



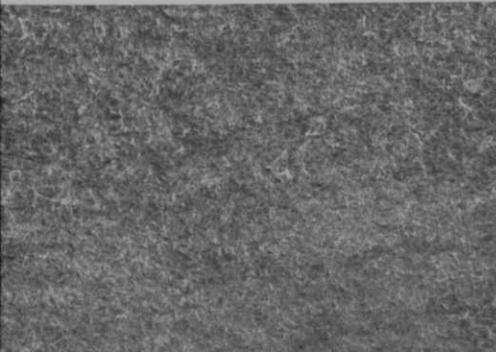
Good bent grass approach at Milwaukee photographed Labor Day weekend during unprecedented heat wave.



Mower damage on wilted bluegrass lawn. Cut with rotary mower Sept. 4 in 95-deg. weather. No rain, not watered afterwards. Photographed Sept. 24.



2,4-D damaged bent grass fairway. Sprayed twice in Sept.-Oct. Photo taken following May.



# 1959 Turf

By O. J. NOER

## Assess Management Methods Before Condemning Turf

**G**OLF COURSE turf fared badly during 1959 in regions where cool season grasses are used. In our experience, dating back to 1922, it has been the worst ever in some places, and elsewhere it ranks with the very bad years of 1928 and 1938.

Most of the troubles in 1928 were with greens. For all practical purposes, many courses lost all the grass on every green. There were bad greens this year but the loss was nothing like 1928. That year, the acid era of turfgrass, management died with the grass. Lime was restored to favor and sole use of ammonium sulphate was replaced by more sensible fertilizer programs.

This year there was extensive winter-kill on greens except in the Montreal area. Unseasonably cool weather until mid-June delayed recovery. Summertime troubles started during the last half of July in the East but not until early Aug. in the Midwest. There was a brief, cool weather respite in late Aug. Then bad weather returned for the Labor Day weekend and lasted until Sept. 10th. A few were caught over Labor Day. One Westchester County (N.Y.) supt. made a trite remark about wilt and syringing. He said wilt is worse when there is a drop in humidity and a moderate-to-heavy wind. According to him, it is time to start syringing when an exposed wet rag dries in 15 to 20 minutes.

### Heavy Rains Hurt

The worst trouble occurred in regions where drenching rains accompanied the hot, humid weather. Rains were localized in some places. As a result some courses  
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Close-up of Bermuda turf in Philadelphia Municipal Stadium is shown at left.

Noer photos

got too much water while nearby ones escaped.

Summertime loss of fairway turf was bad in 1959 for the first time on a wholesale scale. *Poa annua* succumbed generally and other grasses suffered. Brown-patch attacked some fairways. On others, where turf was heavily matted, algae appeared after extensive loss of grass from disease or from the ills associated with overwetness accompanied by heat.

The natural reaction in a year like this is to condemn the grass and turn to something else. This may be the best answer for some but not necessarily for everybody. An assessment of grass performance and careful scrutiny of management practices is justified. The examples of fairway turf survival in every part of the afflicted areas may furnish the clue to the answer. Just to mention a few examples, there is good bent fairway turf at Milwaukee CC, at Calumet in Chicago, Scioto in Ohio, Baltusrol in New Jersey, and Woodmere on Long Island. Bob O'Link (Chicago) fairways of bent and *poa annua* survived exceptionally well. Their management may be a helpful guide to others with that kind of grass herbage.

#### Bob O'Link Program

Briefly, the Bob O'Link summer program included aeration twice — on June 25 and on July 27. Chlordane was used at 1 gal. per acre on July 20. Activated sewage sludge fertilizer was applied three times at approximately 200 lbs. per acre each time on July 3, Aug. 5, and Sept. 4. A phenyl mercury acetate fungicide was used six times — at  $\frac{1}{2}$  quarts per acre on July 20, Aug. 5, and Aug. 20; and then at just under a qt. per acre on August 17, 25, and 28. Ferrous sulphate was used along with the fungicide on Aug. 5 and Aug. 20 at  $1\frac{1}{2}$  lbs. per acre, and on Aug. 17, 25, and 28 at 3 lbs. per acre. The response from its use was marked during the heavy, rainy weather. Fairway turf, including most of the *poa*, came through the bad weather exceptionally well. Players were happy and the cost was less than renovation and seeding in all probability.

