Greasy Cutworm Control in Maize

**Key Points**

- Damage can start before maize emergence but mostly occurs after emergence.
- Typically maize seedlings are cut and felled.
- Each cutworm can destroy 2-5 plants, and adult female moths lay 600-800 eggs.
- Damage is worst after a short fallow, in weedy fields and on leeward side of shelter.
- Cutworm attack maize, sweetcorn, other cereals, grasses, many vegetables, lucerne, white clover and weeds such as docks and plantains.
- Poncho seed treatment can be used to give control.
- Scout crops regularly from emergence for damage and apply insecticide if required.
- Synthetic pyrethroid insecticides are most cost effective.

**Introduction**

Greasy cutworm (*Agrotis ipsilon*) has a very wide host range including many vegetables, maize, sweetcorn and other cereals, grasses, lucerne, white clover, and weeds such as docks and plantains. Cutworm occurs in all maize and sweetcorn growing regions in New Zealand.

**Adults**

The adults are brown to greyish-brown moths with wingspans of 35-50mm. The forewings are long and narrow with black dashes and are darker than the hindwings.

The moths are nocturnal, can fly strongly and are attracted to lights. During the day they hide themselves amongst vegetation, but will fly if disturbed. Moths can be seen all year but numbers are highest during October to April.

**Eggs**

Each female deposits around 600-800 eggs on vegetation, plant debris or into cracks in the ground. Newly laid eggs are whitish-yellow but turn brown within 24 hours and become darker as hatching approaches (generally 3-7 days after being laid). During windy periods eggs are usually laid on the leeward side of shelter (trees, hedges etc) meaning damage is often worst in these areas.

**Larvae**

Larvae (caterpillars) are brown to greyish-green in colour. Larger larvae are typical greyish-green with two yellowish longitudinal stripes down the body. Their skin has a shiny greasy appearance.

Young larvae forage on leaves until they are about one third grown. At this stage larvae move to the ground and during the day lie curled up 25-50mm below the soil surface. At night the caterpillars emerge to feed. There are five to seven instars (moulting stages), with the final-instar larvae being up to 50mm long. When fully grown the larva starts the prepupal stage by ceasing to feed and making an earthen cell in the top 50mm soil.
**Pupae**
Pupae are reddish-brown and 17-25 mm long. Pupae appear almost black in colour just before the moth emerges.

**Life Cycle**
Eggs hatch in 3-7 days, the larval stage is usually about 4-6 weeks and the pupal stage 2-3 weeks. The normal summer life cycle takes from 7 to 12 weeks depending on the location and climate and there are 2-3 generations/year in New Zealand. Both larvae and pupae over-winter and may take up to 6 months to complete development.

**Damage**
Young larvae are foliar feeders while older larvae (about 3rd instar onwards) feed on the seedlings at or below ground level. Damage can start before maize emergence, but typically plants are cut and felled after emergence. Often the severed seedling is dragged into the ‘burrow’ of the cutworm.

In larger maize plants cutworm can be found tunnelling inside the stem. Larval feeding often destroys the growing point at the base of the plant killing the seedling. Plants cut above the growing point usually survive but have greatly reduced yields.

Losses of well over 10,000 plants/ha can occur at populations of 3 per 100 plants (before the two leaf stage) or 6 per 100 plants (at the two to four leaf stage).

**Control**

**Scouting**
It is important to scout paddocks on a regular basis for several weeks after maize emergence. Moths tend to congregate and lay eggs on the leeward side of shelter, so scouting these areas is important.

Where plants have been recently felled, scratching carefully in the soil around the cut plant base will usually reveal the curled up larvae. Their size will give an indication of future crop damage. Very large larvae close to 50 mm long will soon pupate while smaller larvae will continue to cause plant damage for longer.

**Cultural Control**
Destroying alternative hosts such as docks or by cultivating before planting will reduce cutworm numbers. A four to six week fallow period before planting can also be beneficial.

**Chemical Control**
Poncho treated seed gives control, particularly where cutworm numbers are not high (also controls black beetle and stem weevil).

A range of insecticides have registration for cutworm control in maize, with the synthetic pyrethriods being the most cost effective. In fields where cutworms are a perennial problem, a synthetic pyrethriod insecticide can be used in combination with pre-emergence herbicides.

The success of any greasy cutworm control programme depends upon recognising field conditions that favour their development, frequent scouting from seedling emergence to allow early detection and damage assessment, and if required, properly timed application of an appropriate insecticide.

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