Cereal Disease Guide 2018

Grant Hollaway, Mark McLean, Joshua Fanning, Melissa Cook and Piotr Trebicki,
Cereal Pathologists, February 2018

2017 in Review: Following the wet spring of 2016, inoculum levels were high in 2017. Cereal diseases were generally well managed through the implementation of effective control strategies. During 2017, Agriculture Victoria (AgVic) field trials showed yield losses greater than 20 per cent to both root and foliar diseases, demonstrating the potential for yield loss where controls were not implemented.

2018 Cereal Disease Management

Cereal diseases will need proactive management during 2018. Following two good seasons, there are higher than usual levels of stubble-borne inoculum and if there is a green bridge (volunteer cereals growing over summer/autumn) rust will require control. Soil-borne disease levels will have increased during 2017. Testing prior to planting (PREDICTA B®) enables paddocks at risk of loss to be avoided. Effective seed treatments need to be applied with good coverage to ensure control of smuts and bunts.

Wheat: Foliar Diseases

A new strain of **stripe rust** was detected in Victoria late in the 2017 season. Currently, implications for varieties is un-clear, but early indications are most will remain unchanged. Studies into this new strain are on-going and new information will become available in coming months.

Rust severity will be influenced by the extent of any green bridge surviving summer, as rust is most severe following widespread and prolonged green bridges before sowing. Its removal by the end of February will also provide benefits for water storage and control of other pests and weeds.

Septoria tritici blotch (STB) is important in the high rainfall regions and was widespread in the Wimmera during 2017. 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), paddock selection (avoid infected stubble) and timely use of fungicides will help with control.

Yellow leaf spot is common in the Wimmera and Mallee. During 2017 yield losses of around 15 per cent occurred in AgVic field trials when susceptible varieties were planted into infected wheat stubble. Yellow leaf spot is best managed by avoiding susceptible varieties in paddocks with infected stubble. Disease risk is greatly reduced if susceptible (S) and very susceptible (VS) varieties are replaced with those rated moderately susceptible (MS) or better.

Powdery mildew ratings have been added to the wheat disease table following widespread reports of this disease during 2017. It is most common where susceptible varieties are grown.

Barley: Foliar Diseases

Foliar diseases have the potential to cause yield loss during 2018 if not managed. Trials showed up to 25 per cent yield loss in susceptible varieties during 2017. Inoculum of stubble-borne diseases such as spot form of net blotch (SFNB) and scald will be present in many paddocks. Net form of net blotch (NFNB) is also becoming common due to the cultivation of susceptible varieties such as RGT Planet.

Avoid sowing susceptible varieties into infected stubble from 2016 and 2017 and apply fungicides proactively to minimise losses during seasons conducive to disease.

Fungicides can provide effective control of foliar diseases of barley in susceptible varieties during seasons conducive to disease development. Application of fluxapyroxad to seed at sowing combined with a foliar fungicide application at flag emergence (Z39) or foliar fungicide applications at both stem elongation (Z31) and flag emergence (Z39) are effective.

Resistance to Fungicides

To minimise the development of resistance to fungicides it is important that growers:

- Use integrated disease control, that combines variety (avoid susceptible varieties) and paddock selection (avoid infected stubble), and green bridge control;
- Don't apply the same fungicide active to a crop more than once per season;
- Use fungicide mixtures where possible;
- Avoid unnecessary fungicide use; and
- Follow label directions for use and adhere to MRLs.

Bunt and Smut

Seed treatments provide cheap and effective control of bunt and smut diseases. Seed should be treated every year as bunt and smut can increase rapidly, resulting in unsaleable grain. Good coverage of seed is essential and only clean seed should be used. If a seed lot is infected it should not be used. Fertiliser treatments do not control bunt and smuts, so seed treatments are required for their control.

Loose smut of barley has been common in the varieties Hindmarsh, LaTrobe and Spartacus, due to their susceptibility, even when seed treatments have been applied.

Due to the increased susceptibility of these cultivars it is important to correctly apply the most effective products. See the SARDI cereal seed treatment guide for more information.

Continued on back page...

