

There is usually less clover in acid than in relatively neutral or basic turf. However, the grasses are seldom improved in growth as a result of making the soil acid and may be seriously injured if this procedure is carried far enough to eradicate the clover.

Often it is good policy to deliberately burn the turf by applying mineral nitrogen such as sulphate of ammonia or a complete fertilizer high in nitrogen when dew is on the grass. The clover is usually injured more and recovers more slowly than the grass. The severity of the burn may be regulated by the amount of the fertilizer applied and the interval until the fertilizer salt is dissolved from the leaves by watering or rain. Sulphate of ammonia applied in this way at the rate of 3 pounds to 1,000 square feet gives a decided burn to putting green turf. If only a few patches are to be treated, the sulphate of ammonia may be salted on from a large-sized shaker and left a few hours before water is applied. If one is not familiar with this method it is well to try it first on a few patches until the right quantity is determined. The sulphate of ammonia will turn the grass brown as well as the clover, but the grass will recover unless the dosage is too severe.

The burning of clover in this manner should be done in spring or fall while conditions are favorable for a rapid recovery of grass. There is still time to use this method but it should not be attempted from the middle of June until the end of August, except on Northern courses.

#### SEASONAL REMINDERS

Remove Excess Stolons: During the spring months when creeping bent is growing vigorously an excess of stolons is produced on the surface. This is particularly the case with certain undesirable strains. Unless this excess growth is removed or covered with top-dressing the turf will develop an objectionable grain which will lead to many complaints from players during the summer months.

The best way to remove this excess growth is by raking or severe brushing, followed by close mowing. Such severe raking or brushing should be done not later than the end of May while the grass is still growing vigorously and therefore able to cover up scars quickly. Greens that show a tendency to produce objectionable grain should be given light brushings frequently throughout the summer. Severe treatments, however, should not be attempted during mid-summer months.

Dollarspot: During the month of May dollarspot usually makes its first appearance in most of our bent-growing districts. Frequently these first attacks are neglected and are permitted to make bad scars before fungicides are applied. The first attack of dollarspot should be the signal for applying a heavy dose of mercury fungicide. Even though the first attack is slight it is wise to use a heavy treatment of fungicide. When turf is protected by a generous dose of mercury in May the succeeding attacks of dollarspot and brownpatch are less likely to cause serious damage before additional treatments can be applied. The most economical and lasting of the mercury fungicides used to control dollarspot is calomel. The May treatment with calomel should be at the rate of 3 ounces to 1,000 square feet.

Excessive Watering: The operation of watering turf on the majority of courses starts in May. Therefore, this is a good time to warn clubs that much of the serious damage to turf on putting greens during the summer months is directly or indirectly attributable to excessive watering. If putting greens are kept soaked during May and early June a shallow root system, which is the result of this practice, is almost certain to give the greenkeeper plenty of trouble during hot, sultry periods throughout the rest of the summer.

Crabgrass: Crabgrass usually opens its season in May. This pest is encouraged by a liberal supply of water and fertilizers if they are supplied between now and August. Therefore, to keep crabgrass from smothering out the permanent grasses, it is advisable to use fertilizers and water as sparingly as practicable during the next three months on those areas where this weed is prevalent.

Brown Areas in Fairways: On courses in the regions where there has been an excessive amount of rain this spring and frequent heavy showers, there appears to be an unusually large infestation of leafspot on Kentucky bluegrass. Many areas of fairways and tees that have a good covering of bluegrass turf have nevertheless appeared brown and generally unthrifty. An examination of individual leaves shows that the injury is due to leafspot. Many of the leaves have been entirely killed and have given the affected area a generally brown appearance. A description of this injury together with illustrations are given on pages 146, 147 of the August, 1932, number of The Bulletin of the United States Golf Association Green Section.

No satisfactory cure for this ailment is yet known. Where this condition is observed on golf courses it is well to keep the mowers set as high as the players will tolerate until the bluegrass has had a chance to recover from this spring attack of leafspot.

