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SOUTH AUSTRALIA
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2025 SOUTH AUSTRALIAN CROP SOWING GUIDE



**ARE YOU GROWING THE BEST
VARIETY FOR YOUR SITUATION?**

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Jacob Nickolai, SARDI, Crop Sciences

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GRDC contact details:
PO Box 5367
KINGSTON ACT 2604
Tel: 02 6166 4500
Email: comms@grdc.com.au

Design and production:
Coretext, coretext.com.au

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This guide can be downloaded to your computer or tablet at:
grdc.com.au/NVT-south-australian-crop-sowing-guide
Remember to update it each October.

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THE SOUTH AUSTRALIAN CROP SOWING GUIDE

The *South Australian Crop Sowing Guide* outlines information on current varieties of the major winter crops suitable to be grown in South Australia to assist growers in making decisions on variety selection for the upcoming season.

This edition of the *SA Crop Sowing Guide* has been compiled by officers within the South Australian Research and Development Institute (SARDI) and collaborating researchers.

It is proudly sponsored by the South Australian Grain Industry Trust in association with the Department of Primary Industries and Regions and the Grains Research and Development Corporation.

The SARDI Crop Sciences Division officers acknowledge the sponsorship of this guide by the SA Grain Industry Trust (SAGIT) and the Grains Research and Development Corporation (GRDC), the contributions of agronomy and vetch breeding research staff in SA, as well as collaborators around Australia in producing results published in this edition.



SA grain growers funding research solutions

The South Australian Grain Industry Trust, on average, invests \$2 million a year in supporting research crucial to advancing South Australia's \$4.6 billion grain industry. These projects deliver real improvements in countless areas of grain growing, farming systems, soil management, harvesting, storage, processing and marketing, and providing technical information to growers.

In 2024-25, SAGIT is investing in these new projects:

- Ag Excellence Forum 2024, Ag Excellence Alliance
- Lead Agriculture Teacher, AgCommunicators – SA Sheep Industry Fund co-investment
- Unravelling crop yield response to application of organic amendments on different soil types, Agronomy Solutions
- Wheat powdery mildew management strategies, AgXtra
- Appropriate fertiliser strategies for on-row lentil sowing in saline soils, Central Ag Solutions – GRDC co-investment
- Lentils for sustainable rotations on low rainfall highly alkaline calcareous soils, Global Grain Genetics
- Regional internship in applied grains research, Hart Field-Site Group – SA Drought Hub co-investment
- Optimising lentil yields through rotation in transient salinity soils, Next Level Agronomy
- Convenient, delicious and nutritious value-added foods from Australian pulses, SARDI
- Novel healthy food products from oats – fermented, spoonable snacks, SARDI
- Eyre Peninsula Farming Systems Summary 2024-2026, SARDI
- Grains pathology internship, SARDI
- Specialised research seeder to advance management of soil biological constraints, SARDI – funded by SANTFA legacy funding
- Drought preparedness using barley architecture and phenology for biomass production, SARDI
- Making the most of phosphorus (P) fertiliser inputs: Managing spatial variability and long-term strategies, Trengove Consulting – GRDC co-investment
- The impact of annual ryegrass seed size on harvest weed seed control mill efficacy, Trengove Consulting
- Multi-scale monitoring of pests and beneficial insects in canola cropping, University of Adelaide / SARDI
- Increasing pulse yields: focus paddocks to identify & manage soilborne constraints, University of Adelaide / SARDI
- An improved and rapid test to inform sodic soil management, University of Adelaide / SARDI
- Strategies for mitigating frost damage in the Upper North region, Upper North Farming Systems – GRDC co-investment

SAGIT is also supporting these ongoing projects:

- Evaluation of agronomic practices for SHO safflower production, Agrilink Agricultural Consultants
- Developing a new high value noodle market for South Australian growers, Australian Export Grains Innovation Centre – GRDC co-investment
- Genetic and fungicidal control of septoria tritici blotch and stripe rust in wheat, AgXtra
- AgXtra high school and university crop competition, AgXtra
- Student Compendium – supporting the next generation 2023-25, Ag Institute Australia
- Regional internship in applied grains research, Hart Field Site Group
- MacKillop Farm Management Group Annual Trial Results Book 2023-2025, MacKillop Farm Management Group
- Enhancing farmer knowledge of soil function to improve management outcomes, Mallee Sustainable Farming
- SA Crop Variety Sowing Guide publication, SARDI
- Profitable vetch - agronomy, breeding and market development, SARDI – GRDC co-investment
- Using grain protein maps to optimise nitrogen fertiliser to paddock scale nitrogen variability, Trengove Consulting – SA Drought Hub co-investment
- Pairing pulses for improved yield, protein, agronomy, and profit, University of Adelaide / SARDI
- Optimising crop establishment under dry and marginal soil moisture, University of Adelaide
- Colour preservation in faba beans to enhance quality and value, University of Adelaide / SARDI
- Preparing for a pulse protein market - pulse options for expansion areas, University of Adelaide / SARDI
- Developing new breeding material to stabilise barley yields, University of Adelaide
- Improving industry response to white grain disorder and fusarium head blight outbreaks while protecting export markets, University of Adelaide / SARDI – GRDC co-investment
- Screening for genetic components of head-retention in barley, University of Adelaide
- Delivery of beneficial organisms through seed coating to improve grain yield, University of Adelaide
- Revegetation for enhanced biocontrol of pest conical snails, University of Adelaide – GRDC co-investment
- Canola profitability as a break crop in the Upper North? Upper North Farming Systems
- Pesticide effects on soil microbial functions in contrasting SA soils, University of SA – GRDC co-investment

INTRODUCTION

NATIONAL VARIETY TRIALS (NVT)

The variety trial results presented in this book are sourced from the National Variety Trials (NVT) program, SAGIT and AgriFutures Oat Agronomy projects and the National Vetch Breeding Program.

NVT provide independent information on varieties for growers. The aim of each NVT is to document a ranking of new and widely adopted varieties according to grain yield and to provide grain quality information relevant to delivery standards. NVT are also used by pathologists to determine disease resistance ratings used in the sowing guide.

Conducted to a set of predetermined protocols, variety trials are sown and managed as close as possible to local best practice such as sowing time, fertiliser application, weed management and pest and disease control, including fungicide application. NVT are not designed to grow varieties to their maximum yield potential.

GRDC recognises that sustaining a project of this nature hinges on the collaboration of growers who willingly provide sites and often lend a hand in trial management on their properties. Equally significant is the partnership with seed companies who participate in the NVT program to ensure the continued delivery of performance results to growers.

PLANT BREEDER'S RIGHTS (PBR)

Varieties subject to Plant Breeder's Rights (PBR) at the time of printing are annotated with the symbol. It should be noted that unauthorised commercial propagation or any sale, conditioning, export, import or stocking of propagation material of these varieties is an infringement under the *Plant Breeder's Rights Act 1994*. Intentional infringement of a PBR attracts a penalty of \$85,000 for individuals. The penalty for corporations is up to five times greater.

END POINT ROYALTIES (EPRS)

End point royalties (EPRS) payable for 2024-25 are quoted from varietycentral.com.au and are quoted \$/tonne ex-GST. Compliance with EPR systems is vital to ensure the future of the Australian grains industry through the funding of new varieties and long-term productivity gains. EPRS for 2025-26 harvest will become available early in 2025 on the Variety Central website.

INTERPRETING LONG-TERM YIELD RESULTS

The long-term yield results presented in the crop sowing guide are an output of NVT long-term multi environment trial (MET) analysis. NVT run trials in all cropping regions of Australia (for example, Lower Eyre Peninsula, Mid North, Murray Mallee) and other states across Australia, and use a five-year rolling results set.

A mixed-model approach is used in the MET analysis using expertise from the GRDC-supported Statistics for the Australian Grains Industry (SAGI) program. This approach generates long-term MET results for varieties at an individual trial level.

The output used in this sowing guide presents the MET results on a region-by-year basis across the five years used in the MET results set. The analysis, and subsequent reporting systems, have allowed NVT to bring together very large results sets and make more refined, relevant and robust results about the relative performance of each variety across different locations and seasons. Readers can now use these more

detailed results to better understand a variety’s performance over several years – rather than just a single averaged value.

Readers can further interrogate the results online to better understand the performance of varieties under a range of situations using the NVT Long Term Yield Reporter tool. The long-term yield results are best viewed at the individual trial/ environment level; however, these detailed results sets are too large for printed sowing guides or quick-reference summaries, such as the *South Australian Crop Sowing Guide*.

Users can choose to view results in year or yield-based groupings and can filter results to region or location selections to suit their own needs. In this sowing guide we present results in year groups and only for varieties present in trials.

The NVT Long Term Yield Reporter tool is designed to run on all web-browsing platforms on computers, tablets and phones, and is available online at app.nvt.grdc.com.au/lty/table.

LEGEND: MEAN VARIETY YIELD PERFORMANCE

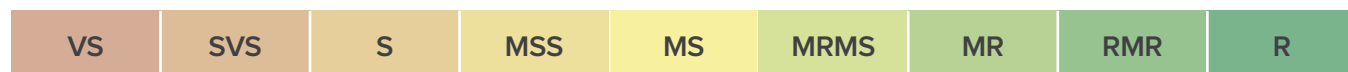


LOWEST

HIGHEST

Long-term mean yield illustrated by colour gradient from lowest (red) to highest (green).

DISEASE RATING COLOUR RANGE



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.

WHEAT

By Jacob Nickolai and Tara Garrard, SARDI

Since publication of the 2024 sowing guide, Boa[®], Mammoth[®] and Shotgun[®] have been released. The sowing guide continues to include the introduction of selected winter and feed wheats.

These newly released varieties have not necessarily been included in the NVT release pathway. As such there is no/limited NVT disease or yield data available. Contact your local seed marketer or breeder for more detail on these varieties, particularly Boa[®] and Shotgun[®] (both have limited disease and yield data) and Mammoth[®] (with no yield data). Previously unavailable NVT data for varieties Dozer[®] CL Plus, Genie[®] and Soaker[®] is now available for both yield and disease ratings.

A summary of the most important selection criteria, grain yield, quality, maturity classification and disease resistance information for each variety is provided in Table 1 and Table 3. While the varieties listed are considered likely to provide the best return within each quality grade, growers need to consider their individual farm and paddock situation, and make their selection based on all available information for their region and business.

USEFUL RESOURCES

More information about the overview of wheat production in Australian can be found on the AEGIC website: aegic.org.au/australian-grains/wheat

Information about Australian wheat classification can be found on the Grains Australia website: grainsaustralia.com.au/classification/wheat

Information about the Australian wheat trade and current GTA receival standards can be found on the Grain Trade Australia website: graintrade.org.au

DOMESTIC FLOUR MILLERS' WHEAT VARIETY PREFERENCES

Most of South Australia's wheat is exported to the Middle East for flat and pan bread production and, to a lesser extent, noodle production. Domestic flour millers purchase a small proportion of South Australian wheat either from marketers or directly from growers. Domestic millers may have different quality requirements to export markets due to different end products and processes employed. For further information, contact Laucke Flour Mills on 03 5438 1700.

INTRO

WHEAT

BARLEY

OAT

CANOLA

FABA BEAN

LENTIL

FIELD PEA

CHICKPEA

LUPIN

VETCH

NOTES

Table 1: Suitable wheat varieties for planting in South Australia.

Variety	Maximum grade	Maturity classification	(\$/t)	Release	Breeder
CONVENTIONAL					
Anapurna	FEED	S (+W)	3.20	2020	AGT
Ascot ^{db}	APW	M	3.50	2020	BASF
Ballista ^{db}	AH	Q-M	3.50	2020	AGT
BigRed ^{db}	FEED	M-S (+W)	3.65	2022	AGF Seeds
Boa ^{db}	AH	Q-M	TBC	2024	LongReach
Brumby ^{db}	APW	M	3.50	2022	InterGrain
Calibre ^{db}	AH	Q-M	3.50	2021	AGT
Catapult ^{db}	AH	M-S	3.25	2019	AGT
Cutlass ^{db}	APW	M-S	3.00	2015	AGT
Denison ^{db}	APW	S-VS	3.40	2020	AGT
DS Bennett ^{db}	ASW	M-S (+W)	4.25	2018	S&W Seeds
Genie ^{db}	AH	M-S	3.50	2023	InterGrain
Illabo ^{db}	AH	M (+W)	3.50	2018	AGT
Kingston ^{db}	AH	M	3.55	2022	BASF
Longford ^{db}	FEED	S	3.85	2023	AGF Seeds
Longsword ^{db}	AWW	Q (+W)	2.75	2017	AGT
LRPB Bale ^{db}	APW	S	3.50	2021	LongReach
LRPB Dual ^{db}	AH	M-S	3.50	2021	LongReach
LRPB Major ^{db}	AH	M-S	4.00	2023	LongReach
LRPB Matador ^{db}	AH	M	3.50	2023	LongReach
LRPB Nighthawk ^{db}	APW	S	4.25	2019	LongReach
LRPB Oryx ^{db}	ASFT	M	3.75	2018	LongReach
Mammoth ^{db}	APW	VS	3.50	2024	InterGrain
Mowhawk ^{db}	APW	Q (+W)	4.00	2023	LongReach
Reilly ^{db}	AH	M	3.55	2022	BASF
RGT Accroc ^{db}	FEED	M-S (+W)	4.00	2016	RAGT
RGT Calabro	FEED	M-S (+W)	4.00	2017	RAGT
RGT Cesario ^{db}	FEED	M-S (+W)	4.00	2021	RAGT
RGT Ponsford ^{db}	Pending	M	4.00	2024	RAGT
RGT Waugh ^{db}	FEED	S (+W)	4.00	2022	InterGrain
RockStar ^{db}	AH	M-S	3.50	2019	InterGrain
Scepter ^{db}	AH	M	3.25	2015	AGT
Shotgun ^{db}	AH	M	3.90	2024	AGT
Stockade ^{db}	APW	VS	3.65	2022	LongReach
Vixen ^{db}	AH	Q	3.50	2018	InterGrain
HERBICIDE TOLERANT					
Chief CL Plus ^{db}	APW	M	4.25	2016	InterGrain
Dozer ^{db} CL Plus	APW	Q-M	3.90	2023	InterGrain
Hammer CL Plus ^{db}	AH	Q-M	4.25	2020	AGT
LRPB Anvil ^{db} CL Plus	AH	Q	4.25	2022	LongReach/GIA
Razor CL Plus ^{db}	ASW	Q-M	3.30	2018	AGT
Sheriff CL Plus ^{db}	APW	M-S	4.25	2016	InterGrain
Soaker ^{db*}	APW	M	3.50	2023	LongReach/GIA
Tomahawk CL Plus ^{db}	APW	M	4.15	2023	AGT
Valiant ^{db} CL Plus	AH	S	4.35	2021	InterGrain

* = single gene IMI

Maximum grade: AH = Australian Hard, APW = Australian Premium White, ASFT = Australian Soft, ASW = Australian Standard White, AWW = Australian White Wheat, FEED = Australian Feed.

Maturity: VQ = very quick, Q = quick, M = mid, S = slow, VS = very slow, (+W) = winter wheat.

EPR source: varietycentral.com.au/varieties-rates Grade source: grainsaustralia.com.au/master-lists/wheat-variety-listDisclaimer: All data obtained from sources available at time of publication. To stay up to date with variety grades please visit grainsaustralia.com.au/master-lists/wheat-variety-list.

All maturity classification according to Australian Crop Breeders Industry Guide with information sourced from plant breeder notes and information.

MATURITY CLASSIFICATIONS

Maturity classifications and terminology have been assigned using the industry guidelines provided by Australian Crop Breeders, available at australiancropbreeders.com.au. Table 1 shows the maturity description of each variety and associated boundary varieties used as a reference guide in Table 2.

Varieties differ in their maturity speed from germination to full head emergence. It is important to match variety maturity with sowing time as flowering time is critical for optimising potential wheat yield. The optimal flowering period is a compromise between frost risk, moisture stress

and heat stress events, and differs from region to region. When selecting a variety, it is important to understand the optimal flowering periods for your environment and associated sowing period for the different maturity speeds across varieties.

The majority of widely adapted, quick to mid-developing wheat varieties are suited to early May to mid-May sowing. There is an increasing number of varieties in the mid to slow range that may offer potential for late April to early May sowing if an early break occurs, with evaluation of these varieties ongoing. Winter varieties are suited for germination from mid-March and April dates and may also provide dual-purpose options at these earlier sowing dates.

Table 2: Maturity description and boundary varieties (quick and slow) for Australian wheat varieties assigned by Australian Crop Breeders.

Maturity description	Quick wheat boundary	Slow wheat boundary
Very quick spring	N/A	Axe [Ⓛ]
Very quick – quick spring	> Axe [Ⓛ]	Vixen [Ⓛ]
Quick spring	> Vixen [Ⓛ]	Corack [Ⓛ] /LRPB Mustang [Ⓛ]
Quick – mid spring	> Corack [Ⓛ] /LRPB Mustang [Ⓛ]	Mace [Ⓛ] /Suntop [Ⓛ]
Mid spring	> Mace [Ⓛ] /Suntop [Ⓛ]	LRPB Reliant [Ⓛ] /Sheriff CL Plus [Ⓛ] /LRPB Trojan [Ⓛ]
Mid – slow spring	> LRPB Reliant [Ⓛ] /Sheriff CL Plus [Ⓛ] /LRPB Trojan [Ⓛ]	Yitpi/EGA Gregory [Ⓛ]
Slow spring	> Yitpi/EGA Gregory [Ⓛ]	Sunzell
Slow – very slow spring	> Sunzell	Sunmax [Ⓛ]
Very slow spring	> Sunmax [Ⓛ]	N/A
Quick winter	N/A	Illabo [Ⓛ]
Mid winter	> Illabo [Ⓛ]	RGT Accroc [Ⓛ]
Slow winter	> RGT Accroc [Ⓛ]	N/A

Available at australiancropbreeders.com.au.

Table 3: Disease responses of selected wheat varieties and reaction to common disorders.

Variety	Rust			Septoria tritici blotch	Yellow leaf spot	Powdery mildew	Root lesion nematode		CCN	Eyespot	Crown rot	Black point
	Stem	(2024 East Coast) Stripe	Leaf				<i>P. neglectus</i>	<i>P. thornei</i>				
Anapurna	MSS	RMR	MS	MRMS	MRMS	RMR	MS	S (P)	MRMS	–	SVS	MSS
Ascot ^{db}	MRMS	MSS	RMR	S	MRMS	S	S	S	MR	S	S	S
Ballista ^{db}	MR	MSS	S	SVS	MS	SVS	S	MRMS	MRMS	S	S	MS
Beckom ^{db}	MRMS	MRMS	MSS	S	MSS	MSS	S	MSS	R	–	S	MRMS
BigRed ^{db}	S	RMR	MRMS	MR	MR	RMR	MS	MS	S	–	MSS	MR
Boa ^{db}	MS (P)	MRMS (P)	MR# (P)	S (P)	MS (P)	S (P)	–	–	–	–	–	–
Brumby ^{db}	MR	MS	SVS	S	MRMS	MR/S	MRMS	MS (P)	MRMS	S	S	MSS
Calibre ^{db}	MR	S	S	S	MRMS	MSS	S	MSS	MRMS	S	S	MSS
Catapult ^{db}	MR	S	S	MSS	MRMS	S	S	MS	R	S	MSS	S
Chief CL Plus ^{db}	MR	SVS	MR	S	MRMS	SVS	MRMS	MSS	MS	MSS	MSS	MS
Cutlass ^{db}	R	MSS	RMR	MSS	MSS	MSS	MSS	MSS	MR	–	S	MS
Denison ^{db}	MS	S	S	MSS	MRMS	S	S	S	MS	S	MSS	MS
Dozer ^{db} CL Plus	MS	S	MSS	S (P)	MS	S	MRMS	S	MS (P)	SVS (P)	S	MRMS (P)
DS Bennett ^{db}	MS	S	SVS	MSS	MRMS	R	S	S	S	–	VS	MSS
Genie ^{db}	MS (P)	MRMS (P)	S (P)	S (P)	MRMS (P)	SVS (P)	–	–	–	–	–	–
Hammer CL Plus ^{db}	MR	MS	S	MSS	MRMS	S	MSS	S	MRMS	S	MSS	MRMS
Illabo ^{db}	MRMS	MRMS	S	MSS	MS	R	MSS	MSS	MRMS	S	S	MRMS
Kingston ^{db}	S	MSS	S	S	MSS	S	S	MRMS	R	S	S	MSS
Longford ^{db}	RMR	RMR	RMR	MRMS/S	MRMS	RMR	S	S	MS	MSS (P)	MSS	MRMS
Longsword ^{db}	MR	MRMS/MS	MS	MS	MRMS	S	MRMS	MRMS	MRMS	S	MSS	MS
LRPB Anvil ^{db} CL Plus	MR	S	SVS	VS	MSS	SVS	MSS	S	MS	S	MSS	S
LRPB Impala ^{db}	MR	MRMS	SVS	SVS	MSS	R	SVS	S	MSS	–	MSS	MS
LRPB Major ^{db}	MRMS	MRMS	MR#	MSS	MS	MS	MSS	MSS	MRMS (P)	S (P)	S	MRMS (P)
LRPB Matador ^{db}	MS	MS	MSS	S (P)	MRMS	MS	S	MRMS	MS (P)	S (P)	S	MRMS (P)
LRPB Trojan ^{db}	MRMS	S	MR#	S	MSS	S	MSS	MSS	MS	MS	MS	MS
Mammoth ^{db}	MRMS	MSS	MS	MSS	MRMS	S	MSS	MR	MSS	MSS (P)	S	MR
Manning ^{db}	MR	RMR	MSS	MRMS/S	MRMS	MS	MSS	S	S	MS (P)	VS	S
Razor CL Plus ^{db}	MRMS	MRMS	S	SVS	MSS	MSS	S	MS	MR	S	S	MS
Reilly ^{db}	MRMS	MS	MSS	S	S	MSS	MS	MSS	R	S	S	MSS
RGT Accroc ^{db}	MS	RMR	SVS	MS	MRMS	MSS	MS	MSS	S	MSS (P)	SVS	MRMS
RGT Calabro	MS	RMR	MSS	MRMS	MR	RMR	S	MS	S	–	SVS	MS
RGT Cesario ^{db}	RMR	RMR	RMR	MRMS	MR	RMR	MRMS	MSS	MSS (P)	–	VS	–
RGT Waugh ^{db}	MS	RMR	S	MRMS#	MRMS	R	MSS	MSS	MS	–	S	MRMS
RGT Zanzibar	VS	MR	SVS	MSS	MS	RMR	S	MS (P)	MSS	–	S	MRMS
RockStar ^{db}	MRMS	S	S	S	MRMS	SVS	MRMS	MS	MSS	S	S	MSS
Scepter ^{db}	MRMS	MSS	MSS	S	MRMS	SVS	S	MSS	MRMS	S	MSS	MS
Sheriff CL Plus ^{db}	MS	SVS	SVS	S	MRMS	SVS	MRMS	MRMS	MS	S	S	MS
Shotgun ^{db}	MRMS (P)	MS (P)	MSS (P)	S (P)	MRMS (P)	S (P)	–	–	–	–	–	–
Soaker ^{db*}	MR (P)	MS (P)	S (P)	S (P)	MS (P)	S (P)	–	–	–	–	–	–
Stockade ^{db}	MS	MR	MR	MS	MRMS	SVS	S	MSS	MRMS	–	S	MRMS
Tomahawk CL Plus ^{db}	MR	MSS	S	S (P)	MRMS	SVS	S	MS	MRMS (P)	S (P)	S	S (P)
Valiant ^{db} CL Plus	MR	S	S	MSS	MRMS	VS	S	S (P)	MSS (P)	MSS	MSS	MS (P)
Vixen ^{db}	MRMS	SVS	SVS	S	MRMS	SVS	MRMS	MS	MSS	S	S	MSS
Willaura ^{db}	MR	S	MRMS	S	MS	SVS	MSS	MRMS	MS	–	S	MRMS
Yitpi	S	MS	S	S	SVS	MS	MSS	S	MR	–	S	MS

* = single-gene IMI. – denotes no data available.

Disease resistance ratings should not be compared across different diseases. Each disease has its own severity and risk level, so the severity and management options for one disease may differ to those for another disease, even if the variety has the same rating for both diseases.

Next season, the 2024 East Coast ratings will reflect the change in distribution of pathotypes in 2023 and as a result the East Coast rating of some varieties is likely to change. It is for this reason that pathologists always recommend consulting current disease guides, that are updated annually.

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible, – variety yet to be fully evaluated.

/ = pathotype differences (the second score after a / is the response to a rarer strain), # = may be more susceptible to alternate pathotypes (warning), (P) = provisional rating.

Black point is not a disease but is a physiological response to certain humid conditions.

Information on disease reaction was supplied by the Cereal Pathology Group (SARDI) under the GRDC NVT Pathology investment DAS1905-013SAX. Contact Dr Tara Garrard: tara.garrard@sa.gov.au

WHEAT VARIETY NOTES

ASCOT[Ⓛ]

Ascot[Ⓛ] is an Australian Premium White (APW) quality, mid maturing variety suited to medium to high-rainfall zones and irrigated cropping. Released in 2020 (tested as BSWDH10-215), bred by RAGT. Seed is available and marketed by Seednet. EPR \$3.50 ex-GST.

BALLISTA[Ⓛ]

Ballista[Ⓛ] is an Australian Hard (AH) quality, quick-mid maturing variety, similar to Mace[Ⓛ] but slightly quicker than Scepter[Ⓛ]. Released in 2020 (tested as RAC2598), bred and marketed by AGT. Seed is available from AGT affiliates and eligible for Seed Sharing™. EPR \$3.50 ex-GST.

BOA[Ⓛ] – NEW

Boa[Ⓛ] is a quick-mid maturing AH wheat. Combines attributes of Scepter[Ⓛ] and LRPB Cobra[Ⓛ] to deliver a short canopy with an erect growth habit. Released in 2024 (tested as LPB19-8035), by LongReach Plant Breeders. Seed available exclusively through Baker Seed Co. EPR TBC.

BRUMBY[Ⓛ]

Brumby[Ⓛ] is a mid maturing APW wheat variety. Released in 2022 (tested as IGW6683), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.50 ex-GST.

CALIBRE[Ⓛ]

Calibre[Ⓛ] is a quick-mid maturing variety similar to Mace[Ⓛ] with an AH classification. Calibre[Ⓛ] is largely derived from Scepter[Ⓛ] with improved coleoptile length and good sprouting tolerance. Calibre[Ⓛ] was released in 2021 (tested as RAC2721), bred and marketed by AGT. Seed is available from AGT affiliates and eligible for Seed Sharing™. EPR \$3.50 ex-GST.

CATAPULT[Ⓛ]

Catapult[Ⓛ] is an AH wheat with a mid-slow maturity, allowing the variety to take earlier planting opportunities in late April to early May. Catapult[Ⓛ] was released in 2019 (tested as RAC2484), bred and marketed by AGT. Seed is available from AGT affiliates and eligible for Seed Sharing™. EPR \$3.25 ex-GST.

CHIEF CL PLUS[Ⓛ]

Chief CL Plus[Ⓛ] is a mid maturing, imidazolinone-tolerant (Clearfield® Plus) APW wheat. Released in 2016 (tested as IGW6089), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$4.25 ex-GST.

DOZER[Ⓛ] CL PLUS

Dozer[Ⓛ] CL Plus is an imidazolinone-tolerant APW wheat with a quick-mid maturity. Suited to a mid-May sowing date and targeted for the low to medium-rainfall zones. Released in 2023 and bred by InterGrain (tested as IGW6783). Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.90 ex-GST.

GENIE[Ⓛ]

Genie[Ⓛ] is an AH variety with a mid-slow maturity. Slightly longer than RockStar[Ⓛ] to maturity, it is suited to late April sowing. With an improved coleoptile length it can be sown deeper when moisture is marginal. Best suited to medium to high-rainfall zones. Released in 2023 (tested as IGW6754), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.50 ex-GST.

HAMMER CL PLUS[Ⓛ]

Hammer CL Plus[Ⓛ] is an imidazolinone-tolerant (Clearfield® Plus) AH variety with two-gene tolerance to label rates of Intervix® herbicide. It is a quick-mid maturing variety closely related to Mace[Ⓛ]. Released 2020 (tested as OAGT0016), bred and marketed by AGT. Seed is available from AGT affiliates. It is not eligible for AGT Seed Sharing™. EPR \$4.25 ex-GST.

KINGSTON[Ⓛ]

Kingston[Ⓛ] is a mid maturity AH wheat. It is a compact plant type and with broad adaptability. Released in 2022 (tested as BSWDH04-062), bred by RAGT. Seed is available through Seednet. EPR \$3.55 ex-GST.

LRPB ANVIL[Ⓛ] CL PLUS

LRPB Anvil[Ⓛ] CL Plus is a quick maturity, two-gene imidazolinone-tolerant (Clearfield® Plus) AH wheat that can be sprayed by label rates of registered imidazolinone herbicides. Quick to maturity with a similar if not faster development pattern to Vixen[Ⓛ]. It has good early vigour, providing good weed competition early. It is well suited to the low to medium-rainfall zones, providing a fast-maturing imidazolinone-tolerant variety choice to growers. Released in 2022 (tested as LPB17-6157), originally bred by Grains Innovation Australia with further development by LongReach Plant Breeders. Seed is available through Pacific Seeds. EPR \$4.25 ex-GST.

LRPB BALE[Ⓛ]

LRPB Bale[Ⓛ] is an APW quality wheat with a slow maturity. It is an awnless variety with a long coleoptile. It has a LPRB Scout[Ⓛ] background originating from germplasm produced by CSIRO. Maturing later than Yitpi, its awnless qualities and delayed flowering allows it to be delivered as grain or cut for hay. Released in 2021 (tested as LPB18-7946), bred CSIRO and marketed by LongReach Plant Breeders. Seed is available through farmer-to-farmer trade. EPR \$3.50 ex-GST.

LRPB DUAL[Ⓛ]

LRPB Dual[Ⓛ] is an AH quality wheat with a mid-slow maturity. It is an awnless variety with a long coleoptile length. Bred from germplasm produced by CSIRO with a LPRB Scout[Ⓛ]/Yitpi background, it has a unique maturity pattern, flowering between LRPB Trojan[Ⓛ] and Yitpi. Its awnless nature lends it to dual-purpose applications as it can be cut for hay or delivered as grain, offering options in frost-prone areas. Released in 2021 (tested as LPB18-7982), bred by CSIRO and marketed by LongReach Plant Breeders. Seed available through LongReach seed network. EPR \$3.50 ex-GST.

