TIMELY TURF TOPICS

Issued By The

UNITED STATES GOLF ASSOCIATION GREEN SECTION

P. O. Box 73

Benjamin Franklin Station

Washington, D. C.

ACREAGE IN TURF - GOLF COURSES: There are more than 5,000 golf courses in the United States which cover an area of approximately 650,000 acres. This area is about equal to that of the state of Rhode Island. Only 14 percent of the latter, however, is considered to be land available for crop purposes. The area in turf on golf courses which must be maintained under conditions which in agriculture would be considered as intensive cultivation, therefore, is far greater than that of land available for crops in the entire state of Rhode Island.

MOLE CRICKETS: The mole cricket is a serious turf pest in the South Atlantic states from North Carolina through Florida. It is related to the common crickets but spends most of its life in burrows in the ground, not unlike the common mole. It is not usually found on heavy clay soils where burrowing is difficult and is therefore generally limited in its occurrence to the light sandy soils in the coastal regions.

The first indication of a mole cricket invasion is the appearance of ridges like mole tunnels, only much smaller. The damage to the turf is caused by the mole cricket feeding on the tender shoots and roots and by cutting off many roots as it burrows through the soil. Greatest injury occurs in April and May. Since it only feeds above ground at night, it is not held in check by birds and other natural enemies.

Control is usually effected with poisoned baits such as the following:

Cottonseed meal	100 pounds
Rice flour	100 pounds
Calcium arsenate	10 pounds
Molasses	1 gallon
Water	9 gallons

This bait should be applied at the rate of 3 to 4 pounds of the dry material (before the water is added) to 1,000 square feet. It frequently requires two applications to give satisfactory control. To avoid fermentation, the bait must be used within 48 hours after it is prepared.

Arsenate of lead may be applied as recommended for Japanese beetles (T.T.T., July, 1940) but the mole crickets are more resistant to it than are the Japanese beetle grubs and therefore heavier rates are required.

SNOWMOLD INJURY: Reports continue to come in concerning the prevalence of snowmold in some of the northern sections of the country. In these sections, diseased turf should be fertilized at once with a readily available high nitrogen fertilizer if this has not already been done. Areas on which the grass is already dead should be patched with healthy sod or reseeded as soon as possible.

Records should be kept of the areas which have been most severely affected and special preventive measures used on these areas next fall. Heavy fertilizing in the fall should be avoided in places where snowmold is likely to occur, in order to prevent the development of a lush growth just before winter sets in. Applications of mercury fungicides to these areas before the first heavy snow is another worthwhile preventive measure to be carried out next fall. (See T.T.T., October, 1940)

PREVENT CRABGRASS INVASION: In those sections of the country in which crabgrass is a vicious turf weed, all possible efforts should be made to prevent it from becoming established. In such areas bluegrass turf should not be fertilized this late in the season. Fertilizer applied now will feed the seedling crabgrass which is soon to appear and so encourage it to crowd out the bluegrass which naturally grows less vigorously during the hot summer months than in spring or fall.

Abundance of moisture also encourages the growth of crabgrass and therefore artificial watering should be avoided unless it is absolutely necessary to prevent drought injury to the bluegrass.

When the turf is not cut too close the bluegrass will remain in a more vigorous healthy condition and therefore furnish more competition to the crabgrass than when cut close or scalped. As the season advances, frequent cutting at a height well over an inch is most favorable for the bluegrass both from the standpoint of resistance to crabgrass invasion and to such diseases as leaf spot.

TURF NURSERIES: There are two types of turf nurseries. One type, which might well be called a "sod nursery" is used for the growing of grass to be moved as sod and is maintained for the purpose of replacing or patching established turf. A nursery of this kind must be maintained in essentially the same manner as is the turf on the area for which it is to be used. If it is to be used for patching it should be planted with the same grass which is now present in the turf on which it is to be used. On golf courses, parks and other large turfed areas, such a sod nursery may be considered as a form of turf insurance. It provides sod for quick repair work in emergencies and thereby insures against unnecessary delay in re-establishing good grass where turf has been scarred. The cost of such a nursery represents only a small proportion of the total maintenance budget.

The other type of nursery which is often called a "stolon nursery" is used for the propagation of stolons intended for use in planting grasses such as creeping bent, zoysia and others which are propagated vegetatively. In this type of nursery the grass is grown in rows which are kept cultivated in a manner similar to the way cultivated crops are maintained. A stolon-nursery planted with bent in late summer will be ready for use a year later. Best results are secured with stolons from a young, or one-year old nursery. Where nurseries are to be planted with zoysia, Bermuda grass, St. Lucie or other southern grasses the plantings must be made in spring in order to grow a full season before going dormant.

