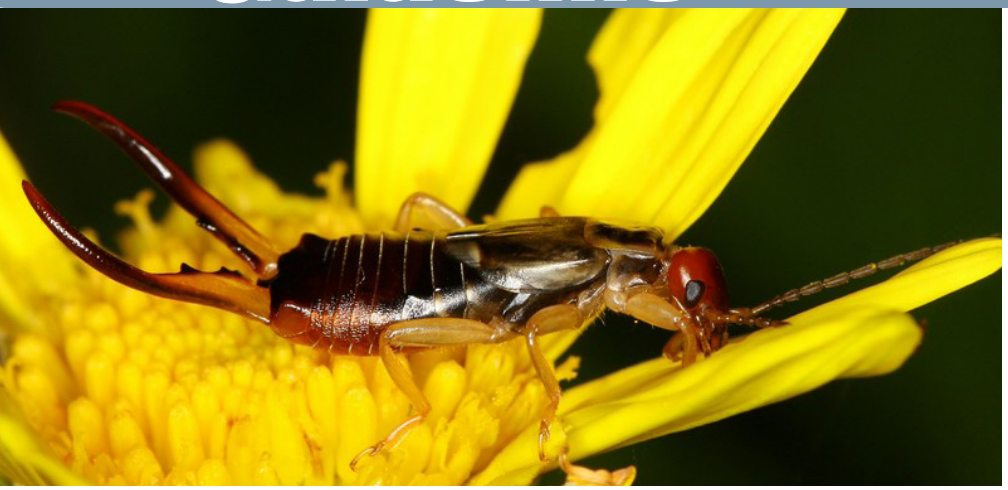
Upper North Farming Systems

Pest Management Guideline

Earwigs



Earwigs Photo: © Nick Monaghan, lifeunseen.com

Key Facts

- European earwigs are a common pest of grain cropping though damage in Upper North conditions is rare.
- A range of monitoring methods should be used to gain a good understanding of earwig abundance.
- Control options include increasing establishment and potentially snail baiting.

Stubble retention provides the potential for earwigs to be a more significant pest than in the past, because it reduces disruption to earwigs and other invertebrate species.

There has been little research conducted on earwigs in cropping situations and most reports of damage have been in high rainfall regions.

EUROPEAN EARWIG

There are at least 63 species of earwigs in Australia though only some are considered crop pests, with the European earwig (*Forficula auricularia*) the species most often reported as a pest.
Earwigs are also considered to be beneficial insects as they have the potential to consume caterpillars and other pests.

Earwigs are nocturnal, sheltering under clods and mulch during the day; and are considered omnivorous, consuming a wide variety of living and dead food.

European earwigs range from 12 to 20 millimetres in length with brown shiny bodies and light brown/yellow pincers and legs.
They complete one generation per year, with development taking from nine to 15 weeks.

Stubble retention has increased the potential for earwigs because of the provision of a humid and moist environment.

Project Information

This management guideline has been developed for the Upper North Farming Systems Group (UNFS) as part of the Maintaining Profitable Farming Systems with Retained Stubble Initiative, funded by the Grains Research and Development Corporation (GRDC).

The Stubble Initiative involves farming systems groups in Victoria, South Australia and southern and central New South Wales, collaborating with research organisations and agribusiness, to address challenges associated with stubble retention.

The GRDC, on behalf of growers and the Australian Government, is investing $17.5 million in the initiative that has been instigated by the GRDC Southern Regional Panel and the four Regional Cropping Solutions Networks that support the panel.

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EARWIGS IN UPPER NORTH SYSTEMS

Earwigs mainly attack canola but have been known to attack cereals, lupins and some legumes. Damage is caused by the insects chewing the stems and cotyledons of emerging seedlings.Damage closely resembles that caused by slugs. There are anecdotal indications that bean stubbles increase earwig abundance.

While there have been many reports of earwig abundance in Upper North farming systems, reports of damage are rare, indicating control of earwigs is unlikely to be required.

MONITORING

Trials by SARDI in 2015 found different monitoring techniques gave very different results, demonstrating that an ideal monitoring strategy incorporates a range of methods, such as those shown in Table 1.

TABLE 1: Earwig monitoring methods. Source: adapted from Macfayden & Nash (2015)

Method	Description	Pros	Cons
Pitfall traps	A tube buried with top flush with the surface, filled with water and detergent, checked after 7 days.	Collects large numbers of night active pests.	Cannot quantify density. Labour intensive.
Soil samples	Use a shovel to collect a standard amount of soil at each site, then place on a tray and sort.	Can quantify density.	Labour intensive.
Collect and sort litter	Collect the litter with a spade then sort through.	Cheap and easy.	Difficult once crop closes over.
Tiles or other refuges	Place a tile on the soil surface and leave for 7 days. Turn over and count earwigs.	Cheap and easy.	Cannot quantify density. Requires moisture under tiles.
Direct observation	Observe the plants and surface at a set number of locations.	Cheap, quick and easy.	May miss night active pests. Need to search many sites .
Plant observation	Inspect plants for damage.	Cheap, quick and easy, measures actual damage rather than just abundance.	Damage may be incorrectly attributed to earwigs. Often too late – the damage has already been done.

EARWIG CONTROL

There are no sprays registered for in-crop control of earwigs, and SARDI trials in 2015 found no conclusive evidence of earwig control from chemical applications.

Methods that increase establishment, such as higher seeding rate, can mitigate the effects of earwig damage on crop yield. Some scientists believe earwigs may be eating snail bait, and that snail bait applications may provide some measure of control for earwigs, though more research would be required to test this suggestion.

Acknowledgements

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