Insect pests of lawns. Part 3

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3. SAP SUCKING INSECTS

DISTORTION of leaves and stems, general unthriftiness and bleaching of the leaves are typical symptoms of damage by sap sucking insects in lawns.

COUCH MITE

The mites are small worm-like creatures which cannot be seen with the unaided eye, being only 1/150th in. long, greyish white and semi-opaque. The eggs are circular, transparent bodies laid separately in sheltered positions on the surface of the leaf. They are quite large as compared with the mite which lays them.

When infested grass is examined, mites may be found in large numbers attacking the buds within the axils of the leaves resulting in a bunching of the leafy shoots.

Affected plants, instead of making runners and spreading in the normal way, produce a proliferation of several buds from the affected points, imparting to the whole a bunching or tufting effect. This growth is characteristic of injury caused by mites. In samples which are more seriously affected more or less flattened and abbreviated stems are formed producing opposite rows of scale-like leaves, somewhat resembling small heads of barley.
Control
An effective treatment is two sprays two to three weeks apart, of one part of lime sulphur to 60 parts of water, applied as a coarse drenching spray. This has been used for many years. As an alternative to this 0.1 per cent, diazinon has also recently been found to be effective.

COUCH MEALY BUG
Antonina graminis (Maskell)
The adults of the couch mealy bug are globular, dark reddish brown legless creatures about \( \frac{1}{4} \) in. in diameter. They are covered with a white cottony secretion and are found attached to the stem nodes and upper roots of the grass.

Life History
The young are tiny mite-like crawlers which move freely over the surface before settling down to feed and grow, during which period they produce a waxy secretion which covers and protects them.

Ants and bees are attracted to the secretions from the feeding mealy bugs and the presence of these other insects may be a source of annoyance, apart from the damage caused to the turf by the mealy bugs themselves. In the Perth area, a large number of the insects fail to survive over the winter so that populations in the spring are normally quite small. However there are from three to five generations during the summer, so that large numbers are present and severe damage occurs in the autumn. Populations up to 1,500 infested grass nodes per square foot have been recorded from some lawns in late summer.

Grasses Attacked
In Western Australia the couch mealy bug has been observed on couch, Queensland blue couch, superfine couch, crab grass and buffalo grass. Buffalo grass does not appear to be a favoured host and growth is not greatly affected. In the United States of America the pasture plant Rhodes grass is such a common host that the insect is normally referred to as the Rhodes grass scale. Many thousands of acres of the grass have been killed by the mealy bugs.

Distribution
The couch mealy bug has been recorded as causing damage to lawn grasses from Perth and the surrounding districts and from most of the northern and drier parts of the State. Residents of coastal towns and stations north of Perth have the greatest difficulty in maintaining lawns because of the presence of this pest.

Mealy bugs on couch. Note the poor root development
Damage

Infested lawns become unthrifty, giving the appearance of lacking fertiliser and water. Root development is generally poor and where a heavy infestation occurs leaves may be small and runner development retarded.

Control

There are a number of natural enemies of the mealy bugs, including several species of lady birds. These small beetles are quite sensitive to most insecticides. This accounts for the fact that application of materials such as DDT and dieldrin for control of other pests sometimes results in an increased infestation of couch mealy bugs, the parasites and predators being killed by the insecticide while the pests themselves remain relatively untouched.

Experiments have shown that enough mealy bugs can be killed to give a response by the lawn if very large quantities of insecticide are used.

Diazinon at 1 pint of 20 per cent. concentrate in 8 gallons of water applied to 1,000 sq. ft. of lawn has given the best results.

Greater quantities of this insecticide are harmful to the lawn and lower concentrations have given less reliable results. The high cost of this treatment makes it impracticable for all but small areas. For ovals, golf courses and most home gardens the only practical approach is to increase the amount of fertiliser applied, particularly during summer, to maintain growth over the critical autumn period. It is also important not to subject the lawn to excessive wear and to cut the grass regularly but not too short. If the lawn is allowed to grow up rank and is then cut down hard it may actually be killed.

Couch Scale

Odonaspis ruthae Kotinsky

The adults of the couch scale are small, legless and enclosed above and below in a hard white scale about 1/16 in. long. The scales are elongated and taper towards the rear. The female scale is larger and relatively broader than the male.

The scales are found attached to runners of couch at the nodes above and below the surface of the ground and normally hidden beneath the sheathing bases of the leaves.