LRPB MAJOR[Ⓛ]

LRPB Major[Ⓛ] is a mid-slow AH wheat. It is suited to an Anzac Day sowing due to its slower growth pattern. Also suited to the longer season growing environments in the mid to high-rainfall zones. Released in 2023 (tested as LPB18-7203) by LongReach Plant Breeders. Seed is available through Pacific Seeds. EPR \$4.00 ex-GST.

LRPB MATADOR[Ⓛ]

LRPB Matador[Ⓛ] is a mid maturing AH wheat. Bred from a cross with Scepter[Ⓛ] it has a similar maturity but with a shorter canopy. Released in 2023 (tested as LPB18-4160) by LongReach Plant Breeders. Seed available through Pacific Seeds. EPR \$3.50 ex-GST.

LRPB NIGHTHAWK[Ⓛ]

LRPB Nighthawk[Ⓛ] is an APW quality wheat with a slow maturity but still a spring wheat. Primarily suited to mid-April germination opportunities within SA. It is suited to early planting or grazing opportunities similar to winter wheats in the higher-rainfall zones. Released in 2019 (tested as LPB14-0392) by LongReach Plant Breeders. Seed is available from Pacific Seeds. EPR \$4.25 ex-GST.

MAMMOTH[Ⓛ] – NEW

Mammoth[Ⓛ] is a unique, very slow maturing APW spring wheat. It is slightly quicker than Illabo[Ⓛ], suited to sowing from late March through to late April. Released in 2024 (tested as IGW6755), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.50 ex-GST.

RAZOR CL PLUS[Ⓛ]

Razor CL Plus[Ⓛ] is a quick-mid maturity, imidazolinone-tolerant (Clearfield[®] Plus) Australian Standard White (ASW) wheat. It has stable yields across a range of environments and provides highly competitive yields within the Clearfield[®] wheat varieties. Released in 2018 (tested as RAC2517), bred and marketed by AGT. Seed is available from AGT affiliates. It is not eligible for AGT Seed Sharing[™]. EPR \$3.30 ex-GST.

REILLY[Ⓛ]

Reilly[Ⓛ] is a mid maturity AH wheat. Best suited to the low to medium-rainfall zone, it has a medium plant height. Released in 2022 (tested as BH120020S-11), bred by RAGT. Seed is available through Seednet. EPR \$3.55 ex-GST.

RGT PONSFORD[Ⓛ] – NEW

RGT Ponsford[Ⓛ] is a mid maturity spring wheat with a pending grade of AH/APW. It has a medium stature and moderate straw strength. Released in 2024 (tested as 16Q2H0055), bred and marketed by RAGT. Seed is available via RAGT broadacre commercial partners. EPR \$4.00 ex-GST.

ROCKSTAR[Ⓛ]

RockStar[Ⓛ] is an AH quality wheat with a mid-slow maturity. RockStar[Ⓛ] has been shown to have wide adaptability to a range of environments and sowing dates. Released in 2019 (tested as IGW4341), bred by InterGrain. Seed is available from local resellers and InterGrain Seedclub members. EPR \$3.50 ex-GST.

SCEPTER[Ⓛ]

Scepter[Ⓛ] is a mid maturing AH wheat largely derived from Mace[Ⓛ]. It is a very widely adapted variety that is suited to most May sowing dates. Released in 2015 (tested as RAC2182), bred and marketed by AGT. Seed is available from AGT affiliates, retailers or through Seed Sharing[™]. EPR \$3.25 ex-GST.

SHERIFF CL PLUS[Ⓛ]

Sheriff CL Plus[Ⓛ] is an imidazolinone-tolerant (Clearfield® Plus) APW wheat. It is mid-slow maturing and is similar to LRPB Trojan[Ⓛ] in developmental speed and can therefore be sown slightly earlier than the other Clearfield® Plus varieties. Released in 2016 (tested as IGW6155), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$4.25 ex-GST.

SHOTGUN[Ⓛ] – NEW

Shotgun[Ⓛ] is an AH variety with a mid maturity. Shotgun[Ⓛ] is derived from Scepter[Ⓛ] and is agronomically very similar. Shotgun[Ⓛ] is viewed as an alternative to Calibre[Ⓛ], Vixen[Ⓛ], RockStar[Ⓛ], LRPB Matador[Ⓛ] and Ballista[Ⓛ]. Released in 2024 (tested as RAC3227), bred and marketed by AGT. Seed is available from AGT affiliates and eligible for Seed Sharing™. EPR \$3.90 ex-GST.

SOAKER[Ⓛ]

Soaker[Ⓛ] is a single-gene, imidazolinone-tolerant APW wheat. It is a mid maturing wheat largely derived from Scepter[Ⓛ]. With agronomic characteristics similar to Scepter[Ⓛ] with the benefit of imidazolinone-tolerance, well suited to a lentil rotation and residual imidazolinone. Released in 2023 (tested as LPB19-6184), originally bred by Grains Innovation Australia with further development by LongReach Plant Breeders. Seed exclusively available through AG Schilling & Co. EPR \$3.50 ex-GST.

STOCKADE[Ⓛ]

Stockade[Ⓛ] is an APW spring wheat with a very slow maturity, similar to that of winter wheat RGT Accroc[Ⓛ]. Suited to high-rainfall zones due to its slow maturity. Released in 2022 (tested as LPB16-0598), bred by LongReach Plant Breeders. Seed is exclusively available from AGF Seeds. EPR \$3.65 ex-GST.

TOMAHAWK CL PLUS[Ⓛ]

Tomahawk CL Plus[Ⓛ] is an imidazolinone-tolerant APW wheat. It is a mid maturing wheat with a similar maturity to Scepter[Ⓛ]. It is agronomically similar to Scepter[Ⓛ] with the advantage of imidazolinone-tolerance. Released in 2023 (tested as RAC3261), bred by AGT. Seed is available from AGT affiliates. It is not eligible for AGT Seed Sharing™. EPR \$4.15 ex-GST.

VALIANT[Ⓛ] CL PLUS

Valiant[Ⓛ] CL Plus is an imidazolinone-tolerant (Clearfield® Plus) AH wheat. It is slow maturing, providing the phenology fit for sowing in April. Released in 2021 (tested as IGW4502), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$4.35 ex-GST.

VIXEN[Ⓛ]

Vixen[Ⓛ] is a quick maturity variety with an AH quality in SA. Vixen[Ⓛ] has wide adaptability across a range of environments within SA and is consistently high yielding from May sowing dates. Released in 2018 (tested as IGW4279), bred by InterGrain. Seed is available through local resellers or InterGrain Seedclub members. EPR \$3.50 ex-GST.

SOFT WHEATS**LRPB IMPALA[Ⓛ]**

LRPB Impala[Ⓛ] is a mid maturity soft biscuit (Australian Soft, ASFT) wheat targeted to eastern Australia. LRPB Impala[Ⓛ] produces large grain with low screening losses. Released in 2011 (tested as C51021) by LongReach Plant Breeders. Seed is available from Pacific Seeds. EPR \$3.50 ex-GST.

LRPB ORION[Ⓛ]

LRPB Orion[Ⓛ] is a mid-slow maturing soft biscuit (ASFT) wheat targeted to eastern Australia. It is an awnless variety with a long coleoptile. Released in 2009 (tested as LPB04-2039) by LongReach Plant Breeders. Seed is available from Pacific Seeds and is approved for farmer-to-farmer trade. EPR \$3.00 ex-GST.

LRPB ORYX[Ⓛ]

LRPB Oryx[Ⓛ] is a mid maturing soft biscuit (ASFT) wheat targeted to eastern Australia. It is a variety with large seed size and low screenings. It also has low protein accumulation, meeting the quality requirements for Allied Mills and Arnotts. Released in 2018 (tested as LPB12-0152) by LongReach Plant Breeders. Seed is available from Pacific Seeds. EPR \$3.75 ex-GST.

INTRO

WHEAT

BARLEY

OAT

CANOLA

FABA BEAN

LENTIL

FIELD PEA

CHICKPEA

LUPIN

VETCH

NOTES

Table 4: Upper Eyre Peninsula main season wheat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2019	2020	2021	2022	2023
		Mean yield (t/ha)	1.26	1.48	2.22	4.24	1.81
		No. trials	7	6	6	7	6
CONVENTIONAL							
Ballista ^{db}	AH	32	116	112	111	109	112
Boree ^{db}	AH	25	–	108	109	106	105
Brumby ^{db}	APW	19	–	–	111	106	109
Calibre ^{db}	AH	25	–	115	117	105	115
Catapult ^{db}	AH	32	100	106	107	103	103
Cosmick ^{db}	AH	32	103	101	101	99	103
Cutlass ^{db}	APW	32	89	100	94	101	100
EG Titanium	AH	25	–	96	92	99	93
Emu Rock ^{db}	AH	32	107	97	102	94	101
Genie ^{db}	AH	6	–	–	–	–	101
LRPB Dual ^{db}	AH	19	–	–	99	92	99
LRPB Major ^{db}	AH	6	–	–	–	–	101
LRPB Matador ^{db}	AH	13	–	–	–	108	111
LRPB Trojan ^{db}	APW	32	94	100	97	104	98
Mace ^{db}	AH	32	99	100	108	93	103
Reilly ^{db}	AH	13	–	–	–	103	104
RockStar ^{db}	AH	32	107	111	108	111	107
Scepter ^{db}	AH	32	105	108	113	102	109
Shotgun ^{db}	AH	6	–	–	–	–	120
Sunmaster ^{db}	APH	19	–	–	100	103	106
Vixen ^{db}	AH	32	121	110	115	109	111
Yitpi	AH	32	86	93	92	92	92
HERBICIDE TOLERANT							
Chief CL Plus ^{db}	APW	32	84	94	103	92	92
Dozer ^{db} CL Plus	APW	12	–	–	107	–	105
Hammer CL Plus ^{db}	AH	32	96	98	105	91	101
LRPB Anvil ^{db} CL Plus	AH	25	–	99	111	86	108
Razor CL Plus ^{db}	ASW	32	108	104	112	95	108
Sheriff CL Plus ^{db}	APW	32	98	100	104	101	98
Soaker ^{db*}	APW	6	–	–	–	–	107
Sunblade CL Plus ^{db}	AH	25	–	106	104	106	108
Tomahawk CL Plus ^{db}	APW	13	–	–	–	103	117
Valiant ^{db} CL Plus	AH	13	–	–	94	103	–

* = single-gene IMI. – denotes no data available.

Table 5: Lower Eyre Peninsula main season wheat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2019	2020	2021	2022	2023
		Mean yield (t/ha)	5.85	3.93	3.89	5.83	5.60
		No. trials	1	3	2	2	2
CONVENTIONAL							
Ascot ^{db}	APW	10	108	105	96	103	99
Ballista ^{db}	AH	10	109	111	108	108	106
Boa ^{db}	AH	2	–	–	–	–	107
Boree ^{db}	AH	9	–	108	107	105	105
Brumby ^{db}	APW	6	–	–	113	107	110
Calibre ^{db}	AH	9	–	107	115	107	109
Catapult ^{db}	AH	10	97	105	108	104	106
Cosmick ^{db}	AH	10	99	97	100	99	99
Cutlass ^{db}	APW	10	88	98	101	104	103
Denison ^{db}	APW	6	–	–	111	106	109
EG Titanium	AH	9	–	91	95	99	97
Emu Rock ^{db}	AH	10	109	98	98	94	97
Genie ^{db}	AH	2	–	–	–	–	98
Kingston ^{db}	AH	9	–	120	102	107	105
LRPB Cobra ^{db}	AH	8	106	104	91	102	–
LRPB Dual ^{db}	AH	6	–	–	97	94	95
LRPB Major ^{db}	AH	2	–	–	–	–	101
LRPB Matador ^{db}	AH	4	–	–	–	107	108
LRPB Trojan ^{db}	APW	10	99	105	101	104	103
Mace ^{db}	AH	10	101	103	109	96	105
Reilly ^{db}	AH	9	–	97	96	100	95
RockStar ^{db}	AH	10	103	111	108	110	107
Scepter ^{db}	AH	10	105	112	114	104	110
Shotgun ^{db}	AH	2	–	–	–	–	115
Sunmaster ^{db}	APH	6	–	–	107	106	108
Vixen ^{db}	AH	10	123	118	109	105	107
Yitpi	AH	10	84	87	95	94	96
Zen ^{db}	FEED	10	96	101	109	95	106
HERBICIDE TOLERANT							
Chief CL Plus ^{db}	APW	10	95	103	107	96	106
Dozer ^{db} CL Plus	APW	2	–	–	–	–	103
Hammer CL Plus ^{db}	AH	9	–	94	105	94	101
LRPB Anvil ^{db} CL Plus	AH	6	–	–	108	91	102
Razor CL Plus ^{db}	ASW	10	106	104	110	97	105
Sheriff CL Plus ^{db}	APW	10	103	106	103	101	103
Soaker ^{db*}	APW	2	–	–	–	–	109
Sunblade CL Plus ^{db}	AH	9	–	109	106	106	105
Tomahawk CL Plus ^{db}	APW	4	–	–	–	106	117
Valiant ^{db} CL Plus	AH	9	–	100	97	103	100

* = single-gene IMI. – denotes no data available.

Table 6: Yorke Peninsula main season wheat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2019	2020	2021	2022	2023
		Mean yield (t/ha)	3.18	3.53	4.14	6.22	4.10
		No. trials	4	3	4	3	4
CONVENTIONAL							
Ascot ^{db}	APW	18	101	102	100	103	99
Ballista ^{db}	AH	18	113	109	109	107	107
Boa ^{db}	AH	4	–	–	–	–	108
Boree ^{db}	AH	14	–	107	108	104	107
Brumby ^{db}	APW	11	–	–	108	108	110
Calibre ^{db}	AH	14	–	108	110	105	109
Catapult ^{db}	AH	18	104	105	105	104	106
Cosmick ^{db}	AH	18	101	99	99	99	99
Cutlass ^{db}	APW	18	97	99	94	107	99
Denison ^{db}	APW	14	–	106	105	107	108
EG Titanium	AH	14	–	96	95	100	96
Emu Rock ^{db}	AH	18	99	97	100	92	98
Genie ^{db}	AH	4	–	–	–	–	99
Kingston ^{db}	AH	14	–	109	108	107	108
LRPB Dual ^{db}	AH	11	–	–	96	93	95
LRPB Major ^{db}	AH	4	–	–	–	–	101
LRPB Matador ^{db}	AH	7	–	–	–	105	111
LRPB Trojan ^{db}	APW	18	100	103	100	106	102
Mace ^{db}	AH	18	100	99	103	96	104
Reilly ^{db}	AH	14	–	100	101	99	97
RockStar ^{db}	AH	18	110	110	108	109	108
Scepter ^{db}	AH	18	108	106	107	104	109
Shotgun ^{db}	AH	4	–	–	–	–	115
Sunmaster ^{db}	APH	11	–	–	98	108	104
Vixen ^{db}	AH	18	114	111	114	103	110
Yitpi	AH	18	90	92	92	95	94
Zen ^{db}	FEED	18	95	96	98	96	103
HERBICIDE TOLERANT							
Chief CL Plus ^{db}	APW	18	94	98	101	97	105
Dozer ^{db} CL Plus	APW	4	–	–	–	–	106
Hammer CL Plus ^{db}	AH	14	–	96	99	94	100
LRPB Anvil ^{db} CL Plus	AH	14	–	95	100	90	100
Razor CL Plus ^{db}	ASW	18	105	101	105	96	105
Sheriff CL Plus ^{db}	APW	18	101	103	104	100	105
Soaker ^{db*}	APW	4	–	–	–	–	108
Sunblade CL Plus ^{db}	AH	18	107	105	102	107	104
Tomahawk CL Plus ^{db}	APW	7	–	–	–	106	115
Valiant ^{db} CL Plus	AH	14	–	100	97	104	98

* = single-gene IML. – denotes no data available.

Table 7: Mid North main season wheat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2019	2020	2021	2022	2023
		Mean yield (t/ha)	2.82	5.14	4.59	6.51	3.44
		No. trials	4	4	4	4	3
CONVENTIONAL							
Ascot ^{db}	APW	19	98	102	100	100	99
Ballista ^{db}	AH	19	112	110	109	109	106
Boa ^{db}	AH	3	–	–	–	–	104
Boree ^{db}	AH	15	–	106	106	106	103
Brumby ^{db}	APW	11	–	–	108	108	106
Calibre ^{db}	AH	15	–	108	111	111	108
Catapult ^{db}	AH	19	106	103	105	105	102
Cosmick ^{db}	AH	19	100	100	100	100	101
Cutlass ^{db}	APW	19	93	96	101	101	97
Denison ^{db}	APW	15	–	103	107	107	102
EG Titanium	AH	15	–	96	98	98	94
Emu Rock ^{db}	AH	19	101	99	96	96	103
Genie ^{db}	AH	3	–	–	–	–	97
Kingston ^{db}	AH	15	–	107	103	103	102
LRPB Bale ^{db}	APW	11	–	–	91	91	87
LRPB Dual ^{db}	AH	11	–	–	97	97	98
LRPB Major ^{db}	AH	7	–	–	–	–	98
LRPB Matador ^{db}	AH	7	–	–	–	–	107
LRPB Oryx ^{db}	ASFT	5	–	–	96	96	99
LRPB Trojan ^{db}	APW	19	98	100	102	102	98
Mace ^{db}	AH	19	105	97	99	99	105
Reilly ^{db}	AH	15	–	104	101	101	100
RGT Zanzibar	FEED	19	84	99	99	99	91
RockStar ^{db}	AH	19	109	108	109	109	103
Scepter ^{db}	AH	19	110	103	106	106	108
Shotgun ^{db}	AH	3	–	–	–	–	113
Sunmaster ^{db}	APH	11	–	–	101	101	104
Vixen ^{db}	AH	19	115	111	107	107	109
Yitpi	AH	19	91	92	95	95	95
Zen ^{db}	FEED	19	99	92	96	96	103
HERBICIDE TOLERANT							
Chief CL Plus ^{db}	APW	19	100	94	98	98	101
Dozer ^{db} CL Plus	APW	3	–	–	–	–	103
Hammer CL Plus ^{db}	AH	15	–	95	98	98	103
LRPB Anvil ^{db} CL Plus	AH	11	–	–	96	96	109
Razor CL Plus ^{db}	ASW	19	108	100	101	101	108
Sheriff CL Plus ^{db}	APW	19	104	102	101	101	101
Soaker ^{db*}	APW	3	–	–	–	–	107
Sunblade CL Plus ^{db}	AH	19	103	104	104	104	104
Tomahawk CL Plus ^{db}	APW	7	–	–	–	–	114
Valiant ^{db} CL Plus	AH	15	–	99	100	100	97

* = single-gene IMI. – denotes no data available.

Table 8: Murray Mallee main season wheat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2019	2020	2021	2022	2023
		Mean yield (t/ha)	1.33	3.05	1.49	3.30	2.43
		No. trials	6	6	4	5	6
CONVENTIONAL							
Ballista ^{db}	AH	27	111	111	110	111	109
Boree ^{db}	AH	21	–	107	106	103	105
Brumby ^{db}	APW	15	–	–	106	105	111
Calibre ^{db}	AH	21	–	113	114	108	116
Catapult ^{db}	AH	27	109	105	103	100	105
Cosmick ^{db}	AH	27	101	100	102	102	103
Cutlass ^{db}	APW	27	107	101	95	105	100
EG Titanium	AH	21	–	97	95	97	93
Emu Rock ^{db}	AH	27	90	96	102	95	101
Genie ^{db}	AH	6	–	–	–	–	96
LRPB Dual ^{db}	AH	15	–	–	101	95	99
LRPB Major ^{db}	AH	6	–	–	–	–	101
LRPB Matador ^{db}	AH	6	–	–	–	–	111
LRPB Scout ^{db}	AH	27	101	101	104	108	97
LRPB Trojan ^{db}	APW	27	103	101	96	102	98
Mace ^{db}	AH	27	98	99	101	92	107
Reilly ^{db}	AH	11	–	–	–	107	100
RockStar ^{db}	AH	27	114	110	106	109	106
Scepter ^{db}	AH	27	108	107	106	101	112
Shotgun ^{db}	AH	6	–	–	–	–	121
Sunmaster ^{db}	APH	15	–	–	97	108	106
Vixen ^{db}	AH	27	102	109	110	105	109
Yitpi	AH	27	98	93	94	93	94
HERBICIDE TOLERANT							
Chief CL Plus ^{db}	APW	27	96	96	93	84	99
Dozer ^{db} CL Plus	APW	10	–	–	107	–	103
Hammer CL Plus ^{db}	AH	27	100	98	100	92	105
LRPB Anvil ^{db} CL Plus	AH	15	–	–	105	93	111
Razor CL Plus ^{db}	ASW	27	100	102	106	97	111
Sheriff CL Plus ^{db}	APW	27	99	101	99	95	100
Soaker ^{db*}	APW	6	–	–	–	–	110
Sunblade CL Plus ^{db}	AH	27	105	106	103	109	106
Tomahawk CL Plus ^{db}	APW	11	–	–	–	104	121
Valiant ^{db} CL Plus	AH	9	–	–	96	103	–

* = single-gene IMI. – denotes no data available.

Table 9: South East main season wheat yield performance. NVT data 2019–23. Data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2019	2020	2021	2022	2023
		Mean yield (t/ha)	6.78	5.12	0.00	6.17	3.88
		No. trials	2	1	0	1	1
CONVENTIONAL							
Ballista [Ⓛ]	AH	3	110	108	Data not available	109	107
Beckom [Ⓛ]	AH	7	103	102		112	104
Boa [Ⓛ]	AH	1	–	–		–	106
Calibre [Ⓛ]	AH	1	–	107		103	111
Catapult [Ⓛ]	AH	6	103	103		98	105
Cutlass [Ⓛ]	APW	7	99	97		110	98
Denison [Ⓛ]	APW	1	–	104		102	107
Emu Rock [Ⓛ]	AH	7	96	98		94	100
Genie [Ⓛ]	AH	1	–	–		–	97
LRPB Beaufort [Ⓛ]	FEED	6	104	102		–	–
LRPB Major [Ⓛ]	AH	2	–	–		103	100
LRPB Matador [Ⓛ]	AH	2	–	–		102	110
LRPB Scout [Ⓛ]	AH	7	103	101		–	–
LRPB Trojan [Ⓛ]	APW	7	104	102		105	100
Mace [Ⓛ]	AH	7	95	99		91	106
RGT Zanzibar	FEED	7	110	101		128	90
RockStar [Ⓛ]	AH	6	110	108		109	106
Scepter [Ⓛ]	AH	7	103	104		101	110
Shotgun [Ⓛ]	AH	1	–	–		–	115
Vixen [Ⓛ]	AH	6	111	110		103	109
Wyalkatchem [Ⓛ]	APW	7	99	99		–	–
Yitpi [Ⓛ]	AH	7	91	93		92	95
HERBICIDE TOLERANT							
Chief CL Plus [Ⓛ]	APW	7	94	97	Data not available	84	103
Hammer CL Plus [Ⓛ]	AH	1	–	96		89	103
Razor CL Plus [Ⓛ]	ASW	7	97	100		95	107
Sheriff CL Plus [Ⓛ]	APW	6	102	103		94	103
Soaker ^{Ⓛ*}	APW	1	–	–		–	108
Tomahawk CL Plus [Ⓛ]	APW	2	–	–		103	116
Valiant [Ⓛ] CL Plus	AH	1	–	99		107	97

* = single-gene IMI. – denotes no data available.

YIELD PERFORMANCE EXPERIMENTS FROM 2019–23

The yield results presented are multi-environment trial (MET) data shown on a yearly regional group mean and an overall performance mean for the region. All yields are expressed as a percentage of mean yield from NVT data 2019–23 inclusive, along with some observations in adjacent columns.

Further results can be found on the NVT website (nvt.grdc.com.au).

GRAIN QUALITY FROM 2019–23

Grain quality for individual varieties varies between years. However, the trends across sites for a single year tend to be more consistent for a variety. Long-term results highlight trends in variety performance and consistency across seasons. Tables 10 and 18 summarise the variation in test weight for bread wheat and durum wheat varieties, respectively. Test weight is expressed as the mean test weight from NVT data 2019 to 2023 inclusive. Table 19 summarises the variation in screening percentages in durum wheat varieties. Screenings are expressed as the mean percentage of grain less than 2mm in size from NVT data 2019 to 2023 inclusive, along with some observations in adjacent columns.

Further results can be found on the NVT website (nvt.grdc.com.au).

Table 10: South Australian wheat test weight performance. NVT data 2019–23.

Variety	Classification	Year	Test weight (kg/hectolitre)				
			2019	2020	2021	2022	2023
			No. trials	22	23	20	21
CONVENTIONAL							
Ascot ^{db}	APW	48	82.88	81.17	79.37	81.50	82.68
Ballista ^{db}	AH	108	81.58	80.90	79.43	79.25	82.20
Boa ^{db}	AH	10	–	–	–	–	82.25
Brumby ^{db}	APW	63	–	–	80.54	79.70	82.22
Calibre ^{db}	AH	86	–	80.22	79.44	79.01	81.73
Catapult ^{db}	AH	108	82.72	82.18	81.67	80.55	82.66
Cutlass ^{db}	APW	108	82.42	82.06	81.12	80.25	82.30
Denison ^{db}	APW	37	–	82.01	82.23	80.09	82.42
Genie ^{db}	AH	22	–	–	–	–	83.20
Kingston ^{db}	AH	39	–	81.85	82.53	82.21	83.38
LRPB Bale ^{db}	APW	11	–	–	85.47	–	84.56
LRPB Dual ^{db}	AH	63	–	–	81.87	–	83.29
LRPB Major ^{db}	AH	27	–	–	–	81.92	83.37
LRPB Matador ^{db}	AH	38	–	–	–	80.38	82.53
Reilly ^{db}	AH	63	–	82.04	82.41	81.41	83.90
RockStar ^{db}	AH	108	81.74	81.81	80.18	79.95	82.03
Scepter ^{db}	AH	108	82.97	82.01	81.17	80.48	83.30
Shotgun ^{db}	AH	22	–	–	–	–	82.61
Vixen ^{db}	AH	108	81.31	80.49	79.11	78.24	82.80
HERBICIDE TOLERANT							
Hammer CL Plus ^{db}	AH	97	81.53	81.28	81.00	80.21	83.05
LRPB Anvil ^{db} CL Plus	AH	72	–	81.31	82.17	79.92	84.23
Sheriff CL Plus ^{db}	APW	108	81.96	81.86	80.72	80.74	82.49
Soaker ^{db*}	APW	22	–	–	–	–	83.62
Tomahawk CL Plus ^{db}	APW	43	–	–	–	80.60	83.37
Valiant ^{db} CL Plus	AH	62	–	82.34	82.14	82.38	82.98

* = single-gene IMI. – denotes no data available.

WINTER WHEAT VARIETY NOTES

Winter wheats may facilitate early germination opportunities prior to 20 April in frost-prone environments. Winter wheats have an obligate requirement for cold (vernalisation) in order to flower. While limited yield data is provided in this guide, new varieties and breeding lines continue to be trialled in early sown NVT and agronomy trials supported by GRDC. Further information on variety performance and agronomy can be found as part of GRDC's 'Management of Early Sown Wheat' and 'Hyper Yielding Cereals' projects.

Table 11: South East long season wheat yield performance. NVT data 2020–23. Data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2020	2021	2022	2023
		Mean yield (t/ha)	6.17	0.00	5.80	6.33
		No. trials	1	0	1	1
CONVENTIONAL						
Anapurna	FEED	3	111		129	112
BigRed ^{db}	FEED	2	–		127	115
Denison ^{db}	APW	2	100		79	–
DS Bennett ^{db}	ASW	3	101		84	111
EGA Wedgetail ^{db}	APW	3	87		78	85
Illabo ^{db}	AH	3	101		100	95
Longford ^{db}	FEED	2	–		131	115
Longsword ^{db}	AWW	3	101		97	86
LRPB Beaufort ^{db}	FEED	3	117		117	111
LRPB Nighthawk ^{db}	APW	3	92	Data not available	94	87
Manning ^{db}	FEED	3	108		108	115
RGT Accroc ^{db}	FEED	3	114		119	124
RGT Calabro	FEED	3	118		124	121
RGT Cesario ^{db}	FEED	2	–		119	118
RGT Waugh ^{db}	FEED	2	–		130	113
RGT Zanzibar	FEED	3	112		112	104
Severn ^{db}	FEED	2	–		100	94
Stockade ^{db}	APW	2	–		108	107
Willaura ^{db}	AH	2	–		90	106
HERBICIDE TOLERANT						
Valiant ^{db} CL Plus	AH	2	–	–	83	88

– denotes no data available.

MILLING WHEATS

DS BENNETT[Ⓛ]

DS Bennett[Ⓛ] is a slow white winter wheat with an Australian Standard White (ASW) classification. It has a slow growth pattern and is suited to early sowing (from mid-March) in longer growing season environments. Its awnless characteristic and winter growth type means it can be used as a dual-purpose crop for grazing and grain, as well as being suited for hay. Released in 2018 (tested as ADV11.9419), bred by S&W Seeds. Seed is available from Seednet partners. EPR \$4.25 ex-GST.

ILLABO[Ⓛ]

Illabo[Ⓛ] is an AH white wheat with a mid winter maturity. It was released in 2018 by AGT and has an AH classification in SA. It can be sown early due to its vernalisation requirement, with its slower maturity lending it to grazing opportunities. Primarily suited to medium to high-rainfall zones with a mid-long growing season. Illabo[Ⓛ] is a uniquely placed variety as it is the only AH winter wheat available in SA. Released in 2018 (tested as V09150-01), bred and marketed by AGT. Seed is available from AGT affiliates, retailers or through Seed Sharing™. EPR \$3.50 ex-GST.

