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NEW CHEMISTRY TO BEAT GENETIC ARMOUR

Changing from conventional insecticides could repel the seemingly indestructible green peach aphid (GPA), which often infects canola crops with beet western yellow virus (BWYV) and chops yields by up to 46 per cent.

BWYV has been detected on two thirds of WA canola crops, which is similar to eastern states infection levels.

BWYV’s damaging impact was discovered during a joint Centre for Legumes in Mediterranean Agriculture (CLIMA) and Department of Agriculture research project investigating BWYV in canola and a new form of bean yellow mosaic virus in lupins.

All known WA populations of GPA readily develop resistance when sprayed with conventional insecticides.

However, the ‘new chemistry’ insecticide, imidacloprid – available as a seed dressing and foliar spray – has exposed chinks in GPA’s genetic armour, with Grains Research and Development Corporation supported trials achieving good GPA and BWYV control using imidacloprid as a seed dressing.

“Nowhere in the world has GPA displayed resistance to imidacloprid,” Roger Jones of CLIMA and the Department explained.

“When the imidacloprid seed dressing was applied in 2002 WA canola trials, it displayed remarkable longevity in the plants and controlled insecticide-resistant GPA for up to 75 days after application. BWYV spread was significantly reduced and canola seed yield increased markedly,” Dr Jones said.

In trials at Badgingarra and Avondale, the CLIMA and Department project applied imidacloprid to canola at 525 grams of active ingredient per 100 kg of seed before sowing large plots into which GPA and BWYV infected plants were introduced.

Following rapid spread of GPA and BWYV within the plots, plant performance was compared against plants from plots treated with a conventional insecticide (the pyrethroid ‘alph-cypermethrin’) and untreated control plots.
Control plots and those treated with the conventional pyrethroid insecticide alone were almost completely infected with BWYV. Neither displayed the increased vigour or growth shown in the imidaclopid treated plots, where plant size doubled.

“On its own, imidaclopid seed dressing increased seed yield by 88 per cent at Avondale and 74 per cent at Badgingarra,” Dr Jones stated.

Imidaclopid seed dressing is currently registered for use on canola for control of red-legged earth mite and blue oat mite, indicating the treatment’s versatility. Information to support its registration for GPA management is being compiled, although the most economical application rates are yet to be determined.

“GPA and consequent BWYV control, coupled with the seed dressing treatment’s potential for broad spectrum control of several other canola pests make it an extremely encouraging prospect for large-scale national use by the canola industry,” Dr Jones concluded.

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