



## Agriculture and Food

# PestFax

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## 2018 winter spring insecticide spray guide is now available



DPIRD's 2018 winter/spring insecticide guide is now available and can be downloaded for free at the department's [Insecticide spray guides for crops in Western Australia](#) page.

This spray guide lists the latest registered chemicals and rates that can be applied to canola, lupin and cereal crops for controlling mature crop insect pests.

The department updates its autumn/winter and winter/spring insecticide spray guides annually to help growers and consultants manage insect pests in crops and pasture.

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.

For more insecticide information contact [Dustin Severtson](#), Development Officer, Northam on +61 (0)8 9690

2160 or [Alan Lord](#), Technical Officer, South Perth on +61 (0)8 9368 3758 or [Svetlana Micic](#), Research Officer, Albany on +61 (0)8 9892 8591.

## Powdery mildew is starting to appear in wheat down south

- Condingup
- Gibson



Quenten Knight (Agronomy Focus) reports that he is finding powdery mildew in Scepter and Longsword wheat east of Condingup. The crop is at flag leaf emergence and the powdery mildew is easily found on lower leaves and sheaths and is moving upwards. The crop had a flutriafol fungicide in-furrow at seeding and a preventative foliar spray of tebuconazole at Z31 when no mildew was present. However, tebuconazole is not registered for powdery mildew in wheat, and the disease is starting to move up the canopy. The crop is to be sprayed with AviatorXpro, a good choice to avoid any potential fungicide resistance issues as it contains a mixture of active ingredients including bixafen (a SDHI or Group 7 fungicide) and prothioconazole (a Group 3 DMI, but of the newest generation).

A single volunteer wheat plant with powdery mildew has also been found at the department's research station at Gibson.

When diagnosing powdery mildew in barley and wheat look for fluffy, white powdery growths of fungal spores on

the either surface of leaves and leaf sheaths. Infection usually starts low in the canopy. Fluffy, white powdery growth also appears on stems and heads under severe disease pressure. As the infection ages there is a yellowing of the infected tissue and the infected area turns a dull grey colour with small black specks present.

Growers and consultants can expect to see more powdery mildew as the temperatures increase in the coming months, if humid and damp conditions continue.

It is crucial to control the disease before it becomes too severe and develops in the upper canopy and on heads as then it is very difficult to control. A [registered foliar fungicide](#) can reduce the disease impact, but growers need to consider the weather outlook, variety susceptibility, growth stage and crop yield potential when deciding whether an economic response to fungicide application is likely.

If wheat powdery mildew is present and increasing in the canopy and the weather outlook is favorable (humid and mild), it is recommended that growers intervene with a well-timed application of registered foliar fungicide in susceptible varieties to stop disease reaching damaging levels and moving onto the flag leaf and head.

## Testing for powdery mildew fungicide resistance

Wheat powdery mildew is at high risk of developing fungicide resistance which is most likely to be against the older generation triazole (DMI or Group 3) fungicides such as tebuconazole. Growers and consultants are urged to report fungicide failures (see below).

Growers and consultants that suspect fungicide resistance to powdery mildew is occurring in a crop can contact the [Centre for Crop and Disease Management](#), Fungicide Resistance Group, at [frg@curtin.edu.au](mailto:frg@curtin.edu.au) to request further information. The CCDM team uses samples to assist with fungicide resistance research and they welcome the opportunity to chat with you further in relation to all cases of resistance, including barley net blotches, wheat yellow spot and powdery mildew, botrytis (grey mould WA only), ascochyta in pulses and leptosphaeria (blackleg) in canola.

You can find more information about the work of the [fungicide resistance group](#) as well as powdery mildew research from the Centre for Crop and Disease Management (CCDM) website.

DPIRD plant pathologists will also assist with sample collection where possible.

For more information about wheat powdery mildew resistance refer to the CCDM article [What the fluff? Wheat powdery mildew is fungicide resistant!](#).