Table 12: South East early season wheat yield performance. NVT data 2019–23. Data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Year	2019	2020	2021	2022	2023
		Mean yield (t/ha)	8.11	6.39	0.00	5.29	6.24
		No. trials	1	1	0	1	1
CONVENTIONAL							
Ascot [Ⓛ]	APW	3	–	103		101	98
Beckom [Ⓛ]	AH	4	98	102		92	93
BigRed [Ⓛ]	FEED	2	–	–		140	124
Catapult [Ⓛ]	AH	4	96	102		88	93
Coota [Ⓛ]	AH	4	95	101		87	90
Cutlass [Ⓛ]	APW	4	89	95		86	96
Denison [Ⓛ]	APW	4	94	101		88	95
DS Bennett [Ⓛ]	ASW	4	105	103		110	112
DS Pascal [Ⓛ]	APW	4	103	103		104	98
EG Jet [Ⓛ]	APW	4	108	107		112	103
EG Titanium	AH	4	89	90		83	90
EGA Wedgetail [Ⓛ]	APW	4	89	88		91	96
Illabo [Ⓛ]	AH	4	103	102		107	99
Longford [Ⓛ]	FEED	1	–	–		138	–
Longsword [Ⓛ]	AWW	4	93	99		91	92
LRPB Beaufort [Ⓛ]	FEED	4	112	114	Data not available	118	112
LRPB Major [Ⓛ]	AH	2	–	–		99	98
LRPB Nighthawk [Ⓛ]	APW	4	95	95		99	97
LRPB Trojan [Ⓛ]	APW	4	96	100		88	91
Manning [Ⓛ]	FEED	4	117	97		126	114
Mowhawk [Ⓛ]	APW	1	–	–		111	–
RGT Accroc [Ⓛ]	FEED	4	123	111		134	123
RGT Calabro	FEED	4	121	109		131	117
RGT Cesario [Ⓛ]	FEED	3	–	108		132	122
RGT Waugh [Ⓛ]	FEED	3	–	110		140	117
RGT Zanzibar	FEED	4	109	114		116	107
RockStar [Ⓛ]	AH	4	110	114		106	101
Severn [Ⓛ]	FEED	2	–	–		110	102
Stockade [Ⓛ]	APW	2	–	–		115	109
Sunflex [Ⓛ]	AH	4	98	102		99	92
Willaura [Ⓛ]	AH	2	–	–		96	111
HERBICIDE TOLERANT							
Sheriff CL Plus [Ⓛ]	APW	4	96	101		89	90
Valiant [Ⓛ] CL Plus	AH	3	–	104		101	100

– denotes no data available.

LONGFORD[Ⓛ]

Longford[Ⓛ] is a FEED (Australian Feed) quality, awned, red-grained winter wheat with a slow maturity. It is suitable for dual-purpose applications when early sowing is possible. Released in 2023 (tested as AGFWH004818), bred by AGF Seeds. Seed is available from AGF Seeds. EPR \$3.85 ex-GST.

LONGSWORD[Ⓛ]

Longsword[Ⓛ] is a quick, winter maturing variety and classified as an Australian White Wheat (AWW). Its quick winter development means that once its vernalisation requirement is met it is very fast to flower. It is most suited to April sowing dates. Released in 2017 (tested as RAC2341), bred and marketed by AGT. Seed is available from AGT affiliates, retailers or through Seed Sharing™. EPR \$2.75 ex-GST.

MOWHAWK[Ⓛ]

Mowhawk[Ⓛ] is a quick winter wheat with an APW classification. It has a vernalisation requirement, but it is quick to flower and mature once the vernalisation requirements have been met. Mowhawk[Ⓛ] has a similar development pattern to Longsword[Ⓛ] and is suited to early sowing in warmer environments. Released in 2023 (tested as LPB19-14343) by LongReach Plant Breeders. Seed is available through LongReach Seed Growers. EPR \$4.00 ex-GST.

FEED WINTER WHEATS**ANAPURNA**

Anapurna is red feed wheat with a slow maturity. It is an imported European variety introduced by AGT in collaboration with Field Applied Research (FAR) Australia as part of the 'Hyper Yielding Cereals' project. Anapurna is most suited to a long growing season in the high-rainfall zones of SA. It is best suited to early planting and provides grazing opportunities from early sowing in high-rainfall environments. Anapurna has long vegetative growth phases and similar maturity to RGT Accroc[Ⓛ]. Released in 2020. Seed is available from AGT affiliates, retailers or through Seed Sharing™. EPR \$3.20 ex-GST.

BIGRED[Ⓛ]

BigRed[Ⓛ] is a mid-slow maturing red feed winter wheat. Suited for the medium to high-rainfall zones and performs well under irrigation. It can be used as a dual-purpose variety when early sowing is achieved. Released in 2022 (tested as AGFWH004718), bred by AGF Seeds. Seed is available from AGF Seeds and through participating resellers. EPR \$3.65 ex-GST.

Table 13: Upper Eyre Peninsula and Murray Mallee early season wheat yield performance. NVT data 2020–23. Murray Mallee data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Classification	Upper Eyre Peninsula					Murray Mallee			
		Year	2020	2021	2022	2023	Year	2020	2022	2023
		Mean yield (t/ha)	1.99	3.94	4.63	2.14	Mean yield (t/ha)	3.72	3.02	3.52
	No. trials	1	1	1	1	No. trials	1	2	2	
CONVENTIONAL										
Catapult [Ⓛ]	AH	4	102	103	97	113	5	113	98	97
Cutlass [Ⓛ]	APW	4	101	103	104	105	5	108	104	100
Denison [Ⓛ]	APW	4	104	108	103	113	5	113	103	104
DS Bennett [Ⓛ]	ASW	4	114	97	117	81	5	122	115	93
Illabo [Ⓛ]	AH	4	105	102	104	92	5	96	102	106
Longsword [Ⓛ]	AWW	4	109	106	90	99	5	92	86	109
LRPB Bale [Ⓛ]	APW	3	–	87	99	82	4	–	102	94
LRPB Nighthawk [Ⓛ]	APW	4	107	97	92	92	5	99	90	96
Mowhawk [Ⓛ]	APW	1	–	–	108	–	2	–	106	–
RockStar [Ⓛ]	AH	4	99	103	112	111	5	118	113	98
Stockade [Ⓛ]	APW	2	–	–	119	98	2	–	118	–
Yitpi	AH	4	90	95	96	96	5	84	98	99
HERBICIDE TOLERANT										
Sheriff CL Plus [Ⓛ]	APW	4	92	91	89	101	5	93	92	90
Valiant [Ⓛ] CL Plus	AH	3	–	106	109	108	4	–	109	105

– denotes no data available.

MANNING[Ⓛ]

Manning[Ⓛ] is a very slow maturing winter wheat, classified as a white feed wheat in SA. It is an awnless type and its slow growth pattern enables dual-purpose uses, including grazing, while still maintaining high yield potential. Best suited to high-rainfall environments with a long growing season, Manning[Ⓛ] provides competitive high yields within those environments. Released in 2013 (CS9274). Seed is available from GrainSearch affiliates or contact GrainSearch for more details. EPR \$3.50 ex-GST.

RGT ACCROC[Ⓛ]

RGT Accroc[Ⓛ] is a slow maturity red winter wheat, feed grain quality. It is suited to the high-rainfall zone and for sowing late February to early April for early grazing. Very high yielding variety with good options for grazing and grain production. Released in 2016 (tested as SFR86-054). Seed is available via RAGT broadacre commercial partners. EPR \$4.00 ex-GST.

RGT CALABRO

RGT Calabro is a slow maturing, red feed grain, awned winter wheat. Well suited to the long growing seasons of the high-rainfall zone. It has a very high yield potential and performs well from sowing in late February to March with potential for early grazing. Released in 2017 (tested as SFR86-036). Seed is available via RAGT broadacre commercial partners. EPR \$4.00 ex-GST.

RGT CESARIO[Ⓛ]

RGT Cesario[Ⓛ] is a slow maturing red winter wheat. It is an awnless variety that has very high yield potential in high-rainfall zones of SA with a long growing season. Well suited to early grazing combined with the high yield make it a variety well suited to dual-purpose uses. Released in 2021 (tested as SFR86-090). Seed is available via RAGT broadacre commercial partners. EPR \$4.00 ex-GST.

RGT WAUGH[Ⓛ] – NEW

RGT Waugh[Ⓛ] is an awned, slow maturity white winter wheat that is feed quality. Suited for medium to high-rainfall zones and production under irrigation. Suitable for dual-purpose applications when early sowing is possible. Released in 2022 (tested as SFR86-085), bred and marketed by RAGT. Seed is available via RAGT broadacre commercial partners. EPR \$4.00 ex-GST.

DURUM WHEAT VARIETY NOTES

There are no released durum varieties suited for earlier planting. The development speed of durum varieties was compared with Scepter[Ⓛ] and LRPB Trojan[Ⓛ] in time-of-sowing trials across a range of dates in May at Loxton and Tarlee in SA in the 2018 season (SAGIT-funded project S518). From these trials, most of the durum varieties were characterised as quick-mid or mid maturing within the range of Scepter[Ⓛ] and LRPB Trojan[Ⓛ] and therefore suited to early-mid May sowing in SA.

BITALLI[Ⓛ]

Bitalli[Ⓛ] is a quick-mid maturity wheat, slightly slower than Saintly[Ⓛ], which is eligible for Australian Premium Durum (ADR) classification in SA. Bitalli[Ⓛ] is widely adapted and well suited to durum growing regions across the Mid North and Yorke Peninsula. Bitalli[Ⓛ] offers good physical grain characteristics including low screenings and good test weights. Released in 2019 (tested as AGTD088), bred and marketed by AGT. Seed is available through AGT affiliates, retailers or through Seed Sharing™. EPR \$3.50 ex-GST.

DBA-AURORA[Ⓛ]

DBA-Aurora[Ⓛ] is a quick-mid maturity variety that is eligible for ADR in SA. DBA-Aurora[Ⓛ] has grain size and screening levels consistent with other varieties available. Released in 2014 (tested as UAD0951096) from Durum Breeding Australia's Southern Node (University of Adelaide). Seed is available through farmer-to-farmer trade. EPR \$3.00 ex-GST.

PATRON[Ⓛ]

Patron[Ⓛ] is a quick-mid maturity variety that is eligible for ADR in SA. It is a high-yielding variety that has good grain quality characteristics. It is best suited to the medium-high yield potential environments of SA. Released in 2022 (tested as AGTD109), bred and marketed by AGT. Seed is available through AGT affiliates, retailers or through Seed Sharing™. EPR \$4.00 ex-GST.

Table 14: Suitable durum wheat varieties for planting in South Australia.

Variety	Maximum grade	Maturity classification	EPR (\$/t)	Release	Breeder
Bitalli ^{db}	ADR	Q-M	3.50	2019	AGT
DBA-Aurora ^{db}	ADR	Q-M	3.00	2014	University of Adelaide
Patron ^{db}	ADR	Q-M	4.00	2022	AGT
Saintly ^{db}	ADR	Q	3.00	2008	AGT

Maximum grade: ADR = Australia Premium Durum. Maturity classification: Q = quick, Q-M = quick-mid.

Table 15: Disease responses of durum wheat varieties and reaction to common disorders.

Variety	Rust			Septoria tritici blotch	Yellow leaf spot	Powdery mildew	Black point	CCN	Crown rot
	Stem	(2024 East Coast) Stripe	Leaf						
Bitalli ^{db}	RMR	–	MR	MSS	MRMS	S	MS	MSS	SVS
DBA-Aurora ^{db}	RMR	MRMS	RMR	MRMS/S	MRMS	MSS	MS	MSS	SVS
Patron ^{db}	RMR	MRMS	MR#	MRMS	MRMS	MSS	MSS	S	SVS
Saintly ^{db}	MS	MRMS	RMR	MRMS/S	MRMS	S	MS	MS	VS (P)

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible. – denotes no data available.

/ = pathotype differences (the second score after a / is the response to a rarer strain), # = may be more susceptible to alternate pathotypes (warning), (P) = provisional rating.

Black point is not a disease but is a physiological response to certain humid conditions.

Disease resistance ratings should not be compared across different diseases. Each disease has its own severity and risk level, so the severity and management options for one disease may differ to those for another disease, even if the variety has the same rating for both diseases.

Information on disease reaction was supplied by the Cereal Pathology Group (SARDI) under the GRDC NVT Pathology investment DAS1905-013SAX. Contact Dr Tara Garrard: tara.garrard@sa.gov.au

Table 16: Yorke Peninsula durum wheat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.71	3.74	3.13	5.93	3.07
	No. trials	3	2	3	2	3
Bitalli ^{db}	13	108	103	105	104	103
DBA Spes	13	96	103	101	98	97
DBA Vittaroi ^{db}	13	100	99	103	93	103
DBA-Artemis ^{db}	13	94	104	98	104	93
DBA-Aurora ^{db}	13	99	104	104	99	98
Patron ^{db}	8	–	–	109	114	100
Saintly ^{db}	13	100	95	100	94	104
Westcourt ^{db}	13	101	101	97	107	98

– denotes no data available.

Table 17: Mid North durum wheat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	3.16	5.08	5.05	7.14	4.09
	No. trials	3	3	3	3	2
Bitalli [Ⓛ]	14	105	104	103	107	102
DBA Spes	12	96	105	105	102	–
DBA Vittaroi [Ⓛ]	12	97	104	102	97	–
DBA-Artemis [Ⓛ]	14	97	102	104	105	98
DBA-Aurora [Ⓛ]	14	98	107	106	104	98
Patron [Ⓛ]	8	–	–	109	122	104
Saintly [Ⓛ]	14	99	97	96	92	100
Westcourt [Ⓛ]	14	103	96	98	103	102

– denotes no data available.

Table 18: Mid North and Yorke Peninsula durum wheat test weight performance. NVT data 2019–23.

Variety	Test weight (kg/hectolitre)											
	Mid North						Yorke Peninsula					
	Year	2019	2020	2021	2022	2023	Year	2019	2020	2021	2022	2023
	No. trials	3	3	3	3	2	No. Trials	3	2	3	2	2
Bitalli [Ⓛ]	14	82.2	84.2	83.7	81.9	84.5	12	81.9	80.9	79.7	79.0	79.1
DBA Spes	12	80.3	82.8	82.6	80.7	–	12	80.6	77.7	77.7	75.2	78.7
DBA-Artemis [Ⓛ]	14	81.0	83.1	83.5	81.0	81.4	12	81.4	77.8	79.4	76.2	77.8
DBA-Aurora [Ⓛ]	14	81.3	82.7	82.8	81.0	81.6	12	80.8	78.9	79.2	70.7	77.0
Patron [Ⓛ]	8	–	–	83.8	81.4	82.6	7	–	–	80.0	77.3	78.2
Westcourt [Ⓛ]	14	82.2	84.1	84.3	82.0	84.4	12	83.1	80.4	81.7	79.8	79.9

– denotes no data available.

Table 19: Mid North and Yorke Peninsula durum wheat screenings performance. NVT data 2019–23.

Variety	Screenings (% < 2.00mm)											
	Mid North						Yorke Peninsula					
	Year	2019	2020	2021	2022	2023	Year	2019	2020	2021	2022	2023
	No. trials	3	3	3	3	2	No. Trials	3	2	3	2	2
Bitalli [Ⓛ]	14	4.31	0.44	1.96	0.56	2.26	12	1.33	1.65	2.15	0.77	2.16
DBA Spes	12	4.36	0.97	2.58	0.60	–	12	2.46	1.78	2.97	1.17	1.80
DBA-Artemis [Ⓛ]	14	3.93	1.32	1.79	0.64	4.94	12	1.95	2.79	2.35	1.34	5.39
DBA-Aurora [Ⓛ]	14	3.59	1.10	1.84	0.53	4.80	12	2.36	2.13	2.12	1.17	1.88
Patron [Ⓛ]	8	–	–	1.28	0.50	5.12	7	–	–	1.43	0.99	3.03
Westcourt [Ⓛ]	14	1.50	0.39	0.81	0.30	1.06	12	0.51	0.71	0.81	0.42	0.87

– denotes no data available.

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Thanks to all contributors of previous versions of this sowing guide. Without them, we would not have the refined sowing guide we have today.

BARLEY

By Jacob Nickolai and Tara Garrard, SARDI

This sowing guide provides data and guidance on the most suitable barley varieties for sowing in South Australia in 2025. Since publication of the 2024 guide, Bigfoot CL[Ⓛ], Granite[Ⓛ] CL and PegasusAX[Ⓛ] have been released, with a suite of potential varieties undergoing malt accreditation.

These newly released varieties have not necessarily been included in the NVT release pathway. As such, there is no NVT disease or yield data available. Contact your local seed marketer or breeder for more detail on these varieties. This includes Granite[Ⓛ] CL and IGB21130. Previously unavailable

NVT data for varieties Neo[Ⓛ] CL and Newton is now available for both yield and disease ratings.

The decision to grow a malting or feed variety may depend on one or more factors, such as:

- market demand and malting varietal storage segregations in bulk storage facilities;
- the difference in payments between malting and feed grades compared with yield differences;
- the likelihood of producing a malting-grade barley within malt receival specifications; and
- disease resistance and agronomic considerations.

Table 1: Suitable barley varieties for planting in South Australia, listed according to herbicide tolerance in alphabetical order.

Variety	Maximum grade	Maturity classification	Herbicide tolerance	EPR (\$/t)	Release	Breeder
CONVENTIONAL						
Beast [Ⓛ]	Feed	VQ	–	4.00	2020	AGT
Buff [Ⓛ]	Feed	Q	–	3.50	2018	InterGrain
Combat [Ⓛ]	Feed	VQ-Q	–	3.50	2022	InterGrain
Compass [Ⓛ]	Malt	VQ-Q	–	3.80	2015	University of Adelaide
Cyclops [Ⓛ]	Feed	VQ-Q	–	4.00	2021	AGT
Fathom [Ⓛ]	Feed	Q	–	2.00	2014	University of Adelaide
IGB21130	Feed	S	–	TBD	2025	InterGrain
La Trobe [Ⓛ]	Malt	VQ-Q	–	4.00	2013	InterGrain
Laperouse [Ⓛ]	Feed	VQ-Q	–	3.80	2020	University of Adelaide/Secobra
Leabrook [Ⓛ]	Malt	VQ-Q	–	3.80	2019	University of Adelaide
Minotaur [Ⓛ]	Malt	Q	–	4.00	2021	AGT
Newton	Feed	M (+W)	–	3.50	2023	Secobra
RGT Atlantis [Ⓛ]	Pending	Q	–	4.00	2024	RAGT
RGT Planet [Ⓛ]	Malt	Q	–	4.00	2017	RAGT
Rosalind [Ⓛ]	Feed	VQ-Q	–	3.50	2015	InterGrain
Spinnaker [Ⓛ]	Feed	VQ-Q	–	4.00	2024	Secobra
HERBICIDE TOLERANT						
Bigfoot CL [Ⓛ]	Feed	Q-M	Imidazolinone	4.35	2024	AGT
Commodus [Ⓛ] CL	Malt	VQ-Q	Imidazolinone	4.25	2021	InterGrain/GIA
Granite [Ⓛ] CL	Feed	Q-M	Imidazolinone	3.90	2024	InterGrain
Maximus [Ⓛ] CL	Malt	VQ-Q	Imidazolinone	4.25	2020	InterGrain
Neo [Ⓛ] CL	Feed	Q	Imidazolinone	4.25	2023	InterGrain
PegasusAX [Ⓛ]	Feed	Q-M	Group 1/A	4.15	2024	AGT
Spartacus CL [Ⓛ]	Malt	VQ-Q	Imidazolinone	4.25	2016	InterGrain
Titan AX [Ⓛ]	Feed	Q	Group 1/A	4.55	2022	AGT
Zena [Ⓛ] CL	Malt	Q	Imidazolinone	4.25	2022	InterGrain/GIA

Maturity: VQ = very quick, Q = quick, M = mid, S = slow, VS = very slow, (+W) = winter barley. – denotes no data available. GIA = Grains Innovation Australia.

MARKETING

Growers need to consider which varietal option will lead to the greatest profitability. The difference in the price premium paid for malt relative to feed may counteract the yield difference between malt and feed varieties. Other scenarios may favour high-yielding feed where there is a low probability of achieving malt and a desire for lower input costs.

Among malt varieties, differential pricing will be a continuing trend and growers need to consider market premiums and discounts as well as agronomic performance to maximise profitability. Newer malt varieties are now offering good yield potential. Varieties accredited and varieties undergoing malt evaluation now have similar yield potential as feed varieties, making it worthwhile for growers to consider including some malting varieties in their cropping program.

It is important that growers contact their grain marketers to discuss market demand prior to sowing a malting variety. Malting barley is grown, stored and sold on a variety-specific basis and it is important to ascertain if the variety chosen is able to be stored and marketed in your area. The Grains Australia preferred list is updated annually as a guide to industry on the market-preferred varieties and can be found online at grainsaustralia.com.au.

The preferred list is determined by marketing companies and reflects their opinion on which malting varieties will be sought by purchasers of Australian malting barley. In many cases, accreditation of a new variety does not mean the variety will be a preferred variety. Preferred varieties are listed once market demand is established.

Table 2 lists some of the current varieties under malt barley evaluation by the Malting and Brewing Industry Barley Technical Committee (MBIBTC) in conjunction with Pilot Malting Australia, Pilot Brewing Australia and Grains Australia Barley Council, including the anticipated timeline for accreditation. Accreditation is only granted if the variety satisfies the selection criteria set by the MBIBTC and the Barley Council.

Information includes:

- list of preferred malting barley varieties, grainsaustralia.com.au/master-lists/malting-variety-list/#barley-master-list/preferred
- updated status of malting barley evaluation, grainsaustralia.com.au/master-lists/malting-variety-list/#barley-master-list/varieties-under-evaluation

BARLEY VARIETY NOTES

BEAST[Ⓛ]

Beast[Ⓛ] is a very quick maturing variety that is undergoing malt evaluation with Grains Australia, with a decision expected in 2025. It is suited to medium to low-rainfall environments and performs well in stressed growing conditions. It is similar in plant type to Compass[Ⓛ], offering useful early vigour and weed competitiveness, but care should be taken in lodging-susceptible conditions. Released in 2020 (tested as AGTB0113), bred and marketed by AGT. Seed is available through AGT affiliates and is eligible for AGT Seed Sharing™. EPR \$4.00 ex-GST.

BIGFOOT CL[Ⓛ] – NEW

Bigfoot CL[Ⓛ] is a quick-mid maturing, Clearfield® feed variety. Offers a shorter but similar plant style to that of Compass[Ⓛ] and high yields in low to medium-rainfall zones. Released in 2024 (tested as AGTB0669), bred and marketed by AGT. Seed is available through AGT affiliates. EPR \$4.35 ex-GST.

COMBAT[Ⓛ]

Combat[Ⓛ] is a very quick-quick maturing feed barley. It has a semi-prostrate growth habit that will provide improved weed competition over the erect growth habit of Rosalind[Ⓛ] and similar varieties. Released in 2022 (tested as IGB1944), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.50 ex-GST.

COMMODUS[Ⓛ] CL

Commodus[Ⓛ] CL is an imidazolinone-tolerant barley with very quick-quick maturity, and is malt accredited. Commodus[Ⓛ] CL is closely related to Compass[Ⓛ] and performs similarly agronomically, with the addition of imidazolinone tolerance. It is suited to the low to medium-rainfall environments but with a similar risk of head loss and lodging as Compass[Ⓛ]. Released in 2021 (tested as IGB1908T), bred by Grains Innovation Australia and InterGrain. Seed is available through InterGrain Seedclub members. EPR \$4.25 ex-GST.

COMPASS[Ⓛ]

Compass[Ⓛ] is a very quick-quick maturing malt-accredited variety. It is prone to lodging and head loss in high-yielding environments. Released in 2015 (tested as WI4593), bred by University of Adelaide. Seed is available from Seednet. EPR \$3.80 ex-GST.

Table 2: Released varieties undergoing malt evaluation and expected timeline (Grains Australia).

Variety	Year 0	Stage 1	Stage 2	Target decision date
Laperouse ^{db}	2019 – accepted	2020/21 – passed	2021/24 – in progress	2025
Beast ^{db}	2020 – accepted	2021 – passed	2023/24 – in progress	2025
Yeti ^{db}	2020 – accepted	2020/22 – passed	2023/24 – in progress	2026
Cyclops ^{db}	2021 – accepted	2021 – passed	2023/24 – in progress	2025
Titan AX ^{db}	2023 – accepted	2023 – passed	2024 – in progress	2025
Neo ^{db} CL	2023 – accepted	2023 – passed	2024 – in progress	2025
IGB21130	2023 – accepted	2024 – withdrawn	–	–
Spinnaker ^{db}	2024 – accepted	2024 – in progress	–	2026

Table 3: Disease responses of selected barley varieties.

Variety	Leaf rust	Net form net blotch	Spot form net blotch	Leaf scald	Ramularia leaf spot	Root lesion nematode		Cereal cyst nematode	Crown rot	Black point
						<i>P. neglectus</i>	<i>P. thornei</i>			
Alestar ^{db}	MSS	MRMS-S	S	SVS	SVS	MR	MR	R [^] (P)	S	MRMS
Bigfoot CL ^{db}	S (P)	MRMS (P)	MS (P)	VS (P)	VS (P)	RMR (P)	RMR (P)	R	–	S (P)
Beast ^{db}	MS	MRMS-S	MS	SVS	SVS	MRMS	MRMS	MR	S	MSS
Combat ^{db}	SVS	MRMS-S	RMR	MS-S	SVS	MRMS	MS	MR	S	MSS
Commodus ^{db} CL	S	MRMS-MSS	MSS	MSS-SVS	SVS	MRMS	MRMS	R	S	MS
Compass ^{db}	S	MRMS-S	MS	MSS-SVS	SVS	MRMS	MR	R	MSS	MSS
Cyclops ^{db}	S	MR-MS	MSS	S	SVS	MRMS	MRMS	S	MSS	MSS
Fandaga ^{db}	MSS	MRMS#	S	SVS	VS	MR	MR	R	MSS	MRMS
Fathom ^{db}	MSS	MSS-SVS	RMR	R-S	SVS	MRMS	MR	R	SVS	MSS
Kiwi	MSS	MRMS	MSS	SVS	VS	MRMS	RMR	S	MSS	MS
Laperouse ^{db}	S	MRMS	MRMS	SVS	VS	MRMS	MR	S	S	MSS
Leabrook ^{db}	S	MR-MSS	MS	MRMS-SVS	VS	MRMS	RMR	RMR	S	MS
Maximus ^{db} CL	S	MR-MS	MS	R-SVS	VS	MRMS	MRMS	R	S	MSS
Minotaur ^{db}	SVS	MR-MS	S	VS	SVS	MRMS	MRMS	R	MSS	MRMS
Neo ^{db} CL	MSS (P)	MS (P)	MR (P)	S (P)	SVS (P)	RMR (P)	MR (P)	R	–	MRMS (P)
Newton	MS (P)	RMR (P)	MS (P)	MS (P)	S (P)	MR (P)	MRMS	MSS (P)	–	MRMS (P)
PegasusAX ^{db}	MS (P)	MRMS (P)	MSS (P)	MSS (P)	VS (P)	MR (P)	MRMS	R	–	MSS (P)
RGT Atlantis ^{db}	MSS (P)	SVS (P)	S (P)	VS (P)	SVS (P)	RMR (P)	RMR (P)	R (P)	–	MRMS (P)
RGT Planet ^{db}	S	MRMS-SVS	SVS	R-SVS	SVS	MRMS	MR	R (P)	MSS	MRMS
Rosalind ^{db}	MSS	MRMS	S	MR-S	VS	MRMS	MRMS	R	S	MS
Scope CL ^{db}	S	R-MR	MSS	MRMS-SVS	SVS	MRMS	MRMS	S	S	MS
Spartacus CL ^{db}	MSS	MS-VS	S	R-SVS	VS	MRMS	MRMS	R	S	MSS
Spinnaker ^{db}	S	SVS	SVS	S	VS	MR	MS	S	S	MRMS
Titan AX ^{db}	SVS	MRMS-S	MS	VS	VS	MR	MR	MR (P)	S	MSS
Westminster ^{db}	MS	MRMS	S	R-S	SVS	MRMS	MS	–	MSS	MRMS
Yeti ^{db}	SVS	MR-MS	MS	VS	VS	MR	MR	RMR	S	MSS
Zena ^{db} CL	S	MR-S	S	R-S	VS	MRMS	MR	R	S	MRMS (P)

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible, - = range, / = pathotype differences (the second score after a / is the response to a rarer strain), # = may be more susceptible to alternate pathotypes (warning), ^ = line contains a few susceptible off types, (P) = provisional rating. – denotes no data available.

A range of reactions is provided where different strains of the pathogen exist and where the variety may respond differently to them.

Black point is not a disease but is a physiological response to certain humid conditions.

Disease resistance ratings should not be compared across different diseases. Each disease has its own severity and risk level, so the severity and management options for one disease may differ to those for another disease, even if the variety has the same rating for both diseases.

Information on disease reaction was supplied by the Cereal Pathology Group (SARDI) under the GRDC NVT Pathology investment DAS1905-013SAX. Contact Dr Tara Garrard: tara.garrard@sa.gov.au

CYCLOPS[Ⓛ]

Cyclops[Ⓛ] is a very quick-quick maturing variety that is undergoing malt evaluation with Grains Australia, with a decision expected in 2025. It has an erect plant type like Hindmarsh[Ⓛ] and Spartacus CL[Ⓛ] with a similar maturity pattern to Spartacus CL[Ⓛ]. Released in 2021 (tested as AGTB0200), bred and marketed by AGT. Seed is available through AGT affiliates. EPR \$4.00 ex-GST.

GRANITE[Ⓛ] CL – NEW

Granite[Ⓛ] CL is a new, quick-mid maturing Clearfield[®] feed barley suited to low to medium-rainfall areas. The quick maturity, erect growth habit and medium plant height is similar to that of Rosalind[Ⓛ] and Maximus[Ⓛ] CL. Released in 2024 (tested as IGB21092T), bred by InterGrain. Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.90 ex-GST.

IGB21130

IGB21130 is a quick-mid maturing barley variety. It is slower to maturing than RGT Planet[Ⓛ] making it one of the slowest barley varieties available. Similar plant type to RGT Planet[Ⓛ] but IGB21130 is shorter in height. Best suited to the longer growing seasons of the medium to high-rainfall zones where RGT Planet[Ⓛ] has performed well. It is to be released in 2025 with seed available for the 2026 season. Bred by InterGrain, EPR TBC.

LAPEROUSE[Ⓛ]

Laperouse[Ⓛ] is a very quick-quick maturing variety undergoing malt evaluation with Grains Australia, with a decision expected in 2025. It has a medium plant height with a growth pattern similar to Compass[Ⓛ] but a slightly longer time to heading. Released in 2020 (tested as WI4952), bred by the University of Adelaide and Secobra Recherches. Seed is available and marketed by Seednet. EPR \$3.80 ex-GST.

LEABROOK[Ⓛ]

Leabrook[Ⓛ] is a very quick-quick maturing variety with malt accreditation. It is closely related to Compass[Ⓛ], achieving high yields across a range of environments but susceptible to lodging and head loss. It has shown good physical grain quality with high retention and low screenings and low to moderate test weight. Released in 2019 (tested as WI4896), bred by the University of Adelaide. Seed is available from Seednet. EPR \$3.80 ex-GST.

MAXIMUS[Ⓛ] CL

Maximus[Ⓛ] CL is a very quick-quick maturing, imidazolinone-tolerant barley that has malt accreditation. It has improved grain size compared with Spartacus CL[Ⓛ]. It has a short coleoptile length and it is recommended that sowing depth be considered carefully. Released in 2020 (tested as IGB1705T), bred by InterGrain. Seed is available through InterGrain Seedclub members. EPR \$4.25 ex-GST.

