PestFacts WA

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Avoid snail contamination at harvest

- Northam
- Howick

DPIRD Research Scientist and UWA PhD candidate Amber Balfour-Cunningham recently found vineyard snails in a canola crop at Northam.

Image 1: A conical snail on a wheat head. Photo courtesy of: Quenten Knight (Agronomy Focus).

Quenten Knight (Agronomy Focus) has found low levels of conical snails in Scepter wheat near Howick. There was no visible crop damage.

Growers and consultants are urged to keep an eye out for snails climbing up into crop canopies as this can pose a contamination risk when the crops are harvested. Entomologist Svetlana Micic (DPIRD) says that as a 'rule of thumb', if snails are easily seen on crop stems, grain contamination at harvest is possible.

Snail movement does depend on the weather conditions. Snails are more active at night and after a rain event. In trials, grain from crops harvested during the day had less snail contamination than from crop harvested at night.

Past snail camera footage has revealed that as weather conditions become hotter, round snails are more likely to be found moving up crop stems, whereas small pointed snails were more likely to be under stubble on the ground.

Plan for harvest now if you have snails. Consider using a stripper front at harvest or increasing the cutting height of crops such as cereals. There are options to remove snails from harvested grain. Now is the time to budget for this.

Consider farm biosecurity practices to prevent spread of snails between paddocks and properties, such as harvesting paddocks or properties with snails last.

At this time of year (spring), it is too late to bait.

Plan for next season's snail management now

Growers are advised to be proactive now to determine what they will need to do next year. Now is the time to check paddocks that you will seed with canola next year for snails. Soil type doesn't matter – snails can survive hot, dry summers.

Before seeding in 2025, check paddocks for snails and budget to apply bait more than once, but be aware that spreaders calibrated for fertiliser spreading may not be spreading the baits as far as you think.

Further information

To read about earlier snail activity reported to the PestFacts WA team this season refer to the 2024 PestFacts WA Issue 2 article Snails have started to lay eggs and Issue 1 article Now is the time to patch bait for snails.

For more information on snails and their management during the season and at harvest visit;

- GRDC's Nail the Snails publication
- GRDC's Paddock Practices: Take all possible steps to minimise harvest contamination by snails article
- Stirling to Coast Farmers snail research on costs of removing snails from harvested grain
- GRDC's Snail baiting as part of an integrated pest management strategy video.

For more information on snails contact Svetlana Micic, Research Scientist in Albany on +61 8 9892 8591.

Article authors: Cindy Webster (DPIRD Narrogin) and Svetlana Micic (DPIRD Albany).

Distinguishing armyworm from other caterpillars in cereal crops

- Narrogin

Image 2: An armyworm caterpillar on a 2023 wheat plant. Photo courtesy of: Quenten Knight (Agronomy Focus).

Armyworm caterpillars are being found in wheat crops near Narrogin.

Armyworm caterpillars are most damaging in barley crops close to harvest, so growers are encouraged to monitor cereal crops now. When barley crops are maturing in spring, large armyworm caterpillars climb plants and can chew through the green stems, causing the heads to lop off. Damage to wheat and oat crops occurs less frequently and is usually minor in comparison to barley because the stems are thicker and leaf defoliation does not usually result in yield loss.

The appearance of armyworm caterpillars in crops is unpredictable.

The caterpillars are fat and smooth and may be distinguished by the three parallel white stripes on the collar just behind the head.

The first visible sign of armyworm caterpillars is often their green or straw-coloured droppings, about the size of a match head, found on the ground between the cereal rows.

Assessing the number of armyworm caterpillars in a cereal crop can be difficult, as their movements vary with weather conditions and feeding preference. Sometimes they are found sheltering on the ground and under leaf litter, whilst on other days they will be high up on the plants or on the heads, and easily picked up using sweep nets. Larger caterpillars often prefer to hide during the day and feed at night.

The economic threshold for armyworm in mature barley is about 3 large caterpillars per square metre of crop. The threshold for wheat or oats is much higher, at about 10

caterpillars per square meter of crop. This is because only grains are consumed and heads are very rarely dropped. If applying insecticide, be mindful of harvest chemical withholding periods and to check chemical labels before spraying.

