# 2022 in review

The 2022 season was highly conducive for pulse diseases across Victoria, particularly botrytis grey mould in lentil, chocolate spot in beans, and sclerotinia white mould in lentil and vetch. Significant yield losses were observed where management was insufficient. These losses were because of two main factors; 1) the highly conducive season, including numerous rain days and above average rainfall resulting in high canopy humidity, and 2) varieties rated moderately resistant to moderately susceptible (MRMS) or more susceptible.

# 2023 pulse disease management

There will be a high risk of disease carryover into the 2023 season from infected seed and stubble of crops that had high disease levels in 2022. A proactive integrated disease management strategy will be required to reduce the risk of pulse diseases causing yield loss during 2023. This should include:

* avoiding planting pulse crops into or adjacent to paddocks where there was disease during 2022,
* sowing healthy vigorous seed,
* using fungicidal seed dressings where applicable,
* avoiding susceptible varieties where possible
* implementing a fungicide management plan.

A later harvest and weed carryover will increase the risk of soil-borne diseases including root lesion nematodes and pythium. A PREDICTA®B test will identify paddocks at risk of some important soil-borne diseases of pulses.

**Seed quality:** It is important to test seed quality in 2023. Disease (e.g. botrytis and sclerotinia) carryover may be through infected seed or sclerotia (fruiting bodies) contamination in seed lots. Testing seed for germination, vigour, and seed-borne diseases before sowing is essential to ensure good plant establishment. Testing can be completed by specialist laboratories (see back page). Seed treatments are effective at suppressing many fungal diseases; however, seed treatments don’t combine well with rhizobium used for inoculation. Read labels for compatibilities.

**Chickpeas:** Currently there is limited varietal resistance to ascochyta blight but breeding lines with improved resistance are expected in coming years. A moderately susceptible (MS) variety in an average season should require minimal fungicides in low rainfall zones. In the medium to high rainfall areas, it is likely multiple fungicide applications will be required to prevent ascochyta blight.

There is only one resistance rating change in chickpeas, with CBA Captain downgraded from MS (p) to S.

**Beans:** Chocolate spot was widespread and severe in Victoria during 2022, particularly in susceptible varieties like PBA Bendoc. It is important to avoid susceptible varieties where chocolate spot is common or a high risk. Minimising disease early in the season will reduce the inoculum load later in the season. Reliance on fungicides is not recommended and cannot provide adequate control in a susceptible variety in a high-risk season and/or environment.

There have been no major changes to the faba bean resistance ratings for 2023.

**Lentils:** Botrytis grey mould (BGM) and sclerotinia white mould (SWM) were widespread during 2022. There will be a high stubble and sclerotia (fruiting bodies) carryover, increasing the risk for the 2023 season. Therefore, avoid planting lentil crops into lentil stubble or adjacent to paddocks that had BGM or SWM during 2022. The varieties GIA Leader and PBA Hallmark XT have had BGM resistance ratings downgraded from MR (p) to MRMS (p), and PBA Kelpie XT has been downgraded from MRMS (p) to MS (p). These varieties will need to be monitored more closely during 2023.

There were no major changes to the ascochyta blight resistance ratings in lentil.

**Vetch:** The pathogens that cause BGM in lentil and chocolate spot in faba beans, also cause BGM in vetch, therefore, the risk will be high if vetch is sown into or adjacent to paddocks where either lentil or faba bean stubble is found. BGM and ascochyta blight are the main causes of yield loss in vetch. Ideally, the disease management strategy should be matched to the crop’s end use (hay, fodder, grain, manure).

**Field peas:** Bacterial blight is the most significant threat to field pea production. There are no in-crop control options, so where possible avoid susceptible varieties, paddocks prone to frost, residual herbicides, or planting into pea stubble. There have been no rating changes for field peas.

**Lupins:** Sclerotinia and botrytis grey mould were both detected in lupins during 2022. Avoid growing lupins in rotation with other pulses and canola to avoid sclerotinia. Monitor crops for disease to ensure disease severity remains low.

**If you see something different, or high levels of disease in any crop,** please send a sample to Agriculture Victoria. If you suspect an exotic pest or disease contact CropSafe or the Emergency Plant Pest Hotline (see back page).

# Crop protection products

There are often changes to permits for the use of fungicides in pulse crops. See Pulse Australia’s website (www.pulseaus.com.au) for current information on [Crop Protection Products.](http://www.pulseaus.com.au/growing-pulses/crop-protection-products)

# Fungicide resistance

Resistance to fungicides is an increasing threat to crops. There are no new detections of fungicide resistance in pulses.

