**2023 in review**

Disease pressure on cereal crops during 2023 was high. Substantial inoculum carry over from 2022 and wet conditions during winter prompted high disease severity in cereal crops and resulted in yield losses despite below average rainfall in spring. Septoria tritici blotch (STB), powdery mildew and stripe rust of wheat, and net form, spot form of net blotch and leaf rust in barley were the most common cereal diseases in Victoria. Avoiding highly susceptible varieties reduced disease risk and yield losses. New detections of resistance to fungicides highlights the importance of adopting strategies to slow further development of fungicide resistance.

**2024 cereal disease management**

Cereal diseases will require proactive management during 2024. There is disease carry over on both volunteer cereals growing over summer and on stubble from 2023. With early summer rain events in many parts of south-east Victoria, rust carry over on green bridge (volunteer cereals) is expected into the 2024 season.

Soil-borne diseases are a risk to cereals. Testing prior to sowing (PREDICTA B®) allows paddocks at risk to be identified and less susceptible crop varieties sown.

**Cereal rusts**

Because of the high risk posed by rust due to potential carryover of inoculum from 2023 it will be important to:

* Remove volunteer cereals before the end of March,
* Avoid susceptible varieties,
* Use fungicides on seed or fertiliser for early control,
* Monitor crops with a plan for timely fungicide use.

**Fungicide resistance**

Resistance to fungicides is an increasing threat to crops. New research by the University of Sydney detected resistance in both barley and wheat leaf rust to Group 3 fungicides in Australia controlled environment studies.

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 / modes of action**.

For more information visit: www.afren.com.au

**Wheat foliar diseases**

**Stripe rust:** inoculum levels will be extreme going into the 2024 season due to carry over from 2023. Widespread use of up-front fungicides (e.g. flutriafol on fertiliser) will provide area wide suppression and assist with later in-crop control, especially where varieties do not have adequate resistance. The free tablet-based app “StripeRustWM” is available to support in-crop fungicide decisions.

**Septoria tritici blotch:** is a common foliar disease in many parts of Victoria and will require proactive management during 2024. AgVic research in 2023 showed grain yield losses of ~28 in the Wimmera and 13 per cent in the Mallee. Losses in the Mallee were recorded for the first time. Foliar fungicide applications at Z31 and Z39 growth stages were most effective. Losses can be minimised by avoiding highly susceptible varieties. Partial resistance to Group 3 fungicides (DMIs) is widespread so ensure that fungicide resistance management is used.

**Powdery mildew:** was common in 2023. Avoiding susceptible cultivars is the best control. If fungicides are required, they should be applied before canopy closure noting that resistance to Group 11 (Qols) and resistance/ partial resistance to Group 3 (DMIs) fungicides is common.

**Barley foliar diseases**

Stubble-borne diseases will be common due to the high stubble loads from the previous two seasons. Therefore, there is a risk of yield loss due to net form of net blotch (NFNB), spot form of net blotch (SFNB) and scald in susceptible varieties. NFNB was more common in 2023 and in AgVic trials reduced grain yield loss by ~23% in susceptible varieties when left uncontrolled. Fungicide resistant strains of NFNB and SFNB increased in frequency in 2023 which means that fungicides will need to be used according to fungicide resistance management guidelines (see below). Resistance to Group 7 (SDHI) and partial resistance to Group 3 in NFNB is now common across Victoria and these fungicides will be unreliable.

Barley rusts will be carried over by the green bridge and may become severe if the season is favourable. Barley grass stripe rust (BGYR) was observed in multiple crops in 2023 and may re-emerge in 2024.

**Oat foliar diseases**

Red leather leaf (RLL) is the most common foliar disease of oats in medium and high rainfall zones. AgVic trials have consistently shown grain and hay yield losses of 10-15 per cent in susceptible varieties. Losses were significantly less for moderately susceptible (MS) or better rated varieties. Fungicides are best applied during Z25-Z32 growth stages.

