DRAINAGE: LESSONS LEARNED IN 1986

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One of the unique properties of water is its capacity to exist as a solid, as a liquid and as a gas at temperatures within the normal range of biological activity. We know that, but perhaps have not appreciated the implications of this property until a year like 1986 rolls around. Seldom has any key element in turfgrass management become so downright vile and contemptible for such an extended period over such a wide expanse of territory and in such a democratic manner. The unfortunate thing about this is that few turfed areas other than golf courses suffered damage. In fact, I can't think of any at the moment, but surely golf was not the only condemned classification.

By now all the alibis have been used, blames placed, remedies prescribed and work completed to get things green again. But have the necessary steps been taken to prevent recurrences even if the problems seem unsurmountable? Let's see. In the epicenters of damage — Southeastern Wisconsin and Northeastern Illinois — the problems began last November with saturating rainfall and surface icing by early December. Normal weather followed until a thaw in late January. The kicker was an extremely quick, deep freeze to about 20 degrees below zero. Later in the winter/spring came a series of freeze/thaw cycles. This combination led to damage from crown hydration, caused by ice crystals forming within and between water saturated plant cells in bunch grasses like **Poa annua** and ryegrasses. The faster the freeze, the larger the ice crystals, hence the most potential damage. Mike Vogt, Superintendent at Illini Country Club, wrote a very good descriptive article on this for his members.

Spring greenup brought good news and bad news, depending on how or where things were not green.

1. The folks trying for ryegrass fairways were badly hurt wherever snowcover was lost in January.
2. The folks trying for **Poa annua** control should have been pleased, because bentgrass and bluegrass survived.

Damage was minimal where drainage was good. The degree of severity was varied, but depressions in the surface, flat spots and slow-to -drain swales were most heavily damaged.

If that didn't get the water-watchers on the ball, the fireworks **after** the fourth of July did. Again, water was blamed for a multitude of sines of omission. Steady rains which saturated the soil and thatch preceded a period of high day and night temperature. The water at the soil surface became a solar heat collector. The roots were deprived of an oxygen supply so that those which did not die were not very effective. Plant tissue was again saturated, just like in the spring. It bruised easily. . .even squeegee pressure hurt it, not to mention those feet and mowers. Plant functions almost ceased, to the point that systemic fungicides were ineffective.

The occasionala bug got into the act again this summer. Cutworms, of course, made three or four bombing runs and at least one set of sod webworms settled in on Detroit greens. Grubs are spreading over larger and larger territories so that "rollemup" sod is becoming rather common in the Indiana/Illinois area..

Now came our very best time of the year for the Region. The glorious fall! But where did it go this year? The greens rebuilding operation at Aurora Country Club lost two or three weeks so that planting is very late and will require some kind of winter protection. The new River Run course in Kohler, WI has lost a season of play because of the tremendous amount of erosion in spite of excelsior matting on steep slopes. What lessons can be learned from the three states of water damage this yeara? Try these:

1. Internal drainage is useless in frozen soil. Thaw water must move across the surface.
2. Internal drainage is priceless in getting oxygen needed for respiration to the root system
3. High relative humidity significantly slows evaporative cooling in the daytime and reduces radiation cooling at night.
4. Evaporation is aided by air movement, especially under conditions of high relative humidity.
5. The climate in which turfgrass producers are interested is only a few inches high. We don't worry much about the waving of the flag, but how far down the flagpole the wind effect goes.

Water must move through and off the surface of the soil, quickly. This means more drainage is needed than **any** present golf course manager or **all** his predecessors ever thought about. Why? Just plain preventive management. Can anyone imagine how much havoc would have been wreaked if there had been **no** drains?

Early season (March) soil sampling forcefully brought anaerobic soil conditions to the attention of anyone who put the aromatic cores into a warm room. Late October inspection of aerifier cores showed the same. They were all over the place in mid-July. Not all of these "Black Layers" were in greens, either. They can occur anywhere that organic matter exists in an oxygen-depleted environment. Don't blame the well drained sand topdressing, but the impervious soil below it. Don't blame the anaerobic microorganisms which generate the hydrogen sulfide and related aromatics, blame the excess of water or really, the inadequately drained soil or the layer of thatch covered up by topdressing. The anaerobes only mirror the soil condition. Get air into the soil and the problem will go away.

