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INSECT PESTS OF LAWNS

Lawns provide a home for many and varied insects. Although a large number do little or no damage there are some which, if left unchecked, will make it impossible to maintain the grass in good condition.

By D. G. SHEDLEY, B.Sc. (Agric.), Entomologist

Spraying with insecticides is not always the best answer to pest problems. Mowing, cutting and watering must be maintained at proper levels. In fact, if this is not done the attacks of at least some pests will be more severe.

The insects commonly found on lawns in Western Australia are dealt with under three main headings:

- Soil and Root Infesting.
- Leaf and Stem Chewing.
- Sap Sucking.

Soil and root infesting insects may only cause physical disturbance to the surface or by their feeding on roots and underground parts of the plant, they may prevent normal growth. In extreme cases, whole sections of the grass may die altogether.

Leaf and stem chewing insects will rarely cause areas of a lawn to actually die. However, their presence may be indicated by chewed portions of the lawn or by the presence of dead leaves or shoots which have been eaten off at the base. Sometimes as in flea beetle damage, the general condition of the lawn appears brown and unthrifty, but close examination will reveal the chewed leaves. As a general rule control will result in an immediate response by the lawn. Where this does not occur, it would be as well to suspect some other cause.

Results of attack by sap sucking insects are often found right through the plant; although actual attack may be on the leaves or stems, root growth may be severely retarded. Because of this, plants normally take longer to recover after these pests have been destroyed. Distortion of leaves and stems, general unthriftiness or bleaching of the leaves are typical symptoms of feeding by such insects.

1. SOIL AND ROOT INFESTING INSECTS

BLACK BEETLE
(Heteronychus sanctae-helenae Blanchard.)

The adult beetle is a typical cockchafer, glossy black and about five-eighths of an inch long.

Although possessing wings, the beetle spends most of its time on or under the ground and is very sluggish in its movements. Massed flights on warm sultry nights have been recorded in New South Wales, but flying swarms have not been reported locally.

Life History

Eggs are laid in the spring and early summer and these hatch into larvae known as "white grubs" or "curl grubs." When fully fed these grubs are about an inch long and are whitish in general colour. The head, however, is light brown and the hind end is blackish, due to the transparent nature of the outer covering.

The spring adults cause damage to crops and turf playing areas, but after egg-laying has been completed their numbers decline.
The brood resulting from the spring eggs appear in late summer and cause further damage. With the approach of winter the late summer beetles become sluggish and spend the colder months in a dormant or semi-dormant condition. Because of the artificial environment produced by the watering of lawns, some beetle activity can usually be seen throughout the summer but the spring and late summer peaks are usually quite evident.

Type of Injury

The subterranean feeding of the insects causes unthriftiness and may even cause dead patches where large numbers have eaten away the roots. At least as important as this to bowlers and other sportsmen are the irregularities produced by the burrowing of the beetles and the numerous bodies on the prepared turf. All lawn grasses are subject to attack by these insects.

Control

One third of a pint of 15 per cent. dieldrin should be mixed with a convenient amount of water and applied to 1,000 sq. ft. It is necessary to ensure that the insecticide reaches the top soil and to help this a light watering before and after application is advisable, particularly if the insecticide is applied in a small quantity of water.

Chlordane, heptachlor or a fairly heavy application of DDT or B.H.C. will also control black beetle.

MOLE CRICKETS (GRYLLOTALPIDAE)

The mole crickets are closely related to the grasshoppers and common crickets, but are characterised by their subterranean habits and remarkably developed forelegs which are broadened and shovel-like.

The adult insect is about 1½ inches long and the thickness of a pencil. It is a light brown and is covered with fine hairs which give it a velvety appearance. The hind or "body" part of the insect is soft, but the head and mid-section are hard and well protected.

Mole crickets thrive best in light moist soils, and hence Perth sand in the spring and early autumn is very suitable for their activity.

The presence of the mole cricket is usually indicated by the appearance of small mounds or raised ridges in lawns, bowling greens and seed beds. These are caused by the insect working its way along just beneath the surface of the soil.