There is no time like the present for breaking a piece of land and cultivating it during the summer months in order to have it ready for starting a nursery early in September or next spring. As soon as drainage has been provided and a good seed bed established, some quick-growing crop such as soybeans or cowpeas may be planted as a green manure crop. The best possible growing conditions should be given this seeding in order to establish a heavy crop for turning under in July or August, since the larger the crop the more humus will be added to the soil.

SELECTION OF SITE FOR TURF NURSERY: The need for the turf nursery may vary from year to year. It is wise, therefore, to select a site where a relatively large area can be made available. If possible, it should be located within a short distance of the work center, since in such a location odd moments can be used for the mowing, watering, weeding, and general care of it. If started in some out of the way place, it will be neglected too easily. The site selected should have good soil and drainage and be as free as possible from troublesome weeds.

A nursery should not be planted where a nursery was formerly maintained unless at least a year has elapsed since the old nursery was plowed. During the summer after plowing the old nursery, the land should be fallowed to destroy all traces of the previous planting. Such treatment will also rid the area of many weeds and make subsequent weed control easier.

CUTWORMS AND ARMY WORMS: Cutworms and army worms are naked caterpillars, the larvae of night-flying moths or "millers". They frequently appear in turf during warm weather. The cutworm usually hides during the day in a burrow which may be marked at either end by small areas of closely-cut, almost scalped patches of grass where the worm had fed during the night. On putting greens these areas produce a blemished and unsightly putting surface. The cutworms are voracious feeders and reach their full length of 1½ to 2 inches by late spring or early summer. They change into moths (pupate) by midsummer in the Central and Northern states and earlier farther south. Eggs are laid and the young larvae hatch in late summer, feed upon the grass until frost and then burrow into the soil to hibernate until spring. There is usually one generation of the worms (larvae) in one season in the North but commonly two and sometimes three in the South.

The true army worm seldom damages turf. The fall army worm, however, causes severe damage to turf in the South during late summer and in the fall when much of the other vegetation may be dried or not as succulent as grass. This worm is similar in appearance to the cutworm but tends to be more slender. It does not survive the winter north of northern Florida. During the summer the moths of this worm migrate northward and successive generations during the summer may appear progressively farther north. Frequent infestations are found as far north as Maryland, but these do not occur until late August. The moths of the army worm congregate and lay eggs in restricted areas. Therefore injury from the fall army worms is likely to be particularly severe in localized areas.

These worms may be controlled in turf either by scattering poisoned bait or by coating the vegetation with stomach poisons such as arsenate of lead. The contact poisons such as pyrethrum, rotenone, and derris are generally not so effective as the stomach poisons and moreover are relatively expensive.

As discussed in the September, 1940 issue of TIMELY TURF TOPICS, a satisfactory and inexpensive bait can easily be prepared from Paris green or white arsenic, wheat bran, molasses, and water. Two pounds of the poison should be thoroughly mixed with 50 pounds of the bran. Then, 2 quarts of cheap molasses should be diluted with water and added to the bran mixture. More water must be added to the mixture until a crumbly preparation is obtained. The bait is more potent if it is permitted to stand for several hours before being distributed. It should be used at the rate of 3 pounds to 1,000 square feet. Since the worms stay down in the soil during the day and come up to feed only at night, it is wise to distribute the bait just before nightfall.

If the vegetation is to be poisoned, arsenate of lead may be applied either in solution or dry. In either case it is important that the leaves and stems be well coated. In solution the arsenate should be applied as a spray at the rate of 1½ to 2 pounds to 1,000 square feet. When applied dry, the rate should be increased to 2 to 4 pounds to 1,000 square feet. In order to insure even distribution, the required amount of arsenate should be mixed with at least 6 quarts of dry, screened sand, soil, or organic fertilizer and applied to 1,000 square feet.

An effort should be made to apply the arsenate of lead during clear weather and the grass should not be watered until after the poison has been on the foliage at least one night and preferably two nights. If the turf needs watering at the time of treatment, it should be thoroughly soaked before the arsenate of lead is applied. If the grass is heavily watered in the afternoon and the arsenate applied later that day the chances are that watering can be postponed until the second morning, thus allowing the arsenate to remain on the foliage for two nights.

The arsenate of lead is a more expensive method than the poisoned bait but it should be remembered that it serves a double purpose. It is eventually washed from the foliage into the soil where it remains for some time and acts as a control for earthworms and grubs.