Pacific Community
Communauté du Pacifique

PEST Alert

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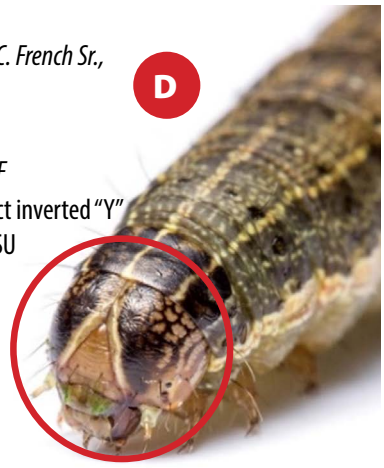
Plant Protection - Pacific Community Land Resources Division

Fall Army Worm Breaches Pacific Islands Region

ALERT

The highly invasive and damaging pest fall armyworm (FAW) has now made its way into our region! FAW are the voraciously feeding caterpillars of a tropical moth scientifically known as *Spodoptera frugiperda* and cause severe damage to major cultivated cereals such as maize, rice, sorghum as well as sugarcane and pastures. This insect pest is a grave biosecurity concern and a major threat to the region's agricultural and tourism industries and ultimately the livelihoods of our people. Collaborative efforts in managing this pest is critical!

A. FAW damage to corn by *John C. French Sr., Bugwood.org*
B. FAW larva *by Brittany McVicar*
C. Adult female *by Lyle J. Buss, UF*
D. D. FAW larva head with distinct inverted "Y" pattern by Matt Bertone, NCSU



BACKGROUND

FAW is a lepidopteran pest new to the Pacific, but has been present in the tropical and subtropical Americas for thousands of years. It was first recorded in Africa in 2016 and the Indian sub-continent in 2018. It rapidly spread in these regions and is now ravaging crop plantations throughout many African and Asian countries with first detection in the Pacific in 2020.

FAW is polyphagous, meaning it can feed on a wide host range and is known to affect more than 350 plant species belonging to 76 plant families. Although FAW prefers plants in the Poaceae family (grasses and cereals which include rice, maize, sugarcane and bamboo), common vegetable hosts include beans, cabbages, capsicum and peppers, cucurbits, eggplant, tomato, lettuce, melons, ginger and sweet potato – all widely grown and consumed in our region.

FAW moths are strong fliers and highly migratory. Adults can travel long distances and population movements of more than 2000 kilometres per annum have been observed. In some places, FAW have been recorded to migrate around 400 kilometres in one night.

DESCRIPTION

- Adult FAW are 16-18 mm long. Females are drab brown with subtle markings while males have more bold patterns on the forewings – the outer wings have whitish patches at the lower edges while inner wings are white with dark trimmings.

- Pupae are 13-17 mm long and reddish-shiny brown. Pupation takes place in soil or plant parts and debris if larvae cannot burrow into the soil.

Eggs are small (about 0.4 mm in diameter) and laid on leaf surfaces in clusters of 50-200. The egg masses are cream, grey or whitish with felt-like protective covering.

- Larvae change appearance from greenish-brown to brownish-black as they develop through multiple instars. The most often used characteristics to identify FAW larvae are the inverted yellow or pale "Y" on the dark head and prominent set of four raised spots on the second to last body segment as shown in pictures K and L below.

- When examined closely, each of the body segments has a pattern of four raised spots as seen from above. The skin looks rough but is smooth to the touch. A full-sized caterpillar is slightly shorter than a match stick (4-5cm).

CURRENT STATUS

FAW was detected in the Torres Straight Islands in late 2019 and then reported in Northern Queensland, Australia from February 2020.

This notorious pest has since spread quickly and has now established itself in Northern Territory (March 2020), Western Australia (March 2020), New South Wales (September 2020), Victoria (December 2020) and recently in Tasmania and Norfolk Islands (March 2021).