A number of effective insecticides are registered for the control of armyworm if required (see DPIRD's 2024 Winter Spring Insecticide Guide). However, their effectiveness is dependent on good penetration into the crop. This can be difficult to achieve in high-yielding, thick canopy crops, especially when caterpillars are resting under leaf litter at the base of plants. Spraying late in the afternoon or evening is recommended as armyworm is predominately a night feeder.

Correctly identifying caterpillars

Growers need to be mindful of correctly distinguishing armyworm caterpillars from the fall armyworm caterpillar, native budworm caterpillar and any other caterpillars that appear in cereal crops.

The PestFacts WA Reporter app can be used to request a free diagnosis of caterpillars found in the paddock.

Further information

For more information, contact Technical Officer Alan Lord in Perth on +61 409 689 468, or Research Scientists Svetlana Micic in Albany on +61 8 9892 8591 or Dustin Severtson in Northam on +61 8 9690 2160.

Article authors: Cindy Webster (DPIRD Narrogin) and Dustin Severtson (DPIRD Northam).

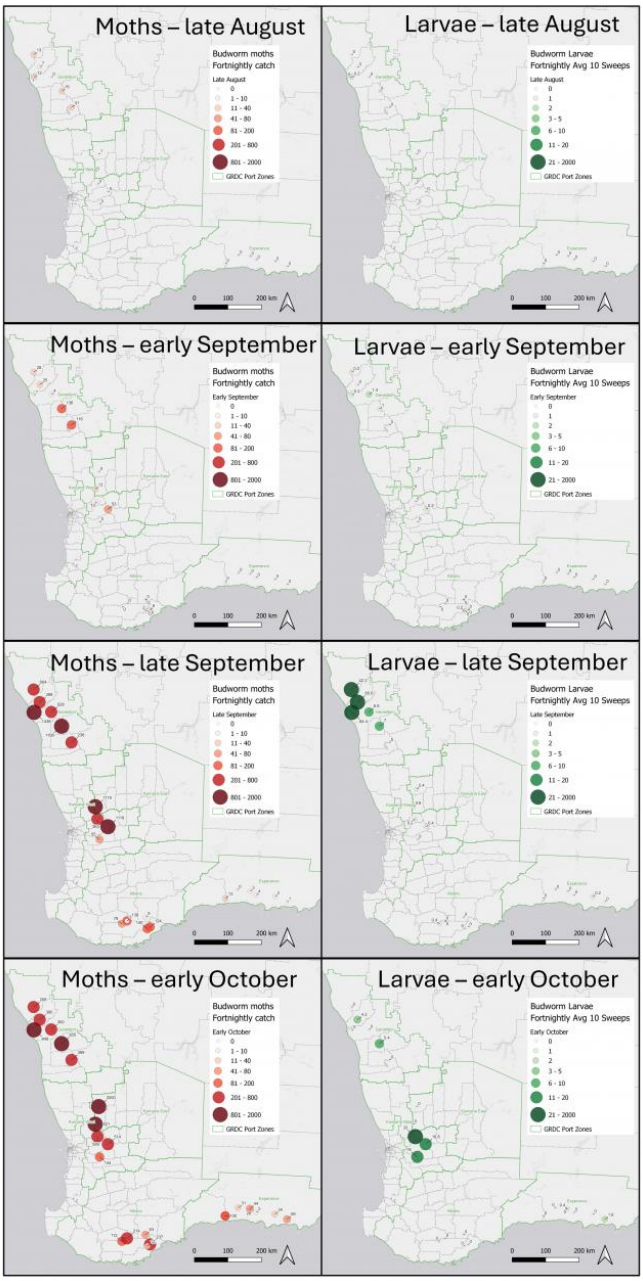
Native budworm caterpillar numbers have increased in canola, pulse and wheat crops

Native budworm caterpillars

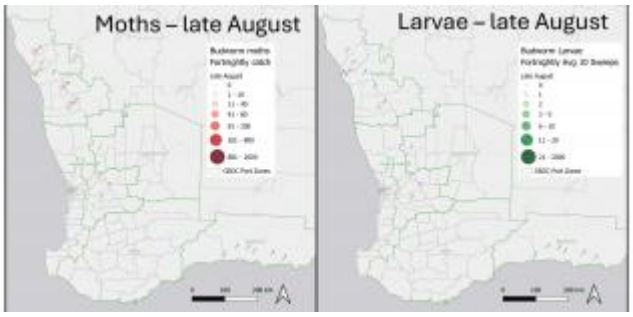
- Nangetty
- Dowerin
- Nabawa
- York
- Wyening
- Northam
- Spencers Brook
- Dale
- Yealering
- Lake Grace
- Boyup Brook
- Esperance