MINOTAUR[Ⓛ]

Minotaur[Ⓛ] is a quick maturing, malt-accredited variety. It is a RGT Planet[Ⓛ] type variety reaching awn peep a day or two later. Best suited to medium to high-rainfall environments. Released in 2021 (tested as AGTB0213) and is bred and marketed by AGT. Seed is available through AGT affiliates. EPR \$4.00 ex-GST.

NEO[Ⓛ] CL

Neo[Ⓛ] CL is a quick maturing variety with imidazolinone tolerance. It is undergoing malt accreditation with Grains Australia, with a decision expected in 2025. It has similar agronomic characteristics to RGT Planet[Ⓛ] but with improved grain size. Neo[Ⓛ] CL was entered into the NVT system for the 2023 season. Released in 2023 (tested as IGB22102T), bred by InterGrain. Seed is available through InterGrain Seedclub members. EPR \$4.25 ex-GST.

NEWTON

Newton is a mid maturing winter feed barley. The first new winter barley since Urambie in 2005. It therefore requires a period of cold temperatures (vernalisation) to switch from vegetative to reproductive growth. Its time to flowering is comparable to winter wheat DS Bennett[Ⓛ]. Newton is a two-row barley that is suited to early sowing and has the potential to be grazed while maintaining yield potential. It has a high tillering potential and prostrate growth habit, therefore producing high biomass and weed competitiveness. Canopy management is needed in high-rainfall areas with early sowing to achieve high yield potential and maintain harvestability. Newton was entered into the NVT system for the 2023 season, with prior evaluation in the 'Hyper Yielding Cereals' project. Released in 2023 and bred Secobra Recherches. Seed is available from Seednet. EPR \$3.50 ex-GST.

PEGASUSAX[Ⓛ] – NEW

PegasusAX[Ⓛ] is a quick-mid maturing, CoAXium[®] herbicide-tolerant feed variety. It is a derivative of Rosalind[Ⓛ] with a similar plant type, offering a shorter plant structure. Produces yields similar to Titan AX[Ⓛ]. Released in 2024 (tested as AGTB0667), bred and marketed by AGT. Seed is available through AGT affiliates. EPR \$4.15 ex-GST.

RGT ATLANTIS[Ⓛ] – NEW

RGT Atlantis[Ⓛ] is a quick maturing variety with quality rating pending. Suited to medium to high-rainfall zones. Bred from RGT Planet and has the same plant structure and height with short rachilla hair length. Released in 2024 (tested as RP22054), bred by UTAS and RAGT, marketed by RAGT. Seed is available via RAGT broadacre commercial partners. EPR \$4.00 ex-GST.

RGT PLANET[Ⓛ]

RGT Planet[Ⓛ] is a quick maturing variety with malt accreditation. It has performed well in medium to high-rainfall zones. It sets a high number of grains per head and therefore is prone to lower test weights, small grain size and high screenings under suboptimal grain fill conditions. It has good head retention and straw strength, reducing yield losses due to lodging and head loss. Released in 2017 (tested as SFR85-014), bred by RAGT Seeds. Seed is available via RAGT broadacre commercial partners. EPR \$4.00 ex-GST.

SPARTACUS CL[Ⓛ]

Spartacus CL[Ⓛ] is very quick-quick maturing imidazolinone-tolerant barley with malt accreditation. It has a similar plant type and flowering behaviour to Hindmarsh[Ⓛ] and La Trobe[Ⓛ]. It has good head retention and straw strength but is susceptible to brackling in some seasonal conditions prior to harvest. Released in 2016 (tested as IGB1334T), bred by InterGrain. Seed is available from local resellers and InterGrain Seedclub members. EPR \$4.25 ex-GST.

SPINNAKER[Ⓛ]

Spinnaker[Ⓛ] is a very quick-quick maturing variety that is undergoing malt accreditation with Grains Australia, with a decision expected in 2026. Spinnaker[Ⓛ] has a prostrate growth habit and a mature height between Laperouse[Ⓛ] and RGT Planet[Ⓛ]. Targeted for medium to high-rainfall zones where RGT Planet[Ⓛ] has performed well. Released 2024 (tested as SCA21-Y003), bred by Secobra Recherches. Seed available through Seednet. EPR 4.00 ex-GST.

TITAN AX[Ⓛ]

Titan AX[Ⓛ] is a quick maturing variety with tolerance to Sipcam Aggressor[®] AX (Group 1) herbicide, undergoing malt accreditation with Grains Australia. It is the world's first CoAXium[®] barley variety bred out of a partnership between AGT, Sipcam Australia and Albaugh (a US-based crop protection company). It is derived from Compass[Ⓛ] and provides similar agronomic characteristics with the added benefit of being tolerant to Group 1 herbicides. Released in 2022 (tested as AGTB0325), bred and marketed by AGT. Seed is available through AGT affiliates. EPR \$4.55 ex-GST.

ZENA[Ⓛ] CL

Zena[Ⓛ] CL is a quick maturing, imidazolinone-tolerant, malt-accredited variety. Closely related to RGT Planet[Ⓛ], it performs well in medium to high-rainfall zones. However, evaluation in NVT is limited. Released in 2022 (tested as IGB20125T), bred by Grains Innovation Australia and InterGrain. Seed is available through InterGrain Seedclub members. EPR \$3.50 ex-GST.

YIELD PERFORMANCE EXPERIMENTS FROM 2019 TO 2023

The yield results presented are multi-environment trial (MET) data shown on a yearly regional group mean and an overall performance mean for the region. All yields are expressed as a percentage of mean yield from NVT data 2019 to 2023 inclusive, along with some observations in adjacent columns. Further results can be found on the NVT website at nvt.grdc.com.au.

GRAIN QUALITY FROM 2019 TO 2023

Grain quality for individual varieties varies between years. However, the trends across sites for a single year tend to be more consistent for a variety. Long-term results highlight trends in variety performance and consistency. Table 11 highlights the variation in test weight. Test weight is expressed as the mean test weight from NVT data 2019 to 2023 inclusive.

Table 12 highlights the variation in retention percentages. Retention is expressed as the mean percentage of grain greater than 2.5mm in size from NVT data 2019 to 2023 inclusive. Further results can be found on the NVT website at nvt.grdc.com.au.

Table 4: Upper Eyre Peninsula barley yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield t/ha	2.48	2.08	3.21	5.88	2.31
	No. trials	4	3	4	4	4
CONVENTIONAL						
Beast ^{db}	19	119	120	116	95	117
Combat ^{db}	8	–	–	–	110	113
Commander ^{db}	19	96	92	98	93	91
Compass ^{db}	19	116	116	113	92	114
Cyclops ^{db}	15	–	111	114	105	109
Fathom ^{db}	19	111	108	107	94	110
La Trobe ^{db}	19	108	102	102	92	108
Laperouse ^{db}	19	107	110	113	100	104
Leabrook ^{db}	19	116	117	114	98	114
Minotaur ^{db}	15	–	108	109	111	105
RGT Planet ^{db}	19	95	96	94	114	99
Rosalind ^{db}	19	110	112	108	107	113
Spinnaker ^{db}	8	–	–	–	113	104
Yeti ^{db}	19	113	119	116	101	112
HERBICIDE TOLERANT						
Commodus ^{db} CL	15	–	113	111	91	111
Bigfoot CL ^{db}	4	–	–	–	–	113
Maximus ^{db} CL	19	110	113	112	96	110
Neo ^{db} CL	4	–	–	–	–	109
PegasusAX ^{db}	4	–	–	–	–	110
Scope CL ^{db}	19	93	90	93	89	91
Spartacus CL ^{db}	19	108	107	106	93	108
Titan AX ^{db}	12	–	–	112	96	108
Zena ^{db} CL	8	–	–	–	111	99

– denotes no data available.

Table 5: Lower Eyre Peninsula barley yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield t/ha	1.12	3.38	5.38	5.82	4.70
	No. trials	1	3	2	2	3
CONVENTIONAL						
Beast ^{db}	11	150	94	102	98	109
Combat ^{db}	7	–	–	111	111	115
Commander ^{db}	11	91	91	95	95	102
Compass ^{db}	11	150	83	98	96	104
Cyclops ^{db}	10	–	118	107	105	118
Fathom ^{db}	11	133	92	103	98	102
La Trobe ^{db}	11	125	98	105	97	100
Laperouse ^{db}	11	109	115	100	99	115
Leabrook ^{db}	11	141	91	100	101	109
Minotaur ^{db}	10	–	120	105	107	114
RGT Atlantis ^{db}	3	–	–	–	–	94
RGT Planet ^{db}	11	77	106	104	110	96
Rosalind ^{db}	11	117	112	107	106	106
Spinnaker ^{db}	5	–	–	–	110	101
Yeti ^{db}	11	127	113	101	100	113
HERBICIDE TOLERANT						
Commodus ^{db} CL	10	–	85	97	95	104
Maximus ^{db} CL	11	124	116	103	97	111
Neo ^{db} CL	3	–	–	–	–	119
Spartacus CL ^{db}	11	125	107	104	96	104
Titan AX ^{db}	5	–	–	–	99	110
Zena ^{db} CL	7	–	–	103	108	94

– denotes no data available.

Table 6: Yorke Peninsula yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield t/ha	3.82	3.90	4.82	5.63	4.14
	No. trials	3	4	4	4	4
CONVENTIONAL						
Beast ^{db}	19	106	97	107	100	107
Combat ^{db}	12	–	–	115	110	112
Commander ^{db}	19	95	99	104	93	93
Compass ^{db}	19	105	94	106	97	103
Cyclops ^{db}	16	–	109	112	105	109
Fathom ^{db}	19	105	95	104	98	104
La Trobe ^{db}	19	104	94	101	95	104
Laperouse ^{db}	19	98	105	106	100	103
Leabrook ^{db}	19	106	100	109	102	106
Minotaur ^{db}	16	–	111	107	109	107
RGT Atlantis ^{db}	4	–	–	–	–	98
RGT Planet ^{db}	19	104	107	99	110	103
Rosalind ^{db}	19	106	104	103	107	110
Spinnaker ^{db}	12	–	–	102	111	106
Yeti ^{db}	19	101	103	104	102	107
HERBICIDE TOLERANT						
Commodus ^{db} CL	16	–	94	104	96	102
Bigfoot CL ^{db}	4	–	–	–	–	109
Maximus ^{db} CL	19	100	100	101	98	106
Neo ^{db} CL	4	–	–	–	–	113
Spartacus CL ^{db}	19	102	95	99	95	104
Titan AX ^{db}	8	–	–	–	99	103
Zena ^{db} CL	12	–	–	97	108	102

– denotes no data available.

Table 7: Mid North barley yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield t/ha	3.73	5.20	5.29	7.39	5.11
	No. trials	3	4	3	4	4
CONVENTIONAL						
Beast ^{db}	18	117	95	104	96	106
Combat ^{db}	11	–	–	112	109	112
Commander ^{db}	18	93	97	100	93	99
Compass ^{db}	18	113	93	101	95	105
Cyclops ^{db}	15	–	106	110	101	107
Fathom ^{db}	18	112	96	101	95	103
La Trobe ^{db}	18	111	96	98	92	100
Laperouse ^{db}	18	105	99	106	95	101
Leabrook ^{db}	18	114	98	105	100	107
Minotaur ^{db}	15	–	108	108	106	105
RGT Atlantis ^{db}	4	–	–	–	–	99
RGT Planet ^{db}	18	98	110	102	114	103
Rosalind ^{db}	18	113	104	104	105	104
Spinnaker ^{db}	11	–	–	104	113	105
Yeti ^{db}	18	111	98	105	98	102
HERBICIDE TOLERANT						
Commodus ^{db} CL	15	–	92	101	93	103
Bigfoot CL ^{db}	4	–	–	–	–	106
Maximus ^{db} CL	18	111	96	102	92	99
Neo ^{db} CL	4	–	–	–	–	111
Spartacus CL ^{db}	18	110	94	99	91	98
Titan AX ^{db}	8	–	–	–	97	107
Zena ^{db} CL	11	–	–	100	112	101

– denotes no data available.

Table 8: Murray Mallee yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield t/ha	2.70	3.71	2.10	4.06	3.21
	No. trials	2	4	4	3	3
CONVENTIONAL						
Beast ^{db}	16	120	110	117	99	109
Combat ^{db}	10	–	–	122	115	113
Commander ^{db}	16	89	94	106	97	97
Compass ^{db}	16	120	107	117	98	106
Cyclops ^{db}	14	–	108	115	105	109
Fathom ^{db}	16	111	105	109	99	105
La Trobe ^{db}	16	103	101	101	94	103
Laperouse ^{db}	16	100	101	108	97	104
Leabrook ^{db}	16	119	111	120	104	109
Minotaur ^{db}	14	–	107	107	107	106
RGT Planet ^{db}	16	101	106	96	112	101
Rosalind ^{db}	16	112	110	104	105	107
Spinnaker ^{db}	6	–	–	–	112	105
Yeti ^{db}	16	112	106	108	98	106
HERBICIDE TOLERANT						
Commodus ^{db} CL	14	–	105	114	97	105
Bigfoot CL ^{db}	3	–	–	–	–	109
Maximus ^{db} CL	16	105	101	101	92	104
Neo ^{db} CL	3	–	–	–	–	112
PegasusAX ^{db}	3	–	–	–	–	106
Scope CL ^{db}	16	90	89	90	89	93
Spartacus CL ^{db}	16	103	99	98	91	102
Titan AX ^{db}	10	–	–	121	103	106
Zena ^{db} CL	6	–	–	–	109	100

– denotes no data available.

Table 9: South East main season yield performance. NVT data 2019–23. Data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield t/ha	5.68	6.45	0.00	6.09	4.87
	No. trials	2	1	0	1	1
CONVENTIONAL						
Beast ^{db}	5	104	98	Data not available	93	114
Combat ^{db}	2	–	–		106	113
Commander ^{db}	5	92	96		92	99
Compass ^{db}	5	99	95		91	110
Cyclops ^{db}	3	–	105		100	115
Fathom ^{db}	5	103	99		93	108
La Trobe ^{db}	5	105	98		90	107
Laperouse ^{db}	5	102	97		95	111
Leabrook ^{db}	5	102	100		97	111
Minotaur ^{db}	3	–	106		108	108
RGT Atlantis ^{db}	1	–	–		–	90
RGT Planet ^{db}	5	106	111		116	93
Rosalind ^{db}	5	111	106		106	108
Spinnaker ^{db}	2	–	–		114	99
Yeti ^{db}	5	105	97	98	113	
HERBICIDE TOLERANT						
Commodus ^{db} CL	3	–	94	Data not available	90	109
Neo ^{db} CL	1	–	–		–	105
Maximus ^{db} CL	5	106	95		93	113
Spartacus CL ^{db}	5	105	95		91	109
Titan AX ^{db}	2	–	–		93	110
Zena ^{db} CL	2	–	–		114	93

– denotes no data available.

Table 10: South East long season yield performance. NVT data 2019–23. Data for 2019 and 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield t/ha	0.00	5.24	0.00	5.43	5.86
	No. trials	0	1	0	1	1
CONVENTIONAL						
Commander ^{db}	3	Data not available	94	Data not available	102	105
Compass ^{db}	2		106		118	–
Cyclops ^{db}	3		127		126	99
Laperouse ^{db}	3		106		100	96
Leabrook ^{db}	3		112		127	98
Minotaur ^{db}	3		114		109	97
Newton	1		–		–	94
RGT Planet ^{db}	3		113		101	97
Rosalind ^{db}	3		120		134	96
Spinnaker ^{db}	2		–		111	99
Urambie	3		81		91	91
Westminster ^{db}	3		89		90	99
Yeti ^{db}	2		110		111	–
HERBICIDE TOLERANT						
Maximus ^{db} CL	3	Data not available	105	Data not available	102	99
Neo ^{db} CL	1		–		–	101
Spartacus CL ^{db}	3		109		108	91
Titan AX ^{db}	1		–		111	–
Zena ^{db} CL	2		–		104	98

– denotes no data available.

Table 11: South Australian barley test weight performance. NVT data 2019–23.

Variety	Year	Test weight (kg/hectolitre)				
		2019	2020	2021	2022	2023
		No. trials	15	19	17	18
CONVENTIONAL						
Beast ^{db}	87	70.5	68.8	70.2	68.4	70.4
Combat ^{db}	49	–	–	71.3	67.8	70.4
Commander ^{db}	87	69.7	68.5	70.4	68.1	71.0
Compass ^{db}	87	69.8	68.1	69.6	66.9	70.3
Cyclops ^{db}	72	–	69.3	70.8	69.0	71.1
Fathom ^{db}	87	68.9	68.6	69.2	68.0	69.5
La Trobe ^{db}	87	71.2	69.1	71.2	69.6	70.2
Laperouse ^{db}	87	71.0	69.7	71.5	70.0	71.7
Leabrook ^{db}	87	69.5	68.3	70.2	67.4	70.0
Minotaur ^{db}	72	–	70.2	71.4	69.8	71.6
RGT Atlantis ^{db}	11	–	–	–	–	68.1
RGT Planet ^{db}	87	69.0	68.7	70.0	67.4	69.3
Rosalind ^{db}	87	70.6	69.1	70.9	68.2	71.3
Spinnaker ^{db}	43	–	–	71.3	67.7	69.6
Yeti ^{db}	87	70.6	68.7	70.7	68.4	72.0
HERBICIDE TOLERANT						
Commodus ^{db} CL	71	–	68.6	70.1	67.6	70.9
Bigfoot CL ^{db}	15	–	–	–	–	72.6
Maximus ^{db} CL	87	72.0	70.5	72.2	69.7	72.5
Neo ^{db} CL	18	–	–	–	–	68.5
PegasusAX ^{db}	7	–	–	–	–	71.7
Scope CL ^{db}	44	70.2	70.1	70.8	68.9	72.2
Spartacus CL ^{db}	87	71.5	69.3	71.6	69.7	73.5
Titan AX ^{db}	44	–	–	69.7	67.5	69.6
Zena ^{db} CL	45	–	–	70.0	67.2	68.4

– denotes no data available.

Table 12: South Australian barley retention performance. NVT data 2019–23.

Variety	Year	Retention (%>2.5mm)				
		2019	2020	2021	2022	2023
		No. trials	15	19	17	18
CONVENTIONAL						
Beast [Ⓛ]	85	91.41	92.00	95.22	97.43	78.61
Combat [Ⓛ]	47	–	–	93.11	96.82	60.38
Commander [Ⓛ]	85	76.69	88.19	91.10	95.32	66.39
Compass [Ⓛ]	85	85.24	89.58	91.86	96.47	75.68
Cyclops [Ⓛ]	70	–	86.13	89.86	94.93	61.83
Fathom [Ⓛ]	85	83.15	87.34	92.54	96.60	65.76
La Trobe [Ⓛ]	85	71.03	74.03	91.66	91.83	57.88
Laperouse [Ⓛ]	85	83.05	88.32	85.46	96.34	70.45
Leabrook [Ⓛ]	85	87.45	92.26	93.44	96.73	81.68
Minotaur [Ⓛ]	70	–	84.00	87.21	96.53	57.04
RGT Atlantis [Ⓛ]	9	–	–	–	–	66.86
RGT Planet [Ⓛ]	85	63.82	81.91	84.82	95.22	54.39
Rosalind [Ⓛ]	85	74.50	80.91	85.35	94.71	55.19
Spinnaker [Ⓛ]	41	–	–	89.54	96.60	62.37
Yeti [Ⓛ]	85	87.23	90.90	94.44	96.81	81.38
HERBICIDE TOLERANT						
Commodus [Ⓛ] CL	69	–	88.32	92.01	95.64	78.85
Bigfoot CL [Ⓛ]	13	–	–	–	–	75.78
Maximus [Ⓛ] CL	85	80.67	86.84	93.76	95.72	72.11
Neo [Ⓛ] CL	16	–	–	–	–	67.52
PegasusAX [Ⓛ]	7	–	–	–	–	40.53
Scope CL [Ⓛ]	44	64.63	69.49	80.15	93.64	43.84
Spartacus CL [Ⓛ]	85	77.14	78.33	89.02	93.80	59.38
Titan AX [Ⓛ]	42	–	–	92.79	97.32	77.33
Zena [Ⓛ] CL	42	–	–	86.73	95.33	55.50

– denotes no data available.

ACKNOWLEDGEMENTS

Thanks to all contributors of previous versions of this sowing guide. Without them, we would not have the refined sowing guide we have today.



RESEARCH SUMMARY

LEA120

FAST FACTS

Problem

There is limited information how the canola yield frontier can be improved in an economical way on Lower Eyre Peninsula

Project

A series of multi-year experiments were conducted on lower Eyre Peninsula, focused on previous crop influence, stored soil moisture, and nutritional strategies, aimed at economical canola yield improvement.

Participants

EPAG RESEARCH TRUST:

Andrew Ware, Mark Saunders, Rhaquelle Meiklejohn, Rebekah Fatchen

GROWERS: Michael Treloar, Peter Russell

Dates

Start: 1 July 2020

Finish: 30 June 2023

Taking South Australian canola profitability to the next level

The maximum water limited yield of canola on the lower Eyre Peninsula was assessed at 14kg/mm in 2021. The project found nitrogen was the key driver of yield, phosphorous may be important in some situations and the role of previous crop, trace elements and sulphur were not as critical to push the canola yield frontier.

Background

Recent advancements in canola yield have been achieved through practices like early sowing, aligning cultivar phenology and sowing timing with critical flowering periods, hybrid variety development, and effective blackleg control using fungicides. Building upon these practices, a question emerged: How can canola yields on lower Eyre Peninsula be further enhanced?

Research Aims

The core objectives of the project were to:

- Determine the maximum achievable water limited yield of canola (kg/mm) in the lower Eyre Peninsula environment.
- Determine the relative significance of key canola yield drivers if disease and phenology are optimised, including crop sequence and nutrition. This will provide information to better target and refine input costs and improve the profitability of canola.
- Provide information to growers and advisors on lower Eyre Peninsula on the yield driving mechanisms and profitability of high production canola systems.

In the field

Multi-year trial sites were established at two locations on the lower Eyre Peninsula, at a sandy loam over clay site at Yeltukka, west of Cummins, and an ironstone gravel sandy loam site at Coomunga, northwest of Port Lincoln.

The first year was a preparatory phase where wheat or pulses (lupins or faba beans) were sown and gypsum applied to certain plots. This was performed in 2020 and 2021 on different plots. Next canola was sown in 2021 and 2022. Finally in 2022 only, wheat was sown into the 2021 canola plots.

As well as the gypsum applied in the previous year, high levels of phosphorus, nitrogen, and trace elements were applied to some plots during the canola growing season.



Results

Pre-season nitrogen strategies had different outcomes in the two different years.

In 2021, district practice (148kg/ha N) was sufficient to meet the water-limited yield of 14kg/mm regardless of the strategy used in the previous year; district practice, high N, or high levels of N and other macro and micronutrients ("high everything"). In contrast, in 2022, a much higher rainfall season, yields were significantly improved if a high N strategy had been incorporated in the previous year - high N, high everything, or chicken manure. There was no difference in yield between the high N strategies, showing that it was the nitrogen, and not other elements, that was increasing the yield. This shows that district average practices would be sufficient to meet canola requirements in a 2021 season but not 2022.

There was no significant improvement in canola yield following a pulse crop (compared to wheat) in either season, despite differences in mineral N and plant available water. While N was found to significantly influence canola yields, the increase in mineral N is small by comparison to the amount of N applied through fertiliser.

High applications of trace elements and sulphur (applied as gypsum) did not influence canola yields above district averages where there was no diagnosed deficiency. Similarly high rates of phosphorus, above district averages, did not increase canola yield except for in one exception: in 2022, in ironstone soils, superphosphate broadcast before seeding increased yields by 0.33t/ha.

In 2021, canola yields reached 14kg/mm, reaching the theoretical potential of canola. In 2022, with higher rainfall, crops did not reach 14kg/mm, thought to be due limitations of photo thermal quotient (PTQ) during the critical period in that year.



EPAG Research's Andrew Ware, SAGIT Chair Andy Barr, SAGIT Project Manager Malcolm Buckby, SAGIT Scientific Officer Jenny Davidson, and 2021 EP intern Rhaquelle Meiklejohn at one of the project's trial sites.



One of the trial plots showing canola after wheat.

Value for growers

This project was able to determine that nitrogen was the key driver of yield, phosphorous may be important in some situations and that the role of previous crop, trace elements and sulphur were not as critical to push the canola yield frontier. Having high nitrogen levels in the soil prior to seeding was the biggest driver of canola yield in the high yielding season of 2022.

Project outcomes were communicated at a number of crop walks, field days, articles and a SAGIT podcast.

More Information:

Andrew Ware, EPAG Research Trust
M 0427 884 272 E andrew@epagresearch.com.au



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OAT

By Brianna Guidera, Daniel Menadue, Rhiannon Schilling and Tara Garrard (SARDI)

This sowing guide provides data and guidance on the most suitable oat varieties for sowing in South Australia in 2025.

No new oat varieties have been released since the publication of the 2024 sowing guide. The oat variety descriptions in this publication serve as a guide to select varieties for specific end-uses (milling or feed grain and oaten hay) with disease resistance, key agronomic traits, and hay and grain yield potential described where independent data was available.

IS MILLING QUALITY REQUIRED?

The probability of a variety meeting the classification criteria for milling grade is an important consideration when selecting a variety for milling end-use. This is greatly influenced by seasonal conditions. Premium milling varieties such as Yallara[®], Mitika[®], Bilby[®], Kowari[®], Bannister[®] and Durack[®] will reach the classification criteria for milling grade more often than other varieties. Some other varieties may reach milling grade criteria but would not be accepted for milling. It is imperative that you check with your miller about the quality standards and varieties that are accepted for milling before you sow a grain crop for this end-use.

IS EXPORT HAY QUALITY REQUIRED?

Hay quality is essential to meet export hay standards and is greatly influenced by seasonal and nutritional conditions. However, some varieties are more likely to produce higher quality hay than others. It is imperative that you check with your hay processor about the quality standards required to make export-grade quality hay before you sow a hay crop.

OATS FOR GRAZING

This guide has no guidelines for oats suited to grazing or feed grain production and repeated grazing from early sowing. A more comprehensive guide for grazing varieties is contained in the *Winter Crop Variety Sowing Guide* produced annually by NSW DPIRD.

NOTES ON VARIETIES

Fact sheets or pamphlets describing all varieties released by the former National Oat Breeding Program are available from the relevant commercial partner for the variety. Yield and quality information for grain varieties is available in this guide and on the NVT website (nvtonline.com.au). Varieties are displayed in alphabetical order and do not represent a preference of variety by the authors.

Table 1: Oat variety agronomy and disease reactions.

Variety	Plant height	Maturity	Rust		Barley yellow dwarf virus ¹	CCN resistance	Stem nematode		Septoria	Bacterial blight	Red leather leaf ¹
			Stem ¹	Leaf ¹			Resistance	Tolerance			
MILLING OATS											
Bannister ^{db}	TD	Q	S	MSS	MS	MR	MRMS	MT	MSS	S	MSS-SVS
Bilby ^{db}	D	Q	S	MSS	S	S	S	MI	S	SVS	MS
Durack ^{db}	MT	VQ	S	S	S	MRMS	S	MT	S	S	SVS
Goldie ^{db}	MT	Q	SVS	SVS	MS	MR	S	I	MS	S	SVS
Koala ^{db}	TD	QM	MS	MSS	MSS	R	MS	MT	MSS	S	S
Kowari ^{db}	D	Q	S	SVS	S	S	S	I	S	S	S
Mitika ^{db}	D	Q	S	MSS	SVS	VS	S	MT	SVS	S	SVS
Williams ^{db}	ST	Q	S	MRMS	MSS	S	S	MI	MSS	MSS	MS
Yallara ^{db}	MT	Q	S	S	S	R	MS	MI	MSS	S	SVS
HAY/FEED OATS											
Archer ^{db}	M	M	MSS	R/S (P)	MSS (P)	VS (P)	VS (P)	I (P)	MRMS (P)	MSS (P)	SVS (P)
Brusher	T	Q	SVS	MR	S	MR	S	MT	MSS	SVS	MS
Forester ^{db}	MT	VS	R-S	MR-MS	MR-S	MS	S	-	S	MS-S	MR
Kingbale ^{db}	T	M	MSS	S	MS	R	MR	MT	MSS	MSS (P)	S (P)
Koorabup ^{db}	MT	QM	S	MSS	MS	MRMS	S	I (P)	MRMS#	SVS	SVS
Kultarr ^{db}	T	M	SVS (P)	MR (P)	MSS (P)	MRMS (P)	S (P)	MI (P)	MS (P)	MS (P)	S (P)
Mulgara ^{db}	T	Q	S	MR	MSS	R	MR	MT	S/MS	MSS	SVS
Tungoo ^{db}	MT	MS	S	MR	MSS	MR	R	MT	MRMS#	S	MRMS
Wallaby ^{db}	MT	MS	SVS (P)	MR (P)	MS (P)	MR (P)	S (P)	MI (P)	MS (P)	MSS (P)	SVS (P)
Wintaroo	T	M	S	S	MS	R	MR	MT	MS#	S	S

Source: Cereal Pathology Group (SARDI)

Colour key: Green is a good choice, yellow use caution and brown shades either do not use or develop a management package if this disease is yield limiting in your environment.

Plant height: D = dwarf, TD = tall dwarf, T = tall, ST = short tall, MT = moderate tall. Maturity: VQ = very quick, Q = quick, QM = quick-mid, M = mid, MS = mid slow, S = slow, VS = very slow.

Probability of reaching milling grade: L = low, ML = moderately low, M = medium, MH = moderately high, H = high, VH = very high, - = not applicable.

Disease ratings: VS = very susceptible, S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant,

VI = very intolerant, I = intolerant, MI = moderately intolerant, MT = moderately tolerant, T = tolerant, VT = very tolerant.

¹ Pathogens are very variable so a range of possible reactions may be observed. - indicates the range of observed scores depending on different pathogen strains.

/ indicates reaction to less common strains. (P) = provisional ratings – treat with caution. # may be more susceptible to alternate pathotypes.

OAT VARIETY NOTES

MILLING VARIETIES

BILBY[Ⓛ]

Bilby[Ⓛ], developed by SARDI and commercialised by Barenbrug in 2019, is a dwarf, quick maturing milling oat. It has excellent grain yield comparable with Williams[Ⓛ] and Bannister[Ⓛ] in SA, but with improved grain quality due to lower screenings and a higher groat percentage. Bilby[Ⓛ] has high β -glucan and lower oil than other dwarf varieties with bright grain. It is a cross between two breeder's lines and was tested as 06204-16. Seed is available through Barenbrug broadacre agents. EPR \$2.50 ex-GST.

