

A Double Victory Over Winter-Spring Injury

By A. M. RADKO, Eastern Director, Green Section of the United States Golf Association

There was a time when the arrival of winter signalled relief from further worry about the condition of the golf course until spring of the following year, but things change constantly and the golf course is no exception. In the dynamic field of turfgrass management, static perfection is not possible and turf managers now fear winter-spring problems as much or more than summer problems. In the northernmost areas, superintendents are becoming more apprehensive about winter injury because of its suddenness, its finality, and the lack of any sure-fire defense against weather-wrought injury.

The winter-spring season of 1963 was one that scared the wits out of many a seasoned superintendent. None have really gotten over it yet; in fact, most will be working for several years to recoup the permanent turfgrass losses of the past winter season. Most courses have been seriously afflicted with permanent turf loss, serious weed invasion, disease, insect, and wilt problems as a result of uncooperative weather. The article on winter-spring injury which appeared in the July issue of the *USGA GREEN SECTION RECORD* detailed observations and findings of the staff members of the Eastern Region Green Section Office.

This article deals mainly with the program initiated by two outstanding superintendents entertaining major tournaments who found themselves faced with heartbreaking turf restoration problems. Superintendent Doug Rankin of the Westchester Country Club, Rye, N. Y., had the Thunderbird Classic to contend with, and Superintendent John Kealty of The Country Club, Brookline, Mass., was preparing

for the USGA Open Championship. Each course was in superb condition as the '62 season closed. When the ice disappeared in 1963 not a green was left totally unaffected and several appeared to be dead. The top picture on the front cover shows the extent of injury to the approach and green area on No. 1 hole at The Country Club. The bottom one was taken on the final day of practice for Open Championship competitors, and shows the almost unbelievable progress made in seven weeks against the worst spring weather odds ever encountered in the Northeastern Region. There was no artificial coloring or dye on this green at the time this photo was taken. Some greens were dyed later that evening to erase marks of vandalism and to reduce the sharp contrast in greens on newly seeded areas.

Weather conditions were extremely unfavorable. Snow fell in upper Massachusetts during the first week of May; USGA Green Section staff members wore winter overcoats during each early May visit . . . the weather hovered around the freezing point . . . high winds blew incessantly, and a record-breaking drought was begun. If we could have listed all the factors that we felt most seriously hamper recovery, the three mentioned would have headed the list. Everyone who saw either course first in spring and again in June agreed that a miraculous recovery was made. Mr. Rankin and Mr. Kealty accomplished nearly impossible tasks against staggering odds. Although we of the Green Section staff were in close contact with each superintendent at all times, we constantly heard rumors that each course had embarked upon a complete re-sodding program for all

greens. TO SET THE RECORD STRAIGHT, NOT ONE SQUARE FOOT OF SOD WAS LAID ON EITHER COURSE PRIOR TO THE CHAMPIONSHIP DATE.

The successful formula used in each case was as follows:

All greens were topdressed with sterilized soil at the rate of approximately 1½ cubic yards per 5,000 square feet. Organic nitrogen fertilizers were applied, too. Each of these treatments was designed to attract warmth to greens from the sun in the hope of promoting a more desirable climatic soil environment for grass growth. Our observation this year was that the topdressing soil seemed to be more beneficial than the organic nitrogen for early growth; the spring was too cold for nitrogen breakdown. Later the organic nitrogen helped.

Then every type of cultivation tool available for greens (without plowing them under) was used to establish a seed bed in the seemingly dead turf. The plan was to introduce new seed while attempting to encourage as much recovery of the old injured turf as was possible. Aeration tools, spikers, and vertical mowers were brought into action at both courses, and additionally Mr. Kealty used a thatching machine. After greens were worked over with each of the tools mentioned, and doing as thorough a job as was permissible without tearing the turf out entirely, greens were seeded to a mixture of Seaside bent and redtop (equal parts). Aeration tools were used one to three times over the greens area depending on the type of machine used. Spikers made four to six passes over each green prior to seeding. Each time a pass was made over the green with any cultivating tool, the direction of travel was different from the last. After each such operation, the green almost looked as though it had been plowed.

Greens then received 3 pounds of superphosphate (0-20-0) per 1,000 square feet, a nutrient element which encourages rooting of seedling plants. They were then fertilized with a "complete" fertilizer and topdressed

with soil several times thereafter in the attempt to promote and sustain life during the desperate but delicate battle for survival - when every little seedling plant that survived added immensely to the hope and prospect for good turf cover.

