

# Watch Out for Insect Damage

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This season, with course labor likely to be too busy at regular maintenance duties to be sidetracked to repair turf damage caused by insect pests, it is more necessary than ever for the greenkeeper to keep alert for signs of infestation. This paper, delivered at the University of Maryland short course last season, discusses methods of fighting the more common types of insect pests. Note that few of the materials recommended are, so far, off the market.—Editor.

**I**N certain parts of Ohio, particularly in the sandy areas around Toledo, the ant problem outweighs most others of maintenance importance. It is not unusual in this section to find 4,000 to 8,000 fresh anthills daily on some of the worst affected greens. The individual hills vary in size from quite small to as large as 5 in. in diameter and  $\frac{1}{2}$  in. high. These hills not only seriously interfere with play but increase the cost of upkeep.

When the number of hills were few to the green a successful method, spot control, was found, which consisted of injecting a small amount of carbon bisulphide into each hill opening. In some cases a small amount of poison bait spread around was successful.

In large areas that were heavily infested, the spot treatment was out of the question and poisoned bait had to be used. The most effective bait in these areas was found to be a mixture of 1 lb. of brown sugar in which is mixed an ounce of paris green. In some instances, if the mixture was too sticky, some flour was added. Applied at the rate of 1 lb. of the mixture to each 2,000 sq. ft. of green surface, the active ant population was reduced more than 80 per cent in 24 hours.

## Paris Green for Ants

Application was made by means of a tin can or shaker, the bottom of which had been replaced with a wire screen of 12 meshes to the inch. The shaker was held shoulder high and given a slight jar at 3 ft. intervals. Air currents scattered the bait in a fairly even deposit. A light, even deposit is necessary to prevent burning of the grass, which would occur if the bait fell in large lumps or masses. The best time of application is mid-day when the grass is dry. To be on the safe side, it is better not to water infested

areas in the morning on the day of the treatment. All the infested areas must be included in the application, including the apron and approaches. One application is not sufficient, but several should be made either on succeeding days or on alternate days. From the results obtained this offers the best method of control found thus far.

The larger mound-building ants that are sometimes found on fairways, or more commonly in the rough, can be easily controlled by injections of carbon bisulphide in the hills.

## Controlling Chinch Bug

The hairy or short-winged chinch bug is particularly destructive in turf of lawns and golf courses throughout Long Island, eastern Pennsylvania, Connecticut and around the Cleveland District. In the latter locality in 1938 it almost totally destroyed the turf on the Kirtland CC polo field before the seriousness of the situation was realized.

The bug damages the turf by piercing the plant structure with its beak and sucking out the sap. It is especially destructive to the bent grasses, which afford it ideal hiding and breeding places among the matted stolons. Other grasses also supply food and breeding places, particularly orchard grass.

The full grown bug over-winters in the turf and becomes active in the late spring, after a period of several days when the temperature does not go below 70 degrees F. On very hot days they show marked activity and are easily observed, but during cool, cloudy weather, although plentiful in numbers, they are hard to find.

The first young appear in June, followed by a second brood in August. With this information an effective plan of control can be worked out. The first indication

of an attack by this pest is a deadening or drowning of the turf in small patches that can readily be mistaken for brown-patch. These usually occur in sunny rather than shady areas and as the damage continues the spots enlarge until a wide area may be destroyed. Fortunately, closely-clipped greens are not as susceptible as the aprons and approaches.

When all factors are considered—such as cost application, safety and lethal effect on the insect—finely ground tobacco dust is one of the best of control measures. This dust should contain at least  $\frac{3}{4}$  of 1% of nicotine and be ground fine enough so that all of it will pass through a 60 to 70 mesh screen and 75% to 80% pass through a 100 mesh screen. Coarse dust or one deficient in nicotine is worse than useless.

The tobacco is applied as a dust when the turf is dry at the rate of 25 lbs. per 1,000 sq. ft. and watered in to minimize any damage to the grass. Results should not be expected for 2 to 3 days because of the slow killing action. In heavy infestations four applications each season are recommended. The first treatment is applied in early June to catch the first brood, followed by a second treatment a week later. The third is made in early August at the time the second brood emerges, followed by a fourth after an interval of a week.

Another method of control was tried but more time is needed for experimentation before any recommendations can be made. This consisted of a 5% kerosene emulsion applied at the rate of 1,800 gals. per acre with a power sprayer. One-third of the quantity of spray was applied first, followed in 5 minutes by the second third. Five minutes later the final third was applied. The theory is that the first two applications thoroughly activate the insects and the last application kills them.

