

Cereal Disease Guide 2020

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2019 in Review

A wet start to the season favoured disease early, but drier conditions during spring limited disease development in many areas. Despite this, Agriculture Victoria (AgVic) field trials showed grain yield losses of up to 16 per cent (0.7 t/ha) in situations where susceptible varieties were planted into infected stubble and fungicides were not applied. This shows the importance of proactively managing diseases.

2020 Cereal Disease Management

Cereal diseases will need proactive management during 2020 as there will be high levels of stubble-borne inoculum following limited breakdown over the summer. The dry conditions during early summer will reduce the risk posed by rust and aphid spread viruses due to the limited green bridge, however, this may change if rainfall events continue in the lead up to sowing.

Soil-borne diseases are a risk to cereals and testing prior to sowing (PREDICTA B[®]) allows at risk paddocks to be identified and avoided.

Wheat: Foliar Diseases

Septoria tritici blotch and stripe rust are the main concern for high rainfall regions, while yellow leaf spot will be important in the medium and low rainfall zones.

Stripe rust: A new strain of stripe rust (first detected during 2018) caused issues for LRPB Trojan and DS Bennett, last year. This strain, a mutation in the “WA” stripe rust family, has increased virulence on some wheat varieties (e.g DS Bennett and LRPB Trojan and to a lesser extent Devil, Illabo, Emu Rock and Hatchet CL Plus) but more importantly has virulence on many durum wheats (e.g. DBA Spes, DBA Lillaroi, DBA Vittaroi and EGA Bellaroi). The ratings provided in this guide consider this new strain of stripe rust.

A new tablet-based app (StripeRustWM) is available to support in-crop fungicide decisions for the management of stripe rust. This app is based on the BlacklegCM and SclerotiniaCM apps that are widely used in canola. The app is free for iPads and Android tablets from the Apple App or Google Play Stores. Search for “StripeRustWM”

Septoria tritici blotch (STB) is important in the high rainfall regions. Many varieties are rated as susceptible or worse, and there are strains with partial resistance to common fungicides. Adopting an integrated management approach, that combines variety (avoid susceptible varieties), paddock selection (avoid infected stubble) and timely use of fungicides will help with its management.

Cereal Pathologists, February 2020

Barley: Foliar Diseases

Stubble-borne diseases, spot form of net blotch (SFNB), net form of net blotch (NFNB) and scald, will need to be managed in susceptible varieties, especially in paddocks where barley stubble is present from the last two seasons.

Economic return from fungicide application is likely where foliar diseases affect more than 10 per cent of leaf area and yield potential is more than 2.5 t/ha in susceptible varieties.

Oat: Foliar Diseases

Red leather leaf (RLL) is the most common foliar disease of oats in the medium and high rainfall zones. Field trials during 2019 showed up to 16 per cent (0.7 t/ha) grain yield loss and 13 per cent (2.1 t/ha) biomass loss in susceptible milling and hay varieties, respectively. Losses were significantly less for moderately susceptible (MS) or better rated varieties. RLL is stubble-borne so avoid sowing into oat stubbles. Where red leather leaf infection develops, foliar fungicide application during mid tillering to stem elongation provides the best suppression.

Bacterial blight was also common, but at low levels in most oat crops. As there are no in crop control options available, avoid sowing into infected oat stubble to reduce its impact.

Fungicide Resistance

There are increasing reports of resistance to fungicides in fungal diseases of cereals. Most significant was the detection of resistance in barley net form of net blotch to both fluxapyroxad (an SDHI fungicide in the seed treatment Systiva[®]) and tebuconazole in South Australia, during 2019. Resistance to fungicides are more likely to develop in situation where growers become over reliant on chemicals for disease control. Industry wide adoption of the following strategies can help protect the longevity of currently effective fungicides:

1. Use a range of control strategies to minimise disease development including:
 - avoiding growing highly susceptible cultivars,
 - using crop rotation to avoid planting into paddocks with disease present (i.e. infected stubbles), and
 - managing the green bridge for diseases such as mildew and rust,
2. Use seed and/or fertiliser treatments, if available, to suppress early disease development,
3. Avoid unnecessary fungicide use,
4. Use fungicide mixtures formulated with more than one mode of action,
5. Do not use the same active ingredient more than once within a season, and
6. Adhere to label recommendations.

