Appendix 5

In the trenches with the fall armyworm

Late stage Fall armyworm larvae. Photo by USDA ARS Photo Unit, USDA Agricultural Research Service, Bugwood.org

Fall armyworm has continued its march across Australia devastating vegetable crops and threatening turf farms. Given the urgent nature of this pest incursion, Hort Innovation has launched a series of projects with cross-industry participation to investigate options for containment and management of this pest.

Project overview

- Fall armyworm continues to pose threats to multiple crops in multiple states and territories
- Hort Innovation has contracted two projects aimed at investigating biological control methods and improving detection protocols
- Turf growers are urged to remain vigilant in looking out for this pest.

First detected in February 2020 infesting Far North Queensland, fall armyworm (*Spodoptera frugiperda*) has now been found across several Australian states and territories includingQueensland, Western Australia and the Northern Territory, cementing itself as a non-eradicable pest.

Damaging a variety of crops, the larvae predominately feed on crops and pastures from the *Poaceae* (grass) family, and are a potential threat for all turf cultivars.

Not to be confused with the much less destructive Lawn armyworm, Fall armyworm is known to travel long distances especially during strong winds, multiplying rapidly enabling it to exploit new habitats and expand its range within its short 23-27 day lifecycle. All stages of the fall armyworm lifecyle can be transported through infected plant material, a key risk factor for the turf industry.

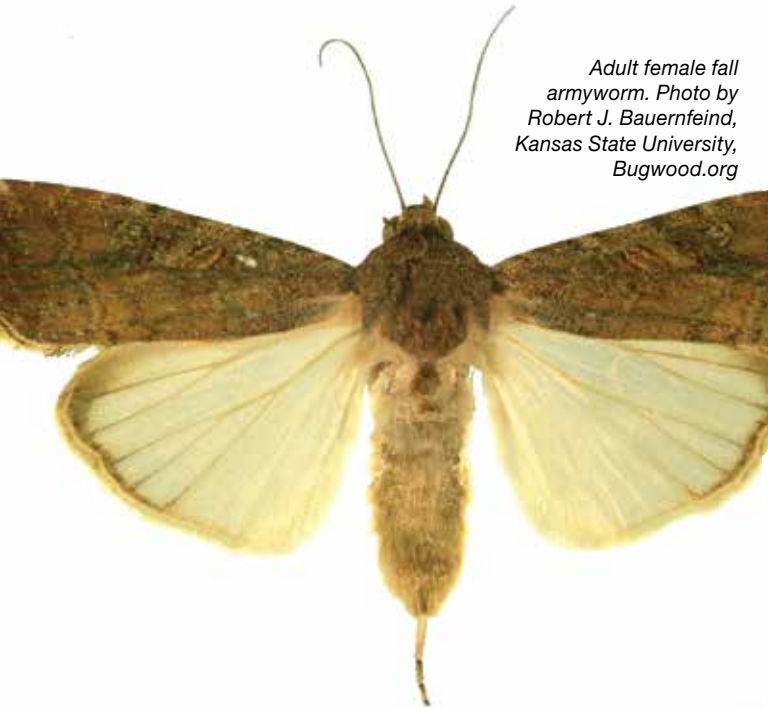
> *To support the roll out of in-field testing the project team will be engaging with growers and biosecurity stakeholders to demonstrate testing methods.*

Native to the American tropics, affecting the leaves, stems, and fruits of plants, the fall armyworm reduces production outputs on Australian turf farms, impacting overall financial return. Since 2020, the rapid rise in numbers has signified a major threat to existing Integrated Pest Management (IPM) practices adopted across the turf industry.

To mitigate risk and better prepare for future incursions and spread of this pest, a new levy funded project, '*Identifying potential parasitoids of the fall armyworm, Spodoptera frugiperda, and the risk to Australian Horticulture'* (MT19015), has been contracted.

Beginning in March 2021 and led by the Queensland Department of Agriculture and Fisheries (QDAF), the project aims to examine potential parasitoids of fall armyworm and deliver extension materials, including a factsheet and a guide for fall armyworms and its parasitoids and predators, to help growers effectively manage the pest.

The project will identify parasitoid species present in horticultural crops and provide recommendations on potential candidates for future biological control of fall armyworm, and local information



Adult female fall armyworm. Photo by Robert J. Bauernfeind, Kansas State University, Bugwood.org

on established locations, host range, infestation levels on horticultural crops and damage patterns.

Additionally, another new project *'Field-based testing for fall armyworm'* (MT19014) will be delivered in conjunction by The Department of Agriculture, Water and Environment (DAWE) which recently funded the development of a rapid molecular test for use in the field for early detection and identification of fall armyworm.

The short project will conduct the second phase of research to foster national collaboration in monitoring the movement of fall armyworm through the provision of a quick and accurate test with standardised protocol.

The project will have three key deliverables.

Firstly, it will look to roll-out in-field testing across multiple horticulture areas to facilitate rapid identification of further incursions for growers across the country.

To support the roll out of in-field testing the project team will be engaging with growers and biosecurity stakeholders to demonstrate testing methods. At the same time the team will be working to improve knowledge of the technological requirements in regional Australia to support the rollout of the technology for Fall armyworm detection and surveillance.

Ultimately, turf growers need to have control options to effectively manage the threat of fall armyworm incursions, to reduce the significant production damage it causes and better protect crops from future incursions through the implementation of up-to-date IPM practices.

Where to find up to date information?

This is a situation that requires consistent surveillance and growers are encouraged to seek advice regularly.

Hort Innovation: *https://www.horticulture.com.au*

Plant Health Australia: *https://www.planthealthaustralia.com.au/*

The Department of Agriculture, Water and Environment (DAWE): *https://www.agriculture.gov.au/pests-diseases-weeds/plant/exotic-armyworm*

These projects are a multi-industry strategic levy investment by the Hort Innovation Melon, Nursery, Sweetpotato, Turf and Vegetable Funds.

Above: Fall Armyworm larvae. Below: Fall armyworm eggs.

Photos by John C. French Sr., Retired, Universities Auburn, GA, Clemson and U of MO, Bugwood.org