Comments about winterkill in 1958-1959 were made in early spring. Now it is possible to assess them and remark briefly about prospects for lessening the chances of recurrence in the future.

The cold winter got the blame. But inclement spring weather was the real culprit in most places.

There was snow mold on some fairways but not sufficient to cause permanent



Leo Previti shows group the common Bermuda turf at Philadelphia Municipal Stadium, Seeded in June, 80 lbs. per acre. Photo taken Sept. 23.

damage. Recovery took place rapidly when weather became satisfactory. Otherwise fairway turf was not hurt by the cold. Fungicide use on fairways is not necessary excepting on some approaches, where conditions are especially favorable for severe attacks, and on the aprons around the green.

#### Tricky Fungicide Treatment

Snow mold was bad on some greens which did not get adequate fungicide protection. Rates were light or the fungicide was not sufficiently potent. Failure to treat again in spring after snow melted brought a snow mold attack in some localities.

Corrosive sublimate alone, or the mixture of two parts calomel and 1 part corrosive have been the preferred treatment for snow mold prevention for many years. Customary rates have been in the range of 3 to 4 ozs. per 1,000 sq. ft. in late fall, and half that amount in spring. Presently mercury is high priced. Some of the newer fungicides have given good control, especially in years when attacks have been mild. They should be evaluated in comparison with the standard calomel-corrosive mixture over several years by research workers in regions where snow mold is bad. That is the only way to find a lower priced equally effective fungicide for snow mold prevention.

#### Suggests Arsenical Investigation

Actually, much of the winter injury on greens occurred in late winter or early spring and was not due to the unseasonably cold winter. Greens in the Midwest looked good in early Mar. Three to four

*(Continued on page 92)*



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## O. J. Noer's Turf Roundup

*(Continued from page 51)*

inches of snow, accompanied by sleet, fell in late Mar. Weather turned unseasonably warm the week after with temperatures up to 90 degs. Then came several heavy rains followed by cold or cool weather which persisted into June. This delayed recovery. Growth was started by the warm weather and was stopped by the cold snap with a high grass mortality. Poa annua got hit worst but some of the bent grasses, especially on heavily thatched or matted greens, fared badly. Some of the late fall arsenical treatments aggravated injury. Experience this spring justifies further investigations of their uses, especially lead versus calcium arsenate. The latter is more drastic and lead is safer.

Thatched turf is generally shallow rooted. It fares badly whenever weather is severe, winter or summer. The peat-like thatch stays overly wet and creates ideal conditions for snow mold and for every kind of summertime fungal disease. A more detailed discussion of it is planned for the January issue of GOLFDOM.

Poa annua has become a curse and a blessing on watered fairways in the North. On many of them it is the only or pre-dominating grass. In times of bad weather

poa is the first to die. By the same token, it stages a quick recovery the moment weather moderates and conditions become favorable for germination of poa seed always present in the soil.

### Poa Seems to Survive

That is one of the reasons why reseeding with other grasses is disappointing. It is a matter of competition and seedling poa annua seems to win the battle for survival.

Watered approaches are especially bad with respect to poa infestation. Repeated turning of tractor and fairway mowers in these confined areas is one of the ways good grass is lost and then the same thing happens to the poa. At some clubs self propelled triplex mowers are being used to mow approaches, instead of tractor drawn gang mowers. The switch has helped preserve grass on these areas.

Some clubs have given up reseeding of approaches as hopeless, yet there has been progress. The problem is deserving of wider experimentation to develop an economical, sure way of eliminating the poa and substituting a good grass. A few clubs have resorted to sodding. At one club several bad approaches are being sodded with Merion Kentucky bluegrass. It is proposed to cut these areas with a triplex power



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mower. Creeping bent predominates elsewhere on the fairways and will be cut at about one-half inch, which is a bit too close for Merion.

**Herbicide Knowhow Needed**

The insidious damage to fairway bent grasses by the indiscriminate use of 2,4,-D, 2,4,5-T and other chemicals is not realized by most people. Both of these herbicides have helped the spread of poa by weakening the bent. It is time to re-evaluate their effects and find the conditions under which they can be used with impunity because they are useful tools. There is some evidence that even Bermuda in the South is suffering by overdoing 2,4-D in conjunction with arsenicals for the control of goosegrass and hard-to-kill hairy crabgrass.