Wheat Disease Reactions 2020

Variety	Rust			Yellow leaf spot	Septoria tritici	Powdery mildew	Cereal cyst nematode	Root lesion nematode (<i>Pratylenchus</i>)		Crown rot	Common root rot	Black tip	Flag smut	Quality (Victoria)
	Stem	Stripe	Leaf					<i>P. neglectus</i>	<i>P. thornei</i>					
RGT Accroc	MS	R	SVS	MR	MRMS	MRMS	S	S	MSS	SVS	S	MRMS	SVS	Feed
LRPB Beaufort	SVS	RMR	MS	MRMS	MSS	-	S	MSS	MSS	S	MSS	MRMS	R	Feed
Beckom	MRMS	MRMS	MSS	MSS	S	S	R	S	MSS	S	MSS	MRMS	MRMS	AH
DS Bennett	MRMS	S	SVS	MRMS	MSS	R	S	S	S	SVS	S	-	SVS	ASW
RGT Calabro	MS	RMR	MSS	MR	MRMS	MR	S	S	MS ^P	SVS	MSS	MS	RMR	Feed
Catapult	MR	MRMS	S	MRMS	MSS	S	R	S	MS	S	MSS	MSS	MS	AH
Chief CL Plus	MR	S	MR	MRMS	MSS	SVS	MS	MRMS	MSS	MSS	MS	MS	SVS	APW
LRPB Cobra	MR	MSS	MR#	MRMS	MSS	MSS	MS	MSS	MSS	S	MS	MSS	S	AH
Condo	MR	MSS	MSS	MS	S	MS	MR	S	MS	S	MSS	MS	MSS	AH
Corack	MR	MS	SVS	MRMS	S	VS	RMR	MSS	MSS	S	MS	S	S	APW
Cosmick	MS	MSS	SVS	MRMS	S	S	S	S	MSS	S	MSS	MS	SVS	AH
Cutlass	R	MS	R	MSS	MSS	MSS	MR	MSS	MSS	S	MS	MR	MS	APW
Elmore CL Plus	MR	MRMS	RMR	S	MSS	MS	S	S	S	S	S	MS	MSS	AH
Emu Rock	MS	MSS	SVS	MRMS	SVS	MSS	S	MSS	S	MSS	MS	MS	MS#	AH
Grenade CL Plus	MR	MRMS	S	S	S	MSS	R	MSS	S	S	MRMS	MSS	MR	AH
LRPB Havoc	S	MR	MSS	MRMS	S	S	S	S	MSS	S	MS	MS	MS	AH
Illabo	MRMS	MRp	S	MS	MSS	MR	MRMS	S	S	S	MSS	MRMS	R	AH
LRPB Impala	MR	MR	SVS	MSS	SVS	MR	MSS	SVS	S	MSS	MSS	MS	S	ASFT
Kiora	MR	RMR	MSS	MSS	MSS	MS	MS	S	MRMS	S	MS	MS	MRMS#	AH
LRPB Kittyhawk	MRMS	RMR	MS	MRMS	MRMS	MS	S	S	S	S	S	MS	RMR	AH
Kord CL Plus	MR	MRMS	MS	MSS	MSS	MSS	MR	MSS	MSS	S	MRMS	MRMS	MR	AH
LRPB Lancer	R	MR	RMR#	MRMS	MS	MRMS	S	S	MS	MSS	S	MS	MSS	AH
Longsword	MR	MR	MSS	MRMS	MSS	MS	MRMS	MRMS	MR	S	MRMS	MRMS	MRMS#	Feed
Mace	MRMS	SVS	MSS	MRMS	S	MSS	MRMS	MS	MS	S	MS	MRMS	S	AH
Manning	MR	RMR	MSS	MR	MRMS	MSS	S	MSS	S	VS	SVS	SVS	R	Feed
LRPB Nighthawk	RMR	RMR	MSS	MS	MSS	S	MS	S	MS	S	MSS	-	MSS	AH
DS Pascal	MSS	RMR	MS	MRMS	MSS	R	S	S	S	S	MS	MS	S	APW
Razor CL Plus	MRMS	MS	S	MSS	SVS	MSS	MR	S	MRMS	S	MS	MS	RMR	ASW
SQP Revenue	RMR	R	VS	MRMS	MSS	R	S	S	S	S	SVS	MS	S	Feed
Rockstar	MR	MRMS	S	MRMS	MSS	S	MSS	MRMS	MRMS	SVS	MS	-	VS	AH
Scepter	MRMS	MSS	MSS	MRMS	S	SVS	MRMS	S	MSS	S	MS	MS	MSS	AH
LRPB Scout	MRMS	MS	MS	SVS	S	MRMS	R	S	MSS	MSS	S	S	MR	AH
Sheriff CL Plus	MS	MSS	SVS	MRMS	S	SVS	MS	MRMS	MRMS	S	MSS	MRMS	S	APW
LRPB Trojan	MRMS	MSS	MR#	MSS	MS	S	MS	MSS	MSS	MS	MS	MRMS	SVS	APW
Vixen	MRMS	MRMS	SVS	MRMS	S	S	MSS	MRMS	MS	S	MS ^P	MSS	SVS	AH
Wallup	MRMS	MRMS	S	MSS	S	MR	MR	MS	MRMS	S	MS	MSS	SVS	AH
Yitpi	S	MRMS	S	SVS	MSS	MS	MR	MSS	S	S	MS	MS	MR	AH
RGT Zanzibar	VS	R	SVS	MS	S	MRMS	MSS	S	MS ^P	S	S	MS	SVS	Feed

Varieties marked may be more susceptible if more virulent 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.

