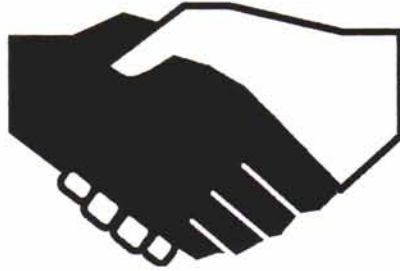


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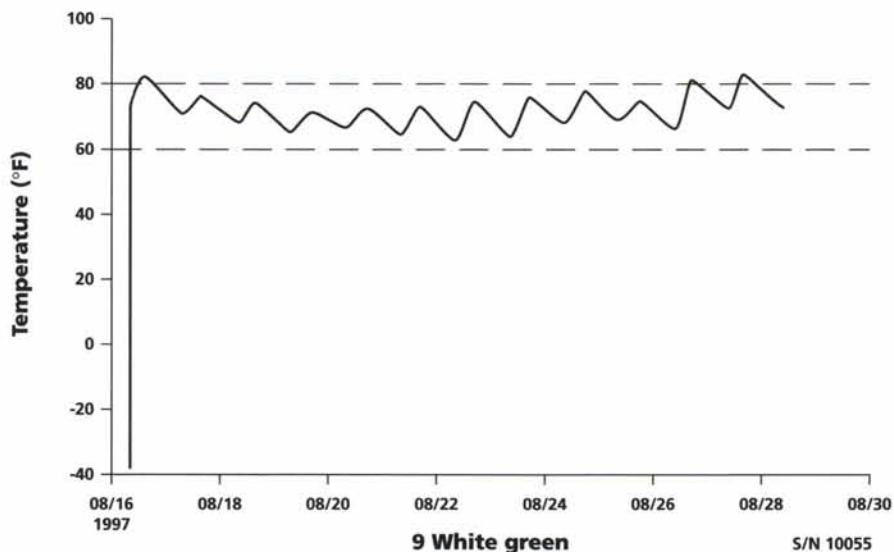
par ex

Tracking Soil Temperatures

Nick Hongisto
Schaumburg G.C.

It has come to my attention during the past four or five years that soil temperature is an important tool for us to use. We can determine weed germination times, turf seed germination times, disease prediction models, and a host of other things. If you were lucky to be in Oscar Miles' presentation at the NCTE this past December, then you know what I am talking about.

I know that some professors wanted us to take the soil temperature at 11 a.m. everyday to a depth of 2 inches. Well, I don't know about you, but I will forget to do that at least five out of seven days. So I wanted to find a low-cost method of recording the soil temperature and also make it as easy as possible—you know, the KISS method (Keep It Simple, Stupid). This led me to using, you guessed it, the computer. I have found an easy and inexpensive way to record the soil temperature at any location on the course.



The Onset Computer Corporation makes the product. It is called their HOBO line of temperature loggers. It is a very small box, just a little smaller than your standard-size Post-It note. I use the HOBO XT. You attach a lead to the box, which is now the tip of your thermometer, to wherever you want to read the temperature. The lead is about 2 feet long. The HOBO runs off of their Boxcar software that you load into your PC. You plug a serial cable into the

back of your PC and plug the other end into the HOBO. You then launch your HOBO to read temperature and also, very important, how long you want to keep it out in the field. You can do it for as little as one hour or one month. It will record the temperature at a preset time interval. When that time period is over, you bring it back to your PC and download the data. Then it prints it into a chart that is very easy to read and understand.

(continued on page 18)



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Your Irrigation System and the Illinois Plumbing License Law

Editor's note: This article was prepared from information submitted by Dan Cassidy, president of the Illinois Turf Irrigation Association, and Randy Vogel, executive director of the Illinois Nurseryman's Association. Dan Cassidy is scheduled to speak at the April 27 MAGCS meeting at Mill Creek G.C.

There is now in force in the state of Illinois legislation that effectively prohibits installation or repair of "lawn sprinkler systems" by anyone other than a licensed plumber or plumber's apprentice. This includes irrigation systems in use on golf courses, athletic fields, nurseries, industrial parks, and cemeteries, and also includes irrigation of ornamental and shrub beds. The only exclusions are lawn sprinkler systems operated by the owner (or occupant) of a family residence or those systems used primarily for "agricultural purposes" in counties with low population densities. These provisions are part of the Illinois Plumbing License Law, passed in 1993, which is administered by the Department of Public Health. This law has far-reaching consequences for all of the urban green industry in Illinois.

