

# Maintenance Procedure for Putting Green Turf

By RALPH R. BOND

Those of us in golf course maintenance and nursery work often find it helpful to put in black and white the procedure that we follow for sometimes we learn too late that our turf troubles may be caused by neglecting to do what our experience has taught us is sound practice. The demands of weather and unavailability of labor sometimes upset our schedules and to protect against these upsets a standard operating plan is a pretty fair idea.

From my own experience in raising fine bent, from the experience and advice of numerous greenkeepers and from great help of Fred Grau of the Green section, O. J. Noer, and the Rhode Island Agricultural Experiment station, I've made the following notes applicable to the north central states which may be reminders to men of extensive experience and helpful guides to men of limited experience in maintaining fine bent turf.

The proper maintenance of a putting green depends upon a definite schedule of operations which must be performed at certain times in order to produce maximum results. The following suggested schedule brings the different essential operations into an orderly program for the season.

Although one system will not work in all climates, on all soils and on all bent grass greens, it is possible to lay the groundwork of such a plan so that more attention can be given to new problems and less to the ordinary run of work. The suggested schedule may be adapted and changed to suit individual conditions. Many of the suggestions are based on definite experimental work while others are based on general experience and observation. Operations have been arranged and briefly described in the order that they would ordinarily take place during the season.

1. **Rolling.** Roll when frost is out of the ground, and roller will not become wet or muddy. Soils that are high in clay content may not require rolling at all, because rolling at the improper time will do more damage than good. Soils high in sand content or peat content can stand rolling without damage better than those high in clay.

2. **Fertilizing.** The application of 10 to 15 pounds of an 0-20-20 fertilizer to 1000 sq. ft. in the spring and again in the fall, adequately should satisfy requirements for phosphorous and potash on putting greens. The application of nitrogen then will be the only consideration during the remainder of

## A SUGGESTED TREATMENT FOR THE MAINTENANCE OF PUTTING GREEN TURFS

(Treatments are given for 1000 sq. ft. of turf)

| Operation                                | Unit   | April                         | May                           | June                          | July                          | Aug.                          | Sept.                         | Oct.                          | Nov.                          |
|--|--------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Rolling                                  | Time   | $\frac{1}{2}$ : $\frac{1}{2}$ | $\frac{1}{2}$ : $\frac{1}{2}$ | $\frac{1}{2}$ : $\frac{1}{2}$ | $\frac{1}{2}$ : $\frac{1}{2}$ | $\frac{1}{2}$ : $\frac{1}{2}$ | $\frac{1}{2}$ : $\frac{1}{2}$ | $\frac{1}{2}$ : $\frac{1}{2}$ | $\frac{1}{2}$ : $\frac{1}{2}$ |
| Fertilizer: Complete                     | Pounds | 15                            |                               |                               |                               |                               |                               | 15                            |                               |
| Sulfate of Ammonia                       | "      |                               | 3                             | 3                             |                               | 3                             | 4                             |                               |                               |
| Organic                                  | "      |                               | 15                            |                               |                               |                               |                               |                               |                               |
| Weeding                                  | Times  | 1                             |                               |                               |                               |                               | 1                             |                               |                               |
| Composting                               | Yards  |                               | $\frac{1}{4}$                 | $\frac{1}{2}$                 |                               |                               | $\frac{1}{2}$                 | $\frac{1}{2}$                 |                               |
| Mowing                                   | Period | ( . . . . . )                 |                               |                               |                               |                               |                               |                               |                               |
| Insecticides: General (Arsenate of lead) | Pounds |                               | 2                             |                               | 1                             |                               | 1                             |                               |                               |
| Ants                                     | Doses  |                               | 1 : 1                         | 1                             |                               |                               |                               |                               |                               |
| Watering                                 | Period | ( . . . . . )                 |                               |                               |                               |                               |                               |                               |                               |
| Fungicides                               | Doses  |                               |                               |                               | 1 : 1                         | 1 : 1                         | 1                             |                               |                               |
| Liming                                   | Pounds |                               |                               |                               |                               |                               |                               |                               | 1                             |
| Spiking                                  | Times  |                               |                               |                               | 1                             | 1                             | 1                             |                               | 20                            |
| Raking—Knife Edge                        | "      |                               | 1                             |                               |                               |                               |                               | 1                             |                               |
| Brushing—Wire Tined                      | "      |                               |                               |                               | 1                             | 1                             |                               |                               |                               |

