Potential impact of fall armyworm on sweet corn

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

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

Adults have been known to 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

Fall armyworm has a preference for maize, sweet corn, sorghum, rice and grass crops. Under high pest pressure, broadleaf vegetable crops can also be infested, and may be damaged.

Sweet corn is a preferred host of fall armyworm with a high risk of economic crop losses. Eggs are laid on the foliage of sweet corn plants and larvae feed on the leaves when they hatch. As the larvae grow, they consume more leaf area and feed deep in the whorl as well as in tassels and cobs.

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

Appearance

Eggs

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’.

Image 1 – Egg 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℃.

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?

Fall armyworm can attack vegetative sweet corn at all growth stages, as well as feeding on the tassels and cobs. Later planted crops may be more severely affected.

Small larvae make 'windows' in leaves as they feed. Larvae feeding in whorls cause 'shot holes' in the unfurling leaves. The leaves of plants attacked by larger larvae will have a ragged appearance. Large larvae feeding in the whorl are often covered with a 'plug' of yellow-brown frass (caterpillar poo). If damage is evident, but larva is not visible, check the whorl to confirm identification as *Helicoverpa armigera* can cause similar damage in sweet corn crops.

How can I manage an outbreak?

Early detection is essential for effective control in sweet corn. Regularly check your crops for larvae and damage.

Seedling and vegetative crops can recover from some defoliation in early stages (V1–6), but plant growth may be affected by damage during the mid whorl stage (V6–V9). Damage during the late whorl stage (V9–R1) can subsequently result in significant losses in yield and cob damage.

Fall armyworm feeding at the whorl or tassel stage can then move into cobs during silking. A few days before tasselling, check whorls for larvae. These larvae can damage young cobs as they are pushed out of the whorl. Continue to check cobs for larvae until silks dry. Direct feeding damage to cobs, and frass contamination, will significantly impact yield and marketability of fresh cobs.

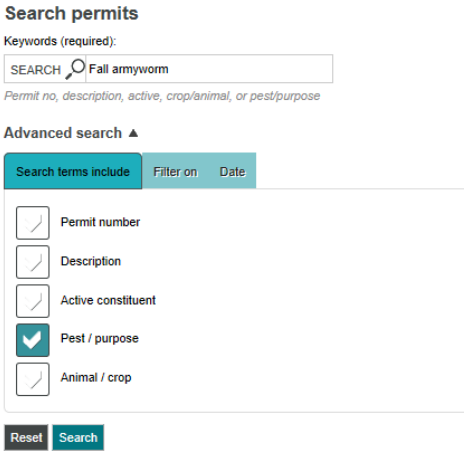
Large larvae in whorls under frass, and burrowed into cobs, will be largely protected from insecticide applications. For effective control, target small, leaf-feeding larvae.

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. Of particular interest is the potential for the *Trichogramma* egg parasitoid to also parasitise fall armyworm eggs.

Some insecticides used for the control of *Helicoverpa armigera*, other armyworms and caterpillar pests may provide some level of control of fall armyworm. Biocontrol agents released for *Helicoverpa* are also expected to have an impact on fall armyworm.

Overseas, fall armyworm has rapidly developed pesticide resistance in frequently sprayed crops, including sweet corn. A resistance management strategy that considers both fall armyworm and *Helicoverpa armigera* is essential for the successful long-term management of these pests in sweet corn.

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



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