How did this come about, and why didn't we hear about it until last October? Inclusion of irrigation systems in plumbing code apparently goes back to 1983 when a "rider" was attached to a sewer bill that amended the code to include lawn sprinkler systems as part of the definition of "plumbing" systems. The state plumbing code required a licensed plumber or supervised apprentice

to install all "plumbing systems." The plumbing code was passed into law in the fall of 1993 as part of the Illinois Plumbing License Law. The law defines lawn sprinkler systems as any irrigation system (above or below ground) of lawn, shrubbery, and other vegetation and includes without limitation the water supply piping, valves, sprinkler heads, and other irrigation outlets. That is practically everything found on a golf course, including a quick coupler, a hose, and a rose nozzle.

The 1993 law also defines the verb "to plumb" as the actual installation, repair, maintenance, alteration, or extension of a plumbing system. (Note that "operation" of a sprinkler system is not included.) So this means that any kind of repair or renovation of your irrigation system, including quick fixes of leaky pipes, broken or stuck heads, or even that late-fall "blowout," comes under the purview of the Plumbing License Law, and requires the action of a licensed plumber. Of course, as with the Illinois Lawncare Products and Application Notice Act, one has to wonder about the enforceability of such a wide-ranging regulation.

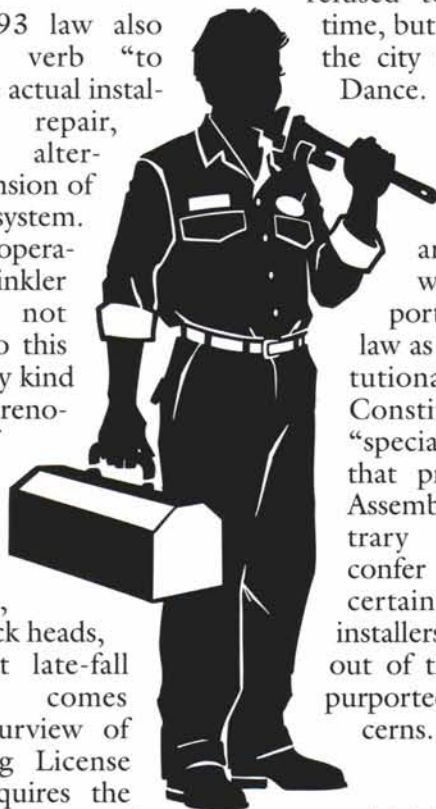
So what happened from the fall of '93 to the fall of '98? Until

this last fall, the lawn sprinkler regulations of the Plumbing License Law have been tied up in the courts, due mostly to the efforts of Dan Cassidy, owner of Sun Dance Irrigation, and the Illinois Turf Irrigation Association (ITIA). Sun Dance Irrigation and two other lawn irrigation companies were first cited by the city of Aurora in a complaint to the Illinois Department of Public Health for not using licensed plumbers in late fall of 1993, soon after the law was passed. The state's attorneys refused to prosecute at that time, but further complaints by the city followed against Sun Dance.

In June of '94, Sun Dance went to court to argue this issue and won a judgment supporting the view that the law as written was unconstitutional. The Illinois Constitution contains a "special legislation" clause that prohibits the General Assembly from creating arbitrary classifications that confer special benefits on a certain group. Irrigation installers were being legislated out of their trade because of purported public health concerns.

