ENTOMOLOGY BULLETIN: NO. 7 - PROTECTION OF SEEDLINGS FROM CUTWORM DAMAGE

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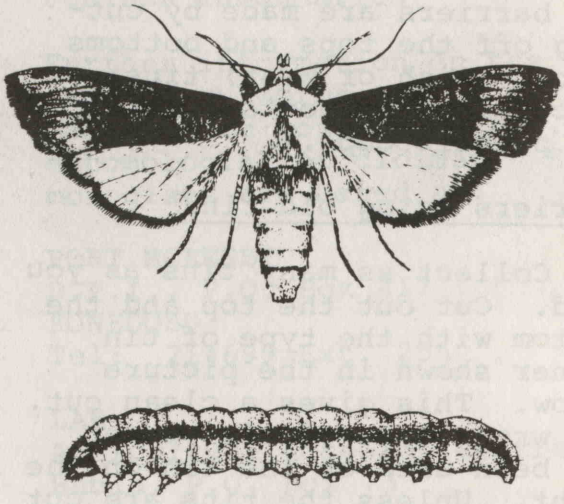
INTRODUCTION

Cutworms are the larvae (young stages) of a moth called *Agrotis ipsilon*. They live in the soil where they feed on a wide range of plant material during the night. Often, they chew through the stems of young seedlings at, or just below, the soil surface. When they are present in large numbers, they can cause a considerable amount of damage, and control measures are often necessary.



Cutworm adult (top) and larva (bottom) shown about 1.5 times their natural size

DESCRIPTION AND LIFE CYCLE

The adult moth is about 22 mm long. It has a dark grey body, forewings of mid-brown to black with paler outer margins, and hindwings of a pale to creamy brown with well-marked dark veins. The eggs are creamy white, changing to reddish yellow and then blackish before hatching. They are dome-shaped, about 0.5 mm in diameter, with 30-40 vertical ribs. They are laid singly or in small groups at the base of the stems of plants or on the soil surface.

On hatching, the larvae remain in the soil during the day and come out onto the surface to feed at night. Here they chew the bases of the stems of plants, particularly young seedlings. Often the stem is completely chewed through and the seedling appears as if it has been cut off at ground level. The length of the larval stage varies from a few weeks to several months depending on the food supply. The mature larva is about 45 mm long, slate-grey or dark green in colour with a shiny, greasy looking skin. When disturbed, it usually curls up quickly to form a circle. Pupation occurs in cells in the soil from which the adult moth finally emerges.

ECONOMIC IMPORTANCE

Cutworms feed on a large variety of seedlings, often causing considerable losses. They are widely distributed in Papua New Guinea occurring both in the lowlands and in the highlands.

CONTROL

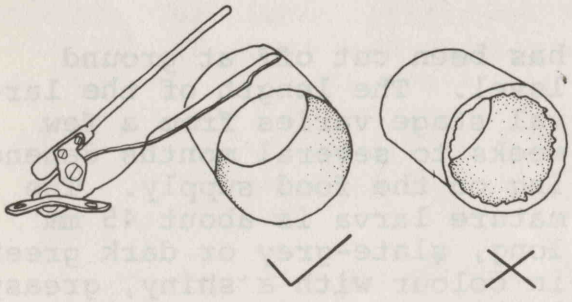
Physical control

Seedlings can be protected against cutworms by placing a barrier around them. The method is useful for people with small gardens, or those who live a long way from town and cannot get chemicals easily.

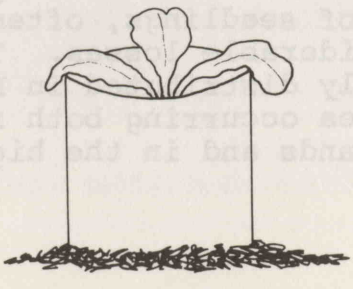
The barriers are made by cutting off the tops and bottoms of old (fish or meat) tins; or by cutting the bottoms out of old plastic cups.

Barriers using old tins

1) Collect as many tins as you need. Cut out the top and the bottom with the type of tin opener shown in the picture below. This gives a clean cut. The wrong type of tin opener has been used on the tin on the right. Unless the tins are cut properly, they will disturb the roots of the seedlings when they are taken away later on.



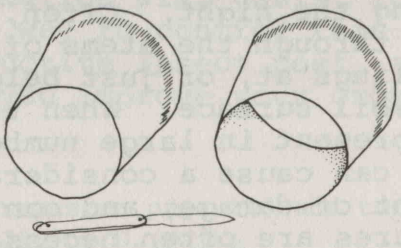
2) Place a tin over each seedling at planting time. If you wait a day or two, it may be too late, as the cutworms will start eating your seedlings almost straight away.



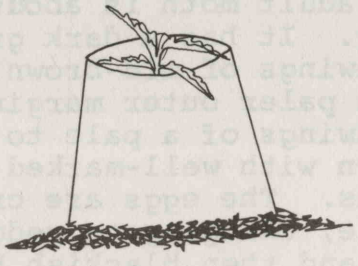
c) When the seedlings are strong, the tins should be removed gently, without disturbing the roots.

Barriers using plastic cups

1) Use a knife to cut the bottom out of the plastic cup.



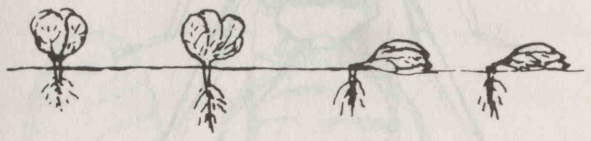
2) Place a plastic cup over each seedling at planting. If you wait a day or two it may be too late.



3) When the plants are strong remove the plastic cups. You will find that they can be removed easily, but take care not to disturb the roots.

Chemical control

Cutworms can be controlled by drenching (soaking) the soil around the bases of the seedlings with either DDT or lindane. Care should be taken that these two insecticides do not touch the leaves of the plant. Alternatively, a soil drench of either insecticide can be applied to the ground before the seedlings are planted out.



Damage caused to cabbage seedlings by cutworm larvae

DDT should be used at a strength of 0.1%. To prepare this, add 40 ml of DDT 25% Miscible Oil to 10 litres of water.

Lindane should be used at a strength of 0.02%. This is prepared by adding 12.5 ml of Gammaphex (16% w/v lindane emusifiable concentrate) to 10 litres of water.

FURTHER READING

Jones, F.G.W. and Jones, M.G., (1966). *Pests of Field Crops.* Edward Arnold: London. 406 pp.

Kimber, A.J. and Calcinai, B. L. (1980). *An Easy Way to Control Cutworms.* Aiyura Bulletin No. 13. October 1980.

Kranz, J., Schmutterer, H. and Koch, W. (1977). *Diseases, Pests and Weeds in Tropical Crops.* Verlag Paul Parey: Berlin and Hamburg. 666 pp.

Metcalf, C.L. and Flint, W.P. (1962). *Destructive and Useful Insects, their Habits and Control.* McGraw-Hill: New York, San Francisco, Toronto and London. 1087 pp.

Swaine, G. (1971). *Agricultural Zoology in Fiji.* H.M.S.O.: London. 424 pp.

FURTHER INFORMATION

Further information on the control of cutworms can be obtained from your nearest D.P.I. entomologist or didiman. Entomologists are based at:

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Station, P.O. Box 339
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