Greens were then syringed four to five times daily, including week ends. Unfortunately grass knows no holidays, and so can wilt and die just as fast on Saturday or Sunday as on any weekday. Capriciously, Mother Nature seemed determined to retard progress and did not take any holidays herself.

Every ten to fourteen days, greens were spiked or thatched and reseeded. In using the thatching machine, Mr. Kealty's technique was to set it shallow (½ inch or so) so that the discs merely slit through the thatched turf. Using this technique, the weak sod was not uprooted, and enough soil was exposed so that seed was able to make good contact with the soil. The use of any cultivation equipment when turf is weak and roots are shallow is a very touchy operation. If set too deep at such times, the turf is uprooted and the surface is marred almost beyond repair. It then becomes an additional problem to piece uprooted clods of the turf together like a jig-saw puzzle.

After the seedling grasses emerged, there was the barest minimum time left to encourage some growth. Still the weather through early June was most uncooperative and soils remained cold, and the only chance remaining was to apply minute quantities of soluble fertilizer in solution so that grasses would absorb nutrients through the leaves and make some top growth. Soils were too cold to have the roots take up nutrients as quickly and efficiently as they would in a normal May-June period. Yet there was some apprehension as seedling plants were extremely young and tender, and it was feared that even the slightest excess of nutrients applied might burn the turf or possibly incite "damping off".

The rates of liquid feeding on normal healthy turf must never exceed the rate

of $\frac{1}{4}$ lb. nitrogen per 1,000 sq. ft. The rate of application decided upon for the seedling grasses was $\frac{1}{16}$ lb. nitrogen per 1,000 sq. ft., which is somewhat comparable to "eye-dropper" feeding. Two applications were applied at weekly intervals just prior to each tournament. The turf seemed to respond just in time for each contest.

During visits to the many courses affected by winter-spring injury, the question was often asked, "How about sodding greens?" Most turf specialists do not object seriously to the sodding of greens; in fact, some of them encourage it because replacing the brown turf with some green turf makes sense to them. However, the Green Section's Northeastern staff members have always opposed sodding except as a last resort, because it usually takes the remainder of the season to bring sodded greens around to be fairly good putting

surfaces. It is extremely difficult to sod smoothly and to keep sod level and true in cupping areas when heavy play is immediately imposed. We have known it to be successfully done, but this has been the exception, not the rule.

Not one square foot of sod was used at Westchester Country Club or at The Country Club, and each was as severely injured as any we had inspected. In fact, as fate would have it, they were more seriously injured than most clubs visited, when it meant so much to them to come out of the winter relatively trouble-free. Going into the winter, each course was in superb condition, and a normal winter-spring season would have kept the turf in superb condition. Until we can do something about weather, winter-spring injury is one of the more serious hazards we face in the management of golf turf in the Northern areas.

Eighteen Alternate Greens

By **A. M. RADKO**, Eastern Director, Green Section of the United States Golf Association

The increased use of the golf course makes maintenance more difficult, costly, and time-consuming. Since labor is the major budget item, idle time is costly time lost. Maintaining a course "in between foursomes" not only adds to the total cost but also reflects in over-all maintenance. Required work on greens is the most time-consuming and costly item. Greens require more care than other parts of the course. More interruption to work takes place on greens also because this is the focal point of all play on each hole as half the game of par golf is played on greens. When golfers tee off from early morn and play until sunset, required major tasks are often deferred or left undone. Maintenance then becomes geared to play, and not to the best interests of turf itself.

The Belle Haven Country Club in Arlington, Va., was faced with this very problem—more and more play, and less and less time to maintain, let

alone do anything to improve the turf. At that time, Jack Wilson, Chairman of the Green Committee; George Campbell, Superintendent, and John Howard, Club President, got together to see if they could do anything about it. Their decision was to build small greens in close proximity to every one of the regular greens on the course.

The small greens measure 300 to 400 sq. ft. in size so they are not a real costly item to manage. (See Photo 1) They are mowed and treated like the regular greens, except for irrigation. They are watered infrequently but deeply, as most would like to water regular greens.

Each alternate green is only slightly elevated. Mr. Campbell used only one load of topsoil to build them. He graded each so as to provide surface drainage and they contain no contours. Each green is level or as nearly so as possible except for a slight pitch to the front. The alternate greens are used for