

Potential impact of fall armyworm on corn or maize

Fall armyworm (*Spodoptera frugiperda*) is an exotic pest that has been detected in Queensland.

Based on overseas experience, fall armyworm larvae can cause significant crop damage if left unchecked.

Adults can fly long distances and migrate quickly, particularly with the aid of weather patterns and jet streams. Check crops regularly to detect the early stages of infestation.

Pest risk

Corn or maize is a preferred host of fall armyworm with a high risk of significant crop losses.

Eggs are laid on the foliage of maize plants and larvae feed on the leaves when they hatch. As the larvae grow, they consume more leaf area and large larvae will establish themselves in the whorl.

Overseas, fall armyworm has rapidly developed pesticide resistance where subjected to repeated and prolonged use of insecticides.

Appearance

Eggs



Image 1 – Egg mass

Eggs are pale yellow and 0.4 mm in diameter and 0.3 mm high. They are laid in furry 'egg masses', which stick to foliage. There are 100–200 eggs in a mass.

Larvae



Image 2 – Larvae emerging from egg mass



Image 3 – Older larvae with 'Y' shape on head

The larvae are light green to brown with a larger darker head. As they develop, they become darker with white lengthwise stripes and dark spots with spines. Older larvae (30–36 mm) have a distinctive pattern of four spots on the second to last body segment and an inverted 'Y' shape pattern on their heads.

Pupa

The pupa is red-brown, 14–18 mm long and approximately 4.5 mm wide. Pupation mostly occurs in soil under the host plant, occasionally in host vegetation. Fall armyworm do not hibernate during winter and cannot survive temperatures below 10°C.

Adult



Image 4 – Female moth



Image 5 – Male moth

The adult moths have a brown or grey forewing and a white hindwing, and a wingspan of 32–40 mm. Male fall armyworms have more patterns and a distinct white spot on each forewing. Cotton Info's [Insect ID Guide](#) provides a detailed guide to identifying fall armyworm.

What should I look for?

Look for egg masses and small larvae. Larvae may be more active at night. Watch for defoliation of lower leaves, shot holes in new leaves as they unfurl, and other leaf damage, loss of tassels or damage to cobs.

Where heavy infestations occur, frass (insect poo) will be visible on leaves and in the whorl. If damage is evident, but larvae are not visible, thoroughly check the whorl as larvae and moths will shelter in the whorl during the day.

Fall armyworm larvae can attack maize at all growth stages. The damage to leaves, the whorl and cobs, is similar to damage caused by *Helicoverpa armigera* and common armyworm.

Seedling and vegetative crops can recover from defoliation, particularly if the crop is growing rapidly. Larvae can sever seedling maize plants at the base, producing damage similar to that caused by cutworm.

Impact on yield will be greatest if the growing point is damaged or if there is significant defoliation at critical growth stages (around 10 days prior to and 20 days after tasselling/flowering). Feeding damage to cobs during grain filling will also impact on yield and grain quality.

How can I manage an outbreak?

Early detection is essential. Regularly check your crops for insects and damage. Pheromone traps may be useful in determining the risk of fall armyworm infestation in maize crops.

Key to the control of any pest is an integrated pest management approach. The Department, in collaboration with industry, is working to identify strategies and tactics for the medium to long-term response.

There are currently no locally derived thresholds to guide management of fall armyworm due to lack of time to assess the impact on maize in Australia.

Guidance from the United States of America, recommends to check 20 consecutive plants in a row and count the number of larvae per plant. Make sure to open the whorl/cobs in older plants. Repeat at five sites in the field. The threshold for control is reached when three or more larvae are found per plant, or 20% of whorl stage plants have one or more larvae. In making this assessment, it is essential that a positive identification of fall armyworm larvae is established.

It is essential with any pesticide use for fall armyworm control, that the implications for chemical resistance development in other pests that may be exposed are considered (e.g. *Helicoverpa*), as well as the potential impact on natural enemies.

Currently, the Australian Pesticide and Veterinary Medicine Authority (APVMA) has issued permit [PER88638](#) for the use of certain chemicals for the control of fall armyworm in a range of grain crops (including maize). It is important that the permit is read in full.

The APVMA is currently assessing, as a priority, applications for permits for the use of a suite of chemicals against fall armyworm in crops. To check for the latest chemical permits applying to fall armyworm use the [APVMA's permit portal](#)—search for 'fall armyworm' and check the 'pest/purpose' button.

Advanced search ▲

Search terms include	Filter on	Date
<input type="checkbox"/>	Permit number	
<input type="checkbox"/>	Description	
<input type="checkbox"/>	Active constituent	
<input checked="" type="checkbox"/>	Pest / purpose	
<input type="checkbox"/>	Animal / crop	

You should already have strong on-farm biosecurity measures to protect your crops from pest and diseases and should implement good farm hygiene for weed control to remove hosts that could build populations. More information is available at farmbiosecurity.com.au.

What should I do?

Be on the lookout and if you suspect fall armyworm, report immediately to the Queensland Department of Agriculture and Fisheries on **13 25 23**.

More information

For more information, contact the Queensland Department of Agriculture and Fisheries on **13 25 23** or visit business.qld.gov.au/fallarmyworm.

*Images 1–2, 4–5 by James Castner, University of Florida
Image 3 by D. Balaraju, Krishi Vigyan Kendra*