# 1952 Gives Supts. Greatest Test in Turf Maintenance

# By O. J. NOER

This season has been a brutal one for turf on golf courses in the region east of the Missouri and north of the Ohio rivers. Troubles started the fall before and continued until mid-August.

One outstanding superintendent at a midwestern club remarked that this has been the worst year for him in thirty years. He never left the course from early June and watched for wilt seven days a week, yet thinning of the grass occurred despite everything he could do.

The mild, equable years of 1950 and 1951 set the stage for a difficult one. Both years were bad for Bermuda in the north but good for cool season grasses. Poa annua never stopped growing and was more prevalent than ever before. When it went this year it was just too bad in the places where there was no other grass. The poa annua spots became bare ground. But, where other grasses were present, there was some cover left after the poa died. The presence of other grass helped poa to survive, especially in shade or partial shade.

Snow mold was bad and much turf was lost from rotting in early spring due to



Injury to fairway turf from ponded water after 21/2" rain in two hours followed by sultry, hot weather the next day.

the excessive amounts of snow and rain immediately after it disapeared. Grass took a beating in late March when there was a week of scorching weather with daytime temperatures in the  $90^{\circ}$  F. range. The water systems on most courses were not ready to operate so it was impossible to stop wilting on greens where root systems were shallow or non-existent. Rainfall was generally good until June. After that New England and other parts of the East got no rain for 35 to 40 days, or more, and the heat was insufferable with daytime temperatures above 95° and usually associated with high humidity. In the Middle-West drenching rains during July cooked the grass on many courses. Of the two extremes, too little or too much water, no rain is the choice provided enough water is available to keep the grass alive. Localized dry spots are the worst trouble along with loss of shallow rooted poa annua. Heavy downpour-ing rains of several days duration are another matter and are sure to cause trouble and loss of grass if there is a weakness of any kind. Then the man in charge is helpless. Play usually continues without interruption when closing for a few hours might be the difference between keeping or losing grass.

#### Snow Mold Worse

In many parts of the North snow came in November before the ground was frozen and before the grass hardened for winter. When this has happened snow mold has been worse than otherwise. Because snow came so early many greens did not get the usual fall application of fungicide. Besides attacking the greens, snow mold was bad on poa annua around the aprons and on the approaches. Recovery was slow and made for bad playing conditions during the early part of the season.

A high humus content of the soil aggravated snow mold and reduced the effectiveness of fungicides. Humus keeps the grass wet because of its high waterholding capacity. A plentiful supply of moisture makes the fungus flourish. Thickly matted turf is attacked badly for the same reason, and the resulting deep scars delay recovery and makes surfaces bad for play.

In a year like the past one it is wise to apply the fungicide on top of the first snow cover if not used before and use additional fungicide immediately after the snow disappears in late winter or early spring. Further treatment afterwards is good insurance if there is more snow or rain. Corrosive sublimate alone, or a mixture of calomel and corrosive have been extremely good for snow mold. James Boyce at the Dominion Station in Ottawa. Canada, reports excellent results with Tersan. In experiments conducted here with the active ingredient of Tersan some years ago we obtained control at 4 ounces per 1,000 square feet. This is equivalent to 8 ounces of 50 per cent material, or 6 ounces of a mixture containing 75 per cent of tetramethylthiuramdisulfide.

On some courses large irregular areas, and in extreme cases the grass on an entire green was dead. Usually the injury was worse in the low spots which remain wet. The snowfall in Wisconsin was about 100 inches and even more in south Michigan. The amount there was 130 inches in some places. Greens were sopping wet for a long time due to moisture from melting snow and additional rains. A lot of grass died on greens with shallow or no roots. The surfaces of these greens stayed sopping wet and the grass rotted or was drowned. Overwetness was due to a high content of organic matter in the soil, to an excessive surface mat of stems and leaves, or to exceedingly heavy and poor-ly drained soil which induced shallow rooting. The basic cause was excessive wetness.

A course in western Michigan which suffered severe loss of grass during the winter of 1949 came through the past winter without a blemish. The greens were drilled several times in 1950 and 1951, the surplus mat was removed by brushing, raking, and the use of a comb on the greens mower. As a result, the greens have been easier to maintain and the surfaces have been vastly better for putting.

#### **Injury from Wilt in March**

Desiccation injury in early spring, before growing started, occurred in a few instances where rainfall was scant, but there was more injury from wilting during the hot week in late March. It could have been avoided had water systems been ready for use.

June and August were in reverse this year. They changed places. Had the heat of June and July continued, and had the torrential rains of 2 to 3 inches in several hours continued there would have been no grass left in some sections of the Mid-West by the end of August. The change in weather was a blessing to everybody.