#### Sod Webworm Sometimes Serious

The sod webworm is always present in small numbers but it is only occasionally present in such large numbers as to become a scourge and do considerable damage. The first indication of an impending outbreak is a large flight of moths in early summer.

The webworm moth is easy to identify from all others because of the closely folded wings when at rest. This habit makes the sides of the body parallel. The legs extend outward from the body and the antennae forward from the head. The insects are about an inch long and silvery

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white to light gray in color, depending on the species. They spend the day at rest in the longer grasses and take flight upon the coming of darkness. At this time they are strongly attracted by lights.

Another means of forecasting an outbreak is to observe the numbers of moths that are flushed from the fairway and areas of taller grass. The moths then fly a short distance and alight on grass stems with the body parallel and closely pressed to the stems. By observing these "signs" the greenkeeper should be on his guard and make frequent inspections to determine if any damage to the turf has started. It is very important that the outbreak be caught in the early stages for, if control measures are taken in time, serious injury to greens may be prevented.

The taller grasses of the approaches are the first areas attacked, but if nothing is done the infestations soon spread to the greens with great rapidity. Furthermore, the smaller the larvae the more susceptible they are to the control treatment. High quality turf is more susceptible to injury than thin grass but closely clipped areas are more likely to escape injury than coarser clipped areas.

There are two or more broods a season which hatch after a period of ten days or so from eggs dropped indiscriminately by the moths as they fly around at night. The larvae start feeding on the grass blades but retreat to the lower stratas as they grow older, and there, feed on the stems as well as the blades. The caterpillar is very active if disturbed and can move either forwards or backwards with great rapidity. They are dirty gray in color with regularly spaced brown spots on the body and are about one inch long when full grown.

Lead arsenate, either in solution or as a dust, is a proven method of control. However, everything taken into consideration, the dust treatment gives the most satisfactory results. The method of procedure is as follows: a hand duster of the rotary fan type is used to distribute the undiluted dust on the turf at the rate of 2 lbs. per 1,000 sq. ft. of green or turf. The grass is then brushed with a stiff fiber broom to dislodge the arsenate from the grass blades and get it down next to the stems where the worms are feeding. This is followed by a thorough watering by means of a strong hand-directed spray. Further water is withheld from the

treated areas for 48 hours to give the worms ample time to feed on the poison. Effects of the treatment can be observed within 24 hours.

Under no consideration should an application be made when the grass is wet and 36 hours should elapse between the last watering and the time of treatment. By clipping the grass short just prior to treatment a better job is done. Regarding the effect of the treatment on the grass, bluegrass and other grasses of lawns and golf courses in recent tests showed no injury while the bents of putting greens showed a definite favorable stimulation. The effect of the treatment lasts about a year.

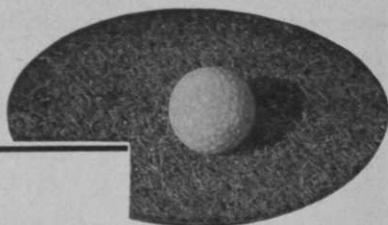
#### Birds May Be Minor Pest

A secondary effect of an infestation of the sod webworm is the severe damage done to the turf by birds as they feed on the insects. Large birds like starlings and grackles, tear our tufts of turf that make the green unplayable until rolled.

Cutworms can be controlled by the same treatment recommended for the sod webworm but they ordinarily do not appear in sufficient numbers to warrant such expense. Hand picking is the usual method of control. Another way is to flood the areas and pick up the worms as the water forces them to the surface. This only applies where heavy watering is permissible for, under some conditions, excess water is a very serious menace and causes considerable turf trouble.

In some sections, especially those with a sandy soil, the cicada killer, a large wasp that preys on the dog-day locust, is a troublesome pest because of the numerous burrows it makes in the fairway. The diggings from these burrows form mounds up to 1½ inches high and 5 inches in diameter. The turf is disfigured to a considerable degree. Calcium cyanide dust placed in the holes and the openings closed with earth is an effective means of control.

In conclusion, I say that the green-keeper, to avoid serious damage from turf pests, must observe two important factors: first, to be able to recognize the early stages of damage by the various pests, and, second, to know what treatment is most effective against them that will not injure the turf. If there is any question of doubt, agricultural experimental stations should be consulted and their facilities used at every opportunity.



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