the year. This should be made according to the need. Where putting green turf has a tendency to become infested with poa annua, it is suggested that nitrogen fertilization be delayed until the bent has started to grow well. Early treatment of poa annua turf with nitrogen may stimulate the poa at the expense of the bent. From a pound to a pound and a half of nitrogen per month for each 1000 sq. ft. of putting turf is estimated to be the requirements for satisfactory putting green turf. If soils are heavy and there is a tendency to scald in mid-summer, fertilizer treatments should be omitted or cut in half for the summer months.

**3. Weeding.** The best control of weeds in putting green turf is a good solid stand of grass. Clover, poa annua, chickweed and other weeds are an indication of weak turf. The cause should be found and remedied. Weed control chemicals are not recommended on putting green turf.

**4. Topdressing.** Topdressing is required to maintain a smooth, true putting surface. Since this is one of the most expensive operations on the golf course, its justification should be carefully considered. Some putting greens have been maintained for as long as 12 years without any topdressing. The best mixture that can be recommended, according to the authorities, is one that contains equal parts by volume of good clay loam soil, coarse concrete sand, and peat. Manure or raw sewage sludge do not take the place of peat as the source of organic matter. If desired, well rotted manure, five or six years old and thoroughly composted may be substituted for half the quantity of the peat. Topdressing should never be applied on heavily matted turf. The excess grass should be raked out thoroughly so that contact is established between the topdressing and the soil. The best time to accomplish this is in the cooler seasons, spring and fall, when the grass is growing vigorously and will recover from the shock.

**5. Mowing.** Mowing at a height of 3/16 inch should be the rule unless members object to the greens being too fast, then the height of cut may be raised to 1/4 inch. It is considered best to maintain the same height of cut throughout the season. If the grass needs an occasional rest it may be best to skip mowing now and then to give it a little more growth. The best greens are mowed daily.

**6. Insect Control.** Web worms become a serious pest in some seasons. Reduce the damage from this pest as well as to control earth worms, cut worms, grubs and to some extent chickweed and poa annua, by using arsenate of lead. Apply as a spray at the rate of 1 to 2 pounds in 10 to 20 gal. of water per 100 sq. ft. Apply when fair weather is predicted. Treat ants with any method of control before the warm weather of summer arrives. Stomach poisons should be applied at intervals of approximately two weeks in order to kill the entire colony. Sabadilla dust, 10% strength, may be applied in order to kill at the rate of 100 pounds to the acre, or 2 1/2 pounds to 1000 sq. ft. for immediate control of leaf hopper, chinch bug, and many other chewing and sucking insects. The use of 10% dust or 50% wettable powder of DDT or Chlordane as a spray should be considered for the control of chinch bugs, sod web worms, cut worm and similar insects. The suggested rate of application is 10 pounds of actual DDT or Chlordane to the acre of 1/4 pounds to 1000 sq. ft.

**7. Watering.** Water greens lightly in the morning during the brownpatch season. Morning watering reduces diseases, especially brownpatch. After spiking they should be heavily watered. Early morning watering takes the place of poling for the removal of dew. This job requires the best man on your force. That's how important it is.

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## PACIFIC COAST MIDSUMMER TURF MEETINGS



Group shown at left met at San Diego CC (Calif.) in June. Marvin Ferguson, USGA Green Section, and O. J. Noer addressed the group in the afternoon discussion meeting. Outcome of the meeting was decision to organize a local association devoted to development of better turf. At the right is shown a group in attendance at the Washington State Turf Conference, Pullman, Wash.