The blow hit Cincinnati, Louisville, and Indianapolis in June, but Illinois, Wisconsin, Michigan, Ohio, and western Pennsylvania escaped until July. Just after the middle of that month drenching rains started. From three to four inches of rain fell in a couple of hours, and there were daily showers for the next few days. During the worst week-end some courses were closed on Saturday and Sunday, others stopped play after each rain until surfaces were no longer sopping wet. This wise precaution prevented a lot of damage, and deserves wider application. The Greenkeeping Superintendent should be the sole judge and should be authorized to close the course when the amount of water from rain waterlogs the greens to the point where play places the turf in jeopardy. The Superintendent should not stop play for any other reason.

A club with well-drained greens might stay open, and a nearby one with poorly constructed greens of compact soil might benefit from closing the course for part or all of the day. A situation of this kind



Bad wilt on watered poa annua fairway. Foot printing and injury from cart wheels is quite noticeable.

makes it rough for the Superintendent where play is stopped but the step can be justified.

Wilting was bad everywhere. The reason is obvious when there are no roots, or where they are confined to the top half to one inch of soil. Yet wilting occurred on some greens where roots were immersed in water. Roots cannot function in a normal manner unless the soil contains atmospheric oxygen. In a waterlogged soil roots cannot utilize water or perform other normal functions such as the absorption and translocation of nutrients such as potassium, nitrogen, etc.

Hoagland of California demonstrated the necessity for soil air. He grew tomatoes in water culture. The plants wilted in some jars and not in others. Wilting did not occur where minute bubbles of air were introduced into the culture solution.

#### **Light Watering Imperative**

When the grass on greens turns blue and shows footprints because of wilt, light watering promptly is imperative even in the heat of the day. Those who wait until night may rue the delay. Sometimes a delay of 30 minutes is too long. A course in Ohio had only one discolored spot on all the greens. It was on the farthest distant green in a corner. The lad noticed the wilting while mowing the green. In-



Alternate sand and peat layers were cause of winter injury on this green. Note mass of roots in aerifier hole.

stead of applying a little water he returned to the barn to report what was happening. The man in charge rushed to the green but was too late.

Too many club officials do not sense the dangers of wilting or realize the necessity for prompt action. They are prone to think daytime watering of any kind in hot weather kills grass. The idea is false. Light watering in the heat of day never killed any grass. Actually, it is the only way to save wilting grass. Ponded water is the only kind that will harm grass.

Continuous rains make grass shallow rooted. Then on hot days it may start to wilt at midday. Sometimes this happens even though there is water in the cup. The presence of water lulls some into a false sense of security. The wise man gets the hose out and applies a little water just enough to revive the grass and carry it through all or part of the afternoon. Not over 10 to 15 minutes are required to water a green. The hose should be equipped with a good rose nozzle that breaks the stream of water into very fine drops. Such a stream absorbs the maximum amount of oxygen from the air and the small droplets do not have a compacting action on the soil.

When wilting is prevalent workmen should be alerted and instructed how to stop it by light watering. Greens should be checked at midday on Saturdays and Sundays as well as the other days of the week and light watering should be authorized even though it may interfere somewhat with play.

## Serious Injury From Mowers

Mowers, especially the power type, cause serious injury when grass is in a wilt at the time of mowing. The bruising action due to friction from the power driven drum is an aggravating cause. Damage is most pronounced when mowers are turned on the green and occurs even when the grass is not wilting. The fact



Note in the above illustration how deeply roots grew in aerified holes to help the grass on this green survive.

that footprints from players turned brown in some spots where wilt was extreme supports this contention. In extreme cases of wilt it is best not to mow at all, or wait until wilt has been stopped with a little water. Less frequent mowing and raising the height of cut slightly helped preserve the grass.

Top-dressing when grass is in a state of severe wilt is apt to cause more damage than good. It often shocks the grass or smothers it, especially if the amount used exceeds  $\frac{1}{4}$  to  $\frac{1}{2}$  yard to a green of average size.

### Aerifying Speeds Recovery

Cultivation with any one of the aerifiers, or drilling with the Turferator, when the greens were sopping wet and seemingly at their worst received credit at some courses for stopping further injury and for speeding recovery. The green tufts of grass above each hole and the new white roots underneath were impressive and supported their contention. The holes acted as reservoirs for water and speeded drying of the surface. The holes improved the oxygen supply.

Iron chlorosis was bad on some greens, especially after each heavy drenching rain, and was worse on greens where organic matter content of the soil was high. Those who used iron sulfate promptly stopped loss of grass. Some added a little iron sulfate (Copperas) whenever greens were treated for disease. The amount ranged from ½ to 1 pound per green. Some of the newer fungicides contain ferrous sulfate, which accounts in part for the deeper green color imparted to the grass by their use.

(To be concluded next month).

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