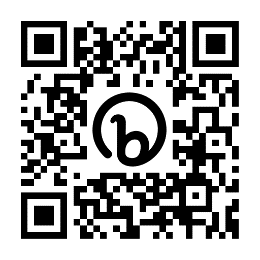
## Wheat Disease Reactions 2024

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variety** | **Rust** | | | ***Septoria tritici*** | **Yellow leaf spot** | **Powdery mildew** | **Crown rot** | **Cereal cyst nematode** | **Root lesion nematode** | | **Quality** |
| **(*Pratylenchus*)** | | **(Victoria)** |
| **Stem** | **Stripe** | **Leaf** | ***P. neglectus*** | ***P. thornei*** |  |
| Anapurna | MSS | RMR | MS | MRMS | MRMS | RMR | SVS | MRMS | MS | Sp | Feed |
| Ascot | MRMS | MSS | RMR | S | MRMS | S | S | MR | S | S | APW |
| Ballista | MR | MSS | S | SVS | MS | SVS | S | MRMS | S | MRMS | AH |
| BigRed | S | RMR | MRMS | MR | MR | RMR | MSS | S | MS | MS | Feed |
| Boree | MR | SVS | S | SVS | MRMS | SVS | S | MSS | S | MSS | AH |
| Brumby | MR | MS | SVS | S | MRMS | MR/S | S | MRMS | MRMS | MSp | APW |
| Calibre | MR | S | S | S | MRMS | MSS | S | MRMS | S | MSS | AH |
| Catapult | MR | S | S | MSS | MRMS | S | MSS | R | S | MS | AH |
| Coota | RMR | S | MR | S | MSS | S | MSS | MR | MR | MS | AH |
| Cutlass | R | MSS | RMR | MSS | MSS | MSS | S | MR | MSS | MSS | APW |
| Denison | MS | S | S | MSS | MRMS | S | MSS | MS | S | S | APW |
| DS Bennett | MS | S | SVS | MSS | MRMS | R | VS | S | S | S | ASW |
| DS Pascal | MSS | MRMS | MRMS# | MSS | MS | RMR | S | S | S | S | APW |
| EG Titanium | MS | MR | MS | MSS | MSS | S | MSS | R | MSS | MSS | AH |
| Hammer CL Plus | MR | MS | S | MSS | MRMS | S | MSS | MRMS | MSS | S | AH |
| Illabo | MRMS | MRMS | S | MSS | MS | R | S | MRMS | MSS | MSS | AH |
| Kingston | S | MSS | S | S | MSS | S | S | R | S | MRMS | AH |
| LRPB Anvil CL Plus | MR | S | SVS | VS | MSS | SVS | MSS | MS | MSS | S | AH |
| LRPB Bale | MRMS | MRMS | MSS | MSS | SVS | MS | S | R | S | S | APW |
| LRPB Kittyhawk | MRMS | MR | MR | MRMS | MRMS | MS | MSS | S | S | S | AH |
| LRPB Matador | MS | MS | MSS | Sp | MRMS | MS | S | MSp | S | MRMS | AH |
| LRPB Nighthawk | RMR | MR | MSS | MS | MS | SVS | MSS | MS | MSS | MS | APW |
| LRPB Scout | MRMS | MS | MS | S | SVS | MRMS | S | R | S | MSS | AH |
| Mace | MRMS | SVS | S | SVS | MRMS | MSS | S | MRMS | MS | MS | AH |
| Patron | RMR | MRMS | MR# | MRMS | MRMS | MSS | SVS | S | MRMS | MR | ADR |
| Razor CL Plus | MRMS | MRMS | S | SVS | MSS | MSS | S | MR | S | MS | ASW |
| Reilly | MRMS | MS | MSS | S | S | MSS | S | R | MS | MSS | AH |
| RGT Accroc | MS | RMR | SVS | MS | MRMS | MSS | SVS | S | MS | MSS | Feed |
| RGT Calabro | MS | RMR | MSS | MRMS | MR | RMR | SVS | S | S | MS | Feed |
| RGT Cesario | RMR | RMR | RMR | MRMS | MR | RMR | VS | MSSp | MRMS | MSS | Feed |
| RGT Waugh | MS | RMR | S | MRMS# | MRMS | R | S | MS | MSS | MSS | Feed |
| RGT Zanzibar | VS | MR | SVS | MSS | MS | RMR | S | MSS | S | MSp | Feed |
| RockStar | MRMS | S | S | S | MRMS | SVS | S | MSS | MRMS | MS | AH |
| Scepter | MRMS | MSS | MSS | S | MRMS | SVS | MSS | MRMS | S | MSS | AH |
| Severn | MS | RMR | MRMS | MSS | MRMS | RMR | S | MSSp | S | MRMS | Feed |
| Sheriff CL Plus | MS | SVS | SVS | S | MRMS | SVS | S | MS | MRMS | MRMS | APW |
| Sunmaster | MS | MRMS | RMR | S | MSS | MSS | MSS | MSS | MRMS | MS | APH |
| Valiant CL Plus | MR | S | S | MSS | MRMS | VS | MSS | MSSp | S | Sp | AH |
| Vixen | MRMS | SVS | SVS | S | MRMS | SVS | S | MSS | MRMS | MS | AH |
| Willaura | MR | S | MRMS | S | MS | SVS | S | MS | MSS | MRMS | AH |
| Yitpi | S | MS | S | S | SVS | MS | S | MR | MSS | S | AH |

