Department of Primary Industries and Regional Development
GOVERNMENT OF WESTERN AUSTRALIA
Protect Grow Innovate

PestFacts WA

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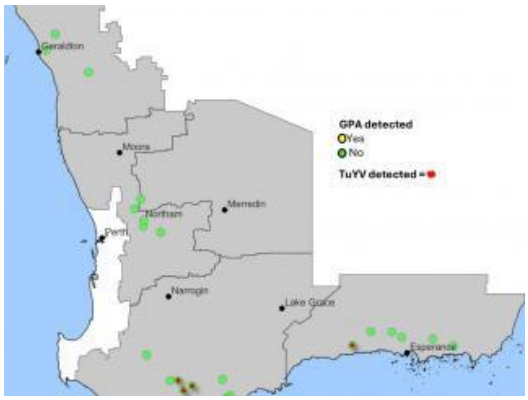
Contents

Turnip yellows virus detected in migrating cabbage aphids

Cabbage aphids infesting pre-flowering canola. Photo courtesy of: Benjamin Congdon (DPIRD).

This season the Department of Primary Industries and Regional Development (DPIRD) staff are monitoring aphid activity using yellow sticky traps on fencelines of canola paddocks in the Geraldton, Kwinana West, Albany and Esperance regions (see the map below). The traps and nearby canola crops are being monitored for green peach aphid (GPA) and all aphids caught on the traps are being tested for the presence of the disease-causing turnip yellows virus (TuYV). TuYV is transmitted primarily by GPA.



Findings from green peach aphid and turnip yellows virus monitoring sites, current to 29 May 2024. Map courtesy of: DPIRD.

Trapping began on the 3 April 2024 and is planned to continue until the start of September.

This trapping surveillance is funded by the Grains Research and Development Corporation (GRDC) project DAW2305-003RTX “Effective virus management in grains crops”.

As of the 29 May 2024, no GPA have been identified on the traps or in the emerging crops. However, aphids of various species, including cabbage and turnip aphids, have been caught in the traps at most sites in both the Esperance and Kwinana West regions. At one site in Kendenup, cabbage aphid have been identified in a dual-purpose canola crop and cabbage aphids were caught on the traps next to that paddock between 14 and 28 May. Small numbers of aphids have been caught on traps at all sites in the Albany region. TuYV was detected in aphids caught at Kendenup, Cranbrook, Tenterden, South Stirlings and Munglinup.

The risk of TuYV is a lot higher when GPA is also present. Cabbage aphid may inefficiently transmit some strains of TuYV but most likely they are feeding on infected plants and the detection of TuYV is from the gut contents of these aphids.

Despite the dry conditions experienced during autumn for much of the grainbelt, aphid flights are likely to be a result of the warmer weather also experienced during that period coupled with moisture stress of aphid refuges such as isolated patches of volunteer canola and wild radish, and dual-purpose canola in some areas.

Due to minimal autumn rainfall, late emergence of many crops in many areas this season will mean later maturation. Therefore, there is some risk that crops will still be in vulnerable growth stages at the time of late-winter/early-spring, at a time when GPA can become increasingly active and virus may spread.

Impact of dry start on aphid populations

Aphids need non-crop hosts to survive over our long hot summer. If we don’t get a lot of summer rainfall, like this season, then aphids are often restricted to isolated damp areas like roadside ditches and home gardens.

When there is little summer and autumn rainfall, aphid reservoirs continue to be limited to isolated pockets of live plants meaning the background aphid population is limited. In such situations, the risk of early aphid infestation and aphid-transmitted viruses is considered low.

However, monitoring of aphid populations via aphid trapping or plant inspections is the best way of estimating local risk, as even small reservoirs of aphids can trigger large-scale crop infestations and virus infection if they are in close proximity to the crop and aphids migrate from the reservoir during the critical window of crop development.

Early season virus risk

Most broadacre grains viruses that infect our grains crops, particularly Barley yellow dwarf virus (BYDV) in cereals and Turnip yellows virus (TuYV) in canola, only cause significant losses when infection occurs before crop flowering. Furthermore, the risk of feeding damage by the aphid species responsible for spreading these viruses, oat or corn aphids (BYDV) and green peach aphid (TuYV), is greatest when they colonize the crop before stem elongation.

Image 1: Potential symptoms of turnip yellows virus in canola include stunted plant growth and purpling or yellowing of the lower leaves, particularly on leaf margins. Photos courtesy of: Benjamin Congdon (DPIRD).

Other viruses, such as cucumber mosaic virus and pea seedborne mosaic virus, are seedborne and do not need to survive in the green bridge. However, these viruses require aphids for plant-to-plant spread, therefore the green bridge is the primary source of these aphid vectors. Some of these viruses have a much broader range of aphid species that can transmit them, and thus total aphid numbers caught on a trap can be a good indicator of risk.

Due to the nature of our WA climate, early season spread of these viruses is relatively sporadic, and occurs under conditions that favor aphid migration from the green bridge into young vulnerable crops during autumn and early winter.

