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### Insect pest - The red-legged earth mite

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# INSECT *Pests*

## AND THEIR CONTROL

by C. F. H. JENKINS, M.A. (Government Entomologist).

### THE RED-LEGGED EARTH MITE

(*Halotydeus destructor* (Tucker))

**T**HE red-legged earth mite is not a true insect, but is included in this series because the injury caused by the mite is very similar to that done by many insects and because the study of ticks and mites and their control is usually the work of an entomologist.

The original home of this mite is still doubtful. It has been known as a pest in South Africa since 1908, and in Western Australia since 1917. Bunbury was the first district to record the pest and it is believed to have been introduced per medium of vegetables and stores

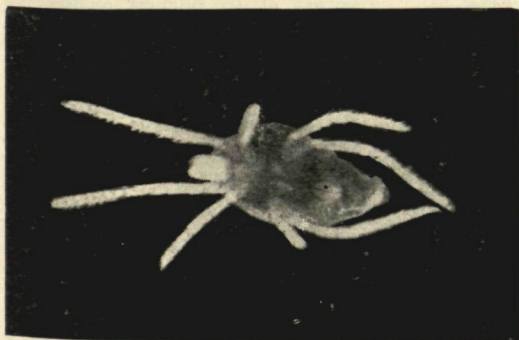
South-West, and is a menace to pastures, flower gardens, and vegetables alike.

#### GENERAL DESCRIPTION

The name, red-legged earth mite, is really very apt, if somewhat lengthy, for it describes concisely the main characteristics of the mite. The tiny body is velvety black, and the legs, eight in number are red. The two front legs are somewhat longer than the others, and are used as feelers.

#### LIFE HISTORY

The eggs are laid only in suitably moist situations, and may be attached to the under surfaces of plants such as clover and capeweed. Under favourable conditions an egg hatches within a few days and a tiny larvae mite emerges. The young mite differs from the adult in its small size and the fact that, like an insect, it has only three pairs of legs. After moulting several times it gains the full complement of eight legs and becomes mature.

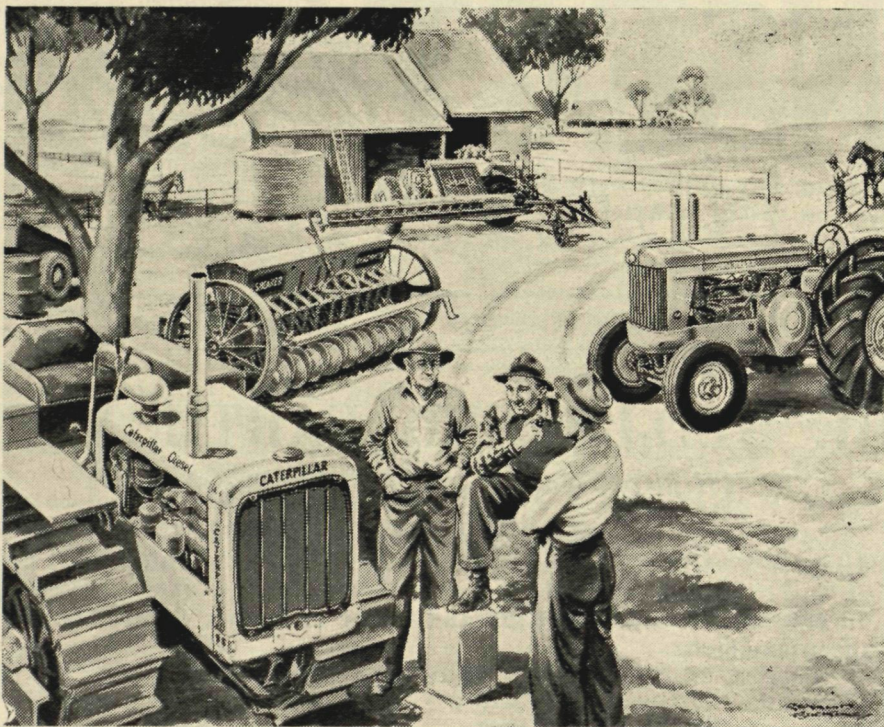


Red-legged earth mite—greatly magnified

discarded from ships trading between the port of Bunbury and South Africa.

Since its introduction the creature has spread practically throughout the





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It probably takes about a month or more, according to weather conditions, for each generation to develop and commence reproducing, so that there is ample time for several generations to arise during the winter months.

### OVER-SUMMERING

It is only after cool weather and the winter rains have set in that the red-legged earth mite appears, and it soon ceases to be active when the weather becomes hot and dry. It passes the summer by means of resistant eggs which lie in the soil and successfully withstand the heat and desiccation. Many of these eggs are laid before the mite dies, but others remain in the dried body of the dead mite and hatch with the next winter rains.

