

Plant biosecurity: ENT-15

Armyworms

There are a number of armyworms and loopers commonly found in the Northern Territory (NT), these include cluster caterpillar (*Spodoptera litura*), day-feeding armyworm (*Spodoptera exempta*), lawn-feeding armyworm (*Spodoptera Mauritia*) and Oriental armyworm (*Mythimna separata*). They are not to be confused with fall armyworm (*Spodoptera frugiperda*), which is an exotic species. This group of insects is commonly called 'armyworm' because they will often 'march' in large numbers to find food.

Distribution

- Cluster caterpillar (*Spodoptera litura*): Asia (widespread), Africa (Ghana, Réunion), North America (USA), Europe (France, Portugal, Russian Federation) and Oceania (widespread).
- Day-feeding armyworm (*Spodoptera exempta*): Asia (widespread), Africa (widespread),
- Lawn-feeding armyworm (*Spodoptera Mauritia*): Asia (widespread), Africa (widespread), North America (USA) and Oceania (widespread).
- Northern armyworm (*Mythimna separate*): Asia (widespread), Europe (Russian Federation) and Oceania (widespread).
- Fall armyworm (*Spodoptera frugiperda*): North America (widespread), South America (widespread), Africa (widespread), Asia (widespread) and, recently, Australia (Torres Strait and Queensland).

Appearance

Cluster caterpillar (*Spodoptera litura*)

Eggs are spherical, pale pink and 0.6mm in diameter. They are laid in clusters of up to 300 and are covered in a layer of pale-brown 'furry or cottony' hair-like scales.

Young larvae have a partly translucent green body with a dark thorax and head. Half-grown larvae are variable in colour and have a red and yellow pattern with green lines and black spots running along each side of the body. There is a dark patch on the 'hump' behind the head. Mature larvae are brown with three thin, pale yellow/orange lines running down the length of the body. There is a row of black dots along each side with a row of half moon-shapes along the back. The last larval stage is darker. Mature larvae are 50mm or more in length.

Adult moths have brown forewings with brown and cream coloured markings. The hindwings are white and partly translucent with brown edges. The moths have a wingspan of 35-40mm.



Cluster caterpillar (*Spodoptera litura*)
Egg mass

Cluster caterpillar (*Spodoptera litura*)
Larva feeding in an okra flower

Cluster caterpillar (*Spodoptera litura*)
Adult at rest

Day-feeding armyworms (*Spodoptera exempta*)

Eggs are circular with a sculptured surface, pale yellow, turning brown as they mature. They are 0.5mm in diameter and are covered in a layer of black hairs. Immature larvae are initially greyish-green, becoming blacker as they mature with a tan-coloured head. Mature larvae have black and yellow lines running the length of the sides of the body. When mature, they are up to 35mm in length.

Adult moths are 14-18mm in length with a wingspan of 28-32mm. Female moths have dark brown forewings with a white elongated spot. The hindwings are cream with brown coloured veins and brown edges. Male moths are similar but the forewings are lighter in colour.

Larvae feed on a wide range of grasses, including maize, rice and sorghum. They chew leaves giving the leaves a ragged appearance. Heavy infestations can cause total defoliation to ground level. Day-feeding armyworms are not usually a serious pest in the Top End but may occur in large numbers every few years when conditions are right, particularly from December to March.



Day-feeding armyworm (*Spodoptera exempta*)
Larva on Sabi grass

Day-feeding armyworm (*Spodoptera exempta*)
Damage to Sabi grass

Lawn-feeding armyworms (*Spodoptera mauritia*)

Eggs are circular and pale and are 0.5mm diameter. Immature larvae are initially green, with faint white stripes running along the length of the body, becoming darker brown as they mature with two rows of black triangular marks running the length of the body. Mature larvae are up to 30 mm in length.

Adult moths are brown with light coloured marking on the forewings. The hindwings are white and 15-20 mm in length with a wingspan of 40 mm.

Larvae feed on the leaves and stems of grasses at night. Damage is seen as dead patches in lawns with skeletonised leaves. Entire young plants may be completely eaten.



Lawn-feeding armyworms (*Spodoptera Mauritia*)
Immature larva



Lawn-feeding armyworms (*Spodoptera mauritia*)
Mature larvae, pupa and damaged grass

Northern armyworm (*Mythimna separata*)

Eggs are spherical, milky white in colour and laid in overlapping rows. Larvae go through six stages. Mature larvae have two black-brown stripes, one light dorsal stripe and a black-brown stripe along the spiracle line. Pupae are yellowish-brown and shiny.