GOLDIE[Ⓛ]

Goldie[Ⓛ] (tested as 13008-18) is a high-yielding milling oat developed by InterGrain and released in 2023. It is a mid maturity variety, similar to Bilby[Ⓛ] and Carrolup and has a tall plant height, 5cm taller than Bannister[Ⓛ]. Seed is available from InterGrain Seedclub members and local resellers. EPR \$3.50 ex-GST.

KOALA[Ⓛ]

Koala[Ⓛ], developed by SARDI and commercialised by Seednet in 2022, is a tall dwarf potential milling line. It has good early vigour similar to Bannister[Ⓛ], which is one of its parents, and is a mid-quick maturing variety that can be up to seven days later to head compared with Bannister[Ⓛ] and Williams[Ⓛ]. Grain yield potential is similar to Bannister[Ⓛ] and Williams[Ⓛ] and grain quality comparable with Bannister[Ⓛ]. It was tested as 09143-35. Contact Seednet for seed availability. EPR \$2.50 ex-GST.

KOWARI[Ⓛ]

Kowari[Ⓛ], developed by SARDI and commercialised by Barenbrug in 2017, is a dwarf quick maturing milling oat variety measuring slightly taller than Mitika[Ⓛ] in height with similar maturity and grain yield. Grain quality is good with low screenings and an improved β -glucan content compared with older milling varieties. Kowari[Ⓛ] has high protein and slightly higher groat percentage compared with Mitika[Ⓛ]. Seed is available through Barenbrug broadacre agents. EPR \$2.50 ex-GST.

MITIKA[Ⓛ]

Mitika[Ⓛ], developed by SARDI and commercialised by Barenbrug in 2005, is a quick maturing dwarf milling oat with high hectolitre and grain weight, low screenings and moderately high groat percentage. It is also a high feed value oat with low hull lignin and high grain digestibility and is recommended for all rainfall zones where cereal cyst nematode (CCN) or stem nematode is not a problem. Seed is available through Barenbrug broadacre agents. EPR \$2.00 ex-GST.

DUAL-PURPOSE VARIETIES

The following varieties have shown promise in agronomy and breeding trials for both grain and hay end-uses.

BANNISTER[Ⓛ]

Bannister[Ⓛ] is a quick maturing milling oat released by the National Oat Breeding Program in 2012 in WA, but also suited to eastern Australia because of its improved disease resistance profile. Bannister[Ⓛ] is a tall dwarf, 13cm taller than Mitika[Ⓛ], and is high yielding for grain. It has shown potential for hay production, although may flower in the boot in harsh finishing seasons. Bannister[Ⓛ] has slightly lower hectolitre weight, slightly higher screenings and slightly lower groat percentage compared with Mitika[Ⓛ]. Seed is available through Seednet and Seednet partners. EPR \$2.30 ex-GST for grain and \$2.00 ex-GST for hay.

DURACK[Ⓛ]

Durack[Ⓛ] was released in 2016 and is a very quick maturing, medium-tall variety, similar in height to Yallara[Ⓛ]. This variety is a minimum of one week earlier to flower and cut for hay than any other variety released from the National Oat Breeding Program. It is widely adapted to the low to medium-rainfall zones and late sowing in the high-rainfall regions, although due to its fast development speed it does not have the hay yield potential of other hay varieties. Grain yield is similar to Yallara[Ⓛ], and an improvement compared with tall varieties bred for hay. Monitoring the crop will be the key to achieving the highest hay quality through cutting at the correct growth stage. Seed is available through Barenbrug broadacre agents. EPR \$2.30 ex-GST for grain and \$2.00 ex-GST for hay.

INTRO

WHEAT

BARLEY

OAT

CANOLA

FABA BEAN

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WILLIAMS[Ⓛ]

Williams[Ⓛ] is a mid-tall milling variety released by the National Oat Breeding Program in 2013 in WA. It is also suited to eastern Australia because of its improved disease resistance profile. Williams[Ⓛ] is a high-yielding quick variety with similar maturity to Yallara[Ⓛ] and 15cm shorter. Williams[Ⓛ] has similar grain yield to Bannister[Ⓛ] with slightly inferior grain quality. Screenings can be high, especially in low-rainfall regions or sharp finishes. Williams[Ⓛ] averages slightly lower hay yield compared with other hay varieties. Hay quality is similar to Wintaroo with slightly lower water-soluble carbohydrates and slightly higher crude protein. Seed is available through Barenbrug broadacre agents. EPR \$2.30 ex-GST for grain and \$2.00 ex-GST for hay.

YALLARA[Ⓛ]

Yallara[Ⓛ] is a medium-tall milling oat variety developed by SARDI and released in 2009. Yallara[Ⓛ] is a premium quality oat with the flexibility to cut for hay with fine stems and good hay quality. Yallara[Ⓛ] has bright grain and high grain digestibility, making it suitable for the horse racing industry. Seed is available through Seednet and Seednet partners. EPR \$2.00 ex-GST for grain and hay.

HAY VARIETIES**ARCHER[Ⓛ]**

Archer[Ⓛ] is a single-gene imidazolinone (IMI) tolerant oaten hay released in 2022 (tested as GIA1803-040). It has a quick maturity and medium plant height, with good early vigour and hay colour retention. Improved tolerance to soil residual imidazolinone herbicides, ideal for use where there are residue concerns. Sentry[®] herbicide is registered for incorporation by sowing for hay, forage, seed and grain (domestic feed market only). Excess grain, seed and screenings produced from single-gene imidazolinone oaten hay varieties (Kingbale[Ⓛ] and Archer[Ⓛ]) can be used for the domestic oaten grain feed markets and/or consumed on-farm. Grain of these varieties cannot be delivered into bulk handling systems. Bred by GIA and marketed by InterGrain. Seed is available from local resellers and InterGrain Seedclub members. EPR \$3.65 ex-GST for hay and grain.

BRUSHER

Brusher is a quick maturing tall oat developed by SARDI and commercialised by AEXCO Pty Ltd in 2003. It is earlier to head than Wintaroo with good panicle emergence, which makes it well suited to low-rainfall areas. Grain yield and grain quality are similar to Wintaroo, with higher grain protein. Brusher is moderately low in grain lignin. Seed is available through AEXCO-appointed seed distributors. EPR \$2.00 ex-GST for hay.

FORESTER[Ⓛ]

Forester[Ⓛ] is a very slow maturing hay variety adapted to high-rainfall and irrigated cropping regions. It was bred by SARDI and commercialised by AEXCO Pty Ltd in 2012. It is three weeks later to head compared with Wintaroo. Forester[Ⓛ] has excellent hay quality. Seed is available through the authorised AEXCO seed distributor, AGF Seeds. EPR \$2.00 ex-GST for hay.

KINGBALE[®]

Kingbale[®] is a single-gene IMI-tolerant oaten hay with a mid maturity, tall plant height, good early vigour and a similar disease and agronomic profile to Wintaroo. Kingbale[®] has improved tolerance to soil residual imidazolinone herbicides. Registered with Sentry[®] herbicide for hay and seed production only. Sentry[®] is registered for incorporation by sowing for hay, forage, seed and grain (domestic feed market only). Excess grain, seed and screenings produced from single-gene imidazolinone oaten hay varieties (Kingbale[®] and Archer[®]) can be used for the domestic oaten grain feed markets and/or consumed on-farm. Grain of these varieties cannot be delivered into bulk handling systems. Bred by GIA and marketed by InterGrain with seed available from local resellers and InterGrain Seedclub members. EPR \$3.65 ex-GST for hay and grain.

KOORABUP[®]

Koorabup[®] is a mid-tall hay variety with mid-quick maturity, bred by SARDI and developed for the WA market. This line is a cross between two advanced WA breeding lines and was commercialised by AEXCO Pty Ltd. It is similar in height, two to four days later in maturity and has similar grain yield and stem diameter compared with Yallara[®] but with lower hay yield. It has improved grain quality compared with other current hay varieties. Grain quality is similar to Yallara[®] but with a lower groat percentage. It has low oil and bright grain. Seed is available through AEXCO-appointed seed distributors. EPR \$2.00 ex-GST for export hay.

KULTARR[®]

Kultarr[®] is a quick maturing oaten hay with a tall plant height, similar to Swan. Kultarr[®] is higher yielding than Brusher and Mulgara[®] and slightly later to flower than Brusher, like Mulgara[®]. Preliminary hay quality data indicates the variety has a suitable quality profile. Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.00 ex-GST for hay and grain.

MULGARA[®]

Mulgara[®] is a tall, quick maturing hay oat bred by SARDI and commercialised by AEXCO Pty Ltd in 2009. Hay quality is similar to Wintaroo. Grain yield and quality is similar to Wintaroo with lower screenings, higher protein and groat percentage. Mulgara[®] has high grain hull lignin. It is recommended to replace Wintaroo in areas with stem nematode due to its higher level of resistance. Mulgara[®] seed size is larger than other hay varieties described in this sowing guide. Care should be taken to sow this variety at the correct seed density. Seed is available through AEXCO-appointed seed distributors. EPR \$2.00 ex-GST for hay.

TUNGOO[®]

Tungoo[®] is a medium-tall, mid to late season hay variety bred by SARDI and commercialised by AEXCO in 2012. It has moderately low hull lignin. Seed is available through AEXCO-appointed seed distributors. EPR \$2.00 ex-GST for hay.

WALLABY[®]

Wallaby[®] is a mid-slow maturing oaten hay variety with similar hay yields to Mulgara[®] and Brusher. Wallaby[®] has high-quality attributes including good digestibility, high water-soluble carbohydrate levels and low neutral detergent fibres (NDF). Wallaby[®] has a medium to tall plant height and likely suited to medium and high-rainfall zones. Seed is available from local resellers or InterGrain Seedclub members. EPR \$3.00 ex-GST for hay and grain.

YIELD PERFORMANCE EXPERIMENTS FROM 2019–23

The yield results presented are multi-environment trial (MET) data shown on a yearly regional group mean and an overall performance mean for the region. All yields are expressed as a percentage of mean yield from NVT data 2019 to 2023 inclusive. Further results can be found on the NVT website (nvt.grdc.com.au).

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Table 2: Upper Eyre Peninsula oat yield performance. NVT data 2019–23. Data for 2019, 2021 and 2023 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	0.00	1.07	0.00	2.56	0.00
	No. trials	0	1	0	1	0
Bannister ^{db}	2	Data not available	100	Data not available	123	Data not available
Bilby ^{db}	2		100		90	
Durack ^{db}	2		99		71	
Koala ^{db}	2		101		143	
Koorabup ^{db}	2		99		100	
Kowari ^{db}	2		100		82	
Mitika ^{db}	2		100		80	
Williams ^{db}	2		100		108	
Yallara ^{db}	2		99		97	
Goldie ^{db}	1		–		–	

– denotes no data available.

Table 3: Yorke Peninsula oat yield performance. NVT data 2019–23. Data for 2022 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.14	0.81	1.58	0.00	2.39
	No. trials	1	1	1	0	1
Bannister ^{db}	4	105	111	100	Data not available	114
Bilby ^{db}	4	116	114	121		107
Durack ^{db}	4	98	87	111		82
Koala ^{db}	4	86	101	68		109
Koorabup ^{db}	3	78	71	88		–
Kowari ^{db}	4	110	106	116		97
Mitika ^{db}	4	102	96	108		91
Williams ^{db}	4	103	99	108		118
Yallara ^{db}	4	89	81	104		89
Goldie ^{db}	2	–	–	136		125

– denotes no data available.

Table 4: Mid North oat yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.06	3.39	3.34	6.28	3.78
	No. trials	1	1	1	1	1
Bannister ^{db}	5	100	114	109	111	103
Bilby ^{db}	5	118	104	99	95	102
Durack ^{db}	5	108	87	91	84	98
Koala ^{db}	5	78	113	112	122	100
Koorabup ^{db}	4	81	91	100	98	–
Kowari ^{db}	5	115	97	95	91	100
Mitika ^{db}	5	107	92	93	90	99
Williams ^{db}	5	94	102	104	104	102
Yallara ^{db}	5	95	97	101	96	99
Goldie ^{db}	3	–	–	112	107	108

– denotes no data available.

Table 5: Murray Mallee oat yield performance. NVT data 2019–23. Data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	0.63	2.71	0.00	3.68	1.55
	No. trials	1	1	0	1	1
Bannister ^{db}	4	98	109	Data not available	115	109
Bilby ^{db}	4	109	101		91	104
Durack ^{db}	4	113	93		79	86
Koala ^{db}	4	84	107		132	107
Koorabup ^{db}	3	99	101		102	–
Kowari ^{db}	4	110	97		86	98
Mitika ^{db}	4	106	95		86	94
Williams ^{db}	4	89	107		106	110
Yallara ^{db}	4	110	104		97	89
Goldie ^{db}	2	–	–		106	115

– denotes no data available.

Table 6: South East oat yield performance. NVT data 2019–23. Data for 2023 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	5.02	5.02	4.80	2.88	0.00
	No. trials	2	2	2	2	0
Bannister [Ⓛ]	8	106	113	110	98	Data not available
Bilby [Ⓛ]	8	102	104	103	102	
Durack [Ⓛ]	8	90	78	86	97	
Koala [Ⓛ]	8	106	115	111	99	
Koorabup [Ⓛ]	8	89	80	88	90	
Kowari [Ⓛ]	8	98	96	97	102	
Mitika [Ⓛ]	8	96	91	93	101	
Williams [Ⓛ]	8	106	112	107	99	
Yallara [Ⓛ]	8	90	80	90	88	
Goldie [Ⓛ]	4	–	–	116	95	

– denotes no data available.

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CANOLA

By Andrew Ware, EPAG Research

Since the publication of the 2024 sowing guide, seven new canola varieties have become available for production in 2025. These include: InVigor® LR 3540P, Pioneer® PY327C, Pioneer® PY428R, Pioneer® PY323G, Pioneer® PY424GC, Pioneer® PY429T and DG Buller G.

There may be further variety releases in the months to follow, with seed possibly being available for planting in 2025, but these cannot be confirmed at this time.

It should be noted that the marketing company responsible for each of the varieties listed in this section has advised that they are planning to have seed available for planting in 2025. However, not all varieties that are still marketed have been tested in NVT in 2024. Some older varieties have not been evaluated in NVT for several years, but seed remains available.

Speciality-type canola varieties such as those marketed under the VICTORY®, Nexera® or Monola® brands are not included in this sowing guide as there are no delivery points for these varieties in South Australia.

VARIETAL SELECTION

The selection of the most suitable canola variety for a particular situation needs consideration of maturity, herbicide tolerance, potential for herbicide residue presence, blackleg resistance, relative yield, oil content and early vigour.

- The weed species expected may dictate the need for a herbicide-tolerant production system (for example, triazine, imidazolinone or glyphosate tolerant). It should be noted that any variety with triazine tolerance will incur a yield and oil penalty when grown in situations where they are not warranted.
- Blackleg has the potential to be a very destructive disease in canola and its management through varietal selection, fungicides and cultural practices is important in maximising yield potential. Varietal blackleg resistance and/or fungicide use should be considered, particularly when rotations are close.
- The new upper canopy blackleg infection resistance ratings have been included in this guide for the first time. For information on how to utilise these ratings please refer to the Blackleg Management Guide at: [Blackleg Management Guide – GRDC](#).

CANOLA VARIETY NOTES

CONVENTIONAL VARIETIES

Conventional varieties (varieties with no herbicide tolerance) are no longer evaluated in NVT in South Australia. No yield data will be reported here for conventional varieties.

NUSEED® DIAMOND

Early maturing hybrid. Very fast to flower. Medium plant height. Suited to low to medium-rainfall areas. Blackleg resistance rating of RMR (resistance group ABF) and upper canopy blackleg infection (UCI) rating MR). Tested in NVT in 2012–20. Bred and marketed by Nuseed.

NUSEED® QUARTZ

Mid maturing, conventional hybrid. Replacement for AV Garnet. Medium height. Blackleg resistance rating of R (resistance group ABD) and UCI rating MR. Tested in NVT 2016–20. Bred and marketed by Nuseed.

OUTLAW[Ⓛ]

An early maturing, open-pollinated variety. Blackleg resistance rating of RMR (resistance group A) and UCI rating MR. Bred and marketed by AGT. EPR \$10.00 ex-GST.

TRIAZINE-TOLERANT VARIETIES

AFP CUTUBURY[Ⓛ]

An early-mid maturing, open-pollinated variety. AFP Cutubury[Ⓛ] has tolerance to Group 2 (Group B) herbicide that allows it to be planted into soil residues of Group 2 herbicide. Medium plant height. Suited to low to medium-rainfall areas. Blackleg resistance rating of MS (resistance group AB) and upper canopy blackleg infection (UCI) rating MS. Tested in NVT in 2020–23. Bred by Agronomy for Profit Seeds. EPR \$4.00 ex-GST.

ATR-BLUEFIN[Ⓛ]

An early maturity, open-pollinated triazine variety. Blackleg resistance rating RMR (resistance group AB) and UCI rating MR. Medium height. Improved early vigour on ATR-Stingray. For low to medium-rainfall areas. Tested in NVT in 2020–24. Bred and marketed by Nuseed. EPR \$5.00 ex-GST.

ATR-BONITO[Ⓛ]

Early-mid season maturing, open-pollinated variety. Short-medium height. Suited to low to medium-rainfall areas. Blackleg resistance rating of MS (resistance group A) and UCI rating MS. Tested in NVT in 2012–24. Marketed by Nuseed. EPR \$5.00 ex-GST.

ATR-SWORDFISH[Ⓛ]

Early-mid season maturing, open-pollinated variety. Short-medium height. Suited to low to medium-rainfall areas. Blackleg resistance rating of MRMS (resistance group AB) and UCI rating MRMS. Tested in NVT in 2021–23. Marketed by Nuseed. EPR \$5.00 ex-GST.

DG AVON TT[Ⓛ]

An early maturity, open-pollinated triazine variety. Suited to low to medium rainfall areas. Blackleg resistance of MR (resistance group AC) and UCI rating MR. Tested in NVT in 2022–24. Marketed by Nutrien Ag Solutions. EPR \$5.00 ex-GST

DG BIDGEE TT[Ⓛ]

A mid maturity, open-pollinated triazine variety. Suited to low to medium-rainfall areas. Blackleg resistance of R (resistance group H) and UCI rating R. Tested in NVT in 2021–23. Marketed by Nutrien Ag Solutions. EPR \$5.00 ex-GST.

DG TORRENS TT[Ⓛ]

An early-mid maturity, open-pollinated triazine variety. Suited to low to medium-rainfall areas. Blackleg resistance of RMR (resistance group H) and UCI rating R. Tested in NVT in 2020–23. Marketed by Nutrien Ag Solutions. EPR \$5.00 ex-GST.

HYOLA® BLAZER TT

Early-mid maturing TT hybrid. Medium-short plant height. Blackleg resistance rating RMR (resistance group ADF) and UCI rating MR. Suited to medium to very high-rainfall zones. Tested in NVT in 2019–24. Bred and marketed by Pacific Seeds.

HYTTEC® TRIDENT

An early maturity hybrid canola. Medium-tall plant height. Blackleg rating of R (resistance group AD) and UCI rating MR. Suited to the low-rainfall areas. Tested in NVT 2017–24. Bred and marketed by Nuseed. EPR \$5.00 ex-GST.

HYTTEC® TRIFECTA

A mid-maturity hybrid canola. Medium-tall plant height. Provisional blackleg resistance rating of R (resistance group ABD) and UCI rating MR. Suited to the medium to high-rainfall areas. Tested in NVT in 2019–24. Bred and marketed by Nuseed. EPR \$5.00 ex-GST.

HYTTEC® TROPHY

An early-mid maturity hybrid canola. Medium-tall plant height. Blackleg rating of R (resistance group AD) and UCI rating MR. Suited to the low to medium-rainfall areas. Tested in NVT in 2017–24. Bred and marketed by Nuseed. EPR \$5.00 ex-GST.

HYTTEC® VELOCITY

An early maturity hybrid canola. Medium-tall plant height. Blackleg rating of MR (resistance group AB) and UCI rating MR. Suited to the low to medium-rainfall areas. Tested in NVT in 2020–24. Bred and marketed by Nuseed. EPR \$5.00 ex-GST.

INVIGOR® T 4511

Early-mid season, triazine-tolerant hybrid variety. Blackleg resistance rating R (resistance group unknown) and UCI rating MR. Tested in NVT in 2021–24. Marketed by BASF.

PIONEER® PY429T – NEW

Early-mid season, triazine-tolerant hybrid variety. Suited to low to medium-rainfall zones. Blackleg resistance rating R (resistance group ABH) and UCI rating R. Tested in NVT trials in 2024. Marketed by Pioneer Brand Seeds.

RENEGADE TT[Ⓛ]

An early-mid maturing, open-pollinated variety. Blackleg rating of MR (resistance group A) and UCI rating MR. Tested in NVT in 2021–24. Marketed by AGT. EPR \$10.00 ex-GST.

RGT BASELINE® TT

Mid maturing hybrid. Suited to medium-rainfall areas. Medium plant height. Blackleg resistance rating MRMS (resistance group B) and UCI rating MRMS. Tested in NVT in 2021–24. Marketed by RAGT Australia. EPR \$10.00 ex-GST.

RGT CAPACITY TT

An early-mid maturing hybrid. Suited to low to medium-rainfall areas. Medium plant height. Blackleg resistance rating MRMS (resistance group B) and UCI rating MRMS. Tested in NVT in 2019–24. Marketed by RAGT Australia. EPR \$10.00 ex-GST.

SF DYNATRON TT

Mid maturing hybrid, triazine-tolerant canola. Suited to the medium to high-rainfall areas. Medium-tall height with a high oil content. Blackleg rating MRMS (resistance group BC) and UCI rating of MRMS. Tested in NVT in 2019–24. Marketed by RAGT Australia, exclusively to Nutrien. EPR \$10.00 ex-GST.

SF SPARK TT

Early maturing hybrid. Suited to low to medium-rainfall areas. Medium plant height. Blackleg rating MR (resistance group ABDS) and UCI rating MR. Tested in NVT in 2018–23. Marketed by RAGT Australia. EPR \$10.00 ex-GST.

DUAL TRIAZINE AND LIBERTYLINK® TOLERANT**INVIGOR® LT 4530P**

Early-mid maturing triazine-tolerant and LibertyLink® hybrid variety (classified as GM). Blackleg resistance RMR (resistance group BF) and UCI rating MR. Suited to medium to high-rainfall areas. PodGuard® technology makes it suited to later windrowing timings or direct harvest. Tested in NVT 2021–24. NVT yields in triazine-tolerant tables. Bred and marketed by BASF.

DUAL GLYPHOSATE AND LIBERTYLINK® TOLERANT**INVIGOR® LR 3540P – NEW**

Early-mid maturing, triazine-tolerant and LibertyLink® hybrid variety (classified as GM). Blackleg resistance RMR (resistance group BF) and UCI rating MR. Suited to medium to high-rainfall areas. PodGuard® technology makes it suited to later windrowing timings or direct harvest. Tested in NVT 2021–24. NVT yields in triazine-tolerant tables. Bred and marketed by BASF.

INVIGOR® LR 4540P

Early-mid maturing, glyphosate (TruFlex®) and LibertyLink® hybrid variety. Blackleg resistance RMR (resistance group B) and UCI rating MR. Suited to medium to high-rainfall areas. PodGuard® technology makes it suited to later windrowing timings or direct harvest. Tested in NVT 2023-24. NVT yields in glyphosate-tolerant tables. Bred and marketed by BASF.

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INVIGOR® LR 5040P

Mid maturing, glyphosate (TruFlex®) and LibertyLink® hybrid variety. Blackleg resistance RMR (resistance group AB) and UCI rating MR. Suited to medium to high-rainfall areas. PodGuard® technology makes it suited to later windrowing timings or direct harvest. Tested in NVT 2023-24. NVT yields in glyphosate-tolerant tables. Bred and marketed by BASF.

DUAL TRIAZINE AND IMIDAZOLINONE TOLERANT**HYOLA® DEFENDER CT**

Mid-early maturing variety that carries tolerance to both triazine and Clearfield® herbicide chemistries. Suited to medium to high-rainfall zones. Blackleg resistance rating R (resistance group ADF) and UCI rating MR. Also designed for imidazolinone soil carryover situations. Tested in NVT in 2022–24. NVT yields in triazine-tolerant tables. Bred and marketed by Pacific Seeds.

HYOLA® ENFORCER CT

Early-mid maturing variety that carries tolerance to both triazine and Clearfield® herbicide chemistries. Suited to low to medium-rainfall zones. Blackleg resistance rating R (resistance group ADF) and UCI rating MR. Also designed for imidazolinone soil carryover situations. Tested in NVT in 2019–24. NVT yields in triazine-tolerant tables. Bred and marketed by Pacific Seeds.

PIONEER® PY520 TC

Mid maturing variety that carries tolerance to both triazine and Clearfield® herbicide chemistries. Suited to medium to high-rainfall zones. Blackleg rating RMR (resistance group BC) and UCI rating of MR. Also designed for imidazolinone soil carryover situations. Tested in NVT in 2021–24. Marketed by Pioneer Brand Seeds.

GLYPHOSATE-TOLERANT HYBRID VARIETIES

Glyphosate-tolerant varieties have been tested in South Australian NVT trials since 2021 and will have limited data at some sites.

Roundup Ready®, TruFlex® and Optimum GLY® are suites of varieties that are tolerant to applications of specific formulations of glyphosate herbicide. The difference in naming categories relates to the amount and timing of herbicide that the crop is able to tolerate. Roundup Ready® varieties must not be sprayed after the crop has reached the six true leaf stage, whereas the TruFlex® varieties are able to be sprayed up until the first flower stage and Optimum GLY® varieties are able to be sprayed up until the 10 per cent flower stage.

DG LOFTY TF

Early-mid maturing TruFlex® hybrid. Suited to low to medium-rainfall zones. Blackleg rating of R (resistance group ABH) and UCI rating of R. Tested in NVT in 2021–23. Marketed by Nutrien Ag Solutions.

DG HOTHAM TF

Mid maturing TruFlex® hybrid. Suited to medium to high-rainfall zones. Blackleg rating of R (resistance group ABH) and UCI rating of R. Tested in NVT in 2022–24. Marketed by Nutrien Ag Solutions.

DG BULLER G – NEW

Mid maturity, Optimum GLY® hybrid. Suited to all rainfall areas. Provisional blackleg resistance of R (resistance group AH). Tested in NVT in 2024. Marketed by Nutrien Ag Solutions.

INVIGOR® R 4022P

Early-mid maturing TruFlex® hybrid suited to medium-rainfall zones. PodGuard® technology makes it suited to later windrowing timings or direct harvest. Blackleg rating of MRMS (resistance group ABC) and UCI rating of MRMS. Tested in NVT in 2019–23. Bred and marketed by BASF.

INVIGOR® R 4520P

Early-mid maturing TruFlex® hybrid variety. PodGuard® technology makes it suited to later windrowing timings or direct harvest. Blackleg rating of MRMS (resistance group B) and UCI rating of MRMS. Tested in NVT in 2019–24. Bred and marketed by BASF.

NUSEED® EAGLE TF

Mid maturing TruFlex® hybrid. Suited to medium to high-rainfall areas. Blackleg rating R (resistance group ABD) and UCI rating MR. Tall height. Tested in NVT in 2022–24. Bred and marketed by Nuseed.

NUSEED® EMU TF

Early maturing TruFlex® hybrid. Suited to low to medium-rainfall areas. Medium plant height. Blackleg rating MR (resistance group AB) and UCI rating MR. Tested in NVT in 2021–24. Bred and marketed by Nuseed.

NUSEED® HUNTER TF

Early-mid maturing TruFlex® hybrid. Suited to low to medium-rainfall areas. Medium plant height. Blackleg rating RMR (resistance group AB) and UCI rating MR. Tested in NVT in 2021–24. Bred and marketed by Nuseed.

NUSEED® RAPTOR TF

Early-mid maturing TruFlex® hybrid. Blackleg rating R (resistance group AD) and UCI rating MR. Medium height. Tested in NVT in 2021–24. Bred and marketed by Nuseed.

PIONEER® 44Y27 RR

Early to early-mid season Roundup Ready® hybrid variety, ideally suited to low to medium-rainfall zones. Blackleg rating RMR (resistance group B) and UCI rating MR. Tested in NVT in 2016–24. Marketed by Pioneer Brand Seeds.

PIONEER® 44Y30 RR

Early-mid season Roundup Ready® hybrid variety, with a wide area of adaptation. Blackleg rating RMR (resistance group AB) and UCI rating MR. Tested in NVT in 2020–23. Marketed by Pioneer Brand Seeds.

PIONEER® 45Y28 RR

Mid maturing Roundup Ready® hybrid variety. Suited to medium to high-rainfall zones and irrigation. Blackleg rating RMR (resistance group BC) and UCI rating MR. Medium-tall height. Tested in NVT in 2018–23. Marketed by Pioneer Brand Seeds.

PIONEER® PY323G – NEW

Early season Optimum GLY® hybrid variety. Blackleg rating MRMS (resistance group BC) and UCI rating MRMS. Tested in NVT in 2024. Marketed by Pioneer Brand Seeds.

PIONEER® PY422G

Early-mid season Optimum GLY® hybrid variety. Blackleg rating MR (resistance group AB) and UCI rating of MR. Tested in NVT in 2023–24. Marketed by Pioneer Brand Seeds.

PIONEER® PY428R – NEW

Early-mid season Roundup Ready® hybrid variety. Pioneer suggests blackleg rating R (resistance group AB). Tested in NVT in 2024. Marketed by Pioneer Brand Seeds.

PIONEER® PY525G

Mid maturing Optimum GLY® hybrid variety. Suited to medium to high-rainfall zones. Blackleg rating MR (resistance group MR). Tested in NVT in 2023–24. Marketed by Pioneer Brand Seeds.

DUAL IMIDAZOLINONE AND GLYPHOSATE TOLERANT**HYOLA® BATTALION XC**

Early maturity, TruFlex® and Clearfield® (imidazoline) tolerant hybrid canola. Medium to medium-tall plant height. Suited to low to medium-rainfall zones. Blackleg resistance rating RMR (resistance group ADF) and UCI rating MR. Also suited to imidazoline herbicide residue situations. Tested in NVT in 2019–23. NVT yields in glyphosate-tolerant tables. Bred and marketed by Pacific Seeds.

HYOLA® REGIMENT XC

Mid maturity, TruFlex® and Clearfield® (imidazoline) tolerant hybrid canola. Suited to low to high-rainfall zones. Blackleg resistance rating R (resistance group ADFH) and UCI rating of R. Also suited to imidazoline herbicide residue situations. Tested in NVT in 2021–24. NVT yields in glyphosate-tolerant tables. Bred and marketed by Pacific Seeds.

