



## Industry update #8 – Fall armyworm

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5 July 2021

### Situation update

The pest fall armyworm (*Spodoptera frugiperda*) is established throughout the Kimberley, Pilbara and further south in Carnarvon, Karratha, and Gingin. Fall armyworm has been found feeding extensively on maize, sweet corn, sorghum, and Rhodes grass.

As part of the ongoing surveillance program run by the Department of Primary Industries and Regional Development (DPIRD), fall armyworm has been detected near Geraldton, and Northam, though it has not been confirmed as established in these areas. DPIRD surveillance traps will continue to be monitored as part of the agency's program monitoring the spread of fall armyworm.

Cropping, horticulture and turf grass growers are encouraged to check for larvae in their crops and monitor for unusual levels of damage. Growers can also set up a pheromone trap on their property to monitor for the moths, which serve as an early warning for the presence of larvae.

Suspected fall armyworm should be reported to DPIRD to assist with surveillance and potential management options.

Report suspected fall armyworm damage to DPIRD's Pest and Disease Information Service (PaDIS) by calling +61 (0)8 9368 3080 or email [padis@dpiird.wa.gov.au](mailto:padis@dpiird.wa.gov.au), or use the [MyPestGuide Reporter app](#).

### Surveillance activity in Western Australia

DPIRD has deployed more than 50 pheromone (lure) traps throughout northern Western Australia, including Kununurra, Broome, the Pilbara, Carnarvon, and Geraldton. These complement traps in Kununurra, which have operated since October 2019.

With the emergence of crops, the number of traps in the DPIRD Grainbelt trapping program is currently increasing, from about 10 over summer, as an early warning of the moth migration activity, and potential risk to grain crops.

This surveillance trapping network assists in providing early warning advice to industry about the presence of fall armyworm during the times when the pest migrates further south.

However, the cooler temperatures now being experienced in the southern area of the State are expected to limit the establishment of the pest.

### Pesticide resistance genes in WA's fall armyworm population

Pesticide resistance genes have been detected in Western Australia's fall armyworm population.

DPIRD sent samples of 158 fall armyworm larvae from across the Ord Valley Irrigation Area in Kununurra, and Broome, to the Insecticide Resistance Unit at New South Wales' Department of Primary Industries (NSW DPI) for analysis. Larvae were tested for the presence of genes that are linked to resistance to Group 1, Group 2B, Group 3A, Group 4A, Group 5, Group 6 and Group 28 insecticides.

Genes that may lead to resistance to the Group 1 insecticides were found in all of the larvae tested. The majority of the larvae (68%) carried two copies of one of the resistance genes, which means that the fall armyworm population in Western Australia will have reduced susceptibility to the Group1A and 1B insecticides (organophosphates and carbamates).

Some of the larvae (14%) also carried a copy of a second gene that is linked to resistance to the Group1 insecticides.



No other resistance genes were found in the samples. This means that a range of treatment options is still available to growers to protect crops from fall armyworm as part of an integrated pest management program.

These results, which show resistant genes to Group 1A/1B pesticides, validate and expand on the preliminary resistance testing conducted last year.

Additional studies using bioassays to assess the susceptibility of fall armyworm to all registered insecticides have been conducted at NSW DPI on laboratory colonies of fall armyworm from Kununurra. These studies confirmed that, relative to corn earworm (*Helicoverpa armigera*), susceptibility of fall armyworm from Kununurra to the broad-spectrum Groups 1A, 1B, and Group 3A insecticides is significantly reduced. There is also significantly lower sensitivity to Group 22A insecticides.

There are low levels of insensitivity to Group 6, Group 18 and Group 28, but not the Group 5 insecticides, which are equally toxic on both fall armyworm and *H. armigera*.

There is some evidence of variation in the susceptibility of fall armyworm populations in different regions of Australia. However, the levels of insensitivity in Kununurra are consistent with those observed in populations from northern growing regions of Queensland.

While fall armyworm has genes that contribute to resistance to the Group 1 insecticides, the mechanisms responsible for reduced susceptibility to the other groups of insecticides is unclear at this stage and different responses in different populations to some insecticides may represent natural tolerance to some chemical groups.

A poor result after pesticide application can also be due to reduced exposure of the pest to the pesticide, possibly related to how the pesticide is applied, and the behaviour of the insect.

It is likely that fall armyworm entered Australia carrying the genes, and that the traits will spread as fall armyworm migrates throughout Western Australia. There is also the possibility that new resistance genes will develop in Australia, and that there will be continued reduction in sensitivity to insecticides.

Continual monitoring for resistance mutations and careful evaluation of pesticide efficacy over time to ensure that we have the most up-to-date understanding of pesticide susceptibilities will be important in the ongoing management of this pest.

DPIRD will continue to work with NSW DPI and other scientific organisations to better understand the pattern of genetic resistance and sensitivities in Western Australia.

Growers are encouraged to judiciously select any pesticides to be used, and ensure insecticides are rotated to reduce selection pressure.

### **Chemical permits**

The Australian Pesticide and Veterinary Medicine Authority (APVMA) has issued a number of permits for the use of certain chemicals for the control of fall armyworm.

More information is available from the [APVMA Online Portal](#). Search for 'fall armyworm'.

The permits should be read in conjunction with the relevant product label for information on withholding periods and other critical comments.

### **Biosecurity and reporting**

Horticultural, turf grass, irrigated and dryland crop and pasture growers are encouraged to regularly monitor their crops for the presence of fall armyworm larvae over the summer and autumn period.

Fall armyworm appears similar to other caterpillar pests. Care should be taken to carefully identify the insects in crops.



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Useful photos are available on DPIRD's [Fall armyworm factsheet](#) and [Fall armyworm larval identification guide](#).

Growers and agronomists are encouraged to report suspect caterpillars or unexpected symptoms in the field to DPIRD via the Pest and Disease Information Service (PaDIS) or via the [MyPestGuide™ Reporter app](#).

### **Further information and enquiries**

More information is available on the DPIRD [website](#).

General enquiries or suspect reports can be made to PaDIS by calling +61 (0)8 9368 3080 or email [padis@dpiird.wa.gov.au](mailto:padis@dpiird.wa.gov.au).

WA industry enquiries can be directed to:

- **Horticulture** – Dr Helen Spafford, Senior Research Scientist +61 (0)8 9166 4074
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