In bowling greens, lawns, and the like, the mole cricket is mainly a nuisance because of these ridges and mounds. Injury by the actual feeding activity of the insect is usually comparatively slight.

Control

1 pint of 100 per cent. chlordane, or 20 per cent. dieldrin or 40 per cent. aldrin
should be applied to 1,000 sq. ft. of turf in a convenient amount of water and then watered into the top soil. Spot treatments at the site of the workings should be sufficient.

**EARTHWORMS**

Earthworms thrive in almost all kinds of soils but they prefer those containing considerable organic matter and they must have abundant moisture.

They feed partly on the soil, swallowing great quantities of earth, from which they digest the organic matter of animal or plant origin.

The castings from their activities are a problem where a smooth even turf is required. Otherwise the presence of these creatures in lawns and gardens can only be advantageous as their activity contributes to the enrichment of the soil by improving its physical condition and opening up the subsoil.

**Control**

Thiodan will give the quickest kill. Half an ounce of 35 per cent. Thiodan in 2 gallons of water applied to 1,000 sq. ft. is enough to reduce the population to a negligible level.

One to 2 oz. of chlordane in 2 gallons of water applied to 1,000 sq. ft. will give similar final results but is slower in action. Larger quantities of the materials are required to give a complete kill but even at the lower rates the effect will last for more than one season.

**ANTS**

A number of different species of ants may be found in lawns. Mounds of soil around the holes can be troublesome where a good even surface is required. Ants which sting or bite are also unwelcome intruders on home and park lawns.

**Control**

Well defined nests may be treated with a liberal sprinkling of an insecticidal dust containing 5 to 10 per cent. DDT, B.H.C. or dieldrin.

**WIRE WORMS**

(ELATERIDAE)

The young or larval stage of the so-called click beetle is known as a wire worm. It has a shiny yellow or brown body, hard and slippery to the touch and lives just under the surface of the soil.

Wire worms are relatively unimportant in Western Australia although they cause damage in many other parts of the world.

**Control**

Wire worms are controlled by spraying with 0.1 to 0.2 per cent. DDT, using sufficient liquid to wet the ground. It will be found that 2 to 3 gallons will be enough for 1,000 sq. ft. of lawn.
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**VEGETABLE BEETLES**
(TENEBRIONIDAE)
Vegetable beetles are broad greyish-black flattened insects about one-third of an inch long. They often occur in large numbers on lawns and in surrounding gardens where they congregate under leaves, sticks or in other sheltered places during the day.

The larvae are hard and shiny like wire worms but rather more slender. Both the beetles and grubs will feed on growing plants, although the damage to lawns is normally insignificant.

**Control**
Should it be found necessary to control these insects, spray with 0.1 to 0.2 per cent. DDT, using sufficient liquid to wet the ground. Two or three gallons will be enough for 1,000 sq. ft. of lawn.

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**2. LEAF AND STEM CHEWING INSECTS**

**COUCH FLEA BEETLES**
(*Chaetocnema australica* Baly)
The adult beetles are shiny black oval-shaped insects a little over 1/16th inch long. They possess well developed hind legs which enable them to jump considerable distances.

**Life History**
Only adult beetles of this species have been observed locally. Other species of flea beetles are important pests of various crops and it could be expected that the life history stages would be comparable. The larvae generally live in the ground and feed on the roots and stems of the host plant.

**Damage**
The beetles are active during the summer. At this time, large numbers may be present unnoticed until search is made for the cause of severe drying off and bleaching of the grass. The injury is caused by the insect chewing at the leaves and removing all but the lower surface which remains a whitish film.

Couch grass is the only locally recorded host.

**Control**
A 0.1 per cent. DDT spray applied over the lawn is the most effective control measure.
CRAB GRASS CHRYSOMELIDS
(Lema rufo-tincta Clark)
These small dark brown beetles which are a little larger than couch flea beetles may be found feeding on crab grass and Queensland blue couch. When disturbed the beetles drop off the grass and quickly hide from sight.
The larvae are small slug-like creatures and are usually present on the grass with the adults. It is the larval stage which appears to be responsible for most of the damage.

