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INSECTS

and their influence on canola production

Beneficial insects, such as pollinators, predators and parasites, contribute greatly to successful canola production, according to the Canola Council of Canada (2013). It is, however, important to realise that most of the beneficial insects and organisms also occur here in South Africa. Chemical control of insects has in many cases resulted in beneficial insects being killed. This article gives a short overview of insects and organisms that can be beneficial and others that are harmful for canola production.

Beneficial organisms can be divided into different groups, namely:

- Predators (e.g. lion hunting deer).
- Parasites (e.g. ticks on cattle).
- Pathogens (e.g. diseases that are caused by fungi, viruses, bacteria and nematodes).
- Pollinators (honey bee).

Predators

The most well-known insect predator in the Western Cape is the ladybird. It feeds on aphids and other soft-bodied insects such as the bagrada bug. It is important to realise that the larvae and adult ladybirds act as predators (Visser, 2004; Hatting, 2014).

Other possible predators include hoverflies. These flies can resemble

bees or wasps. Adult flies hover in a stationary position between plants. Adult flies feed on nectar, honeydew and pollen, while their larvae feed on aphids (Visser, 2004; Hatting, 2014).

Parasites

Parasites are insects that lay their eggs inside or near other insects, and in doing so the prey insect serves as food for their offspring (Visser, 2004). The different wasps and flies fall in this group. Wasps resemble small hornets and parasitise on aphids and diamondback moth larvae (Hatting, 2015; Smith and Villet, 2001; Canola Council of Canada, 2013).

Wasps lay their eggs inside aphids, which are then eaten from the inside by

the larvae which parasitise on the host. Certain flies of the family *Tachinidae* occasionally parasitise on the American bollworm larva.

Pathogens

Insects are, just like people, attacked by various diseases. The organism or microbe that causes the disease in the insect is called an insect pathogen. These pathogens include fungi, bacteria, viruses, protozoa and nematodes. This is a research field that holds much potential for biological control. It is classified under biological control methods which can help to address insect problems within an integrated control programme, along with chemical agents (Hatting, 2014).

Recommendations for the producer:

- Use chemical agents with discretion.
- Apply chemical control only if threshold values are reached.
- Only apply control in areas where insects are a problem.
- Manage the field in such a way that the population of favourable organisms increases, such as leaving stubble on the field to promote survival.
- Lucerne in crop rotation or a neighbouring crop can create an environment for favourable organisms to multiply and survive.
- Take precautionary measures so that as few as possible pollinators (e.g. bees) are killed with chemical insect control.

Harmful insects

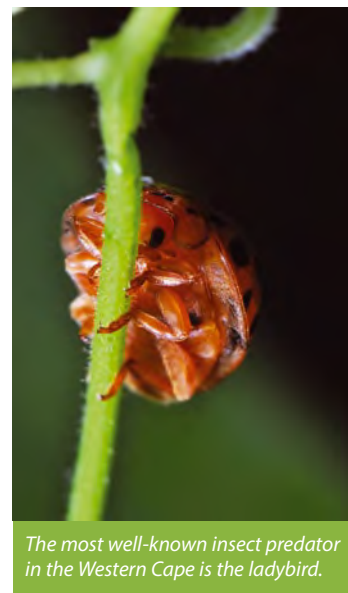
The cabbage webworm (*Hellula undalis*) is common in the Western Cape. It is mainly a problem with cabbage crops. The insect has in the past occurred sporadically on canola and has again been observed in 2015. However, it did not require any chemical control in the past. The cabbage



An adult parasitoid wasp laying eggs inside the aphid.



Cabbage webworm larva on a leaf.



The most well-known insect predator in the Western Cape is the ladybird.

webworm prefers temperatures that are warmer, such as in autumn (Kerr, 2015).

The mature larva is yellowish-grey and has five stripes with a black head and yellow to brown hair. Larvae spin threads in the crown of the canola plant where they feed. They can damage the growth point of the plant, but the plant then creates new growth points.

Chemical control of the cabbage

webworm is problematic, since the larvae produce a lot of silk, in which they form webs on leaves for protection (Photo 6). Better control is obtained if larvae are chemically controlled when they are still small.

References are available from the author. For more information, contact Piet Lombard on pietl@elsenburg.com.

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