RESODDING 18 GREENS (System 3)

I would like to begin with a brief history of Toronto creeping bentgrass (C-15) in the Midwest. Westmoreland Country Club was one of the few golf courses across the country to have one of the USGA experimental putting plots, established sometime in the late 30's. These early plots contained twelve varieties of creeping bentgrasses, stolonzied into pie-shaped portions on a circular green. In 1943 an evaluation was made, and C-15 was chosen to be the new grass for the greens at Westmoreland. In the fall of 1943 stolons were taken from the experimental plot, and our ninth green became the first C-15 green in the Midwest. That same year stolons were used to establish a sod nursery on the grounds of Westmoreland. This nursery would become the source of the sod used to convert the other seventeen greens to C-15 over the next ten years. Over the years, our ninth green has been the source of much of the C-15 sold in the Midwest. (Ben Warren started C-15 at three different farms with sprigs from our ninth green.) The popularity of C-15 grew from the reputation of the greens at Westmoreland because for thirty-four years we had some of the most uniform, true, fast, and beautiful greens in the Midwest.

Over the years there have been reports of problems with C-15, mostly with a disease called red leaf spot, but at Westmoreland we seemed somehow not to be affected until June 22, 1979. Our problem started on only one green, our 11th. I first diagnosed the disease as Helminthosporium, melting-out type of disease based on the visual symptoms, and accordingly applied a fungicide. Within three days the green seemed to worsen, and the next green mowed with the same mower started showing the same symptoms. I sought help from a friend who felt out problem was red leaf spot and began spraying with Daconil 2787, but, in our case, we received only a three-day control. At least we felt we were getting control because the reddish cast would go away, only to reappear again in four days.

Over the next twelve months I watched more greens become affected after each cool wet period followed by any kind of stress. I discussed the problem with turf specialists and plant pathologists, and made numerous fungicide applications, based on the many theories I received. I had disease samples sent for laboratory analysis, soil tests were taken, nematode assays run, an I continued to experiment with anything that sounded halfway reasonable. I spent many hours on my hands and knees with a pocket knife and hand lens looking for a possible clue. I invited fellow superintendents to give their reasons and to compare records. I went over my records for hours looking for a possible change in management, a cultural change, or a product change that could in any way lead to a solution to the problem. Nevertheless, we eventually had eighteen greens completely denuded by the "C-15 Problem".

Special Treatments given to try to solve C-15 problem:

A. Cultural Practices
   1. Isolate problem greens; mow problem greens with separate greensmower
   2. Removal of dew before mowing
   3. Raise height of cut
   4. Skip green mowings
   5. Aerify, topdress, overseed
   6. Syringe

B. Chemical Applications per 1,000 square feet
   1. Daconil 2787 Flowable, 12 app., 8-12 oz., often 3 to 4 days apart
   2. Mercury treatments, CaloClor or PMAS, 2 to 1 oz., 10 app.

3. Chipco 26019, 2 app., fall-spring, red leaf spot preventative, 3-4 oz.
4. Tersan 1991, 1, 8 oz. Stripe Smut app.

C. Fertility Applications
1. Experiments with high phosphorus fertilizers
2. Experiments with higher nitrogen rates
3. Experiments with 92% wettable sulfur to lower pH

D. Laboratory Analyses
1. Soil test
2. Plant disease culture test
3. Nematode assay

I can't overemphasize the importance of keeping the club officials and membership aware of one's plight with such a problem. I kept them informed by means of a monthly grounds and greens report, by attending board of directors meetings, and by being available in the locker room or on the first tee to answer the many questions of the concerned membership. Probably one of the most helpful items to many of the Chicago area superintendents with the C-15 problem was the publicity in the local newspapers. Since Butler National had the problem, and they were to host the Western Open, the C-15 problem was most certainly a news item. This sort of convinced the individual club members that the problem was indeed widespread.

I think the turning point as to when we would stop trying to control the problem and seriously start planning for a permanent solution was reached in July of 1980. After a meeting at Butler National with several superintendents and experts in the turfgrass field, and the Midwest AGCS meeting a few weeks later, it became quite evident that a solution to the problem was months, possibly years, away. The Westmoreland Pro, Vern Fraser, and I were asked to attend the board of directors meeting on July 2; the major topic, What are we going to do about our declining greens?

