes it much easier and feasible to manage things closer to the edge.

“Irrigation strategy has to include wetting agents. I prefer Primer Select at 4 oz. per month as opposed to the higher rate recommendation of other products. This does not give me a soft surface. In May and June, I am now applying 2 oz. of wetting agent after our biweekly topdressing. This does a wonderful job of keeping the sand from accumulating on the drums and rollers of our walkers on the following morning, and it also seems to keep localized dry spots from being unmanageable. Our outing schedule in midsummer does not allow us to topdress so often, and we increase our wetting agent rates to 4 oz.

“I am also using acid injection to lower our pH from 8 to 6. The nitrogen component of the acid injection material helps to keep the turf greener, and provide some recovery benefits during these dry periods.”

Randy Wahler Knollwood Country Club

“The best advice I ever got on watering was back in 1982 when we hosted the Mid-Amateur and Stanley Zontek, from the USGA, put it this way: If the grass looks like it is starting to wilt, wait to the next day before watering. If the next day it is wilting, wait until the next day to see if it is going to die. At that point, start to water.

“More grass is killed with care than neglect. It’s just not practical to follow scientific models based on evapotranspiration because the monitoring systems can only tell us how much water was lost today—they don’t know how much will be lost tomorrow. So we have to anticipate future weather conditions, golf events and mowing schedules. No weather station can do this as well as common sense and years of experience in the field. The last thing that we want to



Poor coverage caused by a clogged nozzle or nonrotating sprinkler will show up very rapidly in stress times.

do in hot and steamy weather is to overwater. Drought is much easier to manage than disease.

Randy is a firm believer in watering heavily when the club is closed, and then drying the turf out for the rest of the week. Occasionally, in severe drought, Randy will follow the mowers on Monday mornings and give the greens three 20-minute sets; the tees may get as much as three 30-minute sets; the fairways will get one 60-minute set. During all of this intense watering, Randy will set his acid injection all the way down to a pH of 5.5. “The acid does an amazing job of helping the water to penetrate and flush the salts in the soils. Even with all of this water going out, we experience little puddling.”

Randy feels that it is important to soak his course behind the mowers on Monday morning, because so much water on Sunday night would lead to mechanical damage from wet turf being mowed on Monday morning. By Tuesday afternoon, things are beginning to firm up again, and by Wednesday conditions are perfect. For the remaining days of the week, water is supplemented by light cycles and hand-watering where needed.

“I do not delegate the timing of my sprinklers; it’s just too important to entrust to anyone else, because the water system has the biggest influence

on how the course plays. I have complete control of the daily conditions by how I run the system. I can be selective about which days I want to be fast and firm, and which days I will bring things back with water.”

Knollwood has operated for 23 years on a double-row system, with sprinklers that are spaced on 70' x 80' centers in blocks of four heads coming up per each station of control. This fairway spacing equates to a uniformity coefficient of 0.7. This year, Randy is installing a new triple-row irrigation system, on 60' x 65' centers, with individual head control. This will increase the uniformity coefficient to more than 0.9. Randy will have much greater control to keep things firm, fast and dry.

Ed Braunsky Geneva Golf Club

“I think the hardest part about this year is the weak roots that we grew during the cool and wet spring, right into early summer. I am very fortunate that I was one of the few places in the Chicago metro area that received a really big rain just before all this hot weather hit us. But it didn’t take long for things to dry out, and we have been doing a lot of hand-watering.

“My watering programs have been much more liberal than I would like, and yet we have still had to come

back during the day and add more water to stress areas. My worst moisture stress has been traffic-related. Geneva Golf Club is a nine-hole course on only 40 acres of ground, so traffic can be a problem in areas where the concentration of traffic works to compact the soils. These areas are not soaking up the irrigation, and we have to hand-water them.

“An irrigation system is really put to the test in this kind of heat. We have discovered that some of our heads were not throwing a uniform pattern, and on these areas we have changed out the inner nozzles to give us a better uniformity of coverage.”

**Mike Bavier
Inverness Country Club**

“Hot and dry is one thing, but when it’s 75 degrees at night, and the humidity is over 80%, this is when you make your money. The worst thing to do now is overwater, but the balance between enough and not enough is extremely delicate.

“In this kind of weather, I will water lightly every night. My greens will get four to 10 minutes. Fairways will get a little bit more. As we get into the month of August and the days begin to shorten, we will get by with even less water.