### HABITS

The red-legged earth mite is rather a delicate creature and is very susceptible to dryness, consequently it is only a pest during the winter months. It prefers moist, sheltered situations, and thrives especially where such weeds as capeweed are allowed to grow abundantly.

It is mainly on seedlings that the mite's attack is most serious. As soon as the tiny leaves appear the mites swarm upon them and cause them to bleach and wither. The mouth parts of the creature are adapted for rasping or lacerating the plant tissue, and the exuding sap is sucked up. Typical mite injury is indicated by the bleaching and whitening of the attacked foliage, but the absence of actual holes in the leaves distinguishes the injury from the bleaching caused by the lucerne flea, which also attacks pasture plants and many cultivated crops.

The mites are gregarious in habits, often feeding in clusters on a leaf or sheltering together in slight depressions in the ground. When disturbed they

scatter in all directions, and if on a plant will usually fall directly to the ground.

The name earth mite is quite apt for the creature, as it seldom goes far from that element, and returns there as quickly as possible at the first sign of trouble.

It is on leguminous crops such as field peas and clover that the red-legged earth mite is most troublesome to the farmer although flax and linseed may suffer heavily and cereal crops are liable to attack. Under favourable growing conditions it is not usual for crops such as wheat and oats to sustain serious damage but when drought or other adverse factors retard plant growth the mite injury is accentuated.

### CONTROL

**Cultural Methods.**—In order to minimise the depredations of this pest all weed growth, especially capeweed plants, should be reduced to a minimum. Where it is possible to plant field crops such as flax, field peas, etc., on clean fallowed land the damage from mites will be greatly reduced and infestation will mainly arise from weedy fence-lines and head-lands. Where fallow is not available for susceptible crops, weedy land should be turned in as long before planting time as possible so that mites already present in the area will be starved out before the new crop has germinated.

Burning may assist in reducing mite numbers where the grass fire is sufficiently hot to destroy eggs. A quick, patchy burn, however, may be relatively ineffective.

**Chemical Methods.**—Prior to the advent of DDT and the other "New Insecticides," chemical control for the red-legged earth mite was impracticable over large areas.

Various contact sprays such as Black Leaf 40 and phenyle solutions were available for market gardeners and backyard growers, but the effects of



such treatments were too short-lived to be of use to the grazier or farmer.

Of the better known "New Insecticides" DDT and BHC (Benzenehexachloride or Gammexane) have both proved toxic to the red-legged earth mite.

DDT has been found particularly promising on account of its long residual action and field treatments with this material have given very satisfactory control. Dusts applied with a power duster have given satisfactory protection to young pea and flax crops and are worthy of trial on any high value crop. In some instances the applications have not been made to the total crop but to strips of varying widths around the fence lines and around stone heaps and trees so as to prevent the migration of mites from such sites into the centre of the crop.

Some farmers have applied DDT dust through the drill, mixing it with superphosphate and allowing the hoses to hang freely outside the hose shoes so that the mixture is sprinkled freely on the surface of the drill row. The residual action of the DDT then gives protection to the young seedlings when they first emerge.

The adaptation of a small seeds attachment or a special feed system for applying DDT to the soil surface at planting time would appear worthy of further investigation.

Low volume spray units can be used instead of dusting machines and their popularity for weed control means that their use for other purposes may save the necessity of purchasing additional equipment.

### Rates of Application

DDT is recommended at the rate of  $\frac{1}{2}$  lb. to the acre. To obtain this rate 2% dust may be applied at the rate of 25 lb. per acre or liquid sprays in accordance with the output of the particular machine available.

In the case of a low volume outfit applying 10 gallons per acre, a proprietary 20% emulsion would require to be mixed at the rate of 1 gallon to 40 gallons of water. These proportions could be varied in accordance with the DDT concentration available or the required output of the spray unit. Aerial spraying is a comparatively recent innovation in this State and has still to be proved against the red-legged earth mite. In certain areas, however, where there may be difficulty in driving equipment over boggy paddocks after sowing has been carried out, aerial treatments may have special merits.

For market gardens and in backyards, 2% dust is quite satisfactory for treating seedlings and the surrounding soil. Where sprays are favoured a 0.1% water mixture is recommended.

The red-legged earth mite problem is one which is being closely studied by C.S.I.R.O. entomologists in this State, particularly with a view to devising field treatments suitable for extensive areas of pasture. The fact that lucerne flea and red-legged earth mite are often associated together further complicates the problem for DDT is relatively ineffective against the lucerne flea and no single treatment sufficiently economical for general farm use has yet been devised. Some of the more recent insecticides have shown promise, however, and are being still further tested.