Five strategies can be adopted to slow the development of resistance in pathogen populations and extend the longevity of the limited range of fungicides available:

1. Avoid susceptible crop varieties.
2. Rotate crops.
3. Use non-chemical methods to reduce disease pressure.
4. Spray only if necessary and apply strategically.
5. Rotate and mix fungicides / mode of actions.

For more information visit: afren.com.au

**Rhizobium test**

The PREDICTA® rNod test can measure Group E and F rhizobia and predict if growers need to inoculate field pea, faba bean, lentil and vetch crops. More information can be obtained by contacting Russell Burns at SARDI, [Russell.Burns@sa.gov.au](file:///C%3A/Users/vic52cf/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/BD91S46K/Russell.Burns%40sa.gov.au)

[**Blackspot manager**](https://www.agric.wa.gov.au/field-peas/field-pea-blackspot-management-guide-victoria-updated-30-april-2014)is a tool to predict the risk of blackspot infection in field peas.To subscribe to this free service, text ‘blackspot’, your name and nearest weather station to 0475 959 932 or email Blackspot.Manager@agric.wa.gov.au.

**Pulse pathology (Agriculture Victoria)**

[Croppathology.horsham@agriculture.vic.gov.au](file:///C%3A/Users/vic52cf/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/BD91S46K/Croppathology.horsham%40agriculture.vic.gov.au)

[Joshua.fanning@agriculture.vic.gov.au](file:///C%3A/Users/vic52cf/AppData/Local/Microsoft/Windows/INetCache/Content.Outlook/BD91S46K/Joshua.fanning%40agriculture.vic.gov.au)

Private Bag 260 Horsham, Vic 3401

**Seed testing laboratories**

Crop Health Services, Agriculture Victoria, Tel. (03) 9032 7515

CHS.reception@agriculture.vic.gov.au

**CropSafe**

Crop.safe@agriculture.vic.gov.au

Ph: 03 5450 8301

Private Bag 260 Horsham, Vic 3401

**Exotic plant pest hotline:** 1800 084 881

**Acknowledgements:** Most disease ratings for pulse crops are provided by GRDC under the National Variety Trial program. Other ratings come from Agriculture Victoria or the breeding programs and are noted. This guide was prepared with assistance from Hari Dadu, Chloe Findlay, and Luise Fanning (Agriculture Victoria, Horsham). **Last updated** 20 March 2023

**Contact/Services available from DJPR** Field Crops Pathology, Grains Innovation Park, 110 Natimuk Rd, Horsham 3400. Tel 03 5450 8301, or the DEECA Customer Service Centre 136 186

**Accessibility:** If you would like to receive this publication in an alternative format, please telephone the Customer Service Centre 136 186, via the National Relay Service on 133 677 [www.relayservice.com.au](http://www.relayservice.com.au). This document is also available at [www.agriculture.vic.gov.au](http://www.agriculture.vic.gov.au)

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**Further Information**

Detailed information on each of the pulse diseases can be obtained from:

[Agriculture Victoria AgNotes](https://agriculture.vic.gov.au/biosecurity/plant-diseases/grain-pulses-and-cereal-diseases/red-leather-leaf-of-oats)

[Field Crop Disease Victoria](https://extensionaus.com.au/FieldCropDiseasesVic/category/resources/endemic/endemicpulsediseases/) (extensionAUS.com.au)

[Pulse Australia](http://www.pulseaus.com.au)

[Victorian Crop Sowing Guide](https://grdc.com.au/NVT-Victorian-Winter-Crop-Summary)

[Australian Fungicide Resistance Extension Network](https://afren.com.au/)

[www.grdc.com.au/ManagingFrostRisk](http://www.grdc.com.au/ManagingFrostRisk)

**Interpreting Resistance Classifications**

Below is an explanation of the resistance ratings used in this guide for foliar diseases**,** and how they should be interpreted.

**R** Resistant - No symptoms visible. No fungicides are required.

**RMR** Resistant to Moderately Resistant - The disease may be visible but will not cause significant plant damage or loss. However, under extreme disease pressure or highly favourable environments conditions fungicide applications may be required e.g. to prevent seed staining.

**MR** Moderately Resistant - The disease may be visible but will not cause significant plant damage or loss. However, under high disease pressure or highly favourable environments conditions fungicide applications may be required e.g. to prevent seed staining.

**MRMS** Moderately Resistant to Moderately Susceptible - The disease symptoms are moderate and may cause some yield and/or seed quality losses in conducive conditions. Fungicide applications, if applicable, may be required to prevent yield loss and seed staining.

