

Resistance 'mite' be a problem

PestFax Editor and 2007 Grains Research and Development Corporation (GRDC) Seed of Light winner, Peter Mangano of the Department of Agriculture and Food WA (DAFWA), warns growers that redlegged earth mite (RLEM) populations on two WA properties at Esperance and Cranbrook have major resistance to widely used synthetic pyrethroid insecticides.

Toxicology bioassays by the Centre for Environmental Stress and Adaptation Research at the University of Melbourne showed high levels of resistance to bifenthrin and alpha-cypermethrin.

A resistance factor of more than 240,000 fold against bifenthrin and almost 60,000 fold against alpha-cypermethrin, when compared with susceptible mites, was found in RLEM populations on the property in the Esperance area.

"This alarming discovery highlights our current dependence on insecticides and the need for sustainable long term pest management, using integrated pest management (IPM)," Peter said.

He indicated that, fortunately, organophosphates, such as dimethoate and omethoate, were still effective against the mites.

Peter is a member of the GRDC-funded National Invertebrate Pest Initiative (NIPI), which enables entomologists around Australia to advance IPM adoption.

RLEM, or *Halotydeus destructor*, is one of the most important and widely distributed pests in broadacre farming systems in southern Australia.

"The mites can be particularly destructive at the establishment phase of crops and pastures, causing severely reduced plant density or total seedling mortality, necessitating re-seeding in some cases," he said.

"In years with a late break of season, or with late sown crops and pastures, seedlings may emerge in the presence of large populations of mites.

"Canola seedlings are particularly at risk, while lupins and other pulses are more tolerant and cereals and grasses can tolerate considerable damage," he said.

DAFWA entomologist, Svetlana Micic says the risk of RLEM resistance occurring can be reduced by following some simple IPM guidelines.



The GRDC funded National Invertebrate Pest Initiative advises growers adopt an integrated pest management approach to prevent resistance developing in redlegged earth mites, shown here on a lupin seedling.

"If a RLEM susceptible crop, such as canola, is following pasture then grazing to two tonnes per hectare of dry weight will control RLEM as effectively as chemicals," she said.

Svetlana indicated that trials have shown that crops following pasture have higher RLEM numbers than those following a cereal.

"Growers should be aware of varying pest risks following paddock rotations. Planting susceptible RLEM crops following cereals, rather than pasture, will reduce the need to control RLEM with chemicals," she said.

If insecticides do need to be applied to control RLEM, insecticide groups should be rotated to minimise the risks of selecting for resistance to a particular chemical group.

Growers and agronomists who discover mites surviving registered rates of insecticide are encouraged to contact local department entomologists so mites can be tested for resistance levels.

Growers interested in receiving PestFax can subscribe by sending their details to PestFax@agric.wa.gov.au

Contact Peter Mangano, Ph: 08 9368 3753 or Svetlana Micic, Ph: 08 9892 8591. ■

One soil may benefit another

AT A GLANCE

- GRDC-funded PhD student researching mechanisms for disease-suppression.
- Rhizoctonia-suppressive soils from Avon analysed and compared with soils from other dryland areas.

A PhD student funded by the Grains Research and Development Corporation (GRDC) is analysing soils from dryland farming systems in order to answer questions about the soil biota.

The University of Adelaide's Sjaan Davey is focusing her research on soils that are disease-suppressive for Rhizoctonia root rot.

"Rhizoctonia root rot is caused by the fungus *Rhizoctonia solani*," Sjaan said. "It can have a devastating impact on crops in dryland areas, but very little is known about the disease."

"Research has shown that disease-suppressive soil from Avon, in South Australia's mid-North, is able to host Rhizoctonia,

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