## How to Recognize and Control Sod Web Worms

By CECIL E. SMITH

The sod web worm, common to the mid-western area on golf greens and turf, is the young of a white or silver colored moth. The moth has a wing spread of about three-fourths of an inch.

The female moth, flying low over moist turf, drops her eggs. The eggs resemble small cream colored beads. Watering and mowing tend to work the eggs down into the grass. Putting greens and watered areas make an ideal incubator for hatching the eggs. During dry periods, they are often the only moist places on a golf course.

The eggs will hatch in seven or eight days. The larvae feed on the grass leaves and form a burrow with a smooth lining or web. Hence the name web worm.

In two to eight weeks the worms complete their growth and make a cocoon of a silky substance and soil. The pupa take from ten days to two weeks to emerge from the cocoons as moths. Their wings dry in a few minutes and they are able to fly and start the cycle over again. The latter parts of June and August are the periods when infestation is liable to occur in this locality.

Sod web worms can be controlled by two pounds arsenate of lead in twenty-five gallons of water sprayed on one thousand square feet of turf. Allow to dry on the leaves. Also fifty per cent wettable DDT sprayed at the rate of one-half pound per one thousand square feet. The amount of water is not important as long as good coverage is obtained.

—Heart of American Turf News

### MAINTENANCE PROCEDURE

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8. **Fungicides.** Treatment for brownpatch and dollarspot usually is necessary. Good control of brownpatch may be obtained by preventive treatment. Another more economical method is that of preventive treatment following the first attack. Brownpatch and dollarspot have occurred between late June and late September. Applications as frequently as every week are justified only occasionally in the light of experience here. Brownpatch never appears when the temperature falls below 68 degrees F. during the night. The late fall application of mercury will usually prevent injury from snowmold and is advisable with creeping bents which are susceptible to this disease. Persistent attacks of brownpatch may be lessened by



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light dusting with hydrated lime, using not more than 2 pounds of hydrated lime to 1000 sq. ft. Dollarspot may be controlled by the use of cadmium fungicides and generous feeding with nitrogen if phosphorous and potash are in balance. Snowmold may be less severe if the turf goes into the winter in a hardened condition. Preventive treatments for snowmold with mercury is always advisable.

9. **Liming.** A weight of limestone equal to that of the sulfate of ammonia used during the season is needed to prevent an increase in acidity. Creeping bent has been found rather susceptible to injury from acid-soil conditions during hot weather. Hydrated lime is more quickly available than limestone. Application should be made after the crabgrass season. Hydrated lime must not be mixed with the fertilizer. The use of lime improves the structure of the soil and increases the availability of fertilizers.

10. **Spiking.** When greens become difficult to water, covered with a scum or tightly packed, the use of a spiker will be beneficial.

11. **Raking.** Some creeping bents tend to form a mat which invites snowmold, dollarspot and brownpatch. This can be corrected by raking and mowing several times the same day and changing the directions. Raking out the mat should be confined to the cool season when growing conditions are best.

12. **Brushing.** Brush dense turf occasionally in order to cause more upright leaf growth, keep down nap, and remove grain.

### GOOD OFFICE SPACE

(Continued from page 40)

for a minute or ten minutes. Your mind must focus on your problems if you are to properly solve them. Make your office your thinking sanctum; where new ideas are born and old ones are polished more brightly. Think, plan, then act; and success will be yours.

All of us at one time or another fall short on re-ordering for our shop needs. If you have cards and a pencil or pen ready at all times it will take minutes to order all the stuff you need. A quick order for needed merchandise replacement means more sales. We cannot sell it if we do not have it on hand. The basis of merchandising is having goods to interest the buyer and then deliver when he wants it.

Joe Zeilic has the main responsibility of my book work and re-ordering. He is a specialist in this field. Our office set-up allows him to do his work efficiently at all times. We have proper supplies and