For fungicide information refer to the department's [Registered foliar fungicides for cereals in Western Australia](#) page.

For more information on powdery mildew refer to the department's [Diagnosing powdery mildew in cereals and Managing powdery mildew in wheat](#).

For more information contact [Kithsiri Jayasena](#), Plant Pathologist, Albany on +61 (0)8 9892 8477, [Geoff Thomas](#), Plant Pathologist, South Perth on +61 (0)8 9368 3262 or [Andrea Hill](#), Plant Pathologist, Esperance on +61 (0)8 9083 1144 or [Ciara Beard](#), Plant Pathologist, Geraldton on +61 (0)8 9956 8504.

## Rhizoctonia bare patches are becoming noticeable

- Goomalling
- York

Rhizoctonia bare patches are present in consultant Tim Boyes (Agvivo) soils constraints trial sites at Goomalling

and York. At both trial sites the tillage interventions appear to be suppressing the rhizoctonia activity as no rhizoctonia symptoms were noted in the renovated trial plots. The trials are investigating a range of tillage interventions.



At Goomalling the trial has been sown to Scepter wheat on the 13 May. The paddock has had a pasture (2016), wheat (2017) and wheat (2018) rotation and is a deep yellow sand. The rhizoctonia bare patches are noticeably present in the high traffic and untreated control strips.



At the York trial site the paddock has been commercially sown to Spartacus wheat on 26 May. The plants are at mid to late tillering. The paddock has had long term cereal rotations and is a non-wetting sandy gravel. The rhizoctonia bare patches are once again showing up in the high traffic strips and untreated controls.

Rhizoctonia root rot is a widespread root disease caused by a soil-borne fungus.



In the paddock look for severely stunted plants that occur in patches and there is usually a distinct edge between diseased and healthy plants. Roots of affected plants are short with characteristic pinched ends: 'spear tips' (see photo above).

Growers are urged to identify the causal agent/s of any cereal crops with patching or uneven growth.

Distinct patches are often evident when the primary roots of plants are infected early, while infection of the crown roots later in the season may cause an uneven crop. It is important to be aware that patches are not unique to rhizoctonia. There are other diseases including root lesion nematodes (RLN) and take-all as well as non-disease issues that can cause them. In particular, patches caused by rhizoctonia or RLN are difficult to distinguish without close inspection of the plant roots and often require further laboratory tests to isolate rhizoctonia or extract any nematodes.

There is nothing that can be done in season to control root diseases. An application of nitrogen post-sowing may aid recovery, but does not prevent root damage. Plant pathologist Daniel Huberli says that before the next crop is planted, it is important that the disease or issue causing the patches is confirmed in order to put the right management plan in place for 2019.





For diagnosis of root disease or nematode problems in-crop, carefully dig up symptomatic plants from the edge of the patch (not the centre) as well as healthy plants from outside the patches. The department's YouTube video [How to take a plant sample](#) shows the correct method to use. Plants can be sent to the department's [Diagnostic Laboratory Services](#), Department of Primary Industries and Development, Reply Paid 83377, 3 Baron-Hay Court, South Perth WA 6151.

Keeping disease inoculum levels at low levels is the most effective way to minimise crop losses from root diseases and this can be achieved by thinking long-term and implementing management practices over more than one cropping season.

If you have confirmed your paddock has rhizoctonia with large amounts of the crop affected this year, the best option would be to place the paddock into a grass-free break crop in 2019, such as canola, pulse or pasture. Canola has been shown to reduce the level of disease in the following cereal crop.

For detailed information about management options for rhizoctonia read the GRDC's Tips and Tactics [Rhizoctonia factsheet](#).

For more information and pictures of disease symptoms refer to the department's;

- [Diagnosing rhizoctonia root rot in cereals](#) page
- [Root disease under intensive cereal production systems](#) page
- [Rhizoctonia in your paddocks](#) YouTube video.