**MS** Moderately Susceptible - Disease symptoms are moderate to severe and will cause significant yield and seed quality loss in the absence of fungicides in conducive seasons, but not complete crop loss.

**S** Susceptible - The disease is severe and will cause significant yield and seed quality loss, including complete crop loss in the absence of fungicides, in conducive conditions.

**VS** Very Susceptible - Growing this variety in areas where a disease is likely to be present is very high risk. Significant yield and seed quality losses, including complete crop loss can be expected without control and the increase in inoculum may create problems for other growers.

Below is an explanation of the resistance ratings used in this guide for **nematodes,** and how they should be interpreted.

**R** Resistant, nematode numbers will decrease when this variety is grown.

**MR** Moderately Resistant, nematode numbers will slightly decrease when this variety is grown.

**MS** Moderately Susceptible, nematode numbers will slightly increase when this variety is grown.

**S** Susceptible, nematode numbers will increase greatly in the presence of this variety.

**VS** Very Susceptible, a large increase in nematode numbers can occur when this variety is grown and this will cause problems to a following intolerant crop.

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# Bean Disease Reactions 2023

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variety | Ascochyta blight | Chocolate spot (Botrytis) | Cercospora\* | Rust | Root lesion nematode *Pratylenchus neglectus\** | Root lesion nematode *Pratylenchus thornei* |
| Broad bean |   |   |   |   |   |   |
| Aquadulce\* | MS | MS | S | MR | MR | MS |
| PBA Kareema\* | MR | MS | S | MRMS | - | - |
| Faba bean |   |   |   |   |   |   |
| Farah | S | S | S | VS | MR | MS |
| PBA Amberley | MR | MRMS | S | VS | MR | MS |
| PBA Bendoc | MR | S | S | VS | MR | MS |
| PBA Marne | MSp | MSp | S | MRMS | MR | MS |
| PBA Rana | MRMS | MS | S | VS | RMRp | MRMS |
| PBA Samira | MRp | MS | S | S | MR | MS |
| PBA Zahra | MRMS | MS | S | S | MR | MS |

All data, except breeder data (#) and historic data (\*) comes from the NVT system. Data not in the current NVT system may be less accurate as these varieties are not screened annually.

\*Indicates historic data for a variety and/or disease that has not been updated in at least 12 months.

p= These ratings are provisional.

R = Resistant; RMR = Resistant to moderately resistant; MR = Moderately resistant; MRMS = Moderately resistant to moderately susceptible; MS = Moderately susceptible; MSS = Moderately susceptible to susceptible; S = Susceptible; SVS = Susceptible to very susceptible; VS = Very susceptible

# Chickpea Disease Reactions 2023

|  |  |  |  |
| --- | --- | --- | --- |
| Variety | Ascochyta blight (foliar rating) | Root lesion nematode *Pratylenchus neglectus* | Root lesion nematode *Pratylenchus thornei* |
| Desi |  |  |  |
| CBA Captain | S | MR | MS |
| PBA Maiden | S | MRMS | MRMS |
| PBA Slasher | S | MRMS | MRMS |
| PBA Striker | S | MRMS | MRMS |
| Kabuli |  |  |  |
| Genesis 090 | MS | MRMS | MSS |
| Genesis Kalkee | S | MRMS | MS |
| PBA Magnus | S | MR | MSS |
| PBA Monarch\* | S | MRMS | MS |
| PBA Royal | MS | MR | MS |

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# Lentil Disease Reactions 2023

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variety | Ascochyta blight (foliar rating) | Botrytis grey mould | Root lesion nematode *Pratylenchus neglectus* | Root lesion nematode *Pratylenchus thornei* |
| Conventional |  |  |  |  |
| PBA Ace | MR | MS | MR | MRMS |
| PBA Blitz | MRMS | MSp | MR | MRMS |
| PBA Bolt | MRMS | S | MR | MR |
| PBA Jumbo 2 | RMRp | MRp | MR | MRMS |
| Imidazolinone tolerant |  |  |  |  |
| GIA Leader | MR | MRMSp | R | MR |
| GIA Lightning | MRMS | MS | R | MR |
| GIA Thunder | MRMS | MRMS | MR | R |
| PBA Hallmark XT | MRMS | MRMSp | MR | MRMS |
| PBA Highland XT | MR | MS | MR | MRMS |
| PBA Hurricane XT | MRMS | MS | MRMS | MRMS |
| PBA Kelpie XT | MRMS | MSp | MRMS | MRMS |
| Dual herbicide tolerant |  |  |  |  |
| GIA Metro | MR | MRMS | MR | MRMS |
| GIA Sire | MRMSp | MS | MR | MR |