Brownpatch: During the latter part of May or early June brownpatch usually begins to appear. Whether or not it shows up in May, at least most greenkeepers can feel sure they will see it in June. Therefore, it is well to have a supply of fungicides on hand to use when this disease appears. In purchasing fungicides it is well to remember that the effectiveness of the group of mercury fungicides is primarily dependent on the amount of mercury each contains. The more soluble ones are more quickly effective and therefore more desirable for the control of brownpatch. For this purpose, corrosive sublimate is the most effective and economical of the large number of fungicides that have been tested by the Green Section.

In order to prevent burning by any of the mercury fungicides during periods of unusually hot, sultry weather, it is well to greatly reduce the dosage. In the early-season treatments the dosage with corrosive sublimate (bichloride of mercury) may be as heavy as 3 ounces to 1,000 square feet, but in days of unusual heat and excessive moisture it is well to reduce the rate to 1 ounce and in some cases as low as  $\frac{1}{2}$  ounce of corrosive sublimate to 1,000 feet. Other fungicides should be reduced accordingly wherever they show a sufficient supply of mercury to permit of such reduction. Upon inquiry the Green Section will be glad to advise member clubs as to the relative effectiveness of the various brownpatch fungicides on the market.

Turf Nurseries: Where a golf course is not equipped with an adequate turf nursery to provide sod for patching purposes, it is well to be reminded that there is no time like the present for breaking a piece of land and cultivating it during the summer months to have it ready for starting a nursery in early September. Turf nurseries may be considered as a form of turf insurance. If something happens to a patch of grass in a putting green, it is very convenient to have readily available a piece of sod which has been maintained like the putting greens that can be lifted and placed in the injured patch.

White Grubs: In May and June the adult beetle (May beetle or June bug) of the common white grub is active and laying eggs for the next brood of white grubs. These well-known beetles spend the night in trees, where they feed on the young foliage. The females fly down to the turf particularly in the early morning hours just before daylight, immediately burrow into the soil and deposit eggs. In a comparatively short time these eggs hatch and the young grubs start feeding on the grass roots, and become most destructive the following year. If they are sufficiently abundant, they greatly weaken or even kill the turf grasses.

These beetles seem to prefer the white or burr oak foliage and therefore are most abundant in groves of these trees. They are also found in such trees as hickory, poplar, elm, willow, locust, ash and walnut. The females ordinarily do not fly far from the trees which they inhabit. Therefore, the area of greatest grub infestation is invariably in the immediate vicinity of trees which have been heavily populated by beetles.

At this season of the year it is well to have members of the green-keeping staff on the lookout for these beetles. The beetles fly to the trees about dusk and, if numerous, with the aid of a flashlight they may be seen flying around the trees during the early evening. Wherever they are observed in large numbers, it is well to anticipate grub injury within the next few months. Important turf in such infested areas may be treated with arsenate of lead at the rate of 5 pounds to 1,000 square feet during the summer to poison the young grubs before they do serious damage to the turf.

REPORT OF THE GREEN SECTION COMMITTEE FOR 1935  
Under the Chairmanship of Harold W. Pierce

The Green Section activities for 1935, as in the previous year, were chiefly confined to routine correspondence and advisory service. The heavy rains together with prolonged periods of excessive heat and humidity in the Middle West led to much more than the ordinary injuries to turf in that part of the country. These conditions were responsible for an increase in correspondence with clubs in that area.

In April, after years of faithful service, Mr. Kenneth Welton, who had been on our Green Section staff since 1928, submitted his resignation in order to join the Soil Conservation Service of the United States Department of Agriculture. Mr. Welton's departure was a severe loss to our organization and we wish to take this opportunity to wish him success in his new work.

During the season it was possible to continue experimental work at the Arlington Turf Garden. This work was chiefly in connection with weed control with chemicals, and a study of the influence of air circulation on the development of turf diseases, with the result that effective control of such weeds as clover, chickweed, dandelions and plantain has been accomplished in