AGRICULTURE VICTORIA
National Variety Trials
A GRDC INITIATIVE
GRDC
GRAINS RESEARCH & DEVELOPMENT CORPORATION

Wheat Disease Reactions 2018

Variety	Rust			Yellow leaf spot	*Septoria tritici*	Powdery Mildew	Cereal cyst nematode	Root lesion nematode (*Pratylenchus*)		Crown rot	Common root rot	Black tip	Flag smut	Quality (Victoria)
	Stem	Stripe	Leaf					*P. neglectus*	*P. thornei*					
LRPB Arrow	S	S	SVS	MRMS	S	RMR	MS	MRMS	MRMS	S	MS	MRMS	MS	AH
Axe	MS	MR	SVS	S	SVS	MS	S	S	MS	S	MSS	S	S	AH
LRPB Beaufort	SVS	RMR	MSS	MRMS	MSS	-	S	MS	MS	S	MSS	MRMS	R	Feed
Beckom	MRMS	MRMS	MSS	MSS	SVS	MS	R	S	MSS	S	MSS	MRMS	MR	AH
Bolac	MRMS	RMR	S	S	MSS	-	S	MSS	MRMS	S	MS	MSS	RMR	AH
Chara	MRMS	MSS	S	MSS	MSS	-	R	SVS	MRMS	S	S	MSS	MS	AH
Chief CL Plus	RMR	S	R	MRMS	MSS	RMR	MS	MS[P]	MS	S	MS	MS	SVS	APW
LRPB Cobra	RMR	MSS	MR	MRMS	MSS	MSS	MS	MSS	MSS	S	MSS	MSS	S	AH
Condo	MR	MSS	S	MS	S	-	MR	S	MS	S	MSS	MS	MSS	AH
Corack	MR	MS	SVS	MR#	SVS	SVS	RMR	MSS	MSS	S	MS	S	S	APW
Correll	MRMS	MRMS	MSS	SVS	MSS	-	MR	MSS	S	S	MS	MS	R	AH
Cosmick	MS	MSS	SVS	MRMS	SVS	MSS	S	MSS	MSS	S	MSS	MS	SVS	AH
Cutlass	R	MS	R	MSS	MSS	S	MR	MSS	MSS	S	MS	MR	MS	APW
Derrimut	MR	MSS	MSS	S	SVS	-	R	S	MSS	MSS	S	MSS	MRMS	AH
DS Darwin	MRMS	MR	S	S	SVS	MRMS	MSS	S	S	S	MSS	MS	MR	AH
DS Pascal	MSS	RMR	MS	MRMS	MSS	-	S	S	S	S	MS	MS	S	APW
Elmore CL Plus	MR	MRMS	RMR	S	MSS	-	S	S	MSS	S	S	MS	MSS	AH
Emu Rock	MS	MRMS	SVS	MRMS	SVS	MSS	S	MSS	S	MS	MSS	MS	MS	AH
Grenade CL Plus	MR	MRMS	S	S	S	MS	R	MSS	S	S	MRMS	MSS	MR	AH
Hatchet CL Plus	MS	MRMS	SVS	S	SVS	MRMS	MR	MSS	MSS	S	MS	S	RMR	AH
LRPB Havoc	S	MR	S	MRMS	S	-	S	S	MSS	S	MS	MS	MS	AH
LRPB Impala	MR	MR	SVS	MSS	SVS	R	MSS	SVS	S	S	MSS	MS	S	ASF1
Kiora	MR	RMR	MRMS	MSS	MSS	MS	MS	S	MRMS	S	MS	MS	MRMS	AH
LRPB Kittyhawk	MRMS	RMR	MS	MRMS	MS	-	S	MSS	S	S	S	MS	RMR	AH
Kord CL Plus	MR	MRMS	MS	MSS	MSS	MS	MR	MSS	MSS	S	MRMS	MRMS	MR	AH
LRPB Lancer	R	MR	RMR	MS	MSS	-	S	S	MS	MSS	S	MS	MSS	AH
Longsword	MR	RMR	MSS	MRMS	MSS	-	MRMS	MRMS	MR	S	MRMS	MRMS	MRMS#	Feed
Mace	MRMS	SVS	MSS	MRMS	SVS	MSS	MRMS	MS	MS	S	MS	MRMS	S	AH
Manning	RMR	RMR	MS	MRMS	MR	MS	S	MSS	S	VS	SVS	SVS	R	Feed
LRPB Phantom	MSS	MR	S	SVS	SVS	-	MS	S	S	MSS	MSS	MRMS	MRMS	AH
RGT Accroc	MS	R	S	MRMS	MRMS	-	S	S	MSS	SVS	S	MRMS	SVS	Feed
RGT Calabro	MRMS	R	MSS	MRMS	MRMS	-	MSS	S	MSp	-	MSS	MS	RMR	Feed
RGT Zanzibar	VS	R	SVS	MS	S	-	MSS	MSS	MSp	-	-	RMR	S	Feed
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
SF Adagio	SVS	RMR	S	MRMS	MRMS	-	S	MS	MSS	SVS	MS	MR	MS#	Feed
SF Ovalo	SVS	R	MSS	MR	MR	-	S	S	MSS	SVS	MS	MR	MRMS	Feed
Shield	RMR	MR	R	MSS	SVS	MR	MRMS	MSS	MSS	S	MRMS	MSS	S	AH
SQP Revenue	RMR	R	VS	MS	MSS	R	S	S	S	S	SVS	MS	S	Feed
Tenfour	SVS	SVS	S	MRMS	SVS	MS	MS	S	S	S	MS	MS	RMR	Feed
LRPB Trojan	MRMS	MR	MR	MSS	MSS	S	MS	MSS	MSS	MS	MS	MRMS	SVS	APW
Wallup	MRMS	MRMS	SVS	MSS	MSS	-	MR	MRMS	MRMS	S	MS	MSS	SVS	AH
Yitpi	S	MRMS	S	SVS	MSS	MRMS	MR	MSS	S	S	MS	MS	MR	AH

