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ORIBIUS WEEVILS

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INTRODUCTION

Oribius weevils are small beetles. They are common in many parts of Papua New Guinea and feed on many different plants. Often the damage is not serious and no control measures are needed. Sometimes, however the oribius weevils can cause quite a lot of damage, especially on young plants. In these cases they need to be controlled.

TAXONOMY*

Oribius weevils are beetles belonging to the family Curculionidae (the weevil family) and to the genus *Oribius*. There are many species of *Oribius* in Papua New Guinea. Two common ones are *Oribius inimicus* and *Oribius destructor*. Many of the species of *Oribius* have not yet been described and given scientific names.

COMMON NAMES

Oribius weevils are known by several other common names. One of these is 'shot-hole weevils'. This name describes the damage the insects cause to the leaves of some plants. This normally consists of many small holes scattered over the leaf, so that it looks as if a shot gun has been fired at it. The name 'shot-hole weevils' is not a good one because the weevils do not always cause this type of damage.

Oribius weevils and some other kinds of weevils damage the bark and growing points of young stems of cocoa. In this case they are called 'grey weevils'. (See HARVEST Volume 9, nos 3-4, pp. 175-177.)

Some common names for oribius weevils are only used in small areas of Papua New Guinea. For example in the Mt. Hagen area they are known as 'tickly bugs'. These names are also not good because people from other areas of the country will not know them.

As a general name to be used throughout Papua New Guinea it is suggested that these insects be called 'oribius weevils'. This common name is based on the scientific name, *Oribius*.

DESCRIPTION

Adult oribius weevils are dark brown, dark grey or black beetles. Some have white spots or stripes on various parts of the body. They range in length from about 4 mm to 7 mm.

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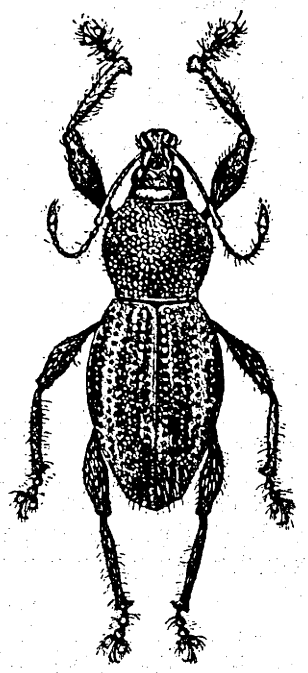
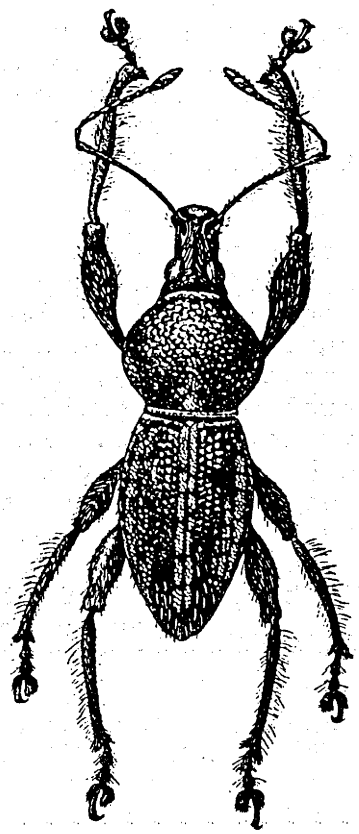
* *The science of describing and naming animals and plants. Here it means the scientific names given to these weevils.*



Oribius inimicus *adult, about 10 times natural size*



Oribius destructor *adult, about 10 times natural size*

Like all weevils the front of the head is elongated into a snout (or rostrum). The mouth is at the tip of this rostrum. The head is attached to the prothorax which is almost spherical (like a soccer ball) and this is attached to the abdomen which is oval (like a rugby ball).

BIOLOGY

The eggs are thought to be laid in the soil, but this has not yet been observed.

The larvae hatch from the eggs and feed on the roots of plants. They have been seen in the soil around the roots of many weed plants and leguminous cover crops.

The larvae are typical weevil larvae: they are small, whitish and without legs, and they come to rest in a 'C' shape when removed from the soil. The larvae pupate in the soil.

The adults emerge and feed on the leaves of nearby plants. The adults cannot fly but must walk to infest new plants. So spread from one area to another is fairly slow.

There is no information available about the length of the life cycle. This is being studied and will be published later in a revision of this bulletin.

ECONOMIC IMPORTANCE

Oribius weevils feed on a very wide range of host plants. Damage to leaves and/or flowers has been recorded on aibika, apple, avocado, brussels sprout, capsicum, cardamom, cashew, celery, choco, citrus, cocoa, coffee, common bean, dahlia, desmodium, hibiscus, hollyhock,

lima bean, macadamia, mulberry, onion, passion fruit, potato, rhubarb, roses, silver beet, soyabean, strawberry, sunflower, tea, winged bean and other plants.