After winning this initial judgment, Sun Dance became the target of the State of Illinois Attorney General's office which filed an injunction to prevent Sun Dance from performing lawn sprinkler "plumbing" anywhere in the state. Presumably, this was to become a

(continued on page 16)



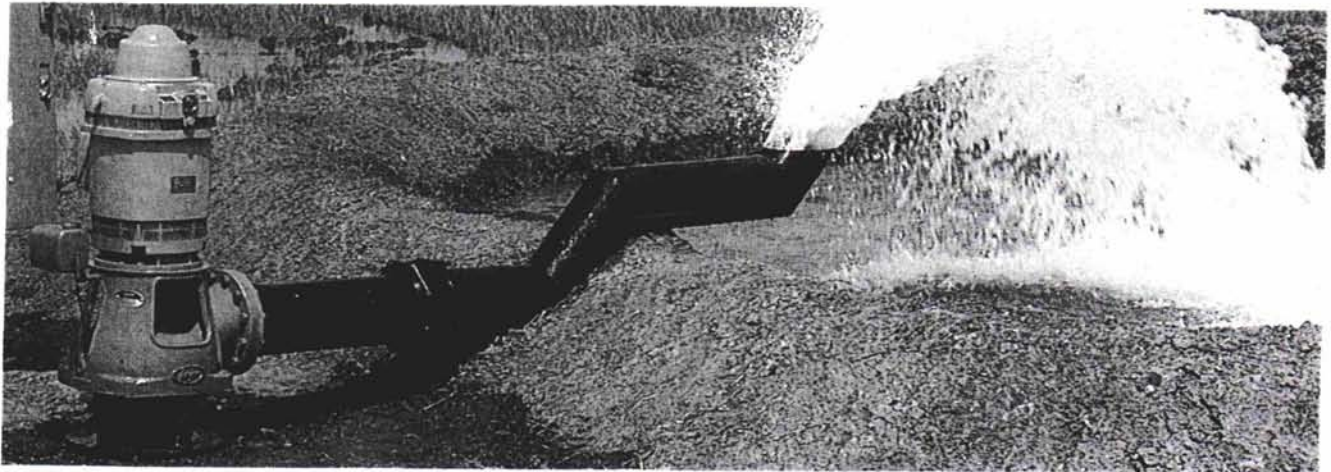
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(continued from page 14)

test case to further clarify issues surrounding the constitutionality of the Plumbing License Law. Sun Dance and the ITIA joined forces, raised some cash for legal expenses, and filed for a summary judgment in the Kane County Circuit Court in January of 1995.

From February '95 to January of '97, the ITIA and their attorney gathered testimony and depositions from a wide variety of plumbing and irrigation people in the state. In April of '97, after a more than two-year wait, Sun Dance and the ITIA won the ruling in Circuit Court against the state. The ruling effectively declared that the Illinois Plumbing License Law was indeed unconstitutional as written. Within a month, the state appealed the judgment directly to the Illinois Supreme Court. So the court battles were not yet over—and the price tag kept going up.

The ITIA then made an appeal themselves to the national Irrigation Association (IA) and to others in the irrigation industry in order to solicit funds for the Supreme Court case. Over the next six months, close to twenty thousand dollars were donated to the ITIA, mostly from manufacturers, distributors, and other irrigation companies. The IA matched all of the donations dollar for dollar, which allowed the ITIA to proceed in the case of Sun Dance v. The State of Illinois.

Case briefs were presented, motions were made, and continuances were granted through the latter half of '97 and early '98. Oral arguments were made before the Supreme Court in March. Finally, the State Supreme Court handed down their ruling last September and overturned the two lower court rulings, thus upholding the Illinois Plumbing

License Law as written. The primary concern of the original wording of the law, and of the Supreme Court justices in the

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majority, is one of protecting the public health. A licensed plumber is (supposedly) better qualified to

do the work, and there is recourse to the public should there be any problems since the law requires plumbers to be licensed and registered with the state.

A crucial arguing point seems to be the proper installation and functioning of a backflow-preventing, reduced-pressure zone (RPZ) valve. Sun Dance and the ITIA argue that installing "lawn sprinklers" requires few of the skills possessed by licensed plumbers, and further that the irrigation system beyond a functioning RPZ valve poses little or no threat to public health or water supplies and should not be considered to be "plumbing." The Supreme Court stated in their ruling that having licensed plumbers install irrigation systems would "serve as a secondary safeguard for water quality" in the event that an RPZ valve failed. The ITIA/Sun Dance position is that there

(continued on page 18)



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(continued from page 16)

“has never been a known failure of an RPZ valve which resulted in contamination of a water supply.” In the end, their arguments did not carry the day.