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 2018 (Ratings courtesy of Hugh Wallwork, 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	MS	MS	S
Brusher	S	S	R	MI	MS	MS	MS	MS
Durack	S	S	R	MI	S	MS	S	S
Forester	S	MS	MS	MI	S	MR	S	MR
Glider	S	S	MS	I	R	MR	S	MR
Kangaroo	S	S	R	MT	MS	MS	S	MS
Kowari	S	R	VS	–	MR	MS	S	S
Mitika	S	S	VS	I	MR	S	S	S
Mulgara	MS	MS	R	MT	MR	S	MS	MS
Tammar	S	MS	MR	MT	MR	MS	MS	MR
Tungoo	S	MS	R	MT	MR	MR	MS	MR
Wallaroo	S	S	R	MT	S	MS	MS	S
Williams	S	R	S	I	R	MS	MS	MS
Wombat	S	MS	R	T	MS	MS	MR	MS
Wintaroo	S	S	R	MT	MS	MS	MS	MS
Yallara	S	MS	R	I	MS	MS	MS	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 2018

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								
Baudin	SVS	MS	MSS	VS	VS	S	MSS	MSS
Commander	SVS	MSS	MSS	MRMS#	S	R	MRMS	MRMS
Fairview	SVS	S	VS	R	SVS	-	MRMS	MR
Flinders	SVS	MSS	MRMS	R	MS	S	MRMS	MR
Gairdner	SVS	S	MRMS	S	S	S	MRMS	MSS
La Trobe	SVS	S	MR#	MRMS#	MSS	R	MRMS	MRMS
Scope CL	S	MSS	MR	MR	S	S	MRMS	MRMS
Westminster	MRMS	S	MR#	R	MRMS	-	MRMS	MS
BARLEY LINES UNDER MALT EVALUATION								
Alestar	S	MSS	MRMS#	-	MS	R[P]	MR	MR
Compass	S	MSS	MRMS	MRMS#	VS	R	MRMS	MR
RGT Planet	MS	S	SVS	R	MRMS	R[P]	MRMS	RMR
Rosalind	MRMS	S	MR	MR#	MR	R	MRMS	MR
Spartacus CL	SVS	S	MRMS#	MRMS#	S	R	MRMS	MRMS
FEED/FOOD BARLEY								
Fathom	MS	MR	MRMS#	MRMS	MS	R	MRMS	MR
Hindmarsh[F]	SVS	SVS	MR#	MRMS#	MSS	R	MRMS	MRMS
Oxford	MS	S	S	R	MS	S	MR	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

...continued from front page

Root and Crown Diseases of Cereals

Following two good seasons during 2016 and 2017, root disease levels have increased in many paddocks. Field trials during 2017 showed losses of approximately 20 per cent from root diseases, demonstrating the need to identify paddocks at risk of loss.

A soil test (PREDICTA B®) is recommended prior to planting to identify paddocks at risk from root disease.

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. It is important that break crops are kept free of grass weeds. Summer rain will help reduce the carryover of both take-all and Rhizoctonia.

Viruses

AgVic surveys identified that Barley Yellow Dwarf Virus (BYDV) was common in wheat, barley and oat crops during 2017, with visible symptoms in more than 40 per cent of paddocks in the Wimmera and South West. BYDV was less common in the Mallee. Cereal viruses will have a greater impact during seasons following a green bridge and ongoing wet conditions which support aphid numbers. Dry conditions will reduce risk.

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

Online

Agriculture Victoria (DEDJTR) Information Notes
eXtensionAUS Field Crop Diseases extensionaus.com.au
Wallwork, H. SARDI Cereal Seed Treatments 2018
RustBust.com.au
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) 5362 2111, or the DEDJTR Customer Service Centre 136 186

Triticale disease reactions 2018

Variety	CCN	Stem rust	Stripe rust	Leaf rust	Yellow leaf spot	*Septoria tritici*
Astute	R	RMR	RMR	RMR	MRMS	MR
Bison	R	RMR	R	RMR	MR	MR
Cartwheel	R	R	R	R	RMR	R
Fusion	R	R	RMR	R	MRMS	MR
Goanna	R	R	RMR	RMR	MR	MR
KM10	S	R	RMR	MRMS	MR	MR

Varieties marked may be more susceptible if more virulent 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.

Acknowledgments: This Information Note (AG1160) was prepared with assistance from Luise Sigel (Agriculture Victoria, Horsham) and Hugh Wallwork (SARDI). **Last Updated: 14th February 2018**

Published by Department of Economic Development, Jobs, Transport and Resources, February 2018
1 Spring Street Melbourne Victoria 3000
Telephone (03) 9208 3333