What threat does Fall armyworm pose and what control works?

By Melina Miles, Queensland Department of Agriculture and Fisheries

SINCE its arrival in Australia, Fall armyworm (FAW) has been active in the tropics, impacting maize and sweetcorn crops. FAW infestation of maize in North Qld (Burdekin, Bowen regions) has been continuous, from emergence to maturity. Consequently, crop growth rates and yield potential are significantly impacted. Infestations during cob-fill result in significant reductions in yield and grain quality, as a result of secondary infections entering the cobs.

FAW larvae have proved extremely difficult to control with insecticides. The frequency of egg lays, and the hidden feeding sites of larvae (in the whorl, under wrapper leaves, in leaf axils, in silks and cobs) makes chemical control only partially effective.

FAW has been observed feeding in other crops (sorghum, millet, summer pulses), but to date these crops have experienced only minor feeding damage.

Cannot rely on insecticides alone

It is very clear that affected industries cannot rely on insecticides alone to manage FAW. To date, little effective natural enemy activity has been observed. Whilst selective insecticides have been used preferentially, in maize these are limited to two applications per crop, and the broad-spectrum options are highly disruptive to natural enemies.

In maize, FAW has been managed effectively in other countries for many years with transgenic Bt crops a primary means of controlling FAW. Bt provides continuous control of larvae through the vegetative stages (in particular), and in feeding in sites where they cannot be easily contacted with conventional insecticides.

Managing FAW without transgenic crops will be a major challenge for Australian growers, particularly in tropical regions where FAW are attacking crops from emergence to maturity.

In regions where crops are infested by FAW for only part of the growing season, or sporadically in outbreak years, the challenges are less, but not insignificant.

The effective management of FAW will rely on a combination of timely detection (regional trapping information and crop scouting), suppression of populations by natural enemies and deployment of insecticides and other options to control larvae in the crop.

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Images of suspected FAW can be sent to NSW DPI Biosecurity for assistance with identification:
Email biosecurity@dpi.nsw.gov.au with a clear photo and your contact details;
Growers who find FAW should notify the Exotic Plant Pest Hotline via 1800 084 881 or through an online form. ■

Fall armyworm.

FAW DETECTED IN NSW

Grain growers in New South Wales are advised to check and monitor crops for FAW, with the pest being detected as far south as the Lower Namoi region. The first detection in northern NSW was on September 23 in a pheromone trap between Moree and Boggabilla, and since then additional moths have been found in traps east of Narrabri and west of Wee Waa.

Fall armyworm have a high reproductive rate and dispersive capability. Some estimates suggest the pest can travel around 100 kilometres in a night and 500 km in a generation.

Grain growers, agronomists and advisers across the state are now advised to inspect and monitor establishing summer crops for signs of Fall armyworm damage and the presence of larvae.

Early symptoms include 'windowing' of leaves where larvae have hatched, and small 'shot holes' in leaves as the larvae grow.

Identification of recently emerged larvae can be difficult in the field, but by the time larvae reach the second to third instar stages the features that allow diagnosis become more obvious.

For small larvae, the NSW DPI recommends retaining FAW samples along with food sources, such as host crop leaves, and allowing them to grow to enable photographs to be taken. In most cases, identification will be possible from clear photographs.

USEFUL FAW RESOURCES

- The Beatsheet Blog (*www.thebeatsheet.com.au*) – find information on FAW in the Key Pests and Management page. Includes information on identification, webinars and pheromone trap network data.
  From the Resources page, you can access the DARABUG2 development model. This tool provides predicted development rates of FAW (and other species). Useful for calibrating yourself in terms of the rate of development of eggs, larvae and pupae.
- The GRDC Fall Armyworm portal provides access to a range of important information for Australian grain growers: *https://grdc.com.au/resources-and-publications/resources/fall-armyworm*
- A list of current permits for FAW insecticide options is searchable at the APVMA PUBCRIS portal: *https://portal.apvma.gov.au/permits*
- Follow *@bwilson_71* (Twitter) for insights into an agronomist's first-hand experience with FAW in north Qld.