Our experience at Westmoreland had indicated that whatever the problem, it seemed to affect only C-15 creeping bentgrass, Westmoreland strain. I had enlarged two of our greens in 1972, and for some reason had used C-15 from H & E Sod Nursery. These enlarged portions of the greens showed no signs of the problem. Also, other varieties of bentgrass in our greens, and **Poa annua**, except for a purple cast, seemed to be unaffected. From this observation we concluded that the problem was more involved with the grass than the soil, and leaned towards a new grass, rather than to completely rebuilding greens.

Several of our board members had played the eighth green at Bob O'Link the only Penneagle green in our area, and liked it. We discussed seeding vs. sodding. I felt that seeded greens would provide a more even putting surface sooner, but we had a factor of time of establishment to consider. To seed meant that we would have to have the seed in the ground no later than mid-September in order to assure a playable putting surface by the next May. This meant going to temporary greens in mid-August. With club championship golf events, scheduled outside events, and a certain reduction in income for both the club and the Pro, there is no way we could start the project in August. Resodding the greens was our way out. I had in back of my mind a plan to resurface six to nine greens a year in a two or three year program, and even to completely rebuild up to fourteen greens because the grounds and green committee had in mind major recontouring.

The unanimous opinion was to resod all eighteen greens starting on September 18, 1980. I was told to reserve sod and to arrange a meeting with a golf course architect regarding recontouring several of our greens. Eventually the plan to recontour greens was dropped with the exception of enlarging the collars on two greens.

During July and August I had further soil tests taken and worked on the procedure for our fall project. Soil fumigation was an absolute must and would start us out with the cleanest possible slate next to completely rebuilding the greens with new soil. We started on September 18 with our worst six greens, and completed them on September 30, 1980. The remaining twelve greens were completed on October 27.

Step by step procedure:

1. Aerify over the existing sod. To double aerify open soil disturbed the contour.
2. Use our newly purchased 18-inch sod cutter to cut the old sod and thatch layer.
3. Pick up the old sod and clean surface. All hand work.
4. Aerify the bare soil.
5. Fumigate with methyl bromide - chloropicrin mixture. Greens were covered with plastic before fumigation, edges sealed with sand from a nearby trap. Covers left on for 48 to 72 hours because of colder fall temperatures.
6. Covers removed. Air for 72 hours.
7. 1/4 inch of 1-1-1 topdressing added.
8. Topdressing double verticut into soil.
9. 13-25-12 starter fertilizer added, 8 pounds fertilizer per 1000 square feet.
10. Leveled with Sand Pro and dragmat.
11. Surface rolled with power tennis court roller.
12. New Penneagle sod laid.
13. Sod fertilizer with 13-25-12 starter fertilizer, 4 pounds fertilizer per 1000 square feet.
14. Sod watered heavily, soaked.
15. While greens were in soaked condition they were rolled with the tennis court roller filled with water, over ¾ inch plywood.
16. Cleary's Turf-Gro, a liquid humus concentrate applied. One gallon per 1000 square feet rate used, watered in, to aid rooting.
17. Sod kept wet until rooted.
18. After two weeks rolled with walking greensmower with wheels in basket.
19. First mowing of new sod - **2** inch cut used.
20. Topdressed twice before soil froze in late November.
21. We expect to open about May 1.

Expenditures for resodding 18 greens:

Topsoil - 165 cu. yards to enlarge collars	$1,225
Rooting material - 50 gal. Cleary's Turf-Gro	300
Fertilizer - 1 ton of 13-25-12	420
Topdressing - 56 cu. yds. 1-1-1, Frenzer	980
Soil fumigation - Hendrix & Dail, Inc.	5,500
Sod - 8,450 sq. yds. Penneagle, Warren's	18,000
Plywood- 18 sheets, ¾ inch, 4 x 8 ft., CDX	330
Bluegrass sod - 375 sq. yds. for banks	400
Labor - 11 men, 1,228 man hours	6,000
Total	$33,155

$436. per 1000 square feet — $4.00 per square yard

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Rule One — The boss is always right.
Rule Two — When the boss is wrong, rule number one applies.

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