Adult moths have greyish yellow forewings with a dark-grey or reddish-yellow tinge and light or yellow spots. Hindwings are grey with a dark margin. The moth's wingspan is 35-50mm.

Larvae feed on a wide variety of hosts, including maize, rice, millet and sorghum. Larvae are nocturnal so during the day they are concealed in the foliage or at the base of plants. They chew on leaves and may also damage flowers and developing seed heads. Young plants may be cut off at ground level. When food is scarce, the mature larvae can move in large numbers in search of more food. Damage is often localised.



Northern armyworm (*Mythimna separata*)
Larvae on Sorghum



Northern armyworm (*Mythimna separata*)
Adult at rest position

Fall armyworm (*Spodoptera frugiperda*) – exotic

Eggs are circular, milky white in colour, laid in single rows of up to 200 and covered with 'furry' scales. Larvae go through six instars. Mature larvae are up to 45mm in length. They have a brownish body with white lateral lines and raised dark spots on the body with spines. The head is reddish-brown and has an upside down 'Y' on the face. There is also a green form of the larva with pale spots. Pupae are reddish-brown, shiny and inside a cocoon made from soil and silk.

Adult moths have greyish brown forewings with triangle shaped spots in the middle and on the tip of the wing. Hindwings are creamy white with brown margin. The wingspan is 32-40mm.

Larvae prefer to feed on grasses like sorghum and corn, but will also feed on a wide variety other hosts, including apple, papaya, cotton, millet and peanut. Young larvae feed on the epidermis of the leaf. As they mature, they begin to chew holes and consume the leaves from the edges inwards. Mature larvae may defoliate plants giving the leaves a ragged appearance. Larvae also feed on the growing tips and fruiting bodies.



Fall armyworm (*Spodoptera frugiperda*)
Larva, on cotton (*Gossypium hirsutum*).
USA



Fall armyworm (*Spodoptera frugiperda*)
Adult at rest, lateral view.
Laboratory image USA

©Russ Ottens/University of Georgia/Bugwood.org
CC BY 3.0 US

©Mark Dreiling/Bugwood.org
CC BY-NC 3.0 US

If you suspect your property has fall armyworm, call the Exotic Plant Pest Hotline on 1800 084 881.

Control measures are already available for other caterpillars on crops in the NT. These include Integrated Pest Management techniques based on cultural, biological and chemical control. These measures should also be effective on fall armyworm. Details can be obtained from Department of Primary Industry and Resources (DPIR) Entomology by email insectinfo@nt.gov.au or phone (08) 8999 2258.

All pesticides should be used in accordance with label instructions and the NT Control of Use legislation. For advice on pesticide use contact DPIR by email chemicals@nt.gov.au or phone (08) 8999 2344.

This factsheet was prepared by Haidee Brown, DPIR Plant Entomology. For further information, contact DPIR Entomology at insectinfo@nt.gov.au.

Agnotes or factsheets on other pests are available from www.entomology.nt.gov.au or dpiir.nt.gov.au/

References

Business Queensland (Accessed on 26/02/2020) Fall Armyworm, Queensland Government. Available at <https://www.business.qld.gov.au/industries/farms-fishing-forestry/agriculture/crop-growing/priority-pest-disease/fall-armyworm>

CABI Invasive Species Compendium (Accessed on 26/09/2019), Datasheets. Available at: <https://www.cabi.org/isc/datasheet/29810>

CABI Plantwise Knowledge Bank (Accessed on 26/09/2019). Paddy armyworm (*Mythimna separata*) Available at: <https://www.plantwise.org/knowledgebank/datasheet/45093#SymptomsSection>

Capinera, J. (2017) *Spodoptera frugiperda* (J.E. Smith), (Insecta: Lepidoptera: Noctuidae). Featured Creatures, University of Florida, EENY-98. Available at: http://entnemdept.ufl.edu/creatures/field/fall_armyworm.htm

Chin, D., Brown, H., Conde, B., Ulyatt, L., Thistleton, B., Smith, S. and Zhang, L. (2014) Field Guides to Pests, Beneficials and Disorders of Vegetables in northern Australia. Northern Territory Government.

Herbison-Evans, D. and Crossley, S. (Accessed on 26/09/2019) Butterfly House. Available at: <http://lepidoptera.butterflyhouse.com.au/cato/frugalis.html>

Jackson, G. (2017) Rice (maize) armyworm (331), Pacific Pests and Pathogens – Fact sheets. Available at: http://www.pestnet.org/fact_sheets/rice_maize_armyworm_331.htm