PIONEER® PY424GC – NEW

Early-mid maturity Optimum GLY® and Clearfield® (imidazoline) tolerant hybrid. Suited to low to medium-rainfall zones. Blackleg resistance rating MRMS (resistance group BC) and UCI rating MRMS. Also suited to imidazoline herbicide residue situations. Tested in NVT trials in 2024. Marketed by Pioneer Brands Seeds.

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IMIDAZOLINONE TOLERANT

HYOLA® SOLSTICE CL

Early-mid maturing CL hybrid. Suited to low to medium-rainfall zones. Blackleg resistance rating R (resistance group ADFH) and UCI rating R. Tested in NVT in 2021–24. Bred and marketed by Pacific Seeds.

NUSEED® CERES IMI

Early maturing CL hybrid. Suited to low to medium-rainfall areas. Blackleg rating RMR (resistance group AD) and UCI rating MR. Tested in NVT in 2021–24. Bred and marketed by Nuseed.

PIONEER® 43Y92 CL

Early maturing CL hybrid. Medium plant height. Suited to low to medium-rainfall areas and short-season growing zones. Blackleg resistance rating of RMR (resistance group B) and UCI rating MR. Tested in NVT in 2016–24. Marketed by Pioneer Brand Seeds.

PIONEER® 44Y94 CL

Early-mid maturing CL hybrid. Blackleg resistance rating of RMR (resistance group BC) and UCI rating of MR. Tested in NVT in 2019–24. Marketed by Pioneer Brand Seeds.

PIONEER® 45Y93 CL

Mid maturing CL hybrid suited to early planting and high to medium-rainfall zones. Medium-tall plant height. A blackleg rating of R (resistance group BC) and UCI rating MR. Tested in NVT in 2017–23. Marketed by Pioneer Brand Seeds.

PIONEER® 45Y95 CL

A mid maturing CL hybrid variety, best suited to medium to high-rainfall zones and irrigation. Medium-tall plant height. Blackleg rating of RMR (resistance group C) and UCI rating MR. Tested in NVT in 2020–23. Marketed by Pioneer Brand Seeds.

PIONEER® PY327C – NEW

Early maturing CL hybrid variety, best suited to low to medium-rainfall zones. Blackleg rating and resistance group to be determined. Marketed by Pioneer Brand Seeds.

PIONEER® PY421C

Early-mid maturing CL hybrid variety. Provisional blackleg rating of RMR (provisional resistance group A) and UCI rating MR. Tested in NVT in 2022–24. Marketed by Pioneer Brand Seeds.

WINTER-TYPE IMIDAZOLINONE TOLERANT

Several winter-type canola varieties are available. These varieties have a high vernalisation (or cold) requirement, which means they are capable of producing high quantities of biomass before they commence flowering and are able to make use of extended growing seasons. This enables them to be grazed over a relatively large window, with often little damage to grain yield. These varieties are not evaluated in NVT; however, they are suited to some environments that have a long growing season, such as the lower South-East and Kangaroo Island, or in situations where growers are looking to utilise either spring, summer or early autumn rainfall events.

CAPTAIN CL

Long season, winter graze-and-grain dual-purpose Clearfield® hybrid. Suited to sowing in autumn, (February to April) and spring (early to late October) in medium-high through to very high-rainfall zones. Blackleg resistance rating R (resistance group AH) and UCI rating R. Not tested in NVT. Marketed by AGF Seeds.

HYOLA® 970CL

Long season, winter graze-and-grain dual-purpose Clearfield® hybrid. Pacific Seeds indicates high to very high biomass dry matter (DM) production, good grain yield and oil content. Suited to sowing in autumn, (February to April) and spring (early to late October) in medium-high through to very high-rainfall zones. Blackleg resistance rating R (resistance group H). Not tested in NVT. Marketed by Pacific Seeds.

HYOLA® FEAST CL

Long season, winter graze-and-grain dual-purpose Clearfield® hybrid. Pacific Seeds indicates high to very high biomass DM production, good grain yield and oil content. Will mature seven days earlier than Hyola® 970CL. Suited to sowing in autumn (February to April) and spring (early to late October) in medium-high through to very high-rainfall zones. Blackleg resistance rating R (resistance group H). Not tested in NVT. Marketed by Pacific Seeds.

RGT CLAVIER CL

A winter graze-and-grain dual-purpose hybrid variety. Suited to early and spring sowing in high-rainfall areas. Blackleg resistance rating of R (resistance group ACH). Not tested in NVT. Marketed by RAGT Australia. EPR \$12.00 ex-GST.

RGT NIZZA CL

Early winter dual purpose grazing hybrid. Approximately seven to 10 days earlier to flower than Hyola® 970CL. RAGT indicates very high biomass with excellent yield and oil content. Suited to early sowing in high-rainfall areas. Blackleg resistance rating R (resistance group B). Not tested in NVT. Marketed by RAGT Australia. EPR \$12.00 ex-GST.

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Table 1: Agronomic and disease information for current canola varieties.

Variety	Herbicide tolerance	Type	Harvest maturity	Blackleg rating			Upper canopy blackleg (UCI) rating	Blackleg group	EPR (\$/t)	Release	Seed access
				Bare seed	ILeVO®	Saltro®					
Nuseed® Diamond	Conv	Hybrid	3	RMR	R	R	MR-UCI	ABF	–	2013	Nuseed
Nuseed® Quartz	Conv	Hybrid	5	RMR	–	–	MR-UCI	ABD	–	2017	Nuseed
Outlaw ^{db}	Conv	OP	3	RMR	–	–	MR-UCI	A	10	2022	AGT
AFP Cutubury ^{db}	TT**	OP	4	MS	RMR	RMR	MS-UCI	AB	4	2020	Agronomy for Profit
ATR-Bluefin ^{db}	TT	OP	3	RMR	–	–	MR-UCI	AB	5	2021	Nuseed
ATR Bonito ^{db}	TT	OP	4	MS	RMR	R	MS-UCI	A	5	2013	Nuseed
ATR-Swordfish ^{db}	TT	OP	4	MRMS	–	–	MRMS-UCI	AB	5	2023	Nuseed
Bandit TT ^{db}	TT	OP	3	MRMS	R	R	MRMS-UCI	A	10	2022	AGT
DG Avon TT ^{db}	TT	OP	3	MR	R	R	MR-UCI	AC	5	2023	Nutrien
DG Bidgee TT ^{db}	TT	OP	5	R	R	R	R-UCI	H	5	2021	Nutrien
DG Murray TT ^{db}	TT	OP	6	R	–	–	–	H	5	2021	Nutrien
DG Torrens TT ^{db}	TT	OP	4	RMR	–	–	R-UCI	H	5	2022	Nutrien
Hyola® Blazer TT	TT	Hybrid	4	RMR	–	R	MR-UCI	ADF	–	2020	Pacific Seeds
HyTTec® Trident	TT	Hybrid	3	R	–	–	MR-UCI	AD	5	2019	Nuseed
HyTTec® Trifecta	TT	Hybrid	5	R	–	–	MR-UCI	ABD	5	2020	Nuseed
HyTTec® Trophy	TT	Hybrid	4	R	R	R	MR-UCI	AD	5	2017	Nuseed
HyTTec® Velocity	TT	Hybrid	3	MR	–	–	MR-UCI	AB	5	2022	Nuseed
InVigor® T 4510	TT	Hybrid	4	MR	R	R	MR-UCI	BF	–	2016	BASF
InVigor® T 4511	TT	Hybrid	4	RMR	R	–	MR-UCI	unknown	–	2022	BASF
Pioneer® PY429T	TT	Hybrid	4	R	–	R	R-UCI	ABH	–	2024	Pioneer
Renegade TT ^{db}	TT	OP	4	MR	–	–	MR-UCI	A	10	2022	AGT
RGT Baseline® TT	TT	Hybrid	5	MRMS	R	R	MRMS-UCI	B	10	2022	RAGT Australia
RGT Capacity TT	TT	Hybrid	4	MRMS	MR	R	MRMS-UCI	B	10	2021	RAGT Australia
SF Dynatron TT	TT	Hybrid	5	MRMS	R	R	MRMS-UCI	BC	10	2020	RAGT Australia
SF Spark TT	TT	Hybrid	3	MR	R	R	MR-UCI	ABDS	10	2018	RAGT Australia
InVigor® LT 4530P	TT + LL	Hybrid	4	RMR	R	–	MR-UCI	BF	–	2021	BASF
InVigor® LR 3540P	GT (TF) + LL	Hybrid	3	MR	R	–	MR-UCI	AB	–	2024	BASF
InVigor® LR 4540P	GT (TF) + LL	Hybrid	4	RMR	R	–	MR-UCI	B	–	2021	BASF
InVigor® LR 5040P	GT (TF) + LL	Hybrid	5	RMR	R	–	MR-UCI	AB	–	2024	BASF
Hyola® Defender CT	TT + CL	Hybrid	4	R	–	R	MR-UCI	ADF	–	2023	Pacific Seeds
Hyola® Enforcer CT	TT + CL	Hybrid	4	R	–	–	MR-UCI	ADF	–	2020	Pacific Seeds
Pioneer® PY520 TC	TT + CL	Hybrid	5	MR	–	R	MR-UCI	BC	–	2022	Pioneer
DG Lofty TF	GT (TF)	Hybrid	4	R	–	–	R-UCI	ABH	–	2021	Nutrien
DG Hotham TF	GT (TF)	Hybrid	5	R	–	–	R-UCI	ABH	–	2022	Nutrien

Continued on next page

Table 1: Agronomic and disease information for current canola varieties (continued).

Variety	Herbicide tolerance	Type	Harvest maturity	Blackleg rating			Upper canopy blackleg (UCI) rating	Blackleg group	EPR (\$/t)	Release	Seed access
				Bare seed	ILeVO®	Saltro®					
DG8253G	GT (OG)	Hybrid	5	R	–	–	R-UCI	AH	–	2025	Nutrien
InVigor® R 4022P	GT (TF)	Hybrid	4	MRMS	R	–	MRMS-UCI	ABC	–	2019	BASF
InVigor® R 4520P	GT (TF)	Hybrid	4	MRMS	R	–	MRMS-UCI	B	–	2020	BASF
Nuseed® Eagle TF	GT (TF)	Hybrid	5	R	–	–	MR-UCI	ABD	–	2022	Nuseed
Nuseed® Emu TF	GT (TF)	Hybrid	3	MR	–	–	MR-UCI	AB	–	2021	Nuseed
Nuseed® Hunter TF	GT (TF)	Hybrid	4	RMR	–	–	MR-UCI	AB	–	2022	Nuseed
Nuseed® Raptor TF	GT (TF)	Hybrid	4	R	–	–	MR-UCI	AD	–	2019	Nuseed
Pioneer® 44Y27 RR	GT (RR)	Hybrid	4	RMR	R	R	MR-UCI	B	–	2017	Pioneer
Pioneer® 44Y30 RR	GT (RR)	Hybrid	4	RMR	–	R	MR-UCI	AB	–	2021	Pioneer
Pioneer® 45Y28 RR	GT (RR)	Hybrid	5	RMR	–	R	MR-UCI	BC	–	2018	Pioneer
Pioneer® PY323G	GT (OG)	Hybrid	3	MRMS	–	R	MRMS-UCI	BC	–	2024	Pioneer
Pioneer® PY422G	GT (OG)	Hybrid	4	MR	–	R	MR-UCI	AB	–	2023	Pioneer
Pioneer® PY428R	GT (RR)	Hybrid	4	R*	–	–	–	AB	–	2024	Pioneer
Pioneer® PY525G	GT (OG)	Hybrid	5	MR	–	R	MR-UCI	AB	–	2023	Pioneer
Hyola® Battalion XC	GT (TF) + CL	Hybrid	3	RMR	–	–	MR-UCI	ADF	–	2021	Pacific Seeds
Hyola® Garrison XC	GT (TF) + CL	Hybrid	5	RMR	–	R	MR-UCI	tbd	–	2020	Pacific Seeds
Hyola® Regiment XC	GT (TF) + CL	Hybrid	5	R	–	R	R-UCI	ADFH	–	2022	Pacific Seeds
Pioneer® PY424GC	GT (OG) + CL	Hybrid	4	MRMS	–	R	MRMS-UCI	BC	–	2024	Pioneer
Hyola® Continuum CL	CL	Hybrid	4	R	–	R	MR-UCI	ADF	–	2023	Pacific Seeds
Hyola® Solstice CL	CL	Hybrid	5	R	–	R	R-UCI	ADFH	–	2022	Pacific Seeds
Nuseed® Ceres IMI	CL	Hybrid	3	RMR	–	–	MR-UCI	AD	–	2023	Nuseed
Pioneer® 43Y92 CL	CL	Hybrid	3	RMR	–	R	MR-UCI	B	–	2017	Pioneer
Pioneer® 44Y94 CL	CL	Hybrid	4	RMR	–	R	MR-UCI	BC	–	2020	Pioneer
Pioneer® 45Y93 CL	CL	Hybrid	5	R	–	R	MR-UCI	BC	–	2018	Pioneer
Pioneer® 45Y95 CL	CL	Hybrid	5	RMR	–	R	MR-UCI	C	–	2021	Pioneer
Pioneer® PY327C	CL	Hybrid	3	tbd	–	–	–	tbd	–	2025	Pioneer
Pioneer® PY421C	CL	Hybrid	4	RMR	–	R	MR-UCI	A	–	2023	Pioneer
Captain CL	CL	Hybrid	Winter	R	–	–	R-UCI	AH	5	2023	AGF Seeds
Hyola® 970CL	CL	Hybrid	Winter	R	–	R	R-UCI	H	–	2018	Pacific Seeds
Hyola® Feast CL	CL	Hybrid	Winter	R	–	R	R-UCI	H	–	2020	Pacific Seeds
RGT Clavier CL	CL	Hybrid	Winter	R	–	–	R-UCI	ACH	12	2022	RAGT Australia
RTG Nizza CL	CL	Hybrid	Winter	R	–	–	MR-UCI	B	12	2021	RAGT Australia

TT = triazine tolerant, GT = glyphosate tolerant, TF = TruFlex®, RR = Roundup Ready®, OG = Optimum Gly®, LL = LibertyLink® (glufosinate tolerant), CL = Clearfield® (imidazolinone tolerant),

OP = open pollinated. P = provisional ratings – treat with caution, ** = tolerant to Group B (Group 2) herbicide residue. – not applicable

Harvest maturity key: 3 = early, 4 = early-mid and mid-early, 5 = mid, 6 = mid-late, winter = very late (information provided by seed companies).

Blackleg resistance rating key: R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible, tbd = to be determined.

Table 2: Upper Eyre Peninsula low-medium rainfall zone. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
TRIAZINE TOLERANT						
	Mean yield t/ha	1.20	1.20	1.09	2.68	0.79
Variety	No. trials	2	1	1	2	1
ATR-Bluefin [Ⓛ]	4	–	–	73	87	92
ATR Bonito [Ⓛ]	6	98	80	–	94	86
ATR-Stingray	6	75	75	79	84	–
ATR-Swordfish [Ⓛ]	3	–	–	–	94	85
Bandit TT [Ⓛ]	4	–	–	96	98	98
DG Avon TT [Ⓛ]	3	–	–	–	93	105
DG Torrens TT [Ⓛ]	1	–	–	–	–	90
Hyola® Blazer TT	2	–	113	–	–	108
Hyola® Defender CT	3	–	–	–	108	102
Hyola® Enforcer CT	6	95	95	–	101	92
HyTEC® Trident	6	98	128	115	112	110
HyTEC® Trophy	7	102	118	113	108	107
HyTEC® Velocity	3	–	–	–	106	132
InVigor® LT 4530P	3	–	–	–	113	100
InVigor® T 4510	7	103	120	105	110	107
InVigor® T 4511	4	–	–	108	103	97
Pioneer® PY429T	1	–	–	–	–	112
Renegade TT [Ⓛ]	4	–	–	94	106	107
RGT Capacity TT	3	–	–	–	99	110
SF Spark TT	6	95	105	–	99	102
IMIDAZOLINONE TOLERANT						
	Mean yield t/ha	1.20	1.38	1.41	3.01	1.05
Variety	No. trials	2	1	1	2	1
Hyola® Continuum CL	3	–	–	–	98	102
Hyola® Equinox CL	2	–	–	–	90	–
Hyola® Solstice CL	1	–	–	–	–	96
Nuseed® Ceres IMI	3	–	–	–	93	113
Pioneer® 43Y92 CL	7	94	94	102	98	94
Pioneer® 44Y94 CL	3	–	–	–	111	100
Pioneer® PY327C	1	–	–	–	–	110
Pioneer® PY421C	1	–	–	–	–	114
GYPHOSATE TOLERANT						
	Mean yield t/ha	0.00	0.00	0.00	4.32	0.00
Variety	No. trials	0	0	0	1	0
DG Lofty TF	1	Data not available	Data not available	Data not available	97	Data not available
Hyola® Battalion XC	1				96	
Hyola® Garrison XC	1				90	
InVigor® LR 3540P	1				107	
InVigor® LR 4540P	1				111	
InVigor® R 4022P	1				104	
InVigor® R 4520P	1				109	
Nuseed® Emu TF	1				94	
Nuseed® Hunter TF	1				110	
Nuseed® Raptor TF	1				105	
Pioneer® 44Y27 RR	1				107	
Pioneer® 44Y30 RR	1				105	

Source: GRDC, NVT 2019–23 MET data analysis by National Statistics Program

NVT are not designed to allow comparison of varieties between herbicide tolerance groups. – denotes no data available.

Table 3: Lower Eyre Peninsula medium-high rainfall zone. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
TRIAZINE TOLERANT						
	Mean yield t/ha	2.42	1.98	2.01	2.72	3.19
Variety	No. trials	1	2	2	1	2
AFP Cutubury [Ⓢ]	3	–	–	82	86	–
ATR Bonito [Ⓢ]	3	–	–	–	96	89
Bandit TT [Ⓢ]	3	–	–	96	–	96
DG Bidgee TT [Ⓢ]	3	–	–	–	92	96
Hyola® Blazer TT	7	–	110	113	117	112
Hyola® Defender CT	3	–	–	–	118	108
Hyola® Enforcer CT	8	102	99	107	92	104
HyTtec® Trifecta	8	113	110	115	111	112
HyTtec® Trophy	8	108	107	119	112	113
InVigor® LT 4530P	4	–	–	107	115	104
InVigor® T 4510	8	107	113	116	114	110
InVigor® T 4511	5	–	–	112	109	109
Pioneer® PY429T	2	–	–	–	–	116
Pioneer® PY520TC	5	–	–	108	113	109
Renegade TT [Ⓢ]	4	–	–	98	124	101
RGT Baseline® TT	3	–	–	–	109	102
RGT Capacity TT	5	–	–	104	113	105
SF Spark TT	8	97	95	104	97	101
IMIDAZOLINONE TOLERANT						
	Mean yield t/ha	2.66	1.93	1.88	2.88	3.45
Variety	No. trials	1	2	2	1	2
Hyola® Continuum CL	3	–	–	–	111	107
Hyola® Solstice CL	5	–	–	122	93	111
Nuseed® Ceres IMI	1	–	–	121	–	–
Pioneer® 43Y92 CL	2	–	–	–	–	104
Pioneer® 44Y94 CL	8	110	112	119	122	113
Pioneer® 45Y93 CL	5	109	107	–	–	102
Pioneer® 45Y95 CL	6	112	–	114	115	111
Pioneer® PY327C	2	–	–	–	–	116
Pioneer® PY421C	3	–	–	–	128	114
Pioneer® PY520TC	2	–	–	–	–	90

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Table 3: Lower Eyre Peninsula medium-high rainfall zone. NVT data 2019–23 (continued).

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
GLYPHOSATE TOLERANT						
	Mean yield t/ha	0.00	0.00	1.97	0.00	3.83
Variety	No. trials	0	0	1	0	1
DG Drummond TF	1	Data not available	Data not available	–	Data not available	97
Hyola® Battalion XC	2			97		95
Hyola® Garrison XC	2			99		94
Hyola® Regiment XC	2			110		102
InVigor® LR 4540P	1			–		114
InVigor® LR5040P	1			–		109
InVigor® R 4022P	2			107		104
InVigor® R 4520P	2			112		110
Nuseed® Eagle TF	1			–		103
Nuseed® Emu TF	2			121		108
Nuseed® Hunter TF	1			–		111
Nuseed® Raptor TF	2			110		104
Pioneer® 44Y27 RR	2			116		108
Pioneer® 44Y30 RR	2			113		108
Pioneer® 45Y28 RR	2			105		103
Pioneer® PY323G	1			–		108
Pioneer® PY422G	1			–		97
Pioneer® PY525G	1			–		93
Pioneer® PY424GC	1			–		104
Pioneer® PY428R	1			–		109

Source: GRDC, NVT 2019–23 MET data analysis by National Statistics Program

NVT are not designed to allow comparison of varieties between herbicide tolerance groups. – denotes no data available.

Table 4: Yorke Peninsula medium-high rainfall zone. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
TRIAZINE TOLERANT						
	Mean yield t/ha	1.22	1.22	2.26	3.14	2.11
Variety	No. trials	1	1	1	1	1
AFP Cutubury ^{db}	2	–	–	84	85	–
ATR Bonito ^{db}	2	–	–	–	90	95
Bandit TT ^{db}	2	–	–	97	–	97
DG Bidgee TT ^{db}	3	–	–	95	106	99
DG Torrens TT ^{db}	2	–	–	–	101	97
Hyola® Blazer TT	4	–	111	113	116	106
Hyola® Defender CT	2	–	–	–	115	104
Hyola® Enforcer CT	5	107	102	104	99	102
HyTEC® Trident	5	110	126	119	102	107
HyTEC® Trifecta	5	117	110	114	115	106
HyTEC® Trophy	5	112	117	115	110	106
InVigor® LT 4530P	3	–	–	106	101	102
InVigor® T 4510	5	110	119	112	105	105
InVigor® T 4511	3	–	–	110	106	104
Pioneer® PY429T	1	–	–	–	–	107
Pioneer® PY520TC	2	–	–	109	–	104
Renegade TT ^{db}	3	–	–	103	104	100
RGT Baseline® TT	3	–	–	102	114	101
RGT Capacity TT	5	109	107	106	108	102
SF Dynatron TT	5	110	115	112	112	105
SF Spark TT	2	99	102	–	–	–

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Table 4: Yorke Peninsula medium-high rainfall zone. NVT data 2019–23 (continued).

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
IMIDAZOLINONE TOLERANT						
	Mean yield t/ha	1.30	1.14	2.74	3.45	2.00
Variety	No. trials	1	1	1	1	1
Hyola® Continuum CL	2	–	–	–	107	104
Hyola® Equinox CL	3	–	108	104	95	–
Hyola® Solstice CL	3	–	–	111	102	107
Nuseed® Ceres IMI	3	–	–	108	93	104
Pioneer® 43Y92 CL	2	–	109	–	–	102
Pioneer® 44Y94 CL	5	111	120	114	114	107
Pioneer® 45Y93 CL	5	104	95	102	114	102
Pioneer® 45Y95 CL	4	113	–	111	115	106
Pioneer® PY327C	1	–	–	–	–	108
Pioneer® PY421C	1	–	–	–	–	108
Pioneer® PY520TC	1	–	–	–	–	95
GYPHOSATE TOLERANT						
	Mean yield t/ha	0.00	0.00	2.90	3.40	2.61
Variety	No. trials	0	0	1	1	1
DG Drummond TF	2	Data not available	Data not available	–	103	99
DG Hotham TF	2			–	98	98
Hyola® Battalion XC	3			95	92	99
Hyola® Garrison XC	3			95	91	99
Hyola® Regiment XC	3			102	100	102
InVigor® LR 4540P	2			–	105	104
InVigor® LR5040P	2			–	109	103
InVigor® R 4022P	3			104	99	101
InVigor® R 4520P	3			109	109	103
Nuseed® Emu TF	3			107	90	102
Nuseed® Hunter TF	3			110	105	104
Nuseed® Raptor TF	3			104	100	102
Pioneer® 44Y27 RR	3			107	98	102
Pioneer® 44Y30 RR	3			108	105	103
Pioneer® 45Y28 RR	3			103	107	102
Pioneer® PY323G	1			–	–	103
Pioneer® PY422G	1			–	–	99
Pioneer® PY424GC	1			–	–	101
Pioneer® PY428R	1			–	–	104
Pioneer® PY525G	1			–	–	99

Source: GRDC, NVT 2019–23 MET data analysis by National Statistics Program

NVT are not designed to allow comparison of varieties between herbicide tolerance groups. – denotes no data available.

Table 5: Mid North medium-high rainfall zone. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
TRIAZINE TOLERANT						
	Mean yield t/ha	1.48	2.54	2.55	3.19	2.09
Variety	No. trials	3	2	3	3	3
AFP Cutubury [Ⓛ]	6	–	–	85	88	–
ATR Bonito [Ⓛ]	8	–	94	–	92	88
ATR-Swordfish [Ⓛ]	6	–	–	–	92	84
Bandit TT [Ⓛ]	5	–	–	89	–	94
DG Bidgee TT [Ⓛ]	8	–	–	107	103	97
DG Torrens TT [Ⓛ]	6	–	–	–	100	94
Hyola® Blazer TT	11	–	111	115	113	112
Hyola® Defender CT	6	–	–	–	113	106
Hyola® Enforcer CT	14	109	101	103	99	106
HyTEC® Trident	14	110	105	112	103	118
HyTEC® Trifecta	13	116	112	115	112	114
HyTEC® Trophy	14	111	109	112	108	114
HyTEC® Velocity	6	–	–	–	103	114
InVigor® LT 4530P	7	–	–	94	102	104
InVigor® T 4510	14	111	109	104	105	110
InVigor® T 4511	9	–	–	106	105	109
Pioneer® PY429T	3	–	–	–	–	114
Pioneer® PY520TC	8	–	–	114	111	108
Renegade TT [Ⓛ]	8	–	–	91	105	98
RGT Baseline® TT	9	–	–	109	111	101
RGT Capacity TT	13	109	109	103	107	105
SF Dynatron TT	14	108	110	109	111	109
SF Spark TT	12	99	98	102	98	102
IMIDAZOLINONE TOLERANT						
	Mean yield t/ha	1.74	2.62	2.85	3.43	2.55
Variety	No. trials	3	2	3	3	3
Hyola® Continuum CL	6	–	–	–	107	106
Hyola® Equinox CL	8	–	103	100	95	–
Hyola® Solstice CL	9	–	–	107	101	114
Nuseed® Ceres IMI	7	–	–	98	96	109
Pioneer® 43Y92 CL	11	–	102	102	101	104
Pioneer® 44Y94 CL	14	108	111	112	113	111
Pioneer® 45Y91 CL	5	96	99	–	–	–
Pioneer® 45Y93 CL	14	101	107	109	112	101
Pioneer® 45Y95 CL	11	111	–	114	113	110
Pioneer® PY327C	3	–	–	–	–	114
Pioneer® PY421C	6	–	–	–	115	112
Pioneer® PY520TC	3	–	–	–	–	91

Continued on next page

Table 5: Mid North medium-high rainfall zone. NVT data 2019–23 (continued).

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
GLYPHOSATE TOLERANT						
	Mean yield t/ha	0.00	0.00	3.24	3.89	3.10
Variety	No. trials	0	0	1	1	1
DG Hotham TF	2	Data not available	Data not available	–	99	96
DG Lofty TF	3			96	91	97
Hyola® Battalion XC	3			97	95	100
Hyola® Garrison XC	3			102	95	102
Hyola® Regiment XC	3			109	103	109
InVigor® LR 4540P	2			–	102	108
InVigor® LR5040P	2			–	106	103
InVigor® R 4022P	3			95	99	101
InVigor® R 4520P	3			101	106	105
Nuseed® Eagle TF	2			–	106	104
Nuseed® Emu TF	3			95	92	105
Nuseed® Hunter TF	2			–	104	109
Nuseed® Raptor TF	3			108	101	106
Pioneer® 44Y27 RR	3			104	99	105
Pioneer® 44Y30 RR	3			103	103	105
Pioneer® 45Y28 RR	3			109	106	105
Pioneer® PY323G	1			–	–	105
Pioneer® PY422G	1			–	–	96
Pioneer® PY424GC	1			–	–	100
Pioneer® PY428R	1			–	–	112
Pioneer® PY525G	1	–	–	97		

Source: GRDC, NVT 2019–23 MET data analysis by National Statistics Program

NVT are not designed to allow comparison of varieties between herbicide tolerance groups. – denotes no data available.

Table 6: Mallee low-medium rainfall zone. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
TRIAZINE TOLERANT						
	Mean yield t/ha	0.94	1.03	0.00	1.86	0.00
Variety	No. trials	1	1	0	1	0
ATR-Bluefin ^{db}	1	–	–	Data not available	84	Data not available
ATR Bonito ^{db}	3	99	97		89	
ATR-Stingray	2	–	93		72	
ATR-Swordfish ^{db}	1	–	–		88	
Bandit TT ^{db}	1	–	–		96	
DG Avon TT ^{db}	1	–	–		91	
Hyola® Blazer TT	1	–	106		–	
Hyola® Defender CT	1	–	–		113	
Hyola® Enforcer CT	3	96	103		97	
HyTtec® Trident	3	105	104		114	
HyTtec® Trophy	3	103	104		111	
HyTtec® Velocity	1	–	–		117	
InVigor® LT 4530P	1	–	–		117	
InVigor® T 4510	3	106	102		112	
InVigor® T 4511	1	–	–		101	
Renegade TT ^{db}	1	–	–		114	
RGT Capacity TT	2	–	100		102	
SF Dynatron TT	2	104	106		–	
SF Spark TT	3	100	99	98		
IMIDAZOLINONE TOLERANT						
	Mean yield t/ha	0.96	1.02	0.00	2.19	1.57
Variety	No. trials	1	1	0	1	1
Hyola® Continuum CL	2	–	–	Data not available	99	102
Hyola® Solstice CL	1	–	–		–	112
Nuseed® Ceres IMI	2	–	–		97	109
Pioneer® 43Y92 CL	4	97	101		95	100
Pioneer® 44Y94 CL	3	103	–		114	100
Pioneer® 45Y93 CL	1	100	–		–	–
Pioneer® PY327C	1	–	–		–	102
Pioneer® PY421C	1	–	–		–	102
GLYPHOSATE TOLERANT						
	Mean yield t/ha	0.00	0.00	0.00	2.05	0.00
Variety	No. trials	0	0	0	1	0
DG Lofty TF	1	Data not available	Data not available	Data not available	82	Data not available
Hyola® Battalion XC	1				87	
InVigor® LR 3540P	1				118	
InVigor® LR 4540P	1				121	
InVigor® R 4022P	1				110	
InVigor® R 4520P	1				122	
Nuseed® Emu TF	1				102	
Nuseed® Hunter TF	1				113	
Nuseed® Raptor TF	1				95	
Pioneer® 44Y27 RR	1				105	
Pioneer® 44Y30 RR	1				104	

Source: GRDC, NVT 2019–23 MET data analysis by National Statistics Program

NVT are not designed to allow comparison of varieties between herbicide tolerance groups. – denotes no data available.