# Varieties marked may be more susceptible if more virulent strains are present. p These ratings are provisional - treat with caution. / Variety reacts differently to different strains.

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.

Oat Disease Reactions 2024

Download the most up to date ratings here

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Variety** | **Rust** | | **CCN** | **Bacterial blight** | **Red leather leaf** | ***Barley yellow dwarf virus*** | ***Septoria avenae*** |
| **StemA** | **Leaf** | **Resistance** |
| Archer | MS | R/Sp | VSp | MSSp | SVSp | MSSp | MRMSp |
| Bilby | S | MSS | VS | SVS | MS | S | S |
| Brusher | SVS | MR | MR | SVS | MS | S | MSS |
| Kingbale | Sp | S | R | MSSp | Sp | MS | MSS |
| Koala | MSS | MSS | R | S | S | MSS | MSS |
| Kowari | S | SVS | S | S | S | S | S |
| Kultarr | - | Rp | MRMSp | MSp | Sp | MSSp | MSp |
| Mulgara | MRMS | MR | R | MSS | SVS | MSS | S/MS |
| Wallaby | - | Rp | MRp | MSSp | SVSp | MSp | MSp |
| Williams | S | MRMS | VS | MSS | MS | MSS | MSS |
| Wintaroo | MSS | S | R | S | S | MS | MS# |
| Yallara | MSS | S | R | S | SVS | S | MSS |

# Varieties marked may be more susceptible if alternative strains are present. p These ratings are provisional - treat with caution.

/ Variety reacts differently to different strains. A Data from 2023 testing is pending.

## Barley Disease Reactions 2024

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variety** | **Scald** | **Spot form of net blotch** | **Net form of net blotch** | **Powdery mildew** | **Leaf rust** | **Cereal cyst nematode** | **Root lesion nematode (*Pratylenchus*)** | |
| ***P. neglectus*** | ***P. thornei*** |
| **Malting barley** | | | | | | | | |
| Bottler | SVS | MSS | MR | RMR | MRMS | - | MS | RMR |
| Compass | SVS | MS | MS | S | SVS | R | MRMS | MR |
| Kiwi | SVS | MSS | MRMS# | RMR | MSS | S | MRMS | RMR |
| LaTrobe | SVS | S | MS | MSS | S | R | MRMS | MRMS |
| Leabrook | SVS | MS | MS# | S | SVS | RMR | MRMS | RMR |
| Maximus CL | SVS | MS | MRMS | S | S | R | MRMS | MRMS |
| RGT Planet | SVS | SVS | SVS | RMR | MRMS | R | MRMS | MR |
| Spartacus CL | SVS | S | S | MSS | S | R | MRMS | MRMS |
| **Barley lines undergoing malt evaluation** | | | | | | | | |
| Beast | SVS | MS | MRMS | S | S | MR | MRMS | MRMS |
| Commodus CL | SVS | MSS | MSS | MSS | S | R | MRMS | MRMS |
| Cyclops | S | MS | MRMS | SVS | SVS | S | MRMS | MRMS |
| Laperouse | VS | MRMS | MRMS# | MSS | SVS | S | MRMS | MR |
| Minotaur | VS | S | MRMS | S | VS | R | MRMS | MRMS |
| Neo CL | Sp | MRp | MSp | RMRp | Sp | R | RMRp | MRp |
| Titan AX | VS | MS | MS | MSS | SVS | MRp | MR | MR |
| Yeti | VS | MS | MR# | S | SVS | RMR | MR | MR |
| Zena CL | S | S | SVS | RMR | MS | R | MRMS | MR |
| **Feed barley** | | | | | | | | |
| Combat | S | RMR | MRMS# | MS | S | MR | MRms | MS |
| Fandaga | SVS | S | MRMS | R | MSS | R | MR | MR |
| Fathom | S | RMR | MSS | MRMS | MS | R | MRMS | MR |