Damage
The effect on the lawns attacked is indistinguishable from the couch flea beetle attack. In couch lawns and gardens invaded by crab grass, these insects will of course be considered beneficial as they exercise considerable control of this weed.

Control
When attack is observed on Queensland blue couch, control measures as for couch flea beetles (0.1 per cent. DDT spray) will be satisfactory.

COUCH TIP MAGGOT
(Hylemyia urbana Mall)
The couch tip maggot is the larval stage of a small grey fly about half the size of a house fly and of a more slender build. The adult flies may be seen throughout the summer and in the warmer winter weather in large numbers on sheltered parts of the lawn.
From the eggs laid by the flies, creamy white maggots hatch, enter and feed on the terminal shoot of the grass, eventually killing it. The grass then may shoot from another node and this new shoot may also be attacked. Greatest activity occurs in the spring and autumn, although both flies and larvae have been observed throughout the year.

Control
Most well-maintained lawns are able to support a fairly large population of these insects without suffering greatly. Generally, it is wiser to concentrate on keeping the lawn well manured and watered than on killing the insects with insecticide sprays. Re-infestation from surrounding areas can take place within two weeks of spraying, and application of insecticides at such close intervals is inadvisable.
Spraying at close intervals kills the natural enemies of other pests such as mealy bugs and scales, allowing a build-up of these latter insects which are much harder to combat and which in plague proportions can be much more harmful to

Damaged couch grass shoots with one tip maggot removed (left). The maggot is indicated by the arrow

Adult of the couch tip maggot
lawns. Shoots coming through newly top-dressed areas may be severely attacked and it is on occasions such as this that insecticide control is warranted.

A light cover spray with 0.1 per cent. DDT is highly effective.

**CUTWORMS (NOCTUIDAE)**

This is a group of insects whose common name is derived from the feeding habit of many of the caterpillars which attack at ground level and either cut the stem or leaf right through or injure it enough to cause the plant to fall.

A number of species of cutworm may attack lawns but they are grouped together because of their similarity of appearance and the damage they cause.

The one most likely to be met is the common or brown cutworm (*Euxoa radians* Gn).

The adult is a rather drab heavy-bodied night-flying moth. The fully grown greenish-brown caterpillar is rather fat and fleshy and about 1½ inches long. It is commonly found buried just below the surface during the day and on being disturbed curls up head to tail.

These insects may be active throughout the year but spring and autumn are the seasons when they are most likely to cause damage.

**Control**

Control spraying for cutworms should only be applied when feeding is definitely affecting lawn condition. When required, a light cover spray of 0.1 per cent. DDT will give adequate control of these pests.

**GRASS MOTHS**

As with the cutworms there is a complex of species which may be grouped as grass moths or lawn webworms.

The most common of these (*Sclerobia tritalis* Walk) is a small whitish-grey moth. The larvae are rather thin light brown caterpillars about half an inch long, which live in or near the ground in silken tunnels.

These caterpillars feed on the grass leaves and when they occur in large numbers can be responsible for considerable damage to the lawn.

Control

It has been suggested that for a similar insect which attacks lawns in the U.S.A. control is warranted if examination of 6 sq. inch samples of turf reveal three or four caterpillars. This may be achieved by the application of a 0.1 per cent. DDT cover spray.

**GRASSHOPPERS**

Grasshoppers do not feed on the grasses of well-kept lawns except when they are very numerous and other forage is scarce. They usually migrate from unturfed waste land.

Control

Control measures, which are seldom necessary, would normally need to include the areas from which hoppers are migrating or at least a wide barrier (about a chain) around the lawn requiring protection. For this purpose dieldrin is the most effective insecticide and should be used at the rate recommended in the chart. A general spray may be applied using 1 oz. of 15 per cent. concentrate per gallon of water.
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