Management

There are a variety of management strategies that growers can employ. The most accessible of these are the use of insecticides (seed treatment or foliar applied) with

systemic and/or residual activity which can protect plants for several weeks after application. For some viruses, growers can use resistant varieties, manipulate sowing date and plant density, sow into stubble and applying foliar sprays to reduce aphid numbers.

Effective chemicals currently available in Australia for control of GPA are alarmingly limited as GPA has evolved resistance to many insecticide chemicals. For more information see GRDC's Aphid and insecticide resistance management in grain crops.

Further information

For further information contact Research Scientist Benjamin Congdon, South Perth on +61 (0)8 9368 3499.

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Diamondback moths in moisture stressed crops

- Muresk
- Bruce Rock
- Narraloggan
- South Stirlings
- Esperance region

Image 2: A diamondback moth caterpillar and visible chewing damage on a canola leaf. Photo courtesy of: Amber Balfour-Cunningham (DPIRD).

Technical Officer Danae Warden (DPIRD) has captured 14 and 25 diamondback moths (DBM) in delta traps in canola at Muresk.

David Stead (Anasazi Agronomy) reports that DBM are at threshold levels in canola south of Bruce Rock.

Research Scientist Amber Balfour-Cunningham (DPIRD) has found a small patch of 4 leaf canola at Narraloggan (east of York) being chewed by DBM caterpillars.

Hennie Botha (Nutrien Ag Solutions) has reported finding low levels of DBM caterpillars in canola at South Stirlings.

The PestFacts WA team continues to receive reports of DBM caterpillars feeding on moisture-stressed canola crops in the Esperance region. Currently, paddocks contain plants at various growth stages.

Growers and consultants are seeking advice on how to manage diamondback moth caterpillars now to prevent a population build-up, given the recent warm, dry temperatures and the forecasted above-average winter temperatures leading up to spring. Spring is when most DBM damage typically occurs in canola crops.

Recent rainfall in some areas is not expected to have reduced DBM caterpillar numbers, but it may have slowed their lifecycle. Recent GRDC-funded research, conducted by DPIRD, found that DBM moths can colonise canola crops very early, with buildup of larvae often not seen until temperatures increase at the tail end of winter (e.g. August). However, above average daytime temperatures are forecast for the WA grainbelt during winter, which may increase DBM populations in crops.

Research has also found that regular monitoring and recording of DBM numbers and changes in the larval growth stages (i.e. the percentage of various sized caterpillars) over time is the best way to anticipate any potential rapid buildup. Knowing changes in DBM larvae numbers also provides an opportunity to commence spray operations (if required) at a time when they are most likely to be effective.

Biology

DBM caterpillars are pale green, cigar-shaped and up to 12 mm in length. They wriggle violently when disturbed and can drop down on a fine thread.

Damage from these grubs appears as chewed leaves, buds and flowers with the leaf chewing ranging from irregular holes in leaves to extensive leaf damage.

DBM caterpillar activity typically slows down in cold, wet weather conditions and then ramps up in spring.

Managing DBM and considering beneficials

Growers are urged to monitor their crops, correctly identify caterpillar species and if crops aren’t bouncing back from feeding damage to consider applying an insecticide. Growers are reminded that insecticides that are effective on DBM can only be applied twice in a season.

Growers and consultants are also advised to monitor for DBM larvae, especially from August onwards, by doing at least four lots of ten sweeps with an insect net at various locations in each crop.

DBM caterpillars drop from plants when disturbed, and bashing some plants, especially those with holes in leaves, over an ice cream container is a good initial indication of their presence if you don’t have a sweep net handy.

DBM are difficult to control because they breed prolifically, are resistant to many insecticides including synthetic pyrethroids and organophosphates. and in advanced canola canopies insecticide sprays have limited coverage.

Thresholds for control are:

- pre-flowering (stressed crop) - 30 or more grubs per 10 sweeps
- pre-flowering (no stress) - 50 or more grubs per 10 sweeps.

If numbers warrant spraying then growers and consultants can refer to DPIRD's 2024 winter spring insecticide guide.

For a list of insecticides with their toxicity to beneficial insects, refer to Cesar Australia's Beneficials Chemical Toxicity Table.

Growers should consider insecticide options that are soft on predator insects if spraying.

For more information on beneficials refer to DPIRD's Know what beneficials look like in your crop page.

Further information

For more DBM information refer to:

- DPIRD's Diagnosing diamondback moth page
- GRDC's Diamondback moth fact sheet
- GRDC's Managing diamondback moth video.

For more information contact Research Scientist Svetlana Micic in Albany on +61 (0)8 9892 8591 or Technical Officer Alan Lord in South Perth on +61 (0)8 9368 3758.

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

European and native earwigs

- Bridgetown
- Boxwood Hill

European earwigs have recently been reported in pasture at Bridgetown and in canola near Boxwood Hill.

European earwigs are an introduced species and recurring pest on properties that can damage cereal, legume and oilseed crops.