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# Field Pea Disease Reactions 2023

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variety | Blackspot\* (Ascochyta) | Bacterial blight | Downy mildew | Powdery mildew | *Pea seed-borne mosaic virus* (PSbMV)#\* | *Bean leaf roll virus* (field rating) (BLRV)#\* | Root lesion nematode *Pratylenchus neglectus* | Root lesion nematode *Pratylenchus thornei* |
| Yellow/white grain type |  |  |  |  |  |  |  |  |
| PBA Hayman\* | MS | - | - | R | - | - | - | - |
| PBA Pearl | MS | MS | S | S | S | R | MR | MRMS |
| Sturt | MS | MS | S | S | S | S | MR | MR |
| Kaspa grain type |  |  |  |  |  |  |  |  |
| GIA Kastar | MS | S | S | RMR | - | - | MR | MS |
| Kaspa | MS | S | S | S | S | S | RMR | MRMS |
| PBA Butler | MS | MS | S | S | S | S | RMR | MRMS |
| PBA Gunyah | MS | - | S | - | S | S | RMR | MRMS |
| PBA Taylor | MS | S | S | S |   |   | RMR | MRMS |
| PBA Twilight | MS | S | S | S | S | S | MR | MRMS |
| PBA Wharton | MS | S | S | RMR | R | R | MR | MRMS |
| Australian dun grain type |  |  |  |  |  |  |  |  |
| GIA Ourstar | MS | Sp | S | S | - | - | MRMS | MSS |
| PBA Oura | MS | MS | S | S | S | R | MR | MRMS |
| PBA Percy | MS | MRMS | S | S | S | S | RMR | RMR |
| Blue pea type |  |  |  |  |  |  |  |  |
| PBA Noosa | MS  | S | MS | S | S | R | MR | MRMS |

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S = Susceptible; SVS = Susceptible to very susceptible; VS = Very susceptible

# Lupin Disease Reactions 2023

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variety | Brown leaf spot\* | Pleiochaeta root rot\* | Cucumber mosaic virus (CMV) (seed transmitted) | Anthracnose | Stem Phomopsis | Pod Phomopsis |
| Albus lupin |   |   |   |   |   |   |
| Luxor\* | MR | R | Immune | VS | MR | S |
| Murringo\* | MR | MR | Immune | VS | MS | S |
| Narrow leaf |  |  |   |   |   |   |
| Coyote | MSp |  | MRMS | MRMS | S | MRMS |
| Jenabillup | MRMS | MRp | MRMS | MS | MS | MR |
| Jindalee | MS | MRMSp | S | MRMS | RMR | MR |
| Lawler | MSp | MRp | MRMS | MR | MR | MS |
| Mandelup | MS | MRMSp | MRMS | MRMS | RMR | S |
| PBA Barlock | MS | MRMS | MR | RMR | MR | MR |
| PBA Bateman | MS | MRp | MR | MRMS | RMR | MS |
| PBA Gunyidi | MS | MRp | MRMS | MRMS | RMR | MRMS |
| PBA Jurien | MS | MR | MS | RMR | RMR | MR |
| Wonga | MS | MRp | MR | RMR | MR | MR |

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S = Susceptible; SVS = Susceptible to very susceptible; VS = Very susceptible

# Vetch Disease Reactions 2023#

|  |  |  |  |
| --- | --- | --- | --- |
| Variety | Rust | Ascochyta | Botrytis grey mould |
| Common vetch |  |  |  |
| Morava | R | MSp | VSp |
| Rasina | R | Sp | Sp |
| Studenica | R | MRp | Sp |
| Timok | R | Sp | Sp |
| Volga | R | MRMSp | Sp |
| Purple vetch |  |  |  |
| Benetas | - | MRMSp | Sp |
| Popany | R | MRp | Sp |
| Woolly pod vetches |  |  |  |
| Capello | R | MRp | Sp |
| RM4 | R | MRp | Sp |

#Note: vetch is not included in the NVT, ascochyta and botrytis grey mould ratings are from Agriculture Victoria and the rust ratings are from the breeder.

R = Resistant; RMR = Resistant to moderately resistant; MR = Moderately resistant; MRMS = Moderately resistant to moderately susceptible; MS = Moderately susceptible; MSS = Moderately susceptible to susceptible;

S = Susceptible; SVS = Susceptible to very susceptible; VS = Very susceptible