Insect pests and their control - The webworm (Talis pedionoma Mayr.)

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THE WEBWORM
(Talis pedionoma Mayr.)

The popular name webworm has been applied to a small caterpillar whose depredations in ploughed-in wheat crops have concerned farmers in this State for many years. The first record of the insect as a pest was made by Newman (1927) under the scientific name of Sclerobia tritialis Wlk. and it has been referred to as such in some subsequent Departmental publications. Recent investigations, however, suggest that either more than one species of insect is covered by the term webworm or that the true webworm is a Crambid moth known as Talis pedionoma Mayr.

The matter can be finally settled by breeding adult moths from webworm caterpillars collected in the field but so far attempts to do this have proved unsuccessful. Autumn collections of small moths inhabiting typical "webworm country" have shown a high population of Talis pedionoma but other closely allied moths, particularly T. panteucha, may also be abundant. The exact identity of the moth may seem to the farmer to be of academic interest only but in actual practice a correct determination will greatly aid in elucidating life history studies of the pest and consequently the development of control measures.

DESCRIPTION
The various species of moths which may be implicated are small greyish insects with dark stripes and markings. The wings are closely folded around the body when at rest so that the moths harmonise closely with the background of dry grass or stubble.

The fully fed caterpillar measures approximately 3 in. in length and is dark greenish-black in colour. Caterpillars may be found on the surface of the ground at night but spend the day hidden in vertical silk-lined tunnels in the soil. It is the silken webbing in these tunnels which has been responsible for the popular name of the insect.

LIFE HISTORY
Many life history details still require investigation, but the adult moths fly in the early autumn and show a preference for old grass paddocks as egg-laying
sites. Barley grass flats are particularly favoured. Caterpillars feed during the winter and apparently restrict their diet to grasses and cereals as opposed to broad-leaved weeds and clover.

When fully fed and with the arrival of warm dry conditions in the spring the caterpillars deepen their burrows and enter a quiescent stage. The exact period at which pupation occurs is not yet known, but this may be shortly before moth emergence in the autumn.

ECONOMIC IMPORTANCE

The importance of the webworm as a pest has increased in recent years owing to the reduction in fallow cropping in many areas. Clean fallow paddocks are not attractive to egg-laying moths and so crops planted on good fallow are never injured. However, where grass paddocks are turned-in and planted to wheat shortly afterwards serious losses may occur.

Webworm damage in wheat crops first manifests itself by the appearance of thin patches in the young crop. These patches may later become completely bare and extend in size to join up with adjacent patches. A superficial inspection of the area may fail to reveal the presence of caterpillars, as these will be hidden in the daytime in their subterranean tunnels. A search amongst the clods around the edges of a bare patch, however, will usually disclose some caterpillars. The small entrance holes to the tunnels, sometimes with a half-eaten blade of wheat protruding, are also characteristic signs to the more experienced observer.

In addition to the damage caused to cereal crops, less conspicuous but very serious losses may also occur in feed paddocks where the caterpillars destroy or adversely affect the growth of various grasses. (Wallace and Mahon, 1952.) The full extent of the damage may be masked by clover, capeweed or other plants but the depletion of true grasses in the pasture may be quite serious. Some idea of the injury which could be caused will be gained from the fact that population samples have revealed approximately half a million caterpillars to the acre in some grass paddocks. (Jenkins and Forte, 1952.)

SUSCEPTIBLE PLANTS

Amongst the commonly grown cereal crops wheat, barley and rye are liable to webworm attack. Oats, on the other hand, appear to be quite immune as numerous observations have been made where wheat has been totally destroyed by webworm and oats in the next drill row have been untouched. In mixed grass and clover pastures clover appears to be entirely ignored but detailed information is not available as to just which type of grasses are preferred, with the exception of barley grass (*Hordeum murinum*) which seems to be first favourite.
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CONTROL MEASURES

Fallow

The surest known method of preventing webworm losses on susceptible cereal crops is to plant on clean fallow. For reasons of soil conservation and the greater use of land for stock grazing, there has been a considerable reduction in fallowing operations in recent years and a consequent increase in conditions favourable to webworm activity.

Time of Planting

Time of planting tests (Jenkins and Forte, 1952), indicate that early sown crops are less liable to webworm attack than late ploughed-in crops and that where sowing can be delayed a fortnight or longer after ploughing the likelihood of loss from webworm is further reduced.

Ploughing, as opposed to cultivating, in the initial working of the soil is another cultural operation which has proved beneficial. There is also evidence to show that extra cultivation between ploughing and planting may further reduce the hazard of caterpillar injury. Unfortunately in various districts and under some seasonal conditions it may be impossible for farmers to adopt such cultural practices and chemical treatments are then the only alternative.

Rolling, Harrowing and Replanting

Webworm outbreaks are often so patchy and the rate of spread so uncertain that although further extension may cease following harrowing or cultivating, the restricted activity is often associated with the natural habits of the creature rather than any direct effect of the implements used.

Observations on webworm infested areas which were rolled, harrowed or cultivated did not indicate that any appreciable control could be obtained by such methods. Replanting with wheat has proved successful in many cases, but spray protection for the new crop should be applied at the first sign of renewed caterpillar activity.

Chemical Control

A number of the new insecticides have proved toxic to webworm caterpillars, but
DDT is the most satisfactory so far tried. The recommended dosage is from 6-8 oz. of actual DDT per acre. As a gallon of proprietary 20 per cent. DDT emulsion contains 2 lb. of active ingredient 1 quart of concentrate will be sufficient to treat one acre at the higher concentration.

Proprietary mixtures of malathion and DDT suitable for red-legged earth mite and lucerne flea control may be employed against webworm caterpillars, but an extra pint of 20 per cent. DDT per acre should be added to the 1 oz. DDT, 1 oz. malathion combination normally used for pasture spraying.

Methods and Time of Application

Low volume sprays of various types and aircraft have been effectively used to spray webworm affected crops. The amount of
liquid applied per acre will depend upon the type of equipment used, but rates of 2 gallons and even lower have proved satisfactory with aircraft while many ground units operate efficiently at from 5-10 gallons per acre. The performance of any spray outfit should be carefully tested before treatment is actually commenced in order that accurate calculations can be made in connection with the dilution of the concentrates.

As a guide to the speed of operations it should be noted that a 30 foot boom will cover about 20 acres per hour at 5 miles per hour.

Once a crop has suffered severe webworm injury spray treatments may not ensure satisfactory recovery despite the destruction of caterpillars. For best results therefore sprays should be applied at the first sign of webworm activity.

Spray or dust applications on pasture at top dressing time will give good control of webworm (Anon, 1951), but so far there is no evidence that pre-sowing applications of insecticide will protect a crop.

For pasture protection DDT-superphosphate mixture applied at the rate of 90 lb. of 0.25 per cent. dust per acre during the late summer have given good control and 2 per cent. DDT applied at the same rate has given protection for 2 years.

**REFERENCES**


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