For more information contact [Daniel Hüberli](#), Plant Pathologist, South Perth on +61 (0)8 9368 3836 or [Sarah Collins](#), Senior Nematologist, South Perth on +61 (0)8 9368 3612.

## Root lesion nematode (*P. penetrans*) causing patches in canola

- Chapman



Crop protection officer Bonnie Jupp (DPIRD) found significant patches of chlorotic and stunted canola caused by root lesion nematode (RLN) species *Pratylenchus penetrans* in a paddock at East Chapman in early July.

The paddock has loamy sand soil and has had a rotation of lupins – wheat – canola from 2016 to the present crop. DPIRD's Diagnostic Laboratory Services (DDL) testing for root disease revealed that the RLN species *Pratylenchus penetrans* was present in very large quantities (254 000 per gram of root) (photo below).

Rhizoctonia bare patch was not present in the assessed roots. The grower suggested that heavy first rains may have washed nitrogen fertilizer applied at sowing through the topsoil making it less available to young seedlings. This possibly also made the canola seedlings more prone to root lesion nematode infestation and damage.



Four species of RLN are commonly found in Western Australia: *Pratylenchus neglectus*, *P. quasitereoides*, *P. thornei* and *P. penetrans*.

*P. penetrans* has a wide host range which includes many horticultural and broadacre crops, fruit trees and weeds. It occurs infrequently in broadacre crops in WA but severe damage has been observed in lupin, wheat, canola, oat and field pea crops.

RLN multiply on susceptible hosts and are often found in the sandy soils that dominate WA's broadacre cropping area. RLN enter plant roots to feed and lay eggs but may also live for some time in soil. Consequently, as nematode populations increase in the roots of susceptible plants, crop production is often limited. Damaged roots have less efficient water and nutrient uptake, and plants are also less able to tolerate other stresses such as drought. Crops appear patchy with uneven growth, and may appear nutrient deficient.

RLN generally lay an average of one to two eggs per day and development from egg to adult takes 30–86 days, depending upon soil temperature and host. Eggs can hatch at temperatures as low as 2.7°C, therefore populations can increase quickly, particularly when soils are moist and warm.

Glasshouse trials conducted by DPIRD indicate crops range in susceptibility to *P. penetrans* with lupins, field pea, faba bean, oats and chickpea all being very susceptible to this species. Wheat, barley and canola are less susceptible but are still likely to cause nematode levels to increase. This is opposite to *P. neglectus* and *P. quasitereoides* where lupin and field peas are most resistant while barley and wheat are most susceptible. Canola is consistently intermediate in glasshouse experiments for resistance for all three RLN species.

*P. penetrans* can cause significant yield loss in canola and wheat so care is required to manage its levels in infested paddocks. In mixed crop field trials conducted by DPIRD there was 520kg/ha yield loss in wheat and 380kg/ha yield loss for canola for every 10 *P. penetrans* nematodes present at sowing. There was no difference in yield loss between varieties. Further research is necessary to confirm yield loss expectations and levels for potential losses in other crops.

## Diagnosis

RLN are usually distributed unevenly across the paddock and may present as wavy and patchy crop growth. Above ground symptoms of infested plants include poor growth, chlorosis, plants prone to early wilting with lower

leaves turning yellow prematurely and dying back from the tips. Below ground symptoms are reduced root systems with fewer lateral roots and root hairs compared to healthy plants. Brown/dark coloured lesions along the roots may also be seen.

For an overview of RLN symptoms in paddock refer to the video [How to diagnose root lesion nematode](#) below.



Nematologist Sarah Collins (DPIRD) says that the correct identification of nematode type and species is important because the choice of suitable break crops to mitigate future crop damage is dependent on knowing which plant parasitic nematode species are present. This is particularly true where *P. penetrans* is present because it has different preferred host range than the more commonly found root lesion nematodes *P. neglectus* and *P. quasitereoides*.