Table 7: South East medium-high rainfall zone. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
TRIAZINE TOLERANT						
	Mean yield t/ha	2.64	3.05	3.49	2.40	0.00
Variety	No. trials	1	1	1	1	0
AFP Cutubury [Ⓛ]	2	–	–	85	86	
ATR Bonito [Ⓛ]	2	–	91	–	91	
DG Bidgee TT [Ⓛ]	1	–	–	–	113	
DG Torrens TT [Ⓛ]	1	–	–	–	106	
Hyola® Blazer TT	3	–	122	115	118	
Hyola® Defender CT	1	–	–	–	120	
Hyola® Enforcer CT	4	107	93	102	96	
HyTtec® Trident	1	–	98	–	–	
HyTtec® Trifecta	4	112	117	114	114	Data not available
HyTtec® Trophy	4	109	111	113	107	
InVigor® T 4510	4	107	108	105	100	
InVigor® T 4511	2	–	–	106	103	
Pioneer® PY520TC	2	–	–	114	118	
Renegade TT [Ⓛ]	2	–	–	92	101	
RGT Baseline® TT	2	–	–	108	121	
RGT Capacity TT	1	–	114	–	–	
SF Dynatron TT	3	–	119	109	111	
IMIDAZOLINONE TOLERANT						
	Mean yield t/ha	3.02	3.40	3.66	2.19	0.00
Variety	No. trials	1	1	1	1	0
Hyola® Continuum CL	1	–	–	–	110	
Hyola® Equinox CL	3	–	87	98	85	
Hyola® Solstice CL	2	–	–	105	93	
Nuseed® Ceres IMI	1	–	–	99	–	
Pioneer® 43Y92 CL	1	102	–	–	–	Data not available
Pioneer® 44Y94 CL	3	107	–	114	116	
Pioneer® 45Y93 CL	3	101	–	109	125	
Pioneer® 45Y95 CL	3	109	–	114	120	
Pioneer® PY421C	1	–	–	–	118	

Source: GRDC, NVT 2019–23 MET data analysis by National Statistics Program

NVT are not designed to allow comparison of varieties between herbicide tolerance groups. – denotes no data available.

Table 8: South East low-medium rainfall zone. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
TRIAZINE TOLERANT						
	Mean yield t/ha	2.41	2.89	2.00	2.96	1.67
Variety	No. trials	1	1	1	1	1
ATR-Bluefin ^{db}	3	–	–	89	81	78
ATR Bonito ^{db}	5	92	89	92	90	84
ATR-Stingray	4	91	78	88	84	–
ATR-Swordfish ^{db}	3	–	–	90	87	82
Bandit TT ^{db}	3	–	–	98	96	98
DG Avon TT ^{db}	2	–	–	–	89	96
Hyola® Blazer TT	4	–	117	106	112	109
Hyola® Defender CT	2	–	–	–	109	103
Hyola® Enforcer CT	5	97	108	103	110	106
HyTEC® Trident	5	115	112	106	109	116
HyTEC® Trifecta	1	–	–	–	110	–
HyTEC® Trophy	5	109	111	106	109	112
HyTEC® Velocity	1	–	106	–	–	–
InVigor® LT 4530P	3	–	–	100	104	101
InVigor® T 4510	5	111	107	103	104	108
InVigor® T 4511	3	–	–	102	105	106
Pioneer® PY429T	1	–	–	–	–	115
Pioneer® PY520TC	1	–	–	–	–	102
Renegade TT ^{db}	3	–	–	100	99	95
RGT Baseline® TT	2	–	–	–	110	106
RGT Capacity TT	5	102	103	104	103	107
SF Dynatron TT	5	108	116	105	112	110
SF Spark TT	5	103	98	101	99	103
IMIDAZOLINONE TOLERANT						
	Mean yield t/ha	3.02	3.11	2.04	2.73	1.74
Variety	No. trials	1	1	1	1	1
Hyola® Continuum CL	2	–	–	–	103	100
Hyola® Solstice CL	2	–	–	104	–	108
Nuseed® Ceres IMI	3	–	–	104	95	104
Pioneer® 43Y92 CL	5	97	101	100	103	100
Pioneer® 44Y94 CL	3	–	–	104	113	107
Pioneer® 45Y95 CL	1	–	–	–	–	110
Pioneer® PY327C	1	–	–	–	–	101
Pioneer® PY421C	1	–	–	–	–	107
Pioneer® PY520TC	1	–	–	–	–	93

Continued on next page

Table 8: South East low-medium rainfall zone. NVT data 2019–23 (continued).

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
GYPHOSATE TOLERANT						
	Mean yield t/ha	0.00	0.00	2.06	3.02	2.07
Variety	No. trials	0	0	1	1	1
DG Lofty TF	3	Data not available	Data not available	92	96	91
Hyola® Battalion XC	3			95	93	95
Hyola® Garrison XC	2			–	104	101
Hyola® Regiment XC	2			102	–	103
InVigor® LR 3540P	2			–	91	96
InVigor® LR 4540P	2			–	104	105
InVigor® LR 5040P	1			–	–	100
InVigor® R 4022P	3			100	98	99
InVigor® R 4520P	3			103	104	102
Nuseed® Hunter TF	2			–	105	108
Nuseed® Raptor TF	3			99	107	100
Pioneer® 44Y27 RR	3			101	100	103
Pioneer® 44Y30 RR	3			101	105	101
Pioneer® PY323G	1			–	–	105
Pioneer® PY422G	1			–	–	90
Pioneer® PY424GC	1			–	–	105

Source: GRDC, NVT 2019–23 MET data analysis by National Statistics Program

NVT are not designed to allow comparison of varieties between herbicide tolerance groups. – denotes no data available.

INTRO

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CONTACT (PREDICTA® B and rNod)

Matt Rowe

matthew.rowe2@sa.gov.au

0491 933 041



NORTHERN REGION



CONTACT

Rob Long

lab@crownanalytical.com.au

0437 996 678



FABA BEAN

By Amanda Pearce, SARDI, and Sam Catt, University of Adelaide

Faba bean variety choice for South Australian and Victorian growers will be the same in 2025, with no new varieties released for the southern region in 2024.

VARIETIES AND DISEASE MANAGEMENT

In growing regions or seasonal conditions that favour chocolate spot development, all varieties require a protective fungicide spray before canopy closure and often when the crop is at the early flowering stage. Additional applications will be required if wet conditions favour epidemics, particularly when early disease symptoms are evident, soil moisture is high, or dense canopy growth retains moisture levels within the canopy. Chocolate spot typically develops during early spring as temperatures increase. However, it can establish earlier and more slowly in crops during cooler weather where there is prolonged high humidity, so faba beans should be monitored from late winter. PBA Amberley[®] is rated moderately resistant-moderately susceptible (MRMS) to chocolate spot and should have less severe disease compared with all other varieties, which are rated susceptible (S) or moderately susceptible (MS).

Ascochyta blight ratings now reflect only pathotype 2, which is aggressive on Farah, as this pathotype is dominant and widespread across the southern region. Resistant varieties allow growers to be more reactive to Ascochyta blight than with susceptible varieties, and disease management strategies can be based on monitoring levels in high-risk situations. PBA Amberley[®], PBA Bendoc[®], Nura[®] (provisional) and PBA Samira[®] (provisional) are moderately resistant (MR) to Ascochyta blight. The old variety, Farah is susceptible (S) to

Ascochyta blight while PBA Rana[®] and PBA Zahra[®] are MRMS. PBA Marne[®] is provisionally rated moderately susceptible (MS) to Ascochyta blight. Prophylactic fungicides are recommended ahead of a rain front in S, MS and MRMS varieties during the vegetative stage to prevent or minimise disease establishment. Additional fungicides will most likely be required, especially in seasons favourable to disease epidemics, particularly during podding to prevent seed staining.

Rust can be an occasional problem in faba beans in seasons favouring disease outbreaks and can cause significant yield loss. The disease can survive over summer on volunteer bean plants and crops need to be monitored to reduce the impact of rust on production. Farah, PBA Amberley[®], PBA Bendoc[®], Nura[®] and PBA Rana[®] are very susceptible (VS) to rust and often display more pronounced symptoms than PBA Samira[®] and PBA Zahra[®], which are rated S. PBA Marne[®] is MRMS to rust. Early sown crops are at greater risk, or where beans are sown adjacent to the previous year's bean stubble. Disease control using suitable fungicides may be required before flowering, coinciding with the time chocolate spot management is also being implemented.

Cercospora leaf spot is soil-borne and typically occurs in paddocks with a long-term history of faba beans, particularly where they have been grown in close rotation (less than four to six years) or within close proximity of these paddocks. Early control (five to eight weeks post-sowing) with carbendazim or tebuconazole is most effective in preventing disease establishment and consequent yield loss from this disease. All current faba bean varieties are rated S, making early preventive control measures best practice.

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FABA BEAN VARIETY NOTES

PBA AMBERLEY[Ⓓ]

PBA Amberley[Ⓓ] is the newest variety, commercially released in 2019. It is a later-flowering type and has shown good adaptation in higher rainfall and longer growing season environments in the South East and Mid North of SA and in the western districts of Victoria. PBA Amberley[Ⓓ] has very good standing ability and a low incidence of 'necking'. PBA Amberley[Ⓓ] seed is similar in size to PBA Samira[Ⓓ] and PBA Marne[Ⓓ] and should be suitable to co-mingle with these other varieties. PBA Amberley[Ⓓ] is commercialised by Seednet. EPR \$3.50 ex-GST.

PBA BENDOC[Ⓓ]

This variety was developed by the University of Adelaide in collaboration with SARDI. It is the first commercially released variety selected for tolerance to imidazolinone herbicides. This tolerance was developed by conventional mutation breeding techniques in Nura[Ⓓ]. A herbicide-tolerant selection was crossed with PBA Samira[Ⓓ], and PBA Bendoc[Ⓓ] was derived from the progeny of this cross. Imidazolinone-tolerant faba beans are on the Nufarm Intercept[®] herbicide label for post-emergent application. Herbicide application timings, product label rates, plant-back periods and all label directions for use must be followed. Generally, PBA Bendoc[Ⓓ] yields are comparable with conventional varieties and there is no obvious yield penalty associated with herbicide tolerance. PBA Bendoc[Ⓓ] is similar in flowering time and maturity to Nura[Ⓓ] and PBA Samira. PBA Bendoc[Ⓓ] produces small to medium-sized, light brown seeds that are comparable in size to Nura[Ⓓ]. PBA Bendoc[Ⓓ] seed can be co-mingled with Nura[Ⓓ] for the Middle East market. PBA Bendoc[Ⓓ] is licensed to Seednet. EPR \$3.90 ex-GST.

Table 1: Agronomic and disease characteristics of faba and broad bean varieties.

Variety	Plant height	Flower time	Maturity	Lodging resistance	Ascochyta blight*	Chocolate spot	Cercospora leaf spot ⁱⁱ	Rust	PSbMV seed staining ⁱ	<i>Pratylenchus neglectus</i> ⁱⁱ	<i>Pratylenchus thornei</i>
FABA BEAN											
Farah	Medium	Early-mid	Early-mid	MS	S	S	S	VS	S	MR	MS
Nura [Ⓓ]	Short	Mid	Early-mid	MR	MR (P)	MS	S	VS	VS	MR	MS
PBA Amberley [Ⓓ]	Medium	Mid	Mid	MR	MR	MRMS	S	VS	–	MR	MS
PBA Bendoc [Ⓓ] +	Medium	Mid	Early-mid	MS	MR	S	S	VS	S	RMR (P)	MRMS
PBA Marne [Ⓓ]	Medium-short	Early	Early-mid	MR	MS (P)	MS (P)	S	MRMS	MR	MR	MS
PBA Rana [Ⓓ]	Medium-tall	Mid	Mid	MR	MRMS	MS	S	VS	MR	MR	MS
PBA Samira [Ⓓ]	Medium	Mid	Early-mid	MR	MR (P)	MS	S	S	S	MR	MRMS
PBA Zahra [Ⓓ]	Medium-tall	Mid	Mid	MR	MRMS	MS	S	S	S	MR	MRMS
BROAD BEAN											
Aquadulce	Tall	Mid	Late	MS	MS ⁱ	MS ⁱ	S ⁱ	MS ⁱ	S	–	–
PBA Kareema	Tall	Mid	Late	MS	MR ⁱ	MS ⁱ	S ⁱ	MRMS ⁱ	S	–	–

Source: Pulse Breeding Australia trials program 2012–23 and NVT Online (nvt.grdc.com.au)

R = resistant, MR = moderately resistant, MRMS = moderately resistant to moderately susceptible, MS = moderately susceptible, S = susceptible, VS = very susceptible.

(P) = provisional rating and subject to change when additional data becomes available.

ⁱ = Not tested since 2019 or earlier. ⁱⁱ = Faba bean ratings last reviewed in 2023.

+ = Herbicide-tolerant variety.

– denotes no data available.

* Ascochyta blight ratings: Ratings have previously been separated based on the older pathotype 1 and newer pathotype 2 strains. However, as pathotype 2 is the predominant and widespread strain present in the southern region, ratings now reflect resistance to this strain as determined through the National Variety Trials (nvt.grdc.com.au).

FARAH

Farah was selected directly from Fiesta VF and is identical in many respects, with more uniform seed size and colour. Long-term Farah yields are generally lower than more recent varieties in most regions of southern Australia. Farah is licensed to Barenbrug. EPR \$3.00 ex-GST.

PBA MARNE[Ⓛ]

PBA Marne[Ⓛ] is the result of a complex cross between four parents of diverse origins. It is an early flowering faba bean variety that is well suited to lower-rainfall or short-season environments of southern Australia. It is the earliest flowering variety, with maturity similar to PBA Samira[Ⓛ]. It is medium-short in height. PBA Marne[Ⓛ] produces medium-sized seeds that are comparable in size with PBA Samira[Ⓛ]. The overall colour of seed is similar to other major bean varieties. PBA Marne[Ⓛ] seed can be co-mingled with PBA Samira[Ⓛ] for the Middle East market. PBA Marne[Ⓛ] is licensed to Seednet. EPR \$3.50 ex-GST.

NURA[Ⓛ]

Nura[Ⓛ] is a medium-sized faba bean. It is generally shorter than Farah, meaning it is less likely to lodge. However, since its bottom pods are closer to the ground, harvest can be more difficult in lower-rainfall districts or when sown late. Nura[Ⓛ] has good seed appearance, a light buff colour, with minimal seed staining and discolouration. Flowering time is generally around seven days later than Farah, although it has similar maturity. Nura[Ⓛ] is licensed to Seednet. EPR \$3.00 ex-GST.

PBA RANA[Ⓛ]

PBA Rana[Ⓛ] is a mid flowering (similar to Nura[Ⓛ]) and mid maturity (later than Nura[Ⓛ] and Farah) variety with good vigour and stem strength. PBA Rana[Ⓛ] is well adapted to high-rainfall areas with longer growing seasons. It produces large, plump, light brown seeds and is suited to the Egyptian market requirements for that grade. PBA Rana[Ⓛ] is licensed to Seednet. EPR \$3.50 ex-GST.

PBA SAMIRA[Ⓛ]

PBA Samira[Ⓛ] is a high-yielding faba bean variety for southern Australia. It is widely adapted and responsive to high-yielding situations. It is mid flowering, five to 10 days later than Farah, but matures at the same time. Seeds of PBA Samira[Ⓛ] are slightly larger than Farah and Nura[Ⓛ], but the overall seed colour is similar for all varieties. PBA Samira[Ⓛ] can be co-mingled with these other varieties for the Middle East market. PBA Samira[Ⓛ] is licensed to Seednet. EPR \$3.50 ex-GST.

PBA ZAHRA[Ⓛ]

This variety is a cross between Farah and an accession 920-3, which originated from Morocco. It has shown wide adaptation throughout southern Australia and is responsive to high-yielding situations. PBA Zahra[Ⓛ] seed is uniform large size and colour and should be suitable to co-mingle with PBA Rana[Ⓛ] for a medium-large faba bean category for the Egyptian market. PBA Zahra[Ⓛ] is mid flowering, similar to Nura[Ⓛ], PBA Rana[Ⓛ] and PBA Samira[Ⓛ] and with mid maturity similar to PBA Rana[Ⓛ]. It is a medium-tall plant similar to PBA Rana[Ⓛ] and taller than other varieties. PBA Zahra[Ⓛ] is licensed to Seednet. EPR \$3.50 ex-GST.

BROAD BEANS VARIETY NOTES

AQUADULCE

Aquadulce is a tall broad bean variety with late flowering and maturity, suited to areas with at least 500 millimetres average annual rainfall. The large seed size means it is considered a speciality and commands a price premium over faba beans, dependent on grading and seed size.

PBA KAREEMA

Selected from Aquadulce, PBA Kareema has similar plant type and adaptation but larger and more uniform seed and fewer 'evergreens'. It is well adapted to the very high-rainfall broad bean districts in the lower south-east of SA. The large seed size means it is considered a speciality and commands a price premium over faba beans, dependent on grading and seed size.

FURTHER INFORMATION

Variety management packages for all named varieties (except Aquadulce) are available on the Pulse Australia website: pulseaus.com.au/growing-pulses/bmp/faba-and-broad-bean.

Table 2: Lower Eyre Peninsula faba bean yield performance. NVT data 2019–23. Data for 2019 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	0.00	3.80	4.18	4.55	5.62
	No. trials	0	1	1	1	1
Farah	4	Data not available	97	99	95	96
Nura ^{db}	4		107	102	86	91
PBA Amberley ^{db}	4		100	99	99	96
PBA Bendoc ^{db}	4		108	107	89	94
PBA Marne ^{db}	4		83	100	105	106
PBA Rana ^{db}	3		–	85	87	86
PBA Samira ^{db}	4		99	99	101	98
PBA Zahra ^{db}	4		100	105	100	98

– denotes no data available.

Table 3: Yorke Peninsula faba bean yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.91	5.26	5.03	4.76	3.02
	No. trials	2	1	1	1	1
Farah	6	95	99	99	93	99
Nura ^{db}	6	94	96	98	90	96
PBA Amberley ^{db}	6	97	104	103	96	95
PBA Bendoc ^{db}	6	98	99	102	94	98
PBA Marne ^{db}	6	100	94	96	100	113
PBA Rana ^{db}	5	87	–	93	84	84
PBA Samira ^{db}	6	98	104	102	98	97
PBA Zahra ^{db}	6	99	105	106	98	99

– denotes no data available.

Table 4: Mid North faba bean yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	1.98	4.69	4.33	6.90	2.99
	No. trials	2	2	2	2	2
Farah	10	94	98	95	95	98
Nura ^{db}	10	95	95	95	90	96
PBA Amberley ^{db}	10	95	106	97	99	96
PBA Bendoc ^{db}	10	100	93	100	94	98
PBA Marne ^{db}	10	99	88	98	99	107
PBA Rana ^{db}	8	82	–	85	88	87
PBA Samira ^{db}	10	97	105	98	100	97
PBA Zahra ^{db}	10	99	100	101	101	99

– denotes no data available.

Table 5: Murray Mallee faba bean yield performance. NVT data 2019–23. Data for 2020, 2021 and 2023 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	0.97	0.00	0.00	4.67	0.00
	No. trials	1	0	0	1	0
Farah	2	88	Data not available	Data not available	100	Data not available
Nura ^{db}	2	94			96	
PBA Amberley ^{db}	2	96			105	
PBA Bendoc ^{db}	2	104			101	
PBA Marne ^{db}	2	80			96	
PBA Rana ^{db}	2	82			91	
PBA Samira ^{db}	2	96			104	
PBA Zahra ^{db}	2	100			108	

– denotes no data available.

Table 6: South East faba bean yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.95	4.35	4.40	4.55	2.89
	No. trials	2	2	2	1	2
Farah	9	97	100	95	96	98
Nura ^{db}	9	94	100	97	84	98
PBA Amberley ^{db}	9	101	102	100	104	97
PBA Bendoc ^{db}	9	101	89	102	91	100
PBA Marne ^{db}	9	98	89	92	100	104
PBA Rana ^{db}	7	82	–	89	83	88
PBA Samira ^{db}	9	101	102	99	105	98
PBA Zahra ^{db}	9	107	89	103	107	100

– denotes no data available.



RESEARCH SUMMARY

S/UA1021

FAST FACTS

Problem

Growers in the Murray Plains have not had access to locally specific information on optimal flowering windows - and therefore sowing times - for wheat and barley.

Project

An optimal flowering window was developed by producing an APSIM model in conjunction with field trials in wheat and barley.

Participants

SARDI: Brendan Kupke, Melissa McCallum, A/Prof Rhiannon Schilling, Dr Courtney Peirce

MURRAY PLAINS

FARMERS: Steen & Deanna Paech, Adrian & May Bormann

Dates

Start: 1 April 2021
Finish: 30 June 2023

Characterising the optimal flowering period for the Murray Plains

An APSIM model was developed and validated successfully against field trials in wheat. The optimal flowering period (OFP) in the Murray Plains was between the 25th August and 8th September for wheat. Based on this data, optimal sowing times were developed for a range of wheat phenologies:

- Quick (Vixen, Anvil CL Plus): 7th May-14th May
- Quick-mid (Ballista, Calibre, Scepter): 30th April - 7th May
- Mid-Slow (Rockstar, Sherrif CL Plus): 24th April - 29th April
- Slow (Denison, Valiant CL Plus): 2nd April - 20th April

A model could not be successfully developed in barley, though field trial results suggest that barley had consistently higher yield across flowering dates, with less sensitivity than wheat to sowing time.

Background

Optimal flowering period (OFP) identifies the ideal time for a crop to flower, balancing the risk of frost, heat and drought stress. An optimal sowing time can be developed based on the OFP for each variety.

Growers and agronomists in the Murray Plains have not had access to locally specific information on optimal flowering windows - and therefore optimal sowing times - for wheat and barley.

Research Aims

The core objectives of the project were:

- To characterise the optimal flowering period (OFP) for wheat and barley in the Murray Plains region.
- Enable Murray Plains growers to better match sowing time and variety development speed to their optimal flowering period.
- Determine the potential for sowing early-sown slower maturing cereal varieties in the Murray Plains region.

In the field

This project used a combination of APSIM simulations and replicated variety x time of sowing (TOS) trials to study wheat and barley optimal flowering periods.

Soil testing was first performed at the trial sites, with the soil test data used in APSIM to generate optimal flowering periods based on 50 years of climatic data.

INTRO

WHEAT

BARLEY

OAT

CANOLA

FABA BEAN

LENTIL

FIELD PEA

CHICKPEA

LUPIN

VETCH

NOTES

Results

The APSIM modelling showed that the optimal flowering period range in wheat starts and ends earlier in recent years, with later flowering resulting in higher yield penalties in the last 30 years. This is likely driven by late season heat stress and lower spring rainfall. When comparing the modelled optimal flowering period to the actual flowering measured in field trials, the 2021 data was accurate in predicting an early September optimal flowering period, but the 2022 data, a Decile 9 growing season, did not follow the long term model closely. In 2022, there was below average autumn and winter rainfall, followed by well above average rainfall late into spring. This led to a bi-modal optimal flowering period curve - with a small peak in late August as predicted by APSIM as the growing season began to dry and warm up into spring, before a second peak in October after the excessive late spring rainfall, which was not predicted by APSIM and significantly increased yields. This



Trial plots at the site

demonstrates APSIM's limitations in dealing with individual years, which may feature extreme weather, as it is based on long-term averages.

APSIM was not able to reliably simulate flowering time in barley, compared to actual flowering dates recorded in the field trials across multiple years. To investigate this further, a new SAGIT-funded project (UAD02222R) has been developed. The field trials to-date have shown that barley had consistently higher yields across flowering dates than wheat, and it was less important for the barley to flower on time to achieve high yields, compared to wheat.

Optimal sowing were modelled for a range of wheat phenologies:

- Quick (Vixen, Anvil CL Plus): 7th May-14th May
- Quick-mid (Ballista, Calibre, Specter): 30th April - 7th May
- Mid-Slow (Rockstar, Sherrif CL Plus): 24th April - 29th April
- Slow (Denison, Valiant CL Plus): 2nd April* - 20th April

**This date was based on extrapolation so should be interpreted with caution.*

Certain varieties were shown to produce high and stable yields across a range of sowing dates. Denison and Rockstar in wheat, and Compass barley, had the highest average yields and were consistent across sowing dates. Commodus CL almost matched Compass's yield, while having Clearfield technology.

The final objective of investigating longer-season varieties demonstrated a lack of early sowing opportunities in the two seasons tested.

Supplementary in-furrow irrigation was used to replicate an early season break in April, which demonstrated that varieties, such as Rockstar, look to have versatility by producing high yields across early and later sowing dates.

Value for growers

The project provided recommended sowing times for the Murray Plains for a range of wheat varieties based on modelling over a range of seasons, as well as identifying wheat and barley varieties that were able to produce high and stable yields across sowing dates.

Field trials allowed growers and agronomists to visit the site during crop walks and field days and observe the extent

of factors such as frost, damage and low biomass, across different time of sowings. Discussions with individual growers and agronomists have also demonstrated the change in mindset for when sowing should be completed and the importance of ensuring the timing of seeding is right.

More Information:

Brendan Kupke, SARDI
M 0429 411 032 E brendan.kupke@sa.gov.au



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LENTIL

By Sarah Day, SARDI

ALB Terrier[®] is a new, small, red, imidazolinone-tolerant lentil variety that will be available to growers in 2025, with seed licensed to Seednet.

DISEASE MANAGEMENT

There are two pathotypes of *Ascochyta* blight in the southern region but pathotype 2, which is virulent on PBA Hurricane XT[®], is predominant in South Australia. GIA Metro[®] has excellent *Ascochyta* blight resistance to pathotype 2 with a provisional rating of resistant-moderately resistant (RMR (P)), while PBA HighlandXT[®] and GIA Leader[®] have very good resistance and are rated moderately resistant (MR). PBA Hallmark XT[®] and PBA KelpieXT[®] are rated MRMS to pathotype 2 of *Ascochyta* blight, while PBA Hurricane XT[®], GIA Thunder[®] and GIA Lightning[®] have provisional MRMS rating to pathotype 2.

Note that fungicide sprays are not required if no disease is visible and if rain is not forecast. However, growers are urged to monitor crops regularly for disease, and podding sprays ahead of a rain front may be required if disease is present during the growing season for PBA Hurricane XT[®], PBA Hallmark XT[®] and PBA KelpieXT[®], GIA Thunder[®], GIA Sire[®] and GIA Lightning[®] to protect the developing grain. It is important to diversify variety selections within a year and across rotations, alongside agronomic and disease-management practices. This will help to protect resistance present in current cultivars, reduce the risk of fungicide resistance developing and reduce the risk of crop failures.

Botrytis grey mould (BGM) continues to be a major disease limitation to SA lentil production. A foliar fungicide spray before canopy closure in all varieties is recommended in conducive seasons and disease-prone areas. This is particularly important in varieties with low levels of resistance such as PBA Bolt[®] (rated S), and varieties with

an MS rating to BGM such as PBA Hurricane XT[®], PBA HighlandXT[®], PBA KelpieXT[®], with GIA Sire[®] and GIA Lightning[®] currently having this as a provisional rating. A foliar fungicide spray at canopy closure is also recommended for varieties with an MRMS rating, such as PBA Hallmark XT[®], with this being a provisional rating for GIA Leader[®], GIA Metro[®] and GIA Thunder[®]. PBA Jumbo2[®] was provisionally downgraded to MR in March 2023 and a canopy closure spray is recommended although follow-up sprays may not be needed. Early sowing is not recommended for varieties rated S or MS to BGM in disease-prone areas.

SELECTION CRITERIA

Information on the most important selection criteria – grain yield, disease resistance, maturity, lodging resistance, shattering and seed type – for each variety can be found in Tables 1 and 2. When selecting a variety, growers also need to consider their individual farm and paddock situation, and the access and availability of likely target markets, and make their selection on all available information. NVT yield data is summarised in Tables 3 to 9.

Price differences can occur between varieties across seasons; however, growers need to produce high-quality seed in all varieties to secure markets and achieve the highest prices. On-farm storage can assist in attaining the highest price for grain in some seasons and allow lentils with poor quality issues or contaminants to be stored until appropriate cleaning and marketing can occur. Timely harvesting is recommended to minimise seed discolouration and weather damage and to also reduce the risk of yield loss from shattering.

LENTIL VARIETY NOTES

CONVENTIONAL LENTIL

PBA ACE[Ⓛ]

PBA Ace[Ⓛ] is a medium seed size, vigorous-growing, mid flowering and mid maturing variety. PBA Ace[Ⓛ] can be prone to lodging under conditions of high biomass production, often making BGM difficult to control. When grown in favourable environments, particularly when sown early, a small reduction in seeding rate may be beneficial in this variety to reduce biomass and lodging. PBA Ace[Ⓛ] has a grey seed coat colour and is licensed to PBSeeds. EPR \$5.00 ex-GST.

PBA BOLT[Ⓛ]

PBA Bolt[Ⓛ] is an early-mid flowering and maturing medium seed-sized lentil with excellent lodging and shattering resistance at maturity. It has a grey seed coat colour and is licensed to PBSeeds. EPR \$5.00 ex-GST.

PBA JUMBO2[Ⓛ]

PBA Jumbo2[Ⓛ] is a high-yielding, conventional, non-herbicide-tolerant red lentil available for SA. It is a large seed-sized variety with good early vigour, lodging and pod drop resistance, mid flowering and mid maturity. As with other large-seeded varieties, PBA Jumbo2[Ⓛ] is well suited to the post-harvest removal of small broadleaf weed seeds. PBA Jumbo2[Ⓛ] has a grey seed coat and is licensed to PBSeeds. EPR \$5.00 ex-GST.

Table 1: Disease characteristics of lentil varieties.