DPIRD's native budworm moth surveillance sites, co-funded by the Grains Research and Development Corporation (GRDC), have indicated a sharp increase in native budworm

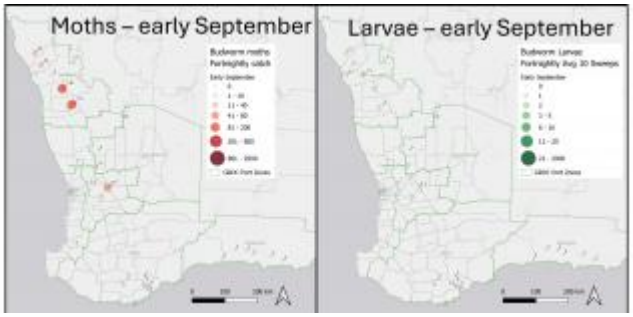
moth numbers in late September and early October (see maps below). Therefore, growers and agronomists have been seeing a sharp increase in budworm caterpillars during this time, even in wheat crops, which are not a host of native budworm. However, native budworm caterpillars will occasionally feed on wheat glumes and leaves when moth pressure is high.



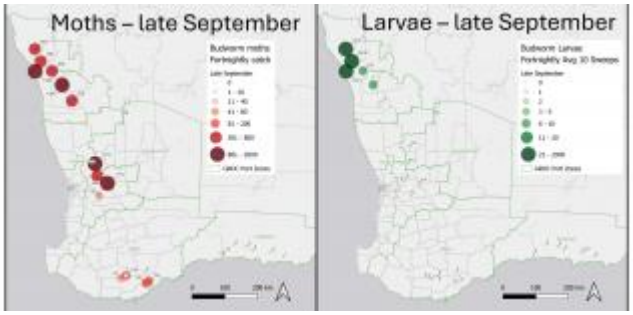
Maps of canola focus crop surveillance sites for native budworm moths and larvae during 2024. Viewers can click on this image to enlarge it. Click on the following images to see a zoomed-in version including numbers. Maps courtesy of: DPIRD.



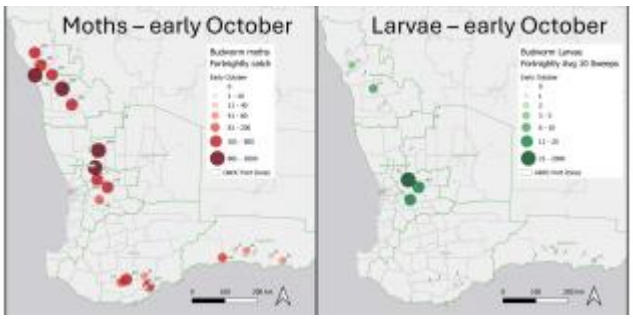
Maps of canola focus crop surveillance for native budworm moths and larvae in late August 2024. Maps courtesy of: DPIRD.



Maps of canola focus crop surveillance for native budworm moths and larvae in early September 2024. Maps courtesy of: DPIRD



Maps of canola focus crop surveillance for native budworm moths and larvae in late September 2024. Maps courtesy of: DPIRD.



Maps of canola focus crop surveillance for native budworm moths and larvae in early October 2024. Maps courtesy of: DPIRD

Given the pattern of moth migration and subsequent larvae in crops, growers on the south coast of the WA grainbelt should be cautious of potentially high numbers of budworm appearing in crops, especially with later sown crops that remain susceptible to damage.

A farmer near Spencers Brook has reported high numbers of native budworm caterpillars in a canola crop.

Another farmer near Wyening has sprayed canola and lupin crops for above threshold native budworm caterpillars.

There have been other reports of above threshold native budworm caterpillars in canola crops at Dowerin, Yealering and Lake Grace.

