Controlling slugs and isopods in canola

When large areas of canola seedlings disappear overnight, farmers have cause to worry. In the Overberg, the primary cause of this problem are isopods and slugs. Fortunately, there are several ways to get rid of these pests. Specialist scientist Dr Geoff Tribe, consultant to the Protein Research Foundation, explains these to Lindi van Rooyen.

Slugs and isopods can rapidly destroy large patches of canola seedlings. The Protein Research Foundation (PRF) has conducted field trials on various methods of combating the problem.

Results show that a combination of slug pellets and burning the stubble a week before planting was the most effective control measure.

Dr Geoff Tribe, a plant protection expert, explains that one isopod species, Armadillidium vulgare, and three slug species, Deroceras panormitanum, Deroceras reticulatum, Millerigyes, are the main agents responsible for seedling losses. He adds that despite large numbers of crickets, millipedes and cutworms found on lands during the investigation, none of these insects had been linked to seedling loss.

ISOPODS

In most cases, isopods account for 80% or more of seedling losses.

The purple- and pink-coloured isopods flourish in lands covered with surface stubble or mulch, under which they can hide. Tribe says that killing the weeds means that canola seedlings are the only available food plants.

"Isopods become active with the slightest moisture," explains Tribe. "If the rains are delayed, slugs and isopods emerge and feed together."

In this case, seedlings may be eaten even before they appear on the surface."

According to him, the damage done to canola seedings often does not correlate to the number of isopods seen on the surface.

"What we don't know is where the isopods go. During trials, we could mark 2,800 isopods in a field, and recover only six. They live just under the soil surface and the number of juvenile isopods varies greatly between seasons. We have yet to establish whether a weed-free land at planting aggravates the situation."

SLUGS

Slugs appear when temperatures drop and moisture is present. Tribe’s research has found that canopy provided by canola creates the ideal habitat for the laying of eggs.

A slug infestation can be recognised by the slime trails on the ground and plants.

"They congregate below the soil and feed outwards along the rows of seedlings, leaving behind bare oval
patches. The entire seedling is usually eaten, but sometimes a row of stalks is left protruding above the ground," says Tribe.

The study shows that rains in November and December appear to be critical for slug survival in the Overberg.

**WINNING THE WAR**

After reviewing a combination of treatments during the PRF trials, it was concluded that burning stubble on the fields and applying slug pellets would be the best way to deal with slugs and isopods. Burning alone worked to an extent, improving seedling survival rate. Trials also showed that broadcasting 8kg/ha of slug pellets containing 30g/kg metaldehyde and 20g/kg carbaryl on the surface at planting was the most cost-effective method of protecting seedlings from slugs and isopods during the four-week period after planting.

Tribe says that all products were equally effective but that smaller pellets tend to be more widely spread and are perhaps more accessible to isopods.

Trials showed that placing slug pellets in the soil with seed at planting was ineffective when it came to dealing with this problem. Pellets must be applied superficially at planting.

"Some farmers apply pellets at 15kg/ha and consistently have no seedling loss," explains Tribe.

**FROM TOP:**

- Isopods (Armadillidium vulgare) clustering on the ground.
- Milax evansi and Deroceras reticulatum slugs.
- Deroceras panomianum slugs.

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**BIO MONITOR**

How Australia battles herbicide-tolerant weeds

Consistent use of the same herbicide may lead to weeds developing resistance, irrespective of whether the affected food crop is GM. For that reason, the chemical industry has developed herbicides with different modes of action, effective against various weeds. Australians are now attacking weeds by destroying the key problem: germination of weed seed.

Increasing the area under wheat production and phasing in minimum tillage practices has led to increasing application of the Hoegrass herbicide. However, continued widespread use of this herbicide has caused wild ryegrass to develop resistance. Increasing the dosage and using other herbicides has not solved the problem, as cross-resistance to several herbicides appeared. One plan resulted in mandatory description of the herbicide’s mode of action on labels; this guided farmers in alternating herbicides with action.

The prevention of weed seed germination began with using modified carts behind combines to catch the chaff, which was then burnt. This reduced chaff with weed seed left in the lands. A combine modification directed the chaff into windrows, which were set alight. About 70% of farmers adopted this system. One producer destroyed weed seed by modifying a mining machine that pulverised windrow material, producing 98% destruction of seeds in chaff.

The final recommendation was an integrated approach combining seed destruction with alternating herbicides with different modes of action. Researchers continue to monitor resistance in other weeds.

**Source:** Science, August 2013.

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