Pulse Disease Guide 2018

Luise Sigel, Joshua Fanning and Jason Brand February 2018

Season summary 2017: Disease levels were low across all pulse crops in Victoria due to below average rainfall during critical months for disease development and good disease management. Early chocolate spot infection was found in some Mallee vetch crops and in high rainfall zone faba bean crops, however these were generally well managed.

Field peas in the Wimmera and Mallee developed bacterial blight as a result of hail storms and frosts leading to crop losses.

Viruses were detected in a range of pulse crops, however, few symptoms were observed in the field. Growers should test seed before sowing to manage seed-borne virus levels. See the seed quality section in this guide (back page).

Implications for 2018: Following two good years of pulse production, diseases will require proactive management. Ascochyta in chickpeas and lentils, and botrytis in faba beans and lentils, will require particular attention this season.

Some chickpea and faba bean cultivars have increased in susceptibility to ascochyta blight due to changes in the pathogens (see disease reaction tables). **Note** that each *Ascochyta* species is crop specific.

As pulse diseases can develop rapidly, growers should actively monitor their crops with a view to timely fungicide applications if necessary. If disease is observed in resistant cultivars please send samples to CropSafe (see details on the back page).

Chickpeas: A new ascochyta blight pathotype in southern Australia has resulted in increased susceptibility ratings for many chickpea varieties. Consult the latest ratings (see the disease reaction tables).

To prevent seed transmission of ascochyta blight, seed should be treated with a thiram based seed dressing prior to sowing. There should be a minimum three-year break between chickpeas and avoiding sowing into paddocks adjacent to last year's stubble.

Ascochyta blight will need fungicide management in most chickpea crops. Varieties rated MS will need three to four strategic fungicide applications during the season (starting six to eight weeks after sowing). Susceptible varieties will need regular fungicide applications every two to three weeks throughout the growing season. Fungicides should be applied before rain fronts. All varieties are susceptible to pod infection and will require protection during podding to prevent seed staining and abortion.

Lentils: Botrytis grey mould develops quickly in susceptible varieties if there is good rainfall. Fungicides should be applied prior to canopy closure. Variety choice, delayed time of sowing, and wider row spacing all assist in minimising this disease.

Ascochyta blight can develop rapidly and control measures should be included in 2018 disease management plans. PBA HurricaneXT may be at risk of losing ascochyta blight resistance if sown in close rotation and needs to be monitored carefully as the *A. lentis* population is naturally variable.

Beans: Foliar diseases will require proactive management to reduce yield loss and maintain disease free seed. New varieties such as PBA Samira and Zahra have improved resistance to botrytis (chocolate spot) (see the disease reactions tables). **Note:** All varieties are susceptible to Cercospora leaf spot and will need to be managed with fungicides or rotations where this disease is present.

Two different pathotypes of *Ascochyta fabae* have been identified in beans (see bean disease reactions) and crops will need to be monitored. Pathotype 2 appears to be spreading in areas that have a history of growing faba beans, particularly around Kaniva. Areas new to faba beans production only appear to have pathotype 1. Growers should monitor their crops for disease and manage with a fungicide application where necessary.

Field peas: Bacterial blight was found in Wimmera and Mallee crops during 2017. As there are no in-crop control options for bacterial blight, strategies to minimise disease need to be implemented prior to sowing. Do not plant seed from infected crops. In areas prone to bacterial blight (especially frost prone areas) avoid the more susceptible varieties (see disease reaction table).

For several fungal diseases (e.g. Ascochyta, mildews etc.) and insect pests, seed treatments provide cost-effective suppression.

The Blackspot Manager SMS and email alert service provides advice regarding sowing dates that can reduce potential yield loss from ascochyta ('black spot'). To subscribe to this free service, text 'blackspot', your name and nearest weather station to 0475 959 932 or email BlackspotManager@agric.wa.gov.au.

Vetch: Ascochyta blight occurs in the earlier stage of crop development, potentially reducing grain and dry matter production. However, botrytis can cause greater yield losses if the crop is heavily affected and the growing season is cool/wet. Both diseases can be managed with strategic fungicide applications. Pay attention to withholding periods if crops are to be grazed or cut for hay.

Lupins: Most narrow leaf varieties are susceptible to brown leaf spot and crops should be monitored for this disease. Victoria remains free of anthracnose, but suspected sightings should be immediately reported to CropSafe and/or the Exotic Plant Pest hotline (1800 084 881).

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.