An agronomist near Boyup Brook has found just above threshold numbers of native budworm caterpillars in a lupin crop. The caterpillars are yet to start damaging the lupin pods as they are still green and the caterpillars are still relatively small. As the lupin pods begin to lose their green colouration and the caterpillars increase in size, pod damage will become more likely.

Above-threshold levels of native budworm caterpillars have been reported by DPIRD staff in canola crops at Nangetty, Nabawa, York, Dale, and Northam. Below-threshold levels of budworm caterpillars have been found in canola crops near Esperance.

There have also been reports of native budworm caterpillars being found in wheat crops at several locations, this has been occurring more in recent years particularly when there are large budworm flights into the grain growing area.

Dani Whyte (Braeleigh Consulting) reports that a farmer at Lake Grace has found up to 88 native budworm caterpillars in 10 sweeps in wheat crops at Lake Grace. Dani also reports finding around 1-2 native budworm caterpillars per 10 sweeps in maturing wheat crops at Dowerin, Yealering and Lake Grace.

Image 3: A native budworm caterpillar eating a wheat plant. Photo courtesy of: Christiaan Valentine (DPIRD).

DPIRD trials indicate that native budworm moths prefer to lay eggs on wild radish and volunteer lupins in wheat crops making weed control a critical part of preventing native

budworm moths from laying eggs in crops and larvae from transferring onto and feeding on wheat plants in spring.

Although native budworm moths were significantly deterred from laying eggs onto wheat plants, very low numbers were seen in trials. It is likely that in years when native budworm migratory flights are particularly high in number and occur earlier than usual, as we have seen in moth traps in some years, wheat crops may be at risk of increased egg laying regardless of volunteer lupin and wild radish control. Hence, sweep netting cereal crops for native budworm may be warranted. However, the economic thresholds for action are high. For native budworm larvae in wheat, the threshold is likely to be higher than 50 larvae per 10 sweeps or 5 larvae per square metre. Economic losses are estimated at $1.71 per hectare with 5 larvae per square metre (approximately 50 larvae per 10 sweeps) or $2.75 per hectare, with 10 larvae per square metre (approximately 100 larvae per 10 sweeps). This is based on a wheat price of $360 per tonne and an anticipated yield of 2 tonnes per hectare. For more information refer to the GRDC Groundcover article Is native budworm targeting wheat crops?

Native budworm moths

- Usual trapping locations

DPIRD's native budworm moth trapping surveillance is winding down for the season. Some budworm trappers have commenced removing traps as crops begin to dry out in some locations. A map showing the native budworm moth flights recorded so far this season is available at Cesar Australia's MothTrapVisWA page.

Native budworm moths generally move westward looking for less advanced crops as the eastern crops dry out and will continue migrating in search of other host plants such as pasture (serradella, lucerne, clover and annual medic) and vegetables.

Any late maturing pulse, oilseed and pasture seed crops should be checked for native budworm caterpillars, especially in areas where moth numbers have been recorded 2 to 3 weeks ago. Caterpillars hatching from eggs laid at this time will now be getting large enough (5 mm) to detect in sweep nets.

Further information

Detailed information on this pest can be found at the department's Native budworm spray threshold factsheet.

To read about prior native budworm activity this season refer to the 2024 PestFacts WA newsletter articles in:

- Issue 18 Mind chemical withholding periods for native budworm sprays
- Issue 17 Check your crops for native budworm caterpillars
- Issue 16 Native budworm moth activity update
- Issue 11 Native budworm caterpillars are active
- Issue 5 Native budworm moth flights have started.

For more information contact Alan Lord, Technical Officer in Perth on +61 409 689 468.

Article authors: Alan Lord (DPIRD Perth) and Dusty Severtson (DPIRD Northam).

Predicting next year's insect pests this harvest

Image 4: Barley contaminated with bronzed field beetles. Photo courtesy of: DPIRD.

Identifying resident pests harvested with grain can be an early warning that pest numbers are increasing in paddocks or indicate which pests may cause in-season damage to susceptible crops like canola next year.

Resident pests are invertebrates that do not migrate into paddocks but are present in the same paddocks year in and year out.

Finding resident pests in grain does not mean you will need to control them but does provide warning for future monitoring. Summer conditions can affect pest numbers especially if it is a hot dry summer. Monitoring pest numbers prior to seeding enables you to have more control options available.