DDLS - Plant pathology services can assist with diagnosis, this is a chargeable service. Do not send washed plants to the laboratory. Find submission forms and full sampling instructions online on the [DDLS - Plant pathology services](#) page or you can contact the lab directly on +61 (0)8 9368 3721.

## Management

There are currently no financially viable chemical control options for RLNs in broadacre cropping.

Management strategies that can help to minimise the effects of nematodes are the control of summer weeds, early sowing and good plant nutrition.

We are yet to identify a crop or variety which is resistant to *P. penetrans* but wheat and barley are likely to result in less nematode multiplication than lupins and canola. Impact of root lesion nematodes may vary by season.

Growers and consultants can report RLN activity and lab results via the [PestFax Reporter app](#).

DPIRD's [Protecting WA Crops newsletter](#) team will be publishing a RLN issue soon so readers should keep an eye out for this.

For more information on nematodes refer to DPIRD's [Diagnosing root lesion nematodes in cereals](#) and [Root lesion and burrowing nematodes: diagnosis and management](#) pages.

For more information contact [Sarah Collins](#), Research Officer, South Perth on +61 (0)8 9368 3612 or [Carla Wilkinson](#), Research Officer, South Perth on +61 (0)8 9368 3862.

## More reports of blackleg and sclerotinia apothecia in canola

### Blackleg

- Cadoux to Yerecoin
- Tammin to Brookton
- Wagin
- Katanning
- Gibson

David Stead (Anasazi Agronomy) reports seeing lots of blackleg on leaves of young canola plants across his advisory area of Cadoux to Yerecoin and Tammin to Brookton.





Justin Kudnig (Advanta Seeds) has tweeted that at the Wagin NVT trials some lower adult-rated canola varieties with Group A or Groups BF are getting higher levels of blackleg leaf infections.



Justin has also tweeted that blackleg leaf lesions and cankers are already in some Group A and BF, lower adult-rated canola varieties, in the GRDC NVT TT canola trials at Gibson.



Plant pathologist Ravjit Khangura (DPIRD) reports finding plenty of blackleg in her canola trials at Katanning.

For previous blackleg reports and more blackleg information refer to the 2018 PestFax Issue 13 article [Blackleg lesions are appearing in canola crops](#) and GRDC's [Blackleg Management Guide \(2018 autumn variety ratings\)](#).

## Sclerotinia apothecia

- Greenough
- Albany



Crop protection officer Bonnie Jupp (DPIRD) reports finding high numbers of apothecia in a canola crop near Greenough. The plants had eight true leaves or more. Some apothecia were found exposed on bare ground next to plants, not under leaf canopy.



There is an abundance of apothecia sprouting in the CCDM canola trial site at Greenough. There were so many apothecia that CCDM researcher Linda Thomson wondered whether there was more apothecia than plants in the canola trial area. The surrounding canola crop was also showing plenty of apothecia.



Plant pathologist Kith Jayasena (DPIRD) reports that apothecia have started to emerge at the sclerotinia depot at the Albany DPIRD office.

Plant pathologist Ravjit Khangura (DPIRD) says current weather conditions are perfect for spore release for both blackleg and sclerotinia pathogens. Growers are advised to reassess their risk from both these diseases and consider in-crop management options if required.

For more information on managing sclerotinia refer to;

- DPIRD's 2018 PestFax Issue 14 article [Sclerotinia apothecia are being found. It's time to plan sclerotinia management in your canola](#)
- DPIRD's [Managing sclerotinia stem rot in canola](#) page and
- GRDC's [Sclerotinia stem rot in canola](#) factsheet.

For more information contact [Ravjit Khangura](#), Research Officer, South Perth on +61 (0)8 9368 3374.

**There are still spots available in DPIRD's crop disease and insect identification workshop**

Having confidence in the identification of diseases and insects is a vital step towards successful and sustainable crop protection.