So, what to do now? Avenues for reversing the law through the court system have been exhausted. The ITIA is now focusing its efforts on introducing legislation to change the definitions and parameters of the Plumbing License Law as it relates to irrigation systems. Specifically, draft legislation has been introduced that will amend the Plumbing License Law as follows: 1) provides that the definition of “plumbing” includes backflow prevention devices (RPZ valves) between a lawn irrigation system and the source of a private water

supply; also, that definitions of the terms “plumbing fixtures” and “plumbing systems” do not include lawn irrigation systems that have been properly connected to RPZ valves; 2) provides that “plumbing” (the verb) does not include the trade of installing or maintaining lawn irrigation systems; 3) defines the term “irrigation contractor,” and requires that irrigation contractors be registered with the state; and 4) stipulates that a licensed plumber or licensed apprentice plumber is required to install an approved backflow prevention device (RPZ valve) between the irrigation system and the water source.

Due to the far-reaching implications of the Illinois Plumbing License Law, prominent green industry organizations within the

state have joined forces with the ITIA to get this law changed. Most notable are the Illinois Nurseryman’s Association and the Illinois Homebuilder’s Association, which will actively lobby in Springfield for passage of the new legislation. Along with the MAGCS and the CIGCSA, other associations in the green industry need to add their support through grass roots lobbying efforts. Individuals in the MAGCS and other concerned citizens can also support passage of the new legislation by contacting legislators via letters, phone, fax or e-mail. United green industry support should lead to successful (and quick) passage of the amending legislation. 

Tracking Soil Temperatures

(continued from page 12)

Here is what we did in the field. I buried an old valve box about one foot into the collar of our 9th green. I took a piece of rebar and poked a hole into the green, from the inside of the one-foot hole, about 18 inches into the green. I did this at about a 2- to 3-inch depth. This hole runs horizontal to the surface of the green and directly into it. Then I forced the temperature probe into this hole and let it stay there for the HOBO to connect to. I had to purchase a weatherproof container for the HOBO (they have a bunch of accessories for this) and put the unit into this container with the probe plugged in.

Now everyday, I lift the valve lid, open the container, and unplug the HOBO from the probe. Then I bring it into the office and plug it into the PC. I download the data from the previ-

ous 24 hours, or however long I had set the unit for. After the download, I launch it again for the upcoming day or days. Then I bring it back to the green and plug everything back in.

I said earlier that this was inexpensive. I think it is. The entire setup was less than \$250. That includes the software. Now I can record soil temperature and keep it easy for myself. I can go back and see what the temperature was at 11 a.m. everyday, or anytime of day for that matter.

This year, I plan on getting two more HOBO units and putting them in other places on the course. The Boxcar software can run an infinite number of HOBOS. All you need to do when you launch them is give each one a unique name. I also want to have a second unit so when I remove the unit from the ground, I can plug in another

empty unit at the same time. That way, I don’t have to come back right away and plug the unit back in after downloading and launching. (Remember, the KISS method).

You can purchase the items from many places. I can let you know where we purchased ours if you give me a call at (847) 490-7077.

I have included a copy of a downloaded graph from our 9th green. This was for eight days in August of 1997. I was testing the duration of the units. In the software, you can zoom in on any part of the graph. You can also transfer the data to Excel or Lotus or almost any other spreadsheet software you can name.

Have a great summer.



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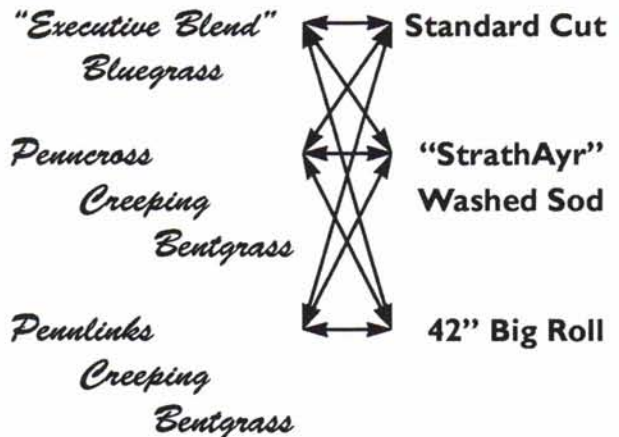
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Greenkeeping Instruction at State University of New Jersey

Editor's Note: This is another article in the continuing series that appeared in early editions of The Bulletin of the United States Golf Association Green Section. This month's article appeared in Vol. 10, No. 6, June 1930. This article continues in describing the early classes for greenkeepers held at various colleges.