Damage levels vary from a little shot-holing to severe defoliation (removal of leaves). Often mature plants can stand a fair amount of damage, and usually control of the oribius weevils is not needed. In some crops, such as tea, the canopy (the leaves and branches at the top of the plants) is so thick that few weeds grow in the centre of the crop. The oribius weevils cannot breed in the crop but must move in from weedy areas nearby. Any damage usually only occurs at the edges of the block and is not serious.

On young plants, the damage can be severe because they have fewer leaves and because weevils often feed on the growing points of the plant. This sometimes occurs on young tree crops and has been recorded on cocoa, coffee, citrus and macadamias. Damage levels depend on how many oribius weevils can walk from nearby plants onto the young trees. The young trees can also be infested with adults emerging from pupae in the soil close by.

Oribius weevils sometimes feed on the outside of fruits such as bananas and citrus. This causes scarring which spoils the appearance of the fruit and can reduce the market price. The damage only affects the skin of the fruit, not the inside which is eaten.

Control of oribius weevils depends on the amount of damage and if people are willing to pay more for the fruit that looks nicer.

Oribius weevils often damage ornamental plants. In this case even a small amount of damage can spoil the appearance of the plants and people often want to control the weevils to keep their gardens looking nice. Usually only a small area is involved and the price of control is not too great.

CONTROL

Cultural control

Since oribius weevils cannot fly they are unlikely to move very far. Infestations in crops probably arise from emergence of adult weevils from the soil within the crop, or by migration of adults from weedy areas close to the crop.

In young tree crops, such as coffee or young fruit trees, clean weeding, both within the block and around the block, is most important. This acts in two ways. First, it removes the food of the young oribius weevils so that they cannot breed in the block. Second, adult weevils in nearby blocks are unlikely to move over the bare ground to reach the crop.

However, if weeding is not done regularly and there are large numbers of adult oribius weevils present, removing the weeds may temporarily increase the damage to the trees. As the weeds are removed the oribius weevils will move straight onto the nearest trees.

Chemical

If weeding is done regularly, control of oribius weevils using insecticides should not often be needed. However, the recommendations given in this section could be used, when necessary, on:

1. Young tree crops where the population has been allowed to build up and where rapid control is necessary.

2. On fruit trees, such as bananas and citrus, where damage to the fruit is occurring, and where the increased market price of undamaged fruit is more than the cost of the insecticide application, and

3. On ornamental plants in gardens.

Control of oribius weevils with insecticides is difficult. Many insecticides have been tested in the laboratory against *Oribius inimicus*. Several are effective but are not recommended because of the problems of toxicity (they are too poisonous to people) or residues (they have a very long life in the soil) caused by their use.

There are two recommendations. Both of these insecticides are reasonably safe to use, although the usual precautions in handling insecticides should be followed (see Entomology Bulletin No. 9 and Rural Development Series Handbook No. 18).

1. Acephate. This gives moderate control, but must be used at a concentration of 0.3%, which makes it rather expensive. However, you can buy acephate in small quantities. It could be useful where small numbers of ornamental plants are to be sprayed in a home garden.

   A 0.3% solution of acephate is prepared by mixing:

40 g Orthene 75SP 10 litres of water

2. Permethrin. This gives much better control of oribius weevils than acephate. It is expensive but it is used in such small amounts that the cost per hectare is much lower than acephate.

   You can buy permethrin in two strengths, Ambush 10 and Ambush 50. Ambush 50 is stronger; it contains 5 times more permethrin than Ambush 10. It is also much more expensive to buy but you use less. If you have a large area to spray it is best to buy Ambush 50. One litre of Ambush 50 is enough to spray 5 ha. If you have a smaller area to spray, it is best to buy Ambush 10. One litre of Ambush 10 is enough to spray 1 ha. Ambush 10 should also be available soon in much smaller quantities, enough for a quarter of a hectare.

   Permethrin should be applied at a concentration of 0.01%. To prepare this mix together:

   EITHER

10 ml Ambush 10 10 litres water

   OR

2 ml Ambush 50 10 litres water

   (make sure you know which strength of Ambush you are using).

A commercial wetting agent should be added to both the permethrin and acephate mixtures at the rate recommended on the container. This helps the insecticide mix to spread better over the leaves of the plant and the insects.

FURTHER INFORMATION

For further information about oribius weevils and their control, contact your nearest D.P.I. entomologist or didiman. Entomologists are based at:

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KONEDOBU
Tel: 214699 Ext. 255

KIMBE
Dami Oil Palm Research Station,
P.O. Box 165, KIMBE, W.N.B.P.
Tel: 935204

LAE
Bubia Agriculture Research Centre,
P.O. Box 73, LAE
Tel: 424933

MOUNT HAGEN
Kuk Agricultural Research Station, P.O. Box 339
MOUNT HAGEN
Tel: 551377

RABAUL
Lowlands Agricultural Experiment Station, P.O. Keravat
East New Britain Province
Tel: 926251 or 926252

Copies of this Entomology Bulletin can be obtained from:
The Publications Officer,
Publications Section, D.P.I.,
P.O. Box 417, KONEDOBU.

(The illustrations of *Oribius inimicus* and *O. destructor* on p. 37 are taken from Marshall, G.A.K. (1957). *Bull. Ent. Res.* 48(1): 1-7.)