A return to Kentucky blue and fescue might seem like the right answer to the fairway turf grass problem. The use of Merion Kentucky bluegrass has been proposed.

Originally, fairway turf was mostly Kentucky blue and fescue. Then came fairway watering. Close cutting and lots of water doomed both of them. Bents took their place if present in the old turf. Otherwise, it was poa annua, clover, and knotweed. Bents seemed like the answer on watered courses, and may still be best

in many places. To stop fairway watering is like trying to ban the electric car.

The damage to Kentucky blue grass by the foot rot stage of leafspot has been forgotten or overlooked by those who think it the best answer now. We need to learn how to avoid or prevent leafspot.

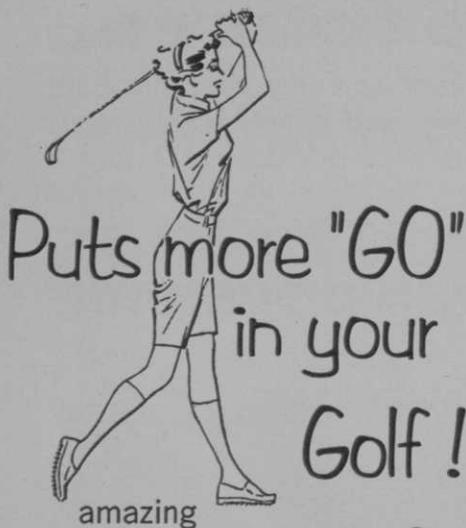
**Temperate Zone Grasses**

In the more temperate parts of the North, bluegrasses alone, or in conjunction with fescue, continue to be the most likely grasses for fairway use, with bents still the most likely answer on watered courses.

Use of Merion Kentucky bluegrass has been proposed because of its great immunity to leaf spot. Merion seems to thatch as badly as bent turf, so control of it will be necessary, if true. Merion has been used on a few new fairway seedings. Its performance is said to be satisfactory so far. Time will tell the story. Up to now reseeding of Merion Kentucky into existing turf areas has been disappointing.

A 50-50 mixture of Kentucky and Merion Kentucky blue has done well in Miche Stadium at West Point Military Academy. Further testing would seem justified.

Despite some loss during the past winter, Bermudagrass and zoysia performance



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has been promising in the fringe belt from Washington and Philadelphia across to Kansas City. Pine Valley is expanding its program with these grasses despite a slight setback in some spots. The original U-3 Bermuda fairway at Bala in Philadelphia has been outstandingly good. U-3 has done well in St. Louis and Kansas City.

At Municipal Stadium in Philadelphia a good, dense Bermudagrass turf was obtained from seed in 5 to 6 weeks in 1958 and again in 1959. Seeding was in early June and the turf cover was good by mid-July. Seeded Bermuda might be a good temporary cover for summertime use.

There is some resistance to Bermuda fairways by golfers unaccustomed to it. This will subside in time if turf performance continues good.

*To be concluded in January.*

### Fred V. Grau's Turf Roundup

*(Continued from page 54)*

is there always enough money to rebuild a poor green but not enough to build it right the first time?"

Research data on excesses of water are lacking. Data on excesses of nutritive elements also are difficult to find in print but there is being accumulated evidence that high levels of phosphorus are detrimental and may contribute to "wilting" and similar symptoms.

Work in Rhode Island has led to the formulation of a 20-6-4 formula for general turf use. Plots that have received a 10-0-4 ratio for 30 years are in good condition with roots 20 inches deep mining phosphorus from lower levels. Indiana work has led to the development of a 10-3-7, 12-4-6 and similar formulas. The 20-4-6 formula may not be far distant. It is well known that some of the yellowing of grass can be corrected, temporarily at least, with a light application of iron, either sulfate or in the chelate form. Also it is known that yellowing is associated with high phosphorus.

Research shows that iron is precipitated by phosphorus, creating insoluble compounds in which neither element is available to the plant. When the reaction takes place within the plant we find the insoluble precipitate blocking the channels in which water and nutrients move about. The result may be "wilt" which, if not corrected quickly, could bring about death of the grass.

#### Nitrogen and Water

The similarity in appearance between nitrogen-hungry grass and turf suffering