“The areas that don’t get enough from our short cycles will get hand-watered with what my men refer to as soap—wetting agent pellets. Collars of greens and bunker embankments need the most hand-watering. When it gets this dry, though, we will even hand-water sections of fairways when needed. To economize, we will cut the pellets into half and quarter sections. One little dry area of fairway does not need an entire pellet.

“I guess I’m kind of old school. My method of checking the course is to go out every morning with one man and drag a green hose to knock down the dew on my greens and fairways. I can tell a lot by the dew patterns. If a head is sleeping (not

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coming up), it is obvious at this time of day—before anything has been cut—and I will call someone up on my radio to promptly fix it.

“Is this the driest year I have ever encountered? I think it is. I have one pond that sits on a natural aquifer in a low area, and the water level has never been so low in all of my years here.

“One more important thing I should mention. I understand that Paul Voykin uses all red hose at Briarwood, but my hoses are all industry-standard green.”

Paul Voykin, Briarwood Country Club

“In my 41 years here, I can’t remember ever going seven weeks without any rain. It’s getting easier now because the days are getting shorter, but my goodness what a year it has been.

“We have recently rebuilt many features on the golf course, and we

used a lot of sod that is still working hard to develop any root system. Last Sunday, it was 100 degrees here, and we had to close the course for a period to cool everything off. The nice thing about being here all of these years is I have earned a lot of respect from the members, and they are very willing to give me these kinds of emergency powers. It was just such a hot day that we had to do it; several members asked me if they could go out and stand under the sprinklers—that’s how hot it was last Sunday.

“I must say that this has been a hard year on the birds, too. Most birds do not like to go to a lake to get their water. They prefer to drink and bathe from small puddled areas. But there has been no rain to help them with this heat. Whenever you see a bird standing with his wings spread out, he is trying to cool himself, and I have never seen so much of this kind of behavior from my birds as I have lately. I have seen the birds follow the sprinklers around this year. So the irrigation system isn’t just for the

grass, is it? When you think about it, we are helping the birds, too, with our sprinklers.

“Another thing to remember during a drought is your crew. The shop can get messy when you have no rain days to work inside, so I will occasionally call everyone in to sweep everything up. I am always running up to the clubhouse to get them a Coke, or some fruit; last week I took my guys out for lunch. These little things go a long way to keeping up everyone’s morale in the monotony of the heat. A few days ago, I bought them all Dr. Livingston hats to shade their faces from the sun. They absolutely love these hats, and I remind them of it—oh boy, the things I do for you guys! Sometimes I will even let everyone go home a half an hour early—from the bottom of my heart I do—but rarely.

“In a year like this, the different soil formations on the golf course become very evident. Some areas are sandy loam, some are gumbo and

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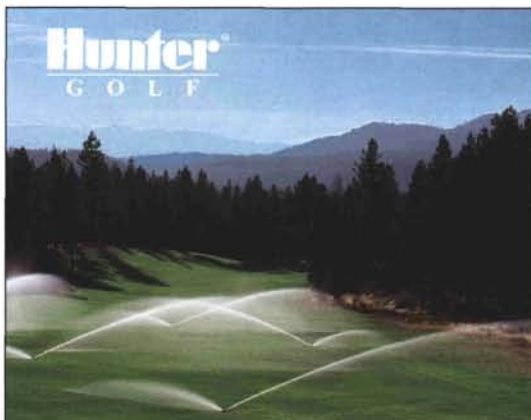


some are blue clay. A lot of the golf course will do fine within the radius of one sprinkler, but the soils underlying many areas of coverage are so diverse that special care is required to maintain consistent moisture. If the soil was the same across the entire property, irrigation control wouldn't be such a difficult job, but where are you going to find such uniform soil in Chicago? Nothing is more important now than dispatching many well-trained men to hand-water assigned areas with a red hose and nozzle."

I informed Paul that at Inverness, Mike Bavier uses all green hose. Paul was quick to respond: "Do me a favor and tell Mr. Bavier that if he intends to last as long as I have in this business, he's going to have to become more flamboyant with his color schemes on his golf course. While you're at it, tell him he needs to dress more colorful, too!"



Roller-base sprinklers attached to hoses (whether red, green or both, in this case) are used to keep unirrigated areas, such as entrance drives, green during drought conditions.



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