United States Golf Association®
Green Section
Great Lakes Region

From the Lakes to the Mountains — 1987 Edition

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"There are in nature neither rewards nor punishments — there are consequences." Robert G. Ingersol

It's really too early to speculate on just what name tag will be placed on this golf/growing season. 1986 was the year of the Black Layer. Maybe 1987 will be called simply The Longest. Golfers may actually wear themselves out if we are blessed with normal fall weather. Lord knows they are wearing out enough turf this year. But without them there wouldn't be a need for us. Just what the consequences will be depends on the quality and quantity of turf and soil rehabilitation provided this fall.

It's been a rather weird season. Lack of snowcover in many areas last winter cost some courses a goodly amount of green grass this spring. The old fashioned techniques worked best to prevent desiccation. Greens were "adequately" topdressed after the last application of snowmold preventers. Later, when no snow cover came, the thinking of superintendents hauled water to keep some kind of moisture (ice, of course) on the surface. Cal Polsean, at Westward Ho in Sioux Falls recorded 400 manhours were needed to supplement the 0.5" of precipitation over the winter.

Winter play got a good test at the Minnehaha Club there. They recorded 700 rounds of golf over the winter with no **apparent** turf problems on sand-topdressed greens by early June. **BUT**, play had been stopped on March 1, and not resumed until the greens were fully thawed. Superintendent Gene Reiter hauled water, too.

On the other side of the coin, a Minnesota club had no such restriction, and in mid-June the footprints of two golfers were still visible (dead grass), complete with heel and top prints. Just two people playing one day interfered with the play of the rest of the membership for over two months!

The grass greened up early this year, but didn't get any real growth until the warm rains came along in May. The primary spring complaint was rough greens. The 75 degree days were balanced by the 35 degree nights to get a zero score on spreading, fill-in growth. Some courses, though, were still recovering from the fall rains — like the washout at Kohler and the 30" rain that fell at Bay City, Michigan. Now, the Minneapolis/St. Paul area is starting over again with 21" within 7 days beginning July 27 (interlachen gauge).

This season has been, in all but a few areas, a report on the effectiveness of irrigation systems. It should be a great selling year for multiple row irrigation. Between those toasty roughs came the centerline slops and the occasional **Pythium** spots and ruts.

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Enough talk about the weather. The lightweight, floating head mowers are getting the best of **Poa annua** in fairways. The bent has really moved out this year, especially where superintendents have been able to adequately control the irrigation. Where the bent is well scattered through an area it can do its own thing without chemical help — but with patience.

Plant growth regulators have taken up the anti-Poa fight with a vengence and are performing very well in bent, blue and ryegrass fairways. The only ill effects noted so far occurred when a crosswind blew one material around quite a bit and when a heavy rain washed another application into surface drainage areas. Good results were obtained on spring applications to fall seeded bent following turf eradication. There are still lessons to be learned, but the outlook is good. And there are other materials yet to be fully tested in this area.

None of these things are free and now that budgeting time is nearly upon us, let's look at some numbers. I note from the new Pannell-Kerr-Forster report that the maintenance cost per hole on Midwest courses in 1986 was $19,610. That's about $353,000 for 18 holes, a 9% rise over 1985. The national average was $21,101 per holes, up 7.8% from the previous year. Other areas — East, $17,607 per hole — up 11.8%; South, $20,568 per hole — up 7.8%; the Far West, $28,177 per hole — up 3.5%. The numbers are interesting, but their meaning depends on what one is trying to prove.

An entomological note: The mild winter certainly helped increase the golf course bug problem this year. Just note the number of strange yellowed blotches on greens — with a perfect green outline of a foot right in the middle. It's been a great year for cutworms and ants, too.

The Good Turn of the Year: Superintendent Vern Burks in Great Falls hired 30 Boy Scouts to transplant aerator plugs from the surviving parts of greens to the aeration holes on high mounds where the turf was lost to desiccation. His green cover, by the way, was a hydromulch fiber that had been successful for the previous nine years. This time it blew off.

The observation of the season: The development of grain on fairways, from tee toward the green, which can be worrisome at the start of a backswing. Golf cars. So get out the vertical mowers to go with the aerators.

And the worry of the year: Spots on some greens that look very much like the C-15 disease ... except the grass isn't C-15. At this writing, tests are being rechecked at U/W and MSU.

Remember When? USGA Championships were played on greens mowed at 3/16 inch — only 10 years ago at the Womens Open at Hazeltine. Maintenance programs have, since then, given the players the best conditioned golf courses they have ever seen. There are two operations responsible for most of this — light and frequent topdressing with properly sized sandy material (straight or mixed) and lightweight mowing of fairways. Both have their drawbacks but none are insurmountable. Both require additional operations but higher quality usually demands a higher price. Both demand enlightened operational management and that's why continuing education is so important to all of us today. Remember —

The Wisconsin Golf Turf Symposium	October 28-29
The North Central Turf Expo	December 8-10

Black Layer — Anaerobiosis is the Condition but Sulfur is not the Cause

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If the black layer problem of bentgrass greens that is being reported from various areas of the country is going to be effectively dealt with, research must be addressed to correcting the condition that is causing the decline and death of the plants, rather than being preoccupied with trying to reproduce the "black layer" pattern that sometimes accompanies it. The condition that is causing plant death is anaerobiosis, the black layer is the "by-product" of this activity.

Anaerobiosis is a dynamic series of events taking place in an oxygen depleted environment. When the soil becomes anaerobic, there are significant changes in both the form and solubility of certain nutrient elements. In their reduced state, these elements may be taken up by the plant more rapidly than they can be metabolized, thereby becoming toxic. In addition, the root systems of plants do not function properly in anaerobic soils. Their ability to absorb water and nutrients may be reduced signifcantly. Also, anaerobic microorganisms growing in the soil can produce toxic metabolities that cause either an outright death of the roots or an unthrifty growth of the overall plant.

While this problem is receiving more attention that it did in times past, anaerobiosis of bentgrass greens to the point of

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