

Greens Slow in Snapping Back Following Harsh Winter in New England

All Was Not Lost, Because Poa Annuua Suffered, Too; New Design, Construction Ideas Are Suggested

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THE tough winter of 1958-59 was perfectly contrived for injury of close cut turf in Massachusetts. Probably the same thing can be said of all New England.

The soil froze up early, before Thanksgiving day, but play on courses continued well into December. There were a few days when the ground thawed at the surface during this late fall period. Excessive play compacted turf on greens. Temperatures dropped close to zero on several days in December. Low temperatures continued from Dec. to Mar. Frost settled deeply under all turf. There was practically no snow cover throughout the winter. Wet storms were few and brought little snow which remained but a few days as ground cover.

Winds from the northwest were constant, strong and dry. Frost penetrated from two to four feet. By late Mar., temperatures finally came above the freezing point on many days. Turf on high areas thawed out and warmed up enough to start growth but low areas, particularly in the center of the greens, were so compacted that they thawed very little. The high dry winds soon carried off the moisture on these areas day after day. The result was that most of the grass plants did not have enough moisture to start growth. The dry surface, plus frozen ground slightly below the surface, brought about conditions which the turf could not cope with.

As late as the 19th of April there was frost 6 to 8 ins. below the surface on some greens.

No Water Available

April 19th traditionally has been golf opening day in Massachusetts. Many courses had been in play three weeks before this date. From the last of Mar. until Apr. we had but one heavy rain. There was not enough grass to cut on some greens as late as the last week in Apr. Water systems were not or could not be connected because of the frost. The greens

needed water. No water was available, neither rain nor irrigation.

Turf managers had to take it on the chin. The average golfer gave little consideration to the effects of winter. All he could think of was that the time to play golf had arrived and the supt. had failed to provide the turf. Winterkill was a poor alibi from the golfer's viewpoint.

The supt. could do nothing to help the situation except get his water system going as soon as possible and wait for nature to help.

Nature was not very co-operative. Temperatures, day after day, remained below 40 deg. Good growing weather didn't occur until the first of May. A good rain came about Apr. 27 but the temperature did not rise to the needed degree.

Center of Greens Hard Hit

On some courses, with several greens located in high areas exposed to northwest winds, the centers of the greens seemed to be completely dead. Large brown and yellow patches were numerous with lush green fringes about them. On the same courses, in low protected areas, no injury could be seen. These greens behaved almost in a normal manner except that they were slow in growth due to the cold frost area below the surface.

Following the rain of Apr. 27, first traces of green blades began to show in the dead areas of greens. At the time this is written (early in May) there is some hope for recovery of the grass. It is quite evident that frost doesn't form in the ground at a uniform level depth. There seems to be several factors which influence this. Low areas where water accumulates show deep frost layers. Also where the ground has been compacted the frost is deep. Observations indicate that in the low areas, even though frost is present below the surface, turf will recover rapidly if it is not subjected to compaction. In other words if there is enough surface

moisture present grass will grow.

On the high areas of deep frost, if enough water can be supplied to the surface soil in the spring to keep it moist, turf will recover fairly soon. The before mentioned observations point to the fact that our old nemesis, compaction, is the chief culprit even in the winter.

The remedy seems to be to put enough moisture on the surface over the frost and keep the area free of compaction. On the golf course these two factors are very hard to bring about in the early spring. Water systems cannot be connected when there is frost in the ground. Golfers will play golf just as soon as they can get on the course.

Two Types of Frost?

Apparently there are two types of frost present in a green. (1) Around the edges frost seems to be very porous. It may be deep but thaws rapidly as warm weather comes. Since the soil is open warm air quickly penetrates this porous layer and dissolves it. Then we have a fringe of good grass around a central area of brown to straw colored turf. (2) The area where cups are placed on the green, being subject to compaction, is underlaid by a solid compact mass of frozen soil with practically no open pores. This naturally thaws out slowly. It keeps the surface of the turf cold and will not supply enough moisture for growth if high dry winds prevail. Unless supplemental water is applied to the surface the grass will die.

The bright side of the picture is the effect these conditions have had on poa annua. This grass is shallow rooted and thrives best on very moist, cool soil. The cool factor has been present but the moisture has not. The dry winds of winter have reduced moisture content of this grass to the extent that it has passed out of the picture. Greens which had a large percentage of poa annua last season now show the good grass turning green with clumps of straw colored poa scattered over the surface. I have seen no live blades of annual bluegrass on any our greens.

Revise Fertilizer Program

If good bents take over from the old poa annua perhaps the ill effects of the severe winter may be a blessing after all.

A little more nitrogen and potash feeding might be in order this year. O. J. Noer has said in the past that many of our greens here in the east are low grade phosphate mines, so perhaps we should eliminate this item.

Plenty of water will be needed if the fertilizer program is stepped up. Close

watch for surface wilting will be in order.

There is still time for the best grasses to recover their full vigor and with poa annua eliminated, the adverse winter may have been a welcome asset.

To the supt. — sit tight, let the gripes pass over. By mid-June you may be a hero, after all.

Later in May, Franklin Hammond wrote a postscript to the article describing the effect of Massachusetts' and New England's harsh winter and added some further observations:

By May 10 the situation in the East had changed somewhat. We had only one rain in 10 days. Temperatures were in the 40's or lower, and there were several nights of frost. Water became available from irrigation systems and the bad spots in greens started to recover. Poa annua started making a comeback but I feel that we gained ground in the battle against it. Bents started and became established in dead poa areas.

The effects of the winter suggest that perhaps the design of new or remodeled greens should be reconsidered from at least two points of view:

(1) Eliminate the flat or dished surface on greens. Make the center of the green the highest point. O. J. Noer suggests surface drainage should be in at least three directions away from the green. Greens should be large enough to provide adequate cup area to prevent concentrated surface packing.

Suggests More Porous Soil

(2) The soil of most greens today is rather fine and packs easily. I believe we should pay less attention to water holding capacity and more attention to open, coarse, porous soils. We can add water very easily by irrigation but we have little control over too much water. The addition of mineral soil conditioners may be more desirable than vegetative additives. Such materials as sand or Terra-lite, or both, possibly would make better green soils than peat or compost. They would hold less moisture in the late fall or winter and freeze as porous material rather than ice. This porous mass would warm up faster in the spring to aid early growth.

The following maintenance practices, I believe, would help to reduce winter injury. If it is necessary to permit winter play, approaches should be maintained in such condition that they can be turned into temporary greens in the winter. Regular greens should be fenced off so that there would be no play on them.