# Varieties marked may be more susceptible if alternative strains are present. p These ratings are provisional - treat with caution.

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.

## Root and crown diseases of cereals

With a lack of in-crop control options for soil-borne diseases, a soil test (PREDICTA B®) is recommended before sowing to identify paddocks at risk. Most cereal root (take-all, and cereal cyst and root lesion nematode) and crown diseases (crown rot) can be controlled with a one or two-year break from susceptible hosts. Break crops are to be free of grass weeds.

**Viruses and insects**

Primarily spread by the oat aphid, barley yellow dwarf virus (BYDV) incidence increased in 2023, being observed in paddocks from September onwards. Russian wheat aphid activity was observed late in the season (Nov-Dec).

A widespread green bridge in eastern Australia will increase the risk of virus and insects in 2024. The green bridge should be removed prior to sowing to prevent virus and insect build up. During the season, monitor crops for aphid activity with a plan for timely insecticide application.

**Bunt and smut**

Seed treatments provide cheap and effective control of bunt and smut diseases and should be applied every year with good coverage. These diseases can develop rapidly and result in large yield losses and unsaleable grain. Loose smut was common in some barley varieties during 2023. Infected seed should not be used. Fertiliser treatments do not control bunt and smuts.

**Further Information**

Detailed information on cereal diseases can be obtained online from:

* [Agriculture Victoria Information Notes](https://agriculture.vic.gov.au/biosecurity/plant-diseases/grain-pulses-and-cereal-diseases)
* Field Crop Diseases Victoria: [extensionaus.com.au/FCDVic](https://extensionaus.com.au/FieldCropDiseasesVic/)
* GRDC National Variety Trials: [www.NVTOnline.com.au](http://www.NVTOnline.com.au)
* Fungicide Resistance: [www.afren.com.au](http://www.afren.com.au)

## Services available from Agriculture Victoria

Field Crops Pathology, Grains Innovation Park,

110 Natimuk Rd, Horsham 3400.

Tel (03) 5450 8301,

or the Customer Service Centre 136 186



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**Triticale Disease Reactions 2024**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variety** | **CCN** | **Stem rust** | **Stripe rust** | **Leaf rust** | **Yellow leaf spot** | ***Septoria tritici*** |
| Astute\* | R | MR | MSS | RMR | MRMS | RMR |
| Cartwheel | R | R | RMR | R | MR | RMR |
| Fusion | R | R | RMR | R | MS | RMR |
| Joey | MS | S | MR | RMR | MR | RMR |
| KM10 | S | R | MR | MR/S | MR | RMR |
| Kokoda | MR | R | RMR | RMR | MR | RMR |
| Razoo | - | MRMSp | MR | RMRp | MRp | RMRp |
| Wonambi | MS | R | MRMS | R | MR | RMR |
| Woomera | MS | MS | MR | RMR | MR | RMR |

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

**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, the disease will not multiply or cause any damage on this variety.

**MR** Moderately Resistant, the disease may be visible and will multiply slightly, but will not cause significant loss.

**MS** Moderately Susceptible, the disease may cause losses up to 15% or more in very severe cases.

**S** Susceptible, the disease can be severe on this variety and losses of 15-50% can occur.

**VS** Very Susceptible, this variety should not be grown in areas where a disease is likely to be a problem. Losses greater than 50% are possible, and the build-up of inoculum will 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.

These classifications are only a guide, and yield losses will depend on the environment and seasonal conditions.

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