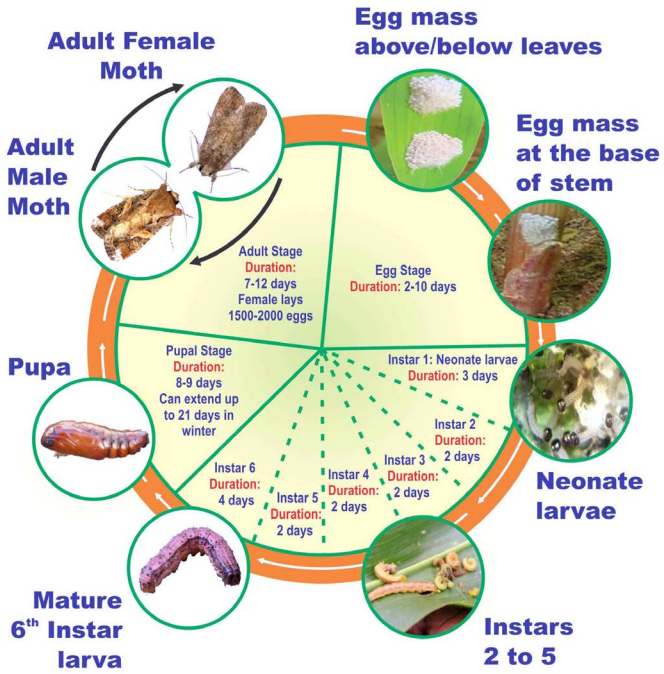
Around the same time as Australia, FAW was also first found in Timor Leste and Papua New Guinea (February 2020) and later in the year (December 2020) in New Caledonia. In August 2021, FAW was reported in the Solomon Islands.

Countries in the region that are made of up many islands cannot rely on geographical separation and domestic quarantine measures to prevent infestation of new areas. These barriers, which may have worked traditionally to keep exotic and invasive pests localized in certain areas, will not work for FAW as adult moths will easily fly to new islands, especially where aided by prevailing wind currents.

RECOMMENDATIONS

- NPPOs should undertake a review of countries with FAW infestation and potential pathways for FAW introduction. This risk profiling will help in identifying conveyances and cargo that may require heightened vigilance and inspection routines.
- It is important that NPPOs raise awareness with farmers on the symptoms and ecology of FAW so they can easily identify populations in the field if incursion occurs and understand the damages FAW can cause at different stages of its life cycle. Farmers should be encouraged to contact the nearest biosecurity/quarantine office if the are suspicious or find any pest believed to be FAW.
- An early warning system (EWS) using pheromone traps should be installed at ports of entry and surrounding high-risk sites. EWS is best combined with regular surveillance and alert inspection on other potential pathways – a good NPPO monitoring and surveillance system will ensure that FAW is quickly detected and addressed.
- There is an array of resources available on the Food and Agriculture Organization (FAO) website and other useful information on FAW can be accessed at the below-mentioned links.

FAW LIFE CYCLE



REFERENCE LINKS

FAO Global Action for Fall Armyworm Control

https://www.fao.org/fall-armyworm/en/

CABI-plantwise Fall armyworm photo guide – identification

https://www.cabi.org/ISC/FullTextPDF/2017/20177801116.pdf

Pacific Pests & Pathogens - Full Size Fact Sheets. Fall Armyworm (401)

https://apps.lucidcentral.org/ppp/text/web_full/entities/fall_armyworm_401.htm

Special Alert – Fall armyworm, Spodoptera frugiperda, found in the EPPO region https://www.eppo.int/ACTIVITIES/plant_quarantine/shortnotes_qps/fall_armyworm

FAO and CABI FAW Monitoring, Early Warning and Management Manual

https://www.fao.org/3/CA2924EN/ca2924en.pdf

Integrated management of the Fall Armyworm on maize

https://www.fao.org/3/i8665en/i8665en.pdf

Prevention, preparedness and response guidelines for Spodoptera frugiperda: https://www.fao.org/3/cb5880en/cb5880en.pdf

FOR FURTHER INFORMATION:

Mr. Fereti Atumurirava, Pest and Disease Management Adviser - Plant Health Team, Sustainable Agriculture

Dr Viliami Kami, Programme Leader, Markets for Livelihoods

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