

Fall Armyworm Field Guide

Introduction to Fall Armyworm (FAW)

Fall Armyworm (*Spodoptera frugiperda*, Lepidoptera:Noctuidae) is a recent exotic incursion into Australia, first detected in early 2020 in North Queensland and northern Western Australia. FAW has now been detected in all states, except South Australia. Native to southern and central America and the southern United States, FAW is a tropical pest with a strong preference for feeding on C4 and C3 forages.

FAW is capable of long-distance migrations up to 2,000km, and 400km in a night. Currently, the patterns of FAW migration in Australia are not well understood. FAW are active all year round in northern regions, and absent from more southerly regions, or at very low densities, in winter and early spring. It is likely that spring-summer FAW populations in regions with cold winters are initiated by moths migrating from northern regions when conditions are suitable for movement. Once regional populations are established, these are most likely the source of ongoing infestations locally, although the relative contribution of locally generated compared to migrations through summer and autumn is not yet known.

Like other pests, the intensity of FAW activity varies from year to year. In the summer of 2023/24 many regions across NSW and Victoria saw significantly higher levels of FAW activity and significant crop losses, particularly in late summer. This 'outbreak' season occurred because conditions were good for FAW, but also because not all environmental drivers for the outbreak have yet been identified. Unfortunately, it isn't yet possible to predict outbreak years.

Fall Armyworm caterpillars defoliate crops by feeding directly on leaves and stalks. Larvae will also damage developing cobs and filling-maturing grain when infestations persist into the reproductive crop stages. FAW will feed on most fodder and sown grass pasture species grown in Australia. Maize, sorghum, white French millet, oats, barley, wheat, kikuyu and annual ryegrass are all susceptible to damage by FAW. For many dairy farmers, FAW is the first very damaging caterpillar pest they have encountered.

To date, FAW has not been reported to cause major losses in legumes, brassicas and other broadleaf fodder species.

FAW lifecycle

FAW have egg, larval (caterpillar), pupal and moth stages of development. Female moths lay clusters of eggs usually on the underside of leaves. The female moths cover the eggs with a layer of scales from their body; the density of the covering can vary. When larvae hatch from eggs they disperse by 'ballooning' on silks to other plants or walk up the plant to the leaf axils and whorl. The larvae grow through six instars, (the distinct developmental stages of an insect larva) moulting between instars. FAW larvae develop more quickly in mid summer than they do in spring or autumn. The duration of the larval stage can be as short as 14 days and longer when days and nights are cool.

When larvae are fully developed, they leave the plant and burrow into the soil to pupate, at a depth of 2cm to 8cm. During pupation they develop into moths inside a pupa (cocoon). Pupal development can take as little as seven days under optimal temperatures. The moth emerges from the pupal case and burrows out of the soil. Within a couple of days of emergence, female moths will mate and then start laying eggs. A female can lay up to 2,000 eggs in her lifetime and may live 10-20 days.

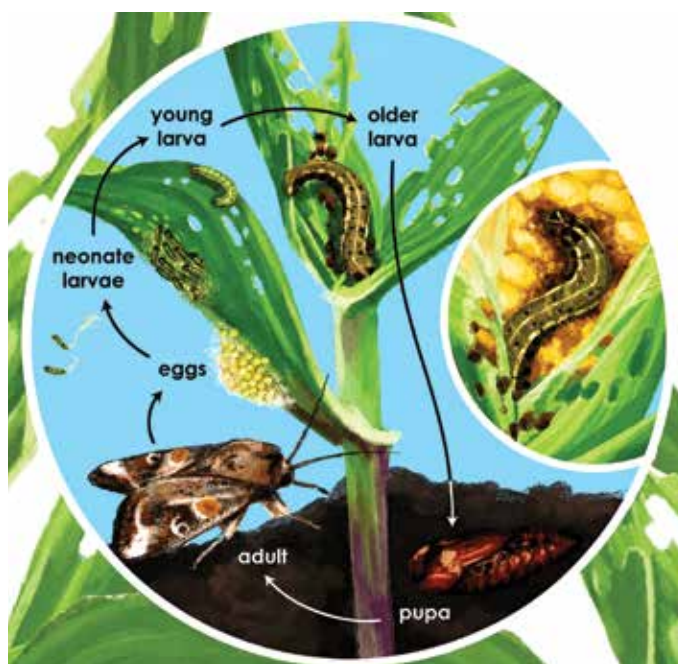


Figure 1 Fall Armyworm lifecycle. Illustration by Elia Pirtle, Cesar Australia.
Source: Kearns et al. 2020. Fall Armyworm Continuity Plan: Australian Grains industry

Identification of FAW

Fall Armyworm moths are active at night (nocturnal) but are often encountered resting in the whorl of crops during the day. Moths are approximately 17mm long. Females have mottled grey-brown forewings and a paler hindwing (not visible when resting). Males have grey-brown forewings with patterning and a distinctive white patch on the tip of each forewing.



Female FAW moth



Female resting in a leaf whorl during the day



Male FAW moth

Note: Pheromone traps can be used to help in identifying FAW.

Pheromone traps attract only male fall armyworm, but may also attract other moths (bycatch) depending on the lure used and location. The distinguishing feature of male fall armyworm moths used to identify them in pheromone traps, where the wings may be damaged, is to look for the white hair pencils extruded from the tip of the abdomen. The most common bycatch species, *Leucania loreyi* (False armyworm) has brown hair pencils.



White hair pencils extruded from the abdomen of a male FAW moth – diagnostic for FAW

Eggs

Fall Armyworm eggs are laid in clusters that can range from 50–200 eggs. Typically, these clusters are covered with scales by the female moth after she has laid them. The density of the covering can vary from sparse to very thick. When first laid, eggs are a bright white. Within 24 hours in summer, the eggs change to brown, and within two to four days dark brown to black as the Fall Armyworm larva develops and the dark head capsule becomes visible inside the egg. ■ ■



For more information, please download the [Dairy Australia Fall Armyworm Field Guide](#).