AGRICULTURE VICTORIA

National Variety Trials
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Chickpea Disease Reactions 2018

Variety	Botrytis grey mould	Ascochyta blight		Root lesion nematode *Pratylenchus*	
		Foliage	Pod	*P. neglectus*	*P. thornei*
Desi					
Ambar	S	MS	S	MRMS	MS
Genesis 509	MS	MS	S	MRMS	MRMS*p*
Howzat	MS	S	S	MRMS	MS*p*
Neelam	S	MS	S	MRMS	MS
PBA Maiden	S	S	S	MRMS	MRMS
PBA Slasher	S	MS	S	MRMS	MRMS
PBA Striker	S	S	S	MRMS	-
Kabuli					
Almaz	S	MS	S	MRMS	VS
Genesis 079	MS	S	S	MRMS	MS
Genesis 090	S	MS	S	MRMS	MS
Genesis 114	S	S	S	-	-
Genesis Kalkee	S	MS	S	MRMS	MS
PBA Monarch	S	S	S	MRMS	MSS

Lentil Disease Reactions 2018

Variety	Ascochyta blight		Botrytis grey mould	Root lesion nematode *(Pratylenchus)*	
	Foliar	Seed/Pod		*P. neglectus*	*P. thornei*
Small red seed					
Nipper	MRMS	MR	RMR	RMR*p*	MR*p*
PBA Hurricane XT	MR	RMR	MRMS	MRMS*p*	MR*p*
Medium red seed					
Nugget	MRMS	MRMS	MRMS	MRMS*p*	MR*p*
PBA Ace	R	R	MRMS	MR*p*	MR*p*
PBA Blitz	MR	MRMS	MR	MRMS*p*	MR*p*
PBA Bolt	MR	RMR	S	MR*p*	MR*p*
PBA Flash	MS	MS	MRMS	MRMS*p*	MR*p*
Large red seed					
PBA Jumbo	MRMS	S	MS	MR*p*	MR*p*
PBA Jumbo2	R	R	RMR	MRMS*p*	MR*p*
Medium green lentil					
PBA Greenfield	MRMS	MRMS	MR	MRMS*p*	MR*p*
Large green lentil					
Boomer	MR	MRMS	MRMS	-	MR*p*
PBA Giant	MR	MS	MS	MR*p*	MR*p*

Bean Disease Reactions 2018

Variety	Ascochyta blight*		Chocolate spot (Botrytis)	Cercospora	Rust	Root lesion nematode *(Pratylenchus)*	
	Pathotype 1	Pathotype 2				*P. neglectus*	*P. thornei*
Broad bean							
Aquadulce	MS	MS	MS	S		MR*p*	MS
PBA Kareema	MR	MR	MS	S	MRMS	-	-
Faba bean							
Farah	RMR	S	S	S	S	MR*p*	MS
Fiord	MS	-	VS	S	S	-	MS
Fiesta VF	MS	S	S	S	S	MR*p*	MS
Manafest	VS	-	MS	S	MS	-	-
Nura	RMR	RMR	MS	S	MS	MR*p*	MS
PBA Rana	R	MRMS	MS	S	MS	MR*p*	MS
PBA Samira	RMR	RMR	MS	S	MS	MR*p*	MRMS
PBA Zahra	R	MRMS	MS	S	MS	MR*p*	MS

*Ascochyta pathotype 1 is wide spread across Victoria. Pathotype 2 has been detected in Victoria in the Kaniva region and is likely to spread. Crops and trials are being monitored for its presence.

Vetch Disease Reactions 2018 (from the 2018 SA sowing guide)

Variety	Rust	Ascochyta	Chocolate spot (Botrytis)
Common vetch (*Vicia sativa*)			
Blanchefleur	VS	MS	S
Cummins	VS	MS	S
Languedoc	VS	S	S
Morava	R	S	VS
Rasina	R	MS	S
Timok	R	MS	S
Volga	R	MS	S
Purple vetch (*Vicia villosa subsp. benghalensis*)			
Popany	R	S	VS
Woolly pod vetches (*Vicia villosa subsp. dasycarpa*)			
Capello	R	S	VS
Haymaker	R	S	VS
Namoi	R	S	VS
RM4	R	MR	VS

No variety with a R resistance rating is immune to disease, and a fungicide application may be required under severe disease pressure.

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

Field Pea Disease Reactions 2018

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)*	
			Kaspa strain	Parafield strain				*P. neglectus*	*P. thornei*
Yellow pea grain type									
PBA Hayman	MS	MR	-	RMR	R	-	-	-	-
PBA Pearl	MRMS	MS	S	MS	S	S	R	MRMS	MRMS
Sturt	MS	MS	S	MS	S	S	MS	MS*p*	MR
Kaspa grain type									
Kaspa	MS	S	S	MR	S	S	S	MRMS	MRMS
PBA Butler	MS	MRMS	MS	S	S	S	S	MRMS	MRMS
PBA Gunyah	MS	S	S	R	S	S	S	MR	MRMS
PBA Twilight	MS	S	S	R	S	S	S	MRMS*p*	MRMS
PBA Wharton	MS	S	S	R	R	R	R	MRMS*p*	MR*p*
Australian Dun grain type									
Morgan	MS	MS	S	MR	S	S	S*p*	RMR*p*	MR*p*
Parafield	MS	MS	S	S	S	S	S	MRMS	MR*p*
PBA Coogee	MS	MS	-	-	R	-	S*p*	MRMS*p*	MR*p*
PBA Oura	MS	MRMS	MRMS	MR	S	S	MR	MRMS*p*	MRMS*p*
PBA Percy	MS	MR	S	S	S	S	S	MRMS	RMR*p*