Oat Disease Reactions 2020 (Rust, BYDV and septoria ratings courtesy of Pamela Zwar, Oat Breeder, SARDI)

Variety	Rust		CCN		Bacterial blight	Red leather leaf	Barley Yellow Dwarf Virus	Septoria avenae
	Stem	Leaf	Resistance	Tolerance				
Bannister	S	R	VS	I	S	MSS	MRMS	S
Bilby	-	-	-	-	S	MS	MRMSp	-
Brusher	S	S	R	MI	MS	MS	MS	MS
Durack	S	S	R	MI	S	S	S	S
Forester	S	MS	MS	MI	S	MRMS	S	MR
Kowari	S	R	VS	-	MSS	MS	MSS	S
Mitika	S	S	VS	I	MSS	S	S	S
Mulgara	MS	MS	R	MT	MR	S	MS	MS
Tungoo	S	MS	R	MT	MR	MS	MS	MR
Williams	S	R	S	I	MSS	MS	MRMS	MS
Wintaroo	S	S	R	MT	MS	S	MS	MS
Yallara	S	MS	R	I	MSS	SVS	MSS	MS

T = Tolerant MT = Moderately tolerant MI = Moderately intolerant I = Intolerant (in the presence of the nematode tolerant varieties lose little yield, whereas intolerant varieties can lose significant yield).

Barley Disease Reactions 2020

Variety	Scald	Spot form of net blotch	Net form of net blotch	Powdery mildew	Leaf rust	Cereal cyst nematode	Root lesion nematode (<i>Pratylenchus</i>)	
							<i>P. neglectus</i>	<i>P. thornei</i>
MALTING BARLEY								
Compass	SVS	MS	MRMS#	MRMS	SVS	R	MRMS	MR
Commander	S	MS	MS#	MRMS	S	R	MRMS	MRMS
Fairview	SVS	S	SVS	R	S	-	MRMS	MR
Flinders	SVS	S	MS	RMR	S	S	MRMS	MR
La Trobe	SVS	S	MS	MS#	S	R	MRMS	MRMS
RGT Planet	SVS	S	SVS	R	MS	R ^P	MRMS	RMR
Scope CL	S	MSS	MR#	RMR	S	S	MRMS	MRMS
Spartacus	SVS	SVS	MS#	SVS	S	R	MRMS	MRMS
Westminster	MRMS	S	MR#	R	MRMS	-	MRMS	MS
BARLEY LINES UNDER MALT EVALUATION								
Leabrook	SVS	MS	MRMS	MRMS	SVS	MR	-	-
Maximum CL	MRMS	MS	MRMS	S	S	R	-	-
FEED/FOOD BARLEY								
Banks	SVS	S	MRMS	MRMS	S	S	MR	MR
Fathom	S	RMR	MRMS#	MRMS	S	R	MRMS	MR
Hindmarsh ^F	SVS	SVS	MR#	SVS	S	R	MRMS	MRMS
Rosalind	S	S	MR	SVS	MR	R	MRMS	MRMS

Varieties marked may be more susceptible if alternative strains are present. ^P These ratings are provisional - treat with caution. ^F Food grade barley, accredited for human consumption markets.

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

Bunt and Smut

Seed treatments provide cheap and effective control of bunt and smut diseases and should be applied every year with good coverage. Bunt and smut infection can develop rapidly and result in significant yield losses and unsaleable grain. Infected seed lots should not be used. Fertiliser treatments do not control bunt and smuts.

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 and crown diseases (take-all, crown rot, and cereal cyst and root lesion nematode) can be controlled with a one- or two-year break from susceptible hosts. Break crops are to be free of grass weeds. Summer rain will reduce the carryover of take-all and Rhizoctonia.

Viruses and insects

Virus was present in cereal crops in 2019. Spread by the oat aphid, Barley yellow dwarf virus was detected, with individual paddocks showing typical yellowing/reddening symptoms on the upper leaves from mid-September onwards. Russian wheat aphid symptoms were observed.

If present, the green bridge should be removed prior to sowing to prevent virus and insect build up. During the growing season, monitor crops for aphid activity with a view to timely insecticide application.

Further Information: Detailed information on each of the cereal diseases can be obtained from:

Online

[Agriculture Victoria \(DEDJTR\) Information Notes](#)

GRDC Communities – Field Crops Diseases:

www.communities.grdc.com.au

[SARDI Cereal Seed Treatments 2020](#)

NVT: www.NVTOnline.com.au

Book

Wallwork, H (2000) Cereal Leaf and Stem Diseases

Wallwork, H (2000) Cereal Root and Crown Diseases

Services available from Agriculture Victoria

Field Crops Pathology, Grains Innovation Park,

110 Natimuk Rd, Horsham 3400.

Tel (03) 4344 3111,

or the Customer Service Centre 136 186

Triticale Disease Reactions 2020

Variety	CCN	Stem rust	Stripe rust	Leaf rust	Yellow leaf spot	Septoria tritici
Astute	R	RMR	RMR	RMR	MRMS	RMR
Bison	R	RMR	R	RMR	MR	RMR
Cartwheel	R	R	R	R	MR	RMR
Fusion	R	R	RMR	R	MRMS	MRMS
Goanna	R	R	RMR	RMR	MR	MR
KM10	S	R	RMR	MR	MRMS	MR
Wonambi	MS ^P	RMR	MRMS [#]	R	MR	RMR

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

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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