A three day disease and insect identification course is being held by DPIRD at the South Perth office on Monday 20 August to Wednesday 22 August 2018.

The course is designed mainly for agronomists, growers and other grains industry representatives to improve disease and insect identification skills relevant to broadacre crop production in WA.

The course has received high acclaim from previous participants because of the practical and 'hands on' training approach, professional and experienced presenters and the valuable take home resource materials.

Disease identification will be taught on Monday 20 and Tuesday 21 August, followed by insect identification and integrated management on Wednesday 22 August.

Registration can be for either or both components.

The costs of the course have been kept low (\$125 per day or \$300 for the three days) with funding assistance from GRDC.

Numbers are limited for the training days and enrolments close on Friday 3 August 2018.

For further details contact Dominie Wright, Plant pathologist, South Perth on +61 (0)8 9368 3875 or Dustin Severtson Entomologist, Northam on +61 (0)8 9690 2160.

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- [3] <mailto:dustin.severtson@dpiird.wa.gov.au>
- [4] <mailto:alan.lord@dpiird.wa.gov.au>
- [5] <mailto:svetlana.micic@dpiird.wa.gov.au>
- [6] <https://www.agric.wa.gov.au/sites/gateway/files/Scepter%20powdery%20mildew%20AHills%2025July18.JPG>
- [7] <https://www.agric.wa.gov.au/sites/gateway/files/Longsword%20powdery%20mildew%20AHills%2025July18.JPG>
- [8] <https://www.agric.wa.gov.au/barley/registered-foliar-fungicides-cereals-western-australia>
- [9] <https://mail.agric.wa.gov.au/owa/redir.aspx?C=ss43pFm5opER2GD5mjn6E5YieK3Qvoelkp9KhRidVcYBc8iiDvLVCA..&URL=http%3A%2F%2Fccdm.com.au%2F>
- [10] [https://mail.agric.wa.gov.au/owa/redir.aspx?C=ba7m2BuNiDi\\_\\_KKrww\\_iFr2gFQEYJHzMYrUxQ6oiuM8SmsiiDvLVCA..&URL=mailto%3Afrg%40curtin.edu.au](https://mail.agric.wa.gov.au/owa/redir.aspx?C=ba7m2BuNiDi__KKrww_iFr2gFQEYJHzMYrUxQ6oiuM8SmsiiDvLVCA..&URL=mailto%3Afrg%40curtin.edu.au)
- [11] <http://ccdm.com.au/research/>
- [12] <http://ccdm.com.au/2017/04/11/what-the-fluff-wheat-powdery-mildew-is-fungicide-resistant/>
- [13] <https://www.agric.wa.gov.au/mycrop/diagnosing-powdery-mildew-cereals>
- [14] <https://www.agric.wa.gov.au/spring/managing-powdery-mildew-wheat>
- [15] <mailto:kithsiri.jayasena@agric.wa.gov.au>
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- [19] <https://www.agric.wa.gov.au/sites/gateway/files>