Image 3: European earwigs: left is a male, right is a female. Photo courtesy of: DPIRD.

Adult European earwigs range from 12 to 24 mm long. They have uniform brown bodies that are smooth and shiny with light brown-yellow legs, pincers (also called forceps) and 'shoulders'.

Image 4: A native earwig (Carcinophora occidentalis). Photo courtesy of: DPIRD.

European earwigs should not be confused with native earwigs. European earwigs tend to be found communally whereas native earwigs are usually solitary.

Native earwigs are also widespread in paddocks but feed mainly on leaf litter and other organic material and are not known to damage crops. There are two native earwig species commonly confused with European earwigs: *Carcinophora occidentalis* (no common name) and *Labidura truncata* (common brown earwig). The common brown earwig has been observed attacking caterpillars. These are distinguished from European earwigs by the red triangle on their backs.

Image 5: A common brown earwig (Labidura truncata). Photo courtesy of: DPIRD.

Crop residues on the soil surface increase European earwig survival and breeding, allowing large populations to build up during autumn and early winter and damage crops sown into the stubble.

Earwigs have two breeding cycles per year. One breeding cycle occurs in late winter/early spring and a second in summer.

When checking crops look for shredded leaf tips or jagged holes in the leaves as this is typical of earwig damage. In severe situations European earwigs can completely defoliate young seedlings leaving only stems or bare ground in patches. This pest is hard to find during the day and it is best to look for European earwigs at night using a torch or by placing pitfall traps into the ground.

Insecticides especially chlorpyrifos or alphacypermethrin applied at the highest registered rates do have efficacy against European earwig as a contact only. However European earwigs can be difficult to control as they hide under stubbles. Sprays applied at night have worked better than sprays applied during the day as earwigs are more active at night. Baiting for European earwigs has provided better control for this pest than spraying, especially in paddocks with heavy stubble loads.

For more information on this pest refer to DPIRD's Diagnosing European earwig and Management of European earwig pages.

For more information contact Research Scientist Svetlana Micic, Albany on +61 (0)8 9892 8591.

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

Updated winter spring insecticide guide 2024 is now available

This spray guide is updated every year to include chemicals and rates registered by the Australian Pesticides and Veterinarian Medicines Authority (APVMA) that can be applied to cereal, lupin, canola and field pea crops and pastures for controlling the common crop pests in WA.

Included in this guide are additional active ingredient concentrations for chlorantraniliprole for native budworm in lupin and field peas, methomyl for native budworm in lupin and canola crops, and trichlorfon for armyworm in cereal crops. Also, there are minor changes to dose rates of deltamethrin for pea weevil on field pea crops. The active ingredient

maldison has been renamed to malathion and label variations have been made. The permit for use of Pymetrozine on aphids in lupin crops has now expired.

The spray guides are only a guide and growers still need to read chemical labels before use.

Not all insecticide trade names may be listed, so growers should also check with their retailers for any other registered insecticide options.

To download these spray guides and other useful insecticide information, visit the department's Insecticide spray guides for crops in Western Australia page.

An Australian grains chemical toxicity table has been developed to help growers and advisors make informed choices about the insecticides and miticides they use in their crops. It summarises the toxicity of foliar chemical sprays on beneficial insects. This table was a collaboration between Cesar Australia and University of Melbourne, with investment from GRDC as part of the Australian Grains Pest Innovation Program.

For more insecticide information contact Research Scientist Svetlana Micic, Albany on +61 8 9892 8591 or Technical Officer Alan Lord, South Perth on +61 8 9368 3758.

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Slime mould

- Wyening
- Merredin
- Narrogin
- Katanning
- Tambellup

Image 6: Slime mould on cereal stubble. Photo courtesy of: Tom Shaw (Nutrien).

Slime mould has recently been found on oat leaves near Narrogin, on cereal stubble near Wyening, Merredin, Katanning and on canola stubble near Tambellup.

Image 7: Slime mould on canola stubble. Photo courtesy of: Glenn McDonald (DPIRD).

Slime moulds generally appear on decaying plant material as patches of watery or jelly-like slimy material. After a few days, the jelly-like material produces fruiting bodies are commonly ash grey, though in some instances they may be bright yellow, red or grey. These fruiting bodies usually occur in great numbers on the affected plant material and may cover an area of up to a square metre.

Warm wet weather combined with high nitrogen levels provide a good environment for the slime moulds.

The slime moulds should disappear if a couple of dry warm days are experienced and do not cause any damage to crops.

No control measures are required for slime moulds. If you have concerns about your livestock eating slime moulds, please contact your local veterinary officer.

For more information contact Plant Pathologists Andrea Hills in Esperance on +61 (0)8 9083 1144, Kithsiri Jayasena in Albany on +61 (0)8 9892 8477, Geoff Thomas in South Perth on +61 (0)8 9368 3262, Ciara Beard in Geraldton on +61 (0)8 9956 8504 or Kylie Chambers in Northam on +61 (0)8 9690 2151.

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