



**Fig. 1.** adult Hessian fly (a); infested young seedlings (b); Hessian fly pupae ('flaxseed stage') at the crown of a wheat plant (c); Photo credits: Dustin Severtson, DAFWA.

**Pest:** Hessian fly

**Classification:** K: Animalia, P: Arthropoda, C: Insecta, O: Diptera, F: Cecidomyiidae.

Hessian fly (*Mayetiola destructor*) is a serious biosecurity threat to Australia's wheat industry. It is considered an exotic high impact pest species in Australia. Should it be introduced, the Hessian fly has the capacity to establish over a wide geographic range throughout cereal cropping regions of Australia and utilise weed and native grass species to complete its life cycle.

**The Pest:** *M. destructor* is a tiny fly (or midge) similar in appearance to a mosquito. All 4 life stages (egg, larvae, pupa, adult) may be found on cereal or grass plants. Elongate, cylindrical glossy red eggs are laid within leaf veins. Hatched maggots are pale and cylindrical growing from 0.5 to 4.0 mm long and feed on hidden parts of the plant such as within leaf sheaths. This feeding damage may cause stunting and death of plants. Larvae pupate approx. 3 weeks after hatching from egg. Pupae may be found within leaf sheaths and at the base of plants between stems or tillers. An adult winged midge emerges from the pupa after 6-33 days, with lower temperatures prolonging development. It may be confused with the Barley stem gall midge, *Mayetiola hordei*, which is also considered a biosecurity threat to Australia's cereal industry. It may also be confused with other midges native to Australia.

**Distribution:** Native of Asia, transported to Europe then North America. Present in New Zealand. Not present in Australia.

**Host Range:** Wheat is the primary host. Cereals and many other grasses are secondary hosts.

**Impact:** Wheat seedlings infested with Hessian fly appear deep green in colour. However, the maggot releases digestive enzymes and stunts the plant. Later infestations may result in stem weakening and lodging. Severe loss in wheat production has been seen in Europe and North America. It has also lowered grain size and quality. Given its potential high impact on cereal production and its tiny and cryptic nature, investigation of suspect plant material, specimens and field situations is crucial.

**Detection and control:** Identification of *Mayetiola* adults to species level is based on microscopic differences in the male genitalia and other characters. Pheromone baits used with sticky traps are effective in detecting the presence of adult flies. Cereal and grass plants may be inspected for the presence of larvae and pupae. Insecticide seed dressings have some efficacy in crops, however the most effective method of control is destruction of infested plant material prior to sowing and sowing at a time when flies are not present.

**Further Reading:** Szito *et al.* (2007) Hessian Fly, *Mayetiola destructor* (Say) (Diptera: Cecidomyiidae) Pest Datasheet/Pest Risk review for the cereal grain industry. Department of Agriculture and Food. Government of Western Australia.

**Key Contact:** Dustin Severtson; e-mail: [dustin.severtson@agric.wa.gov.au](mailto:dustin.severtson@agric.wa.gov.au); Phone: (08) 9368 3249