Blame, however, should not be foremost in the mind of anyone in golf course management after this season. Sensible thinking would consider the 1986 season as being a guide to the design and installation of the ultimate golf course drainage system. It also demands a reassessment of fungicide plans to always have at hand an emergency program in which specific, **nonsystemic** fungicides can be used. And now that winter weather is upon us, the firewood opportunity presents itself to those whose turf was subjected to inadequate air movement because

of undergrowth and/or trees. I hear of many incurable tree diseases this fall.

The 1986 season had no respect for location, budget, play history or age. The survivors were blessed with permeable soils, or better than average surface drainage, or an ongoing thatch management program, or the **good sense** to close the course, quit mowing and allow the grass to stay alive. The real losers are those who tried to make the grass do their will.

We all learned a great deal this year. If we retain the principles taught by this lesson, our turf will not have died in vain. If we do not, we'd better move to Madison or Green Bay.

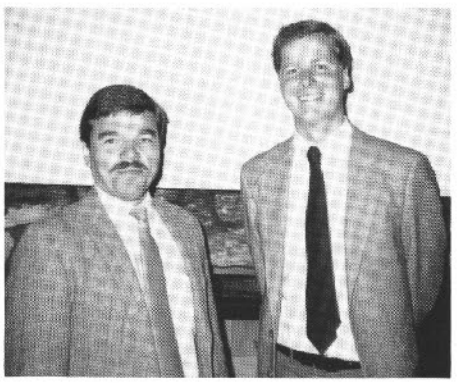
CHEROKEE HOSTS OCTOBER WGCSA MEETING

Over fifty "die hard" WGCSA golfers gave a very gallant effort on the golf course while our more intelligent members attended only the evening dinner meeting as the October WGCSA meeting was held on Monday, October 13 at Madison's Cherokee Country Club.

Fifty degree temperatures with a mid-day chance of rain didn't deter in the least our brave and hardy members. We all teed off for a noon shotgun, realized that the golf course at Cherokee can get somewhat soft (especially with all the September rain) and then wisely decided at the nine hole midpoint in our memorable rounds (when cold rain returned for the duration of the day) that the 19th hole, sauna, and hot showers looked in need of our attention and business. A round of applause, please, for those two foursomes who displayed remarkable tenacity and total disregard for prevailing weather conditions and actually finished their 18 hole rounds!

Golf awards winners (based on 9 hole scores) are as follows:

1st place low gross:
Dick Evenson
2nd place low gross:
Bruce Schweiger
1st place low net:
Bill Roberts
2nd place low net:
John Gallus
Shortest Drive #1:
Tom Schwab (as usual)
Longest Drive #6:
Dick Evenson
Closest to Pin #8:
Charlie Frazier
Longest Drive #12:
Bruce Schweiger
Closest to Pin #14:
Bruce Worzella
Longest Putt #18:
Myron Seaver



Golf Course Architect Bob Lohmann and Cherokee Golf Course Manager Pat Norton.

Blind bogey winners are as follows:

Pat Norton
Dale Marach
Ed Devinger
Mark Kienert
Ted Payne
Bob Petsel

A superbly prepared prime rib dinner and excellent hospitality were enjoyed by 67 WGCSA members and their guests. The evening program featured guest speaker Bob Lohmann, Golf Course Architect, of Lohmann Golf Designs, Crystal Lake, IL. Bob's topic was '*Sand Bunker Design and Construction*', a subject of interest to everyone in attendance. Lohmann's talk was highlighted by a series of very beautiful and interesting slides that he's accumulated over the years on bunker design, bunker construction, and golf course design in general. Sincere thanks to Bob for sharing his knowledge, ideas and opinions with our group.

Thanks also to Ed Devinger and Reinders Brothers for sponsoring our now famous WGCSA research raffle for October. Their generous donation of three AM/FM cassette recorders were very fine prizes for three very deserving raffle ticket buyers.

Last of all, thanks much to host superintendent Pat Norton and his staff for their time and effort in preparing Cherokee under very adverse conditions. Under the circumstances, a job well done.