Lupin Disease Reactions 2018

Variety	Brown leaf spot	Pleiochaeta root rot	Cucumber mosaic virus (CMV) (seed transmitted)	Anthracnose	Phomopsis	
					Stem	Pod/Seed
Albus lupin						
Luxor	MR	R	Immune	VS	MR	S
Murringo	MR	MR	Immune	VS	MS	S
Narrow leaf						
Jenabillup	MRMS	R	MRMS	S	MS	R
Jindalee	MRMS	R	MS	S	R	R
Mandelup	MS	R	MS	MR	R	MRMS
PBA Barlock	MS	-	MR	R	MR	R
PBA Bateman	MS	-	MRMS	MR	MR	MR
PBA Gunyidi	MS	R	MRMS	MR	R	R
PBA Jurien	MS	-	MRMS	R	R	MR
Wonga	MS	R	R	R	R	R

No variety with a R resistance rating is immune to disease, and a fungicide application may be required under severe disease pressure.

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

Integrated Disease Management

Adoption of integrated disease management strategies will reduce the risk of disease in 2018. These strategies incorporate sowing healthy seed, variety selection (i.e. choosing more resistant varieties where possible), using seed dressings, appropriate paddock selection and active crop monitoring for diseases and insect vectors to inform timely foliar fungicide and/or insecticide application.

Seed quality

Testing seed for germination, vigour and seed-borne diseases before sowing is important to ensure good establishment. Infected seed may be smaller, shrivelled or discoloured, depending on the level of infection. In some situations, seed infection may not be noticeable and testing needs to be carried out by specialist laboratories (see list below).

Fungicides

Seed treatments are a cheap and effective means of suppressing some fungal diseases. However, be aware that the seed treatment P-Pickle-T has caused phytotoxic responses in some field peas, particularly white and blue types. Also, fungicide seed treatments do not combine well with rhizobium used for inoculation. Read labels for compatibilities. Seed should be treated first with fungicide and then, in a separate operation, inoculated with rhizobium.

Foliar fungicides are an important part of the integrated management of pulse diseases. Although many pulse varieties are considered resistant to diseases they may still require a foliar fungicide application at podding. This will reduce seed infection and prevent yield and quality loss (eg. ascochyta blight in chickpeas). See Pulse Australia's Information note Pulse Seed Treatments and Foliar Fungicides.

CropSafe (Agriculture Victoria)

crop.safe@ecodev.vic.gov.au
Ph: 03 5362 2111
Private Bag 260 Horsham, Vic 3401

Exotic Plant Pest Hotline

1800 084 881

Seed Testing Laboratories

DDLS Seed testing and certification services (formerly AGWEST Plant Laboratories) Department of Agriculture and Food, 3 Baron Hay Court, South Perth, WA 6151. Tel. 08 9368 3721

AsureQuality, 3-5 Lillee Crescent (PO Box 1335) Tullamarine Vic 3043. Tel. 03 8318 9024

SARDI Seed Testing Service, GPO Box 379, Adelaide, SA 5001. Tel. 08 8303 0360

Seed Testing Laboratory, Mt Pleasant, Tasmanian DPIPWE, PO box 46, Kings Meadows, TAS 7249. Tel. (03) 6777 2146

Acknowledgements
National ratings for pulse crops are supplied by Pulse Breeding Australia (PBA) and the South Australian Research and Development Institute (SARDI) and were used in the preparation of this guide. This guide was prepared with assistance from Jenny Davidson (SARDI), Rohan Kimber (SARDI), Johanna Couchman, Grant Hollaway and Mohammed Aftab (Agriculture Victoria, Horsham).
Last updated 23 Feb 2018

Contact/Services available from DEDJTR Field Crops Pathology, Grains Innovation Park, 110 Natimuk Rd, Horsham 3400. Tel (03) 5362 2111, or the DEDJTR[1] 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. This document is also available at www.economicdevelopment.vic.gov.au

Further Information

Detailed information on each of the pulse diseases can be obtained from:
DEDJTR Information Notes·
extensionAUS Field Crop Diseases extensionaus.com.au
CropPro www.croppro.com.au
Pulse Australia
National Variety Trials
Victorian Winter Crop Summary
Pulse Seed Treatments and Foliar Fungicides
Grain Legume Handbook. See Chapter 3 Seeding
Pulse Australia Faba bean integrated disease management strategy
Pulse Australia Lentil Disease Management Strategy
Pulse Australia Field Pea Disease Management Strategy
www.grdc.com.au/ManagingFrostRisk

Interpreting Resistance Classifications

NB: These classifications are only a guide, and yield losses will depend on the environment and seasonal conditions. No pulse crops or varieties are immune to disease and fungicide application may be required under severe disease pressure.

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. However, under severe disease pressure fungicide applications may be required.

MR Moderately Resistant, the disease may be visible and will multiply slightly, but it will not cause significant loss. However, under severe disease pressure fungicide applications may be required.

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

S Susceptible, the disease can be severe on this variety and losses of 15-50 per cent 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 per cent are possible, and the increase in 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.

Published by the Department of Economic Development, Jobs, Transport and Resources, February 2018
1 Spring Street Melbourne Victoria 3000 Telephone (03) 9208 3333
This document is also available at Agriculture.vic.gov.au/agriculture