If you find European earwigs and/or snails in harvested grain, take note of which paddocks they were found in. These pests are introduced into paddocks and farms on vehicles and machinery. Cleaning machinery before moving from one paddock to the next and particularly between properties will minimise the risk of introducing a resident pest to new areas.

If you have issues with pests in harvested grain, trials have shown that grain from direct harvested crops contain fewer insects than grain from swathed crops. Invertebrates such as European earwigs and bronzed field beetle tend to congregate under crop swaths rather than in standing crops. The less delay there is between swathing and harvest, the fewer vagrant invertebrates were harvested with the grain.

As direct harvesting canola is not always feasible, the incidence of vagrant invertebrates (other than snails) in the grain can be reduced by:

- Swathing crops at the right height. For example, cereals need to be swathed at height of 125 mm (height of a drink can) and canola should be swathed above the first fork in the plant stem if yield is expected to be one tonne per hectare or more. This allows the swath to be supported by the stubble. If the swath is close to the ground it is more likely that vagrant pests will be harvested with the grain. Also, be sure to harvest swaths as soon as the grain is ready, as the longer swaths are left unharvested the more vagrant insects use them as a refuge which increases the risk of insects in the sample.
- Harvesting during the heat of the day. DPIRD trials show that grain harvested at night had up to 25% more invertebrate contamination than grain harvested during the day. At night, European earwig and other beetle pests were found to move up into swaths and standing crops. During the hottest part of the day, all invertebrates are found under the swath or near the ground in standing crop. Trials looking at snail movement have shown snails are more active at night and are more likely to be harvested at this time.

Growers and consultants can use DPIRD's PestFacts WA Reporter app to request a free diagnosis of any insects found in paddocks.

For more information contact Svetlana Micic, Research Scientist in Albany on +61 8 9892 8591.

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Alternaria black spot in canola

- Moonyoonooka
- Amelup
- Kojaneerup
- Neridup
- Munglinup

Image 5: Alternaria black spot on canola pods. Photo courtesy of: Joel Kidd (DPIRD).

Alternaria black spot has been found recently in canola crops and at a NVT site in Moonyoonooka, Amelup, Kojaneerup, Munglinup and Neridup. The crops ranged from seed development to 30% pod ripeness.

Symptoms

Alternaria spots on stems, leaves or pods may have a concentric, target-like appearance and are brown or black. Lesions on green leaves are often surrounded by a chlorotic (yellow) halo. Pod infection is the most common form in WA and looks like black speckling but can extend to be a larger, dense area of blackening.

Image 6: A section of a canola stem displaying an Alternaria lesion with target-like rings. Photo courtesy of: Andrea Hills (DPIRD).

Severe pod infections can cause seed to shrivel and lead to premature pod ripening and shattering.

Image 7: Canola pods displaying Alternaria black spot symptoms. Photo courtesy of: Andrea Hills (DPIRD).

Pod symptoms of alternaria are similar to those of blackleg, making it difficult to distinguish between the two in the paddock, but blackleg lesions should contain pycnidia (pepper spots).

Management

Warm high humidity conditions favour the fungal pod infection. Alternaria can be common in canola crops but is rarely severe enough to warrant control. Incidental control from the application of a fungicide at full bloom for sclerotinia or blackleg management may also help reduce alternaria on early pods. However, very few foliar fungicides are registered for alternaria. For more information on foliar fungicides refer to DPIRD's Registered foliar fungicides for canola in Western Australia page.

The open pollinated variety, DG Bidgee TT, tends to be more susceptible to alternaria than other varieties and the cleaning and grading of grain retained for seed will somewhat reduce levels of seed infection.

If alternaria is a problem this season, obtain fresh disease-free seed for 2025, and sow canola in paddocks far from infected canola stubble. Alternaria spores are easily spread by wind.

There are no registered fungicide seed treatments for alternaria in Australia.

Further information

For information on alternaria black spot refer to DPIRD's Diagnosing alternaria black spot in canola page.

For more information on canola diseases contact Plant Pathologists Kithsiri Jayasena in Albany on +61 8 9892 8477, Ciara Beard in Geraldton on +61 8 9956 8504, Geoff Thomas in Perth on +61 428 947 287, Andrea Hills in Esperance on +61 8 9083 1144 or Kylie Chambers in Northam on +61 8 9690 2151.

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