- /Rhizo%20bare%20patch%202%20Goomalling%201%20SCollins.jpg  
 [20] <https://www.agric.wa.gov.au/sites/gateway/files/Rhizo%20bare%20patch%20York%20SCollins%2017July18.jpg>  
 [21] <https://www.agric.wa.gov.au/sites/gateway/files/rhizo%20wheat%20seedling%20roots%20DHuberlijpg.jpg>  
 [22] <https://www.agric.wa.gov.au/sites/gateway/files/Rhizo%20bare%20patches%20drone%20Sth%20Stirlings%202015%20DPIRD.jpg>  
 [23] [https://www.youtube.com/watch?v=\\_hqjXWEkByg&feature=youtu.be](https://www.youtube.com/watch?v=_hqjXWEkByg&feature=youtu.be)  
 [24] <https://www.agric.wa.gov.au/bacteria/ddls-plant-pathology-services>  
 [25] <http://www.grdc.com.au/TT-Rhizoctonia>  
 [26] <https://www.agric.wa.gov.au/mycrop/diagnosing-rhizoctonia-root-rot-cereals>  
 [27] <https://www.agric.wa.gov.au/barley/root-disease-under-intensive-cereal-production-systems>  
 [28] <https://www.youtube.com/watch?v=XLbTlBfsfU>  
 [29] <mailto:daniel.huberli@dpird.wa.gov.au>  
 [30] <mailto:sarah.collins@dpird.wa.gov.au>  
 [31] <https://www.agric.wa.gov.au/sites/gateway/files/RLN%20Riverside%20paddock%20%284%29%20BJupp%2025July18.JPG>  
 [32] [https://www.agric.wa.gov.au/sites/gateway/files/RLN%20root%20symptoms%203%20text%20CBeard%2025July18\\_0.jpg](https://www.agric.wa.gov.au/sites/gateway/files/RLN%20root%20symptoms%203%20text%20CBeard%2025July18_0.jpg)  
 [33] <https://youtu.be/ttFltE-B4qA>  
 [34] <https://www.agric.wa.gov.au/diseases/pestfax-reporter>  
 [35] <https://www.agric.wa.gov.au/newsletters/pwac>  
 [36] <https://www.agric.wa.gov.au/mycrop/diagnosing-root-lesion-nematode-cereals>  
 [37] <https://www.agric.wa.gov.au/barley/root-lesion-and-burrowing-nematodes-diagnosis-and-management>  
 [38] <mailto:carla.wilkinson@dpird.wa.gov.au>  
 [39] <https://www.agric.wa.gov.au/sites/gateway/files/Blackleg%20leaf%20lesions%20tweet%20Jusin%20Kudnig%20Advanta%20Seeds%2021July18.jpg>  
 [40] <https://www.agric.wa.gov.au/sites/gateway/files/Blackleg%20tweet%20Justin%20Kudnig%20Advanta%20Seeds%2023July18.jpg>  
 [41] <https://www.agric.wa.gov.au/sites/gateway/files/Blackleg%20RKhangua%2026July18.JPG>  
 [42] [https://www.agric.wa.gov.au/newsletters/pestfax/pestfax-issue-13-july-2018?page=0%2C4#smartpaging\\_toc\\_p4\\_s0\\_h2](https://www.agric.wa.gov.au/newsletters/pestfax/pestfax-issue-13-july-2018?page=0%2C4#smartpaging_toc_p4_s0_h2)  
 [43] <https://grdc.com.au/resources-and-publications/all-publications/publications/2018/blackleg-management-guide>  
 [44] <https://www.agric.wa.gov.au/sites/gateway/files/Sclerotinia%20apothecia%20BJupp%2019July18.jpg>  
 [45] <https://www.agric.wa.gov.au/sites/gateway/files/Greenough%20trail%20site%20July%202018%20apothecia%20%282%29%20Linda%20Thomson%20CCDM%2025July18.JPG>  
 [46] <https://www.agric.wa.gov.au/sites/gateway/files/Sclerotinia%20apothecia%20KJayasena%2023July18.jpg>  
 [47] [https://www.agric.wa.gov.au/newsletters/pestfax/pestfax-issue-14-july-2018?page=0%2C1#smartpaging\\_toc\\_p1\\_s0\\_h2](https://www.agric.wa.gov.au/newsletters/pestfax/pestfax-issue-14-july-2018?page=0%2C1#smartpaging_toc_p1_s0_h2)  
 [48] <https://www.agric.wa.gov.au/canola/managing-sclerotinia-stem-rot-canola>  
 [49] <https://grdc.com.au/resources-and-publications/all-publications/factsheets/2014/03/grdc-fs-sclerotinia>  
 [50] <mailto:ravjit.khangura@agric.wa.gov.au>  
 [51] <mailto:dominie.wright@dpird.wa.gov.au>

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