*Howard B. Sprague
State College of Agriculture
New Brunswick, N.J.*

Our first short course of instruction in turf management was held in 1929, and was attended by 54 greenkeeping students. The following year the attendance increased to 66 students. In 1931 we shall offer, in addition to the regular course, a special course for advanced students.

The regular course will be held during the week February 16 to 21, 1931. There is no charge for tuition, but a registration fee of \$5 is payable at the time of registration, or may be sent in with the application for enrollment. A fee of \$1 also is charged for outlines of lectures. Applicants for enrollment must be at least 18 years of age. Applications should be sent to F.G. Helyar, Director of Short Courses, Rutgers University, New Brunswick, N.J. The applicant should give his age and place of residence and indicate with what golf club he is connected and in what capacity. Registration for the regular course will be held from 9 to 10 a.m. Monday, February 16, in the Short Course Building. This is located just off Nichol Avenue, New Brunswick, opposite Suydam

Street, and may be reached by busses to South Amboy, stopping at Nichol Avenue and walking two blocks west, or by south-bound trolleys and getting off at Suydam Street and walking three blocks

south. The work in the regular course will consist of lectures and discussions, supplemented by laboratory demonstrations where possible. The program is as follows:

Monday, February 16

Registration.
Modern turf management J.G. Lipman, Dean of College
Soil types and plant growth L.L. Lee, Dept. Soils
Soil physics; structure, aeration,
moisture supply, etc. J.S. Joffe, Dept. Soils
Drainage; natural and artificial E.R. Gross, Dept. Agricultural Engineering

Tuesday, February 17

Principles of soil and plant chemistry J.S. Joffe, Dept. Soils
Natural supply of plant nutrients
from the soil J.G. Lipman, Dean of College
Nature of commercial fertilizers A.W. Blair, Dept. Soils
Use of commercial fertilizers A.W. Blair, Dept. Soils
Nature of soil acidity and its detection A.L. Prince, Dept. Soils
Forms of lime and their use on turf H.R. Cox, Extension Agronomist

Wednesday, February 18

Fertilizer tests at New Brunswick H.B. Sprague, Dept. Agronomy
Soil micro-organisms and plant nutrition R.L. Starkey, Dept. Soils
Compost materials and composting H.R. Cox, Extension Agronomist
Structure and function of plants H.B. Sprague, Dept. Agronomy
Characteristics of good turf plants H.B. Sprague, Dept. Agronomy

Thursday, February 19

Climatic adaptation of turf plant H.B. Sprague, Dept. Agronomy
Soil adaptation of turf plants E.E. Evaul, Dept. Agronomy
Seeds of turf plants Jessie G. Fiske, State Seed Laboratory
Inspection of seed testing laboratory Jessie G. Fiske, State Seed Laboratory
Turf-infesting insects and their control C.C. Hamilton, Dept. Entomology
Weeds and their control H.B. Sprague, Dept. Agronomy

Friday, February 20

Turf diseases and their control E.E. Evaul, Dept. Agronomy
Starting new turf H.B. Sprague, Dept. Agronomy
Renovating poor turf E.E. Evaul, Dept. Agronomy
Care of turf; watering, mowing, rolling,
top-dressing, etc. H.B. Sprague, Dept. Agronomy
Final conference Led by H.B. Sprague, Dept. Agronomy

The advanced course, which will be held the three days February 23, 24, and 25, is open to students who have already completed the regular one-week course. The attendance will be restricted to 20 students. The registration fee is \$3. The subjects to be presented in the advanced course are as follows:

Problems in irrigation
and drainage E.E. Gross, Dept. Agricultural Engineering
Soil analysis H.B. Sprague, Dept. Agronomy
Commercial fertilizers and lime H.R. Cox, Extension Agronomist
Study of disease organisms E.E. Evaul, Dept. Agronomy
Seed analysis Jessie G. Fiske, State Seed Laboratory
Identification of turf plants H.B. Sprague, Dept. Agronomy