Couch scales feed in the same way as other scale insects—by introducing their long, piercing mouth parts into the plant to imbibe the sap. Plants which support a large number of scales fail to make good root, stem or leaf growth and may be lighter in colour than unaffected grass. Although highest populations are to be found in shaded areas, the insects may be discovered in most situations.
This pest has a wide distribution, being found in Egypt, Ceylon, and the U.S.A. as well as various parts of Australia. The distribution within Western Australia is not known, but it could be expected to occur in most places where couch thrives.

There is no known satisfactory control, although it has been claimed that very heavy applications of some insecticides are of value.

The fact that many young scales never emerge from the protective covering of the leaf sheathes, makes them very hard to reach with an insecticide. It would appear that lawns can support infestations without suffering too severely provided they are not heavily shaded and they receive abundant fertiliser and proper cultural attention.

Couch grass is the only recorded host.

**LEAF HOPPERS**

*(JASSIDAE)*

The group of insects commonly known as leaf hoppers is almost world-wide in its distribution and contains a number of different important plant-feeding species.

These species differ in size and colour but have characteristic habits and a general similarity in appearance. They are small, active insects which jump or fly rapidly when disturbed. At rest the wings are held backward and roof-wise over the body (see illustration.)

Leaf hoppers are not among the common pests of lawns, but some areas have been observed which have been quite severely damaged by them. Those seen damaging lawns are green in colour, and the adults are a little less than ½ in. long. They feed by sucking out the plant sap from the leaves, causing a bleaching which, when extensive, may affect the vigour of the plant.

Control is not normally warranted. However, most insects of this type are readily killed by DDT; a light cover spray with a 0.1 per cent, concentration should be sufficient.
RUTHERGLEN BUG
(Nysius vinitor Berg.)

Although the Rutherglen bug is quite common it fortunately appears only spasmodically in plague form. It is a tiny greyish insect less than 1 in. long. During warm weather, it is an active flier and may easily be mistaken for a small fly instead of a bug.

The female deposits its eggs in masses on a large variety of weeds. The young bugs resemble their parents but are smaller and wingless. They shelter among the primary food plants until fully grown, when they may spread further afield. During the summer they may be seen to swarm on turfed areas, although lawn grasses are not favoured hosts.

Feeding will cause a general drying out of the grass and some browning and bleaching of the leaves. Quite large numbers may be present without causing a great deal of damage for they occur at a time when lawns are growing most vigorously. Even if large numbers are present it is advisable to check for other pests which may be responsible for damage first attributed to Rutherglen bug.

Where control is warranted, the infested area should be sprayed with a mixture of malathion and DDT, using 1 to 2 oz. of a 20 per cent. DDT-malathion mixture per 1,000 sq. ft.

Home lawns and small areas are liable to re-infestation from outside. A protective spray barrier around these areas would thus be of advantage. DDT or malathion alone will give reasonable control.

LAWN DWELLERS WHICH ARE NOT PESTS

CARAB BEETLES
(CARABIDAE)

The carabs or ground beetles are essentially carnivorous, both adults and larvae feeding on caterpillars and other insects.

There are numerous different species which, although varying greatly in size and shape, do have a general characteristic appearance (see illustration). Sizes of different species range from a fraction of an inch to 2 in. or more in length. They are long-legged, fast moving beetles, mostly dark brown or black in colour. One common species is a bright metallic green.
## MAJOR LAWN PESTS AND THEIR CONTROL

Proper management often reduces the need for chemical sprays. Insecticides should be used only when pests cannot be handled in other ways.

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<thead>
<tr>
<th>PEST</th>
<th>SYMPTOMS</th>
<th>CONTROL</th>
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<tbody>
<tr>
<td><strong>SOIL INFESTING</strong></td>
<td></td>
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<tr>
<td>1. Black beetles</td>
<td>Mounds; soft surface, unthrifty lawn; shiny black slow-moving beetles may be present on surface and creamy white curled grubs underground</td>
<td>½ pint 15 % dieldrin per 1,000 sq. ft. watered in.</td>
</tr>
<tr>
<td>2. Mole crickets</td>
<td>Mounds caused by tunnelling just below the surface</td>
<td>1 pint 100 % chlordane or 20 % dieldrin or 40 % aldrin per 1,000 sq. ft. watered in.</td>
</tr>
<tr>
<td>3. Earthworms</td>
<td>Mounds of castings on surface</td>
<td>½ oz. 35 % thiodan or 1-2 oz. 100 % chlordane in 2-3 gallons water per 1,000 sq. ft.</td>
</tr>
<tr>
<td>4. Ants</td>
<td>Holes; mounds and trails</td>
<td>½ pint 15 % dieldrin or 3 oz. 100 % chlordane per gallon of water. Spray nests and trails and grid-spray lawn.</td>
</tr>
<tr>
<td>5. Wireworms and false wireworms or vegetable beetles</td>
<td>Normally not important in W.A. Could cause unthrifty lawn; beetles on surface</td>
<td>2 oz. 20 % D.D.T. per 1,000 sq. ft.</td>
</tr>
<tr>
<td><strong>STEM AND LEAF-EATING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Couch flea beetles</td>
<td>Dry appearance; small jumping beetles present</td>
<td>1-2 oz. 20 % D.D.T. per 1,000 sq. ft.</td>
</tr>
<tr>
<td>2. Couch tip-maggot</td>
<td>Poor runner development; small flies present; terminal shoots die from feeding of small maggots within</td>
<td>1-2 oz. 20 % D.D.T. per 1,000 sq. ft.</td>
</tr>
<tr>
<td>3. Cutworms and grass moths</td>
<td>Poor growth; leaves cut off and chewed. Caterpillars hidden in grass or topsoil</td>
<td>1-2 oz. 20 % D.D.T. per 1,000 sq. ft.</td>
</tr>
<tr>
<td>4. Grasshoppers</td>
<td>Leaves chewed; grasshoppers numerous</td>
<td>½ oz. 15 % dieldrin per 1,000 sq. ft.</td>
</tr>
<tr>
<td><strong>SAP SUCKING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Couch mite</td>
<td>Plants tufted; few or no runners produced; small mal-formed leaves</td>
<td>½ pint lime sulphur per 1,000 sq. ft.—2 sprays, or 2 oz. 20 % diazinon per 1,000 sq. ft.</td>
</tr>
<tr>
<td>2. Couch mealy bug</td>
<td>Unthrifty condition; poor root and shoot development; brown globular insects with mealy white covering clustered at plant crowns and nodes</td>
<td>1 pint 20 % diazinon in 8 gallons of water plus wetting agent per 1,000 sq. ft.</td>
</tr>
<tr>
<td>3. Couch scale</td>
<td>Unthrifty condition; hard white scale under leaf sheaths</td>
<td>No known control; mealy bug spray may help.</td>
</tr>
<tr>
<td>4. Leaf hoppers</td>
<td>Small green hopping and flying insects—leaf blades bleached (not very important)</td>
<td>1-2 oz. 20 % D.D.T. per 1,000 sq. ft.</td>
</tr>
<tr>
<td>5. Rutherglen bug</td>
<td>Small grey flying insect; grass may brown off (not very important)</td>
<td>1-2 oz. 20 % malathion-D.D.T. per 1,000 sq. ft.</td>
</tr>
</tbody>
</table>
WASPS
(Sphex spp.)
Occasionally wasps may be found digging holes in lawns, in which to store caterpillars, spiders and other prey captured for food for the immature wasps.
Although the habit of digging may be somewhat of a nuisance, the beneficial effect of the wasps' activity normally far outweighs the inconvenience caused. Very rarely are more than a few to be found in any one place.

LADYBIRDS
(COCCINELLIDAE)
Among the more important beneficial insects found on lawns are the ladybirds. Practically all ladybirds are predacious, feeding on scale insects, aphids, mites and so on. The commonly known species in W.A. are spotted orange and black, but there are several important small black ones which often go unnoticed.

SPRINGTAILS
(COLLEMBOLA)
Some of the commonest inhabitants of lawns are the springtails. These small elongated grey or white jumping insects, 1/16 to 1/8 in. long, congregate in masses in lawns and gardens, usually in association with decaying vegetable matter. Often they may be seen to form a scum on the surface of puddles of water, and during very wet or hot weather they may also appear indoors. Although large numbers may be present, they do little or no damage, feeding mainly on the decaying leaves and grass cuttings.

OTHER LAWN INHABITANTS
Spiders, mites, millipedes, various insects and other arthropods often frequent lawns in search of food or shelter. Some are parasitic or predacious, feeding on other insects and animals. Others are saprophytic, feeding on decaying organic material.
In fact, of the very large fauna occurring in most lawns, the majority are not harmful to the lawn at all. It is well to learn to recognise the harmful ones and to distinguish them from the harmless and beneficial organisms. Remember that beneficial organisms usually suffer when poisons are applied for the control of pests.

APPENDIX
Grasses referred to in the text together with their scientific names are listed hereunder.

Buffalo grass—Stenotaphrum secundatum.
Couch grass—Cynodon dactylon.
Crab grass—Digitaria sanguinalis.
Queensland Blue Couch—Digitaria didactyla.
Super Fine Couch—Cynodon Transvaalensis.
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