Variety	Botrytis grey mould	Ascochyta blight (foliage)		Pratylenchus neglectus resistance	Pratylenchus thornei resistance
		Foliage pathotype 1 (Nipper [Ⓛ] virulent)	Foliage pathotype 2 (PBA Hurricane XT [Ⓛ] virulent)		
CONVENTIONAL					
PBA Ace [Ⓛ]	MS	R	MR	MR	MRMS
PBA Bolt [Ⓛ]	S	MR	MRMS	MR	MR
PBA Jumbo2 [Ⓛ]	MR (P)	R	RMR	MR	MRMS
IMIDAZOLINONE TOLERANT					
ALB Terrier [Ⓛ]	MRMS (P)	R	MR (P)	MR	MR
GIA Leader [Ⓛ]	MRMS (P)	MR (P)	MR (P)	MRMS (P)	MR (P)
GIA Lightning [Ⓛ]	MS (P)	R (P)	MRMS (P)	MRMS (P)	MR (P)
GIA Thunder [Ⓛ]	MRMS (P)	R (P)	MRMS (P)	MR (P)	MR (P)
PBA Hallmark XT [Ⓛ]	MRMS	RMR	MRMS	MR	MRMS
PBA HighlandXT [Ⓛ]	MS	MR	MR (P)	MR	MRMS
PBA Hurricane XT [Ⓛ]	MS	RMR	MRMS (P)	MRMS	MRMS
PBA KelpieXT [Ⓛ]	MS	MRMS	MRMS	MRMS	MRMS
DUAL-HERBICIDE TOLERANT					
GIA Metro [Ⓛ]	MRMS (P)	MR (P)	RMR (P)	MR (P)	MRMS (P)
GIA Sire [Ⓛ]	MS (P)	R (P)	MRMS (P)	MRMS (P)	MRMS (P)

Source: NVT Online

R = resistant, RMR = resistant to moderately resistant, MR = moderately resistant, MRMS = moderately resistant to moderately susceptible, MS = moderately susceptible, S = susceptible. (P) = provisional rating and subject to change when additional data becomes available.

IMIDAZOLINONE-TOLERANT LENTIL

For herbicide-tolerant varieties it is important to adhere to all product labels, plant-back periods and directions for use, as any off-label usage can result in crop damage.

ALB TERRIER[Ⓛ] – NEW

ALB Terrier[Ⓛ] is a small, red, imidazolinone-tolerant lentil bred with PBA Hurricane XT[Ⓛ] and PBA Jumbo2[Ⓛ] as part of its background, making it a high-yielding variety with excellent disease resistance. It is a broadly adapted variety with mid flowering and mid maturity characteristics. Seed is licensed to Seednet.

GIA LEADER[Ⓛ]

GIA Leader[Ⓛ] is an imidazolinone-tolerant red lentil variety, well suited to reliable lentil growing areas in medium to higher-rainfall zones. This variety has similar imidazolinone and soil residue sulfonylurea herbicide tolerance to existing XT varieties. GIA Leader[Ⓛ] has mid to late flowering and maturity, similar to Nugget, making it well suited to early sowing. It has a spreading plant type, which can assist protection of pods at maturity. Uniform grey seed coat and the grain is well suited to the medium-sized Nugget-type market. GIA Leader[Ⓛ] is licensed to PBSeeds. EPR \$5.40 ex-GST.

GIA LIGHTNING[Ⓛ]

GIA Lightning[Ⓛ] is an imidazolinone-tolerant, high-yielding, small, round red lentil with superior adaptation to light-textured sandy soils than other lentil varieties, making it suitable for growing in Mallee regions. GIA Lightning[Ⓛ] has an upright plant type, which aids harvestability. This variety has similar imidazolinone and soil residue sulfonylurea herbicide tolerance to existing XT varieties. GIA Lightning[Ⓛ] is mid to late flowering with mid maturity, and moderate resistance to pod drop and lodging, and resistant-moderately resistant to shattering at maturity. GIA Lightning[Ⓛ] is licensed to PBSeeds. EPR \$5.40 ex-GST.

GIA THUNDER[Ⓛ]

GIA Thunder[Ⓛ] is a broadly adapted, imidazolinone-tolerant, small, round red lentil, offering growers high and stable yields across all lentil growing regions. GIA Thunder[Ⓛ] is a mid flowering and mid maturing variety. GIA Thunder[Ⓛ] has similar imidazolinone and soil residue sulfonylurea herbicide tolerance to existing XT varieties. The grain is well suited to the small premium round grain market with a uniform grey seed coat with seed size similar to PBA Hurricane XT[Ⓛ]. GIA Thunder[Ⓛ] is licensed to PBSeeds. EPR \$5.40 ex-GST.

Table 2: Agronomic characteristics of lentil varieties.

Variety	Seed coat colour	Cotyledon colour	Market category	Vigour	Plant height	Flowering time	Maturity time	Lodging resistance	Pod drop	Shattering
CONVENTIONAL										
PBA Ace [Ⓛ]	Grey	Red	MRS	Good	Medium	Mid	Mid	MRMS	R	MRMS
PBA Bolt [Ⓛ]	Grey	Red	MRS	Mod/good	Medium	Early/mid	Early/mid	R	R	R
PBA Jumbo2 [Ⓛ]	Grey	Red	LRS	Mod/good	Med/tall	Mid	Mid	MRMS	MR	R
IMIDAZOLINONE TOLERANT										
ALB Terrier [Ⓛ]	Grey	Red	SRP	Moderate	Medium	Mid	Mid	MRMS	MR	MR
GIA Leader [Ⓛ]	Grey	Red	MRS	Moderate	Medium	Mid/late	Mid/late	MR	MR	RMR
GIA Lightning [Ⓛ]	Grey	Red	SRP	Moderate	Medium	Mid/late	Mid	MR	MR	RMR
GIA Thunder [Ⓛ]	Grey	Red	SRP	Moderate	Medium	Mid	Mid	MRMS	MR	RMR
PBA Hallmark XT [Ⓛ]	Grey	Red	MRS	Mod/good	Medium	Mid	Mid	MR	MR	R
PBA HighlandXT [Ⓛ]	Grey	Red	SRP	Mod/good	Medium	Early	Early/mid	MR	MR	MR
PBA Hurricane XT [Ⓛ]	Grey	Red	SRP	Moderate	Medium	Mid	Mid	MR	MR	R
PBA KelpieXT [Ⓛ]	Grey	Red	LRS	Mod/good	Medium	Early/mid	Early/mid	MRMS	MR	R
DUAL-HERBICIDE TOLERANT										
GIA Metro [Ⓛ]	Grey	Red	LRS	Mod/poor	Short/med	Late	Mid/late	MR	MR	RMR
GIA Sire [Ⓛ]	Grey	Red	SRP	Poor	Short	Mid/late	Mid	MR	MR	RMR

Source: Pulse Breeding Australia trials program 2012–17 and NVT Online

R = resistant, RMR = resistant to moderately resistant, MR = moderately resistant, MRMS = moderately resistant to moderately susceptible, MS = moderately susceptible, S = susceptible.

Market category: MRS = medium red split, SRP = small red premium round (football), SR = small red round (football), LRS = large red split, LG = large green.

PBA HALLMARK XT[Ⓛ]

PBA Hallmark XT[Ⓛ] is an imidazolinone-tolerant, medium red lentil with mid flowering and mid maturity characteristics. PBA Hallmark XT[Ⓛ] has moderate to good early crop vigour, a branching plant type and a good level of resistance to shattering and lodging at maturity. PBA Hallmark XT[Ⓛ] is commercialised by PBSeeds. EPR \$5.40 ex-GST.

PBA HIGHLANDXT[Ⓛ]

PBA HighlandXT[Ⓛ] is an imidazolinone-tolerant, medium red lentil with a medium seed size, high early vigour, upright plant type, early flowering and early to mid maturity. PBA HighlandXT[Ⓛ] is licensed to PBSeeds. EPR \$5.40 ex-GST.

PBA HURRICANE XT[Ⓛ]

PBA Hurricane XT[Ⓛ] is a mid flowering, mid maturing variety with small red seed and a grey seed coat. PBA Hurricane XT[Ⓛ] is commercialised by PBSeeds. EPR \$5.00 ex-GST.

PBA KELPIEXT[Ⓛ]

PBA KelpieXT[Ⓛ] is an imidazolinone-tolerant, large seed-sized red lentil. This variety provides growers with further market opportunities by combining herbicide tolerance in the large seed market class, complementing previous small and medium red lentil releases. PBA KelpieXT[Ⓛ] is an early to mid flowering and maturing variety. It has moderate to good early vigour, is moderately resistant to pod drop and resistant to seed shattering. PBA KelpieXT[Ⓛ] is licensed to Seednet. EPR \$5.40 ex-GST.

Table 3: Lower Eyre Peninsula lentil yield performance. NVT data 2019–23. Data for 2019 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year		2019	2020	2021	2022	2023
	Mean yield (t/ha)		0.00	1.86	3.31	1.72	3.92
	No. trials		0	1	1	1	1
CONVENTIONAL							
PBA Ace [Ⓛ]	4	Data not available		105	94	95	110
PBA Bolt [Ⓛ]	4			90	97	88	103
PBA Jumbo2 [Ⓛ]	4			108	102	132	105
IMIDAZOLINONE TOLERANT							
ALB Terrier [Ⓛ]	3	Data not available		–	109	116	102
GIA Leader [Ⓛ]	4			104	97	93	97
GIA Lightning [Ⓛ]	4			109	109	107	112
GIA Thunder [Ⓛ]	4			122	114	138	111
PBA Hallmark XT [Ⓛ]	4			92	98	86	89
PBA HighlandXT [Ⓛ]	4			97	100	108	102
PBA Hurricane XT [Ⓛ]	4			100	97	98	99
PBA KelpieXT [Ⓛ]	4			96	91	126	105
DUAL-HERBICIDE TOLERANT							
GIA Metro [Ⓛ]	3	Data not available		–	64	54	84
GIA Sire [Ⓛ]	3			–	83	54	94

– denotes no data available.

DUAL-HERBICIDE-TOLERANT LENTIL

For herbicide-tolerant varieties it is important to adhere to all product labels, plant-back periods and directions for use, as any off-label usage can result in crop damage.

GIA METRO[Ⓛ]

GIA Metro[Ⓛ] is the first lentil to combine imidazolinone and metribuzin herbicide tolerances. This unique combination of herbicide tolerance will expand weed control options in lentil, particularly in light-textured soils prone to damage from the application of Group 5 (previously Group C) herbicide, metribuzin. Grain yield is significantly lower than existing lentil varieties in the absence of weed pressure, or where weeds are controlled effectively without crop damage from Group 5 herbicide, metribuzin. GIA Metro[Ⓛ] is a large, lens-shaped red lentil with a grey seed coat. GIA Metro[Ⓛ] was bred by GIA using a metribuzin trait from a project supported by GRDC (DAS00113) and SARDI. Seed is available from PBSeeds. EPR \$7.50 ex-GST.

GIA SIRE[Ⓛ]

GIA Sire[Ⓛ] is the first lentil with improved tolerance to clopyralid soil residues from a prior crop applied according to production label directions. GIA Sire[Ⓛ] is a premium, small, round red lentil with a grey seed coat. Its tolerance to imidazolinone and soil residue sulfonylurea is similar to existing XT varieties. GIA Sire[Ⓛ] is slow growing with smaller plant parts, increased basal branching and shorter plant height compared to other lentil varieties. It is best suited to agronomic practices such as early sowing and lentil growing environments that maximise growth, harvest height and grain yield. Avoid growing this variety in low-fertility sandy soils or low-rainfall frost-prone environments. Seed of GIA Sire[Ⓛ] is available only under small-scale controlled release. EPR TBC.

Table 4: Yorke Peninsula lentil yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	1.90	2.55	3.60	2.95	2.27
	No. trials	2	2	1	2	2
CONVENTIONAL						
PBA Ace [Ⓛ]	9	99	108	90	95	91
PBA Bolt [Ⓛ]	9	99	93	104	89	103
PBA Jumbo2 [Ⓛ]	9	108	100	99	114	106
IMIDAZOLINONE TOLERANT						
ALB Terrier [Ⓛ]	5	–	–	101	112	99
GIA Leader [Ⓛ]	9	96	106	93	100	91
GIA Lightning [Ⓛ]	7	–	106	107	100	104
GIA Thunder [Ⓛ]	7	–	110	105	119	107
PBA Hallmark XT [Ⓛ]	9	93	96	100	97	98
PBA HighlandXT [Ⓛ]	9	103	94	104	100	106
PBA Hurricane XT [Ⓛ]	9	98	102	95	100	96
PBA KelpieXT [Ⓛ]	9	103	91	95	107	107
DUAL-HERBICIDE TOLERANT						
GIA Metro [Ⓛ]	5	–	–	71	79	77
GIA Sire [Ⓛ]	5	–	–	94	75	92

– denotes no data available.

Table 5: Mid North lentil yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	1.93	2.80	3.98	4.23	2.10
	No. trials	2	2	1	2	2
CONVENTIONAL						
PBA Jumbo2 ^{db}	9	112	108	108	122	101
PBA Ace ^{db}	9	93	103	104	71	107
PBA Bolt ^{db}	9	105	94	99	70	101
IMIDAZOLINONE TOLERANT						
ALB Terrier ^{db}	5	–	–	104	126	105
GIA Leader ^{db}	9	88	100	98	105	99
GIA Lightning ^{db}	7	–	109	107	82	111
GIA Thunder ^{db}	7	–	118	112	127	110
PBA Hallmark XT ^{db}	9	92	93	92	111	92
PBA HighlandXT ^{db}	9	110	99	102	97	100
PBA Hurricane XT ^{db}	9	95	99	100	100	99
PBA KelpieXT ^{db}	9	115	100	107	103	97
DUAL-HERBICIDE TOLERANT						
GIA Metro ^{db}	5	–	–	85	71	82
GIA Sire ^{db}	5	–	–	89	51	93

– denotes no data available.

Table 6: Murray Mallee lentil yield performance. NVT data 2019–23. Data for 2020 and 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	0.38	0.00	0.00	3.30	1.48
	No. trials	1	0	0	1	1
CONVENTIONAL						
PBA Jumbo2 ^{db}	3	68	Data not available	Data not available	111	109
PBA Bolt ^{db}	3	103			79	102
PBA Ace ^{db}	3	82			82	94
IMIDAZOLINONE TOLERANT						
ALB Terrier ^{db}	2	–	Data not available	Data not available	119	100
GIA Leader ^{db}	3	106			105	92
GIA Lightning ^{db}	2	–			89	105
GIA Thunder ^{db}	2	–			117	110
PBA Hallmark XT ^{db}	3	127			109	95
PBA HighlandXT ^{db}	3	91			95	107
PBA Hurricane XT ^{db}	3	99			100	97
PBA KelpieXT ^{db}	3	66			95	110
DUAL-HERBICIDE TOLERANT						
GIA Metro ^{db}	2	–	Data not available	Data not available	80	77
GIA Sire ^{db}	2	–			69	89

– denotes no data available.

Table 7: South East lentil yield performance. NVT data 2019–23. Data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.32	2.63	0.00	2.85	1.55
	No. trials	1	1	0	1	1
CONVENTIONAL						
PBA Ace ^{db}	4	95	99	Data not available	92	103
PBA Bolt ^{db}	4	90	101		83	103
PBA Jumbo2 ^{db}	4	107	107		114	111
IMIDAZOLINONE TOLERANT						
ALB Terrier ^{db}	2	–	–	Data not available	120	102
GIA Leader ^{db}	4	103	94		103	93
GIA Lightning ^{db}	3	–	109		100	110
GIA Thunder ^{db}	3	–	113		125	114
PBA Hallmark XT ^{db}	4	100	93		99	89
PBA HighlandXT ^{db}	4	98	104		98	106
PBA Hurricane XT ^{db}	4	100	97		100	98
PBA KelpieXT ^{db}	4	98	105		100	112
DUAL-HERBICIDE TOLERANT						
GIA Metro ^{db}	2	–	–	Data not available	68	77
GIA Sire ^{db}	2	–	–		65	88

– denotes no data available.



Photo: Sarah Day, SARDI

FIELD PEA

By Sarah Day, SARDI

A new field pea, APB Bondi[®], will be available to growers in 2025 with seed licensed to Seednet. APB Bondi[®] is the new yield and agronomic benchmark for Kasper type field pea.

The disease-forecasting model Blackspot Manager predicted a highly variable blackspot risk across South Australia for the 2023 season due to variation in rainfall received across the state. Irrespective of the seasonal blackspot risk, field peas should be grown in paddocks with at least four years' break from field peas and with a history of low blackspot disease infection, and not adjacent to last year's field pea stubble.

Blackspot can be reduced in paddocks where a grain yield of at least 1.5 tonnes per hectare is achievable by using a fungicide strategy including a seed dressing with thiram plus thiabendazole (for example, UPL EVERSHIELD[®] seed treatment) combined with two foliar fungicide sprays (four to nine weeks post-sowing and again at early flowering). Blackspot Manager predictions of disease risk are based on spore release times in each field pea growing district and weekly alerts are available for free via email (blackspotmanager@dpiird.wa.gov.au) or SMS (0475 959 932). For more information go to agric.wa.gov.au/field-peas/blackspot-field-peas-disease-forecast or contact Mohsen Khani (mohsen.khani@sa.gov.au). Note that blackspot disease resistance ratings were last reviewed in 2019 and are no longer assessed within the annual NVT disease ratings review.

SELECTION CRITERIA

Information on the most important agronomic characteristics of the different varieties is shown in Table 1 and grain yield for each variety, where available, can be found in Tables 2 to 7. When selecting a variety, growers need to make their decision based on all the available information, including their individual farm and paddock situation, the access and availability of target markets, and storage and handling facilities.

White and blue peas are not accepted in the bulk dun segregation, so growers also need to consider the different seed quality types (Table 1) and where they can be delivered before deciding whether to grow them.

DUN TYPES

Dun peas are segregated from white and blue peas due to the different market quality specifications. Some pea markets in India and Sri Lanka prefer Australian dun peas due to their distinct 'nutty' taste. Kasper seed type grain is also preferred over dimpled dun type seed (such as PBA Percy and PBA Oura[®]) in these markets due to its round shape and lack of dimples, allowing easier seed coat removal and greater split returns. It is important to check segregation plans for local delivery points as some will segregate the Kasper seed type from the dimpled dun type.

WHITE TYPES

White peas cannot be delivered to bulk export markets with dun peas. Some high-quality, specialised white peas may fit into specific premium value markets for split peas. Higher prices may be achieved if supplying specific niche markets, but these markets may be small. Small-seeded white peas are likely to only suit domestic stockfeed markets. Growers are advised to secure markets before deciding to grow these pea types.

BLUE TYPES (GREEN COTYLEDONS)

Some blue pea varieties are for specific premium value markets, which are usually only small. Quality is paramount in these markets where peas are used predominantly for canning and snack food. Important parameters include damage by insects, bleaching of seed coat and consistency of seed colour.

FIELD PEA VARIETY NOTES

KASPA SEED TYPE

APB BONDI[Ⓛ]

APB Bondi[Ⓛ] is a Kaspera type field pea with broad adaptation across southern Australia. It is a mid flowering and mid maturing variety, with a semi-dwarf plant type. APB Bondi[Ⓛ] has a RMR rating for downy mildew, virus resistance, and improved tolerance to boron (tolerant) and salinity (moderately tolerant). APB Bondi[Ⓛ] seed is licensed to Seednet. EPR TBC.

KASPA

Kaspera is a semi-leafless, late flowering variety with resistance to shattering, good early season vigour and moderate resistance to lodging. Kaspera seed is distinct from traditional dun types (such as Parafield) as it is red-brown in colour and almost spherical in shape. Kaspera needs to be considered carefully before use as an option in low-rainfall areas or areas prone to early periods of high temperature and drought stress due to its late and condensed flowering period. Kaspera is under contract to Seednet. EPR \$2.00 ex-GST.

PBA BUTLER[Ⓛ]

PBA Butler[Ⓛ] is a Kaspera type field pea with high yields. It is mid to late flowering, early to mid maturing and offers the same agronomic benefits of lodging and shattering resistance as Kaspera. PBA Butler[Ⓛ] has a medium seed size with a yellow split and a uniform tan seed coat colour that is similar to Kaspera. It has a semi-leafless plant type with vigorous plant growth. PBA Butler[Ⓛ] has wide adaptation across southern Australia and performs particularly well in medium to longgrowing seasons in SA. Seed is available from the commercial partner Seednet. EPR \$2.70 ex-GST.

PBA GUNYAH[Ⓛ]

PBA Gunyah[Ⓛ] is a Kaspera seed type field pea with early to mid flowering and early maturity, offering high yield in shorter-season environments and drier seasons (yield potential below 2.25t/ha). It is better suited to delayed sowing than Kaspera for blackspot disease management due to its early flowering characteristic. PBA Gunyah[Ⓛ] is licensed to Seednet. EPR \$2.50 ex-GST.

PBA TAYLOR[Ⓛ]

PBA Taylor[Ⓛ] is a Kaspera seed type, semi-leafless field pea with wide adaptation and mid flowering with early to mid maturity. PBA Taylor[Ⓛ] outyields other Kaspera seed type varieties including PBA Wharton[Ⓛ] and Kaspera, except in regions with high boron and salinity constraints. PBA Taylor[Ⓛ] is licensed to Seednet. EPR \$2.70 ex-GST.

PBA WHARTON[Ⓛ]

PBA Wharton[Ⓛ] is a Kaspera seed type dun pea. It provides the same agronomic benefits as Kaspera (for example, lodging and shattering resistance), has some tolerance to boron toxicity, is moderately tolerant to salinity and will provide a reliable alternative in those areas where powdery mildew and viruses are regular problems. PBA Wharton[Ⓛ] is early to mid flowering and early maturing, making it well suited to crop-topping and delayed sowing for blackspot management. Seed is licensed to Seednet. EPR \$2.60 ex-GST.

DIMPLED DUN SEED TYPE

PBA OURA[Ⓛ]

PBA Oura[Ⓛ] is an early flowering and maturing, semi-dwarf, dun dimpled type variety. This line has broad adaptation and high yield potential in short growing seasons. It produces non-sugar-type pods and has fair to good lodging resistance at maturity. Seed is licensed to Seednet. EPR \$2.60 ex-GST.

PBA PERCY

PBA Percy is an early flowering, conventional, dun dimpled type variety. Its early flowering and early maturity make it well suited to delayed sowing for disease management and the agronomic practice of crop-topping. It is moderately tolerant to salinity and produces non-sugar-type pods similar to PBA Oura[Ⓛ]. PBA Percy generally produces yields similar to PBA Oura[Ⓛ] but in low-rainfall environments can be the highest yielding dun variety in trials. PBA Percy has poor lodging resistance at maturity. Seed is licensed to Seednet. EPR \$2.60 ex-GST.

HERBICIDE-TOLERANT FIELD PEA

For herbicide-tolerant varieties it is important to adhere to all product labels, plant-back periods and directions for use, as any off-label usage can result in crop damage.

GIA KASTAR[Ⓛ]

GIA Kastar[Ⓛ] is the first Kasper seed type field pea with tolerance to imidazolinone in-crop and residual herbicides. The response of GIA Kastar[Ⓛ] to residual sulfonylurea and post-emergent flumetsulam is similar to that of PBA Wharton[Ⓛ]. GIA Kastar[Ⓛ] is a mid flowering variety with early to mid maturity, suitable for crop-topping. It has a semi-leafless plant type, an erect growth habit and is resistant to pod shatter at maturity. GIA Kastar[Ⓛ] was developed by Grains Innovation Australia and commercialised by AG Schilling & Co. EPR \$3.30 ex-GST.

GIA OURSTAR[Ⓛ]

GIA Ourstar[Ⓛ] is the first dun dimpled type field pea variety offering tolerance to imidazolinone herbicides and residual Group 2 herbicides. GIA Ourstar[Ⓛ] is an early to mid flowering variety with early to mid maturity, suitable for crop-topping. It has a semi-leafless plant type with a semi-erect growth habit and moderate resistance to pod shatter at maturity. GIA Ourstar[Ⓛ] was developed by Grains Innovation Australia using conventional breeding techniques and commercialised by AG Schilling & Co. EPR \$3.30 ex-GST.

Table 1: Agronomic and disease characteristics of field pea varieties.

Variety	Seed type	Seed size	Plant habit	Plant height	Early vigour	Flower colour	Flowering time	Maturity time	Pod shattering at maturity	Lodging resistance at maturity	Downy mildew (Kasper strain)	Blackspot [†]	Powdery mildew	Bacterial blight (pv. <i>syringae</i>)	Pea seed-borne mosaic virus (PSbMV)	Bean leafroll virus (BLRV)	<i>Pratylenchus neglectus</i> resistance	<i>Pratylenchus thornei</i> resistance
APB Bondi [Ⓛ]	Dun (K)	Me	SL	Me-T	High	Pi	M	M	R: SP	Fair-good	RMR (S)	MS	RMR	S	R	R	RMR	MSS
Kasper	Dun (K)	Me	SL	Me-T	High	Pi	L	M	R: SP	Fair-good	S	MS	S	S	S	S	RMR	MRMS
PBA Butler [Ⓛ]	Dun (K)	Me	SL	Me-T	High	Pi	M-L	E-M	R: SP	Fair-good	S	MS	S	MS	S	S	RMR	MRMS
PBA Gonyah [Ⓛ]	Dun (K)	Me	SL	Me-T	High	Pi	E-M	E	R: SP	Fair-good	S	MS	S	S	S	S	RMR	MRMS
PBA Taylor [Ⓛ]	Dun (K)	Me	SL	Me-T	High	Pi	M	E-M	R: SP	Fair-good	S	MS	S	S	R	R	RMR	MRMS
PBA Wharton [Ⓛ]	Dun (K)	Me	SL	Me-T	High	Pi	E-M	E	R: SP	Fair-good	S	MS	RMR	S	R	R	MR	MRMS
PBA Oura [Ⓛ]	Dun	Me	SL	Me-T	High	P	E	E	MR: NSP	Fair-good	S	MS	S	MS	S	R	MR	MRMS
PBA Percy	Dun	Me-Lg	C	T	High	P	E	E	MR: NSP	Poor	S	MS	S	MRMS	S	S	RMR	RMR
PBA Pearl	White	Me-Lg	SL	Me-T	High	W	E-M	E	MR: NSP	Good	S	MS	S	MS	S	R	MR	MRMS
PBA Noosa [Ⓛ]	Blue	Me	SL	Me-T	High	W	E-M	E-M	R: SP	Fair-good	MS	MS	S	S	S	R	RMR	MRMS
HERBICIDE TOLERANT																		
GIA Kastar [Ⓛ]	Dun (K)	Me	SL	Me	Moderate	Pi	M	E-M	R: SP	Fair	S	MS (P)	RMR	S	R (P)	**	MR	MS
GIA Ourstar [Ⓛ]	Dun	Me	SL	Me	Moderate	P	E-M	E-M	MR: SP	Fair	S	MS (P)	S	S (P)	S (P)	**	MRMS	MS

Source: Pulse Breeding Australia trials program 2012-17 and NVT Online (nvt.grdc.com.au)

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. K = kasper type, Sm = small, Me = medium, Lg = large, T = tall, Sh = short, C = conventional, SL = semi-leafless, P = purple, Pi = pink, W = white, E = early, M = mid, L = late, SP = sugar pod, NSP = non-sugar pod.

[†] = No disease screening since 2018 or earlier and may be a breeder rating. [‡] = No disease screening since 2020. ^{**} = Not tested. (P) = provisional rating and subject to change when additional data becomes available.

WHITE TYPES

PBA PEARL

PBA Pearl is a semi-leafless white pea variety that is broadly adapted and the highest-yielding field pea in long-term evaluation trials in all areas of SA. It has an erect growth habit, often with excellent lodging resistance at maturity. It is early to mid flowering and produces non-sugar-type pods similar to PBA Oura[Ⓛ]. Seed is available through Seednet and growers are advised to secure markets before deciding to grow white peas as they cannot be delivered to bulk dun or Kaspera type export markets. EPR \$2.70 ex-GST.

BLUE TYPES

PBA NOOSA[Ⓛ]

PBA Noosa[Ⓛ] is a semi-leafless, semi-dwarf blue field pea with broad adaptation and grain yield exceeding Excell by up to 30 per cent, with similar yield to Kaspera seed type varieties. PBA Noosa[Ⓛ] has shatter-resistant pods. It has early to mid flowering and maturity. PBA Noosa[Ⓛ] is licensed to PBSeeds. EPR \$6.50 ex-GST.

Table 2: Upper Eyre Peninsula field pea yield performance. NVT data 2019–23. Data for 2019 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year		2019	2020	2021	2022	2023
	Mean yield (t/ha)	No. trials	0.00	1.33	2.13	2.69	0.92
			0	1	1	1	1
APB Bondi [Ⓛ]	4	Data not available		107	104	116	101
Kaspera	4			96	106	94	105
PBA Butler [Ⓛ]	3			–	109	110	108
PBA Gonyah [Ⓛ]	3			–	103	94	105
PBA Noosa [Ⓛ]	4				96	99	105
PBA Oura [Ⓛ]	4				105	97	98
PBA Pearl	4				105	100	119
PBA Percy	4				101	100	95
PBA Taylor [Ⓛ]	4				106	105	106
PBA Wharton [Ⓛ]	4				106	95	98
HERBICIDE TOLERANT							
GIA Kastar [Ⓛ]	4	Data not available		89	85	77	87
GIA Ourstar [Ⓛ]	4			78	82	69	75

– denotes no data available.

Table 3: Lower Eyre Peninsula field pea yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year		2019	2020	2021	2022	2023
	Mean yield (t/ha)	No. trials	2.14	2.37	2.93	2.95	4.35
			2	2	2	2	1
APB Bondi [Ⓛ]	7		–	108	104	109	113
Kaspera	9		96	101	98	96	102
PBA Butler [Ⓛ]	7		100	–	103	107	110
PBA Gonyah [Ⓛ]	7		97	–	97	91	96
PBA Noosa [Ⓛ]	9		100	102	101	107	106
PBA Oura [Ⓛ]	9		103	97	100	96	92
PBA Pearl	9		110	108	109	120	108
PBA Percy	9		106	97	102	101	90
PBA Taylor [Ⓛ]	9		97	104	100	99	106
PBA Wharton [Ⓛ]	9		97	96	97	89	96
HERBICIDE TOLERANT							
GIA Kastar [Ⓛ]	7		–	84	93	84	80
GIA Ourstar [Ⓛ]	7		–	81	85	75	86

– denotes no data available.

Table 4: Yorke Peninsula field pea yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	1.88	1.35	3.29	2.92	2.19
	No. trials	2	1	2	2	2
APB Bondi ^{db}	9	105	111	115	114	112
Kaspa	9	101	107	104	98	100
PBA Butler ^{db}	8	107	–	111	108	108
PBA Gonyah ^{db}	8	99	–	98	96	99
PBA Noosa ^{db}	9	101	100	105	104	102
PBA Oura ^{db}	9	98	94	91	96	96
PBA Pearl	9	107	96	105	111	106
PBA Percy	9	102	90	88	92	91
PBA Taylor ^{db}	9	102	111	109	107	108
PBA Wharton ^{db}	9	94	101	98	100	102
HERBICIDE TOLERANT						
GIA Kastar ^{db}	7	–	89	84	81	86
GIA Ourstar ^{db}	7	–	80	76	80	82

– denotes no data available.

Table 5: Mid North field pea yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.27	1.94	3.10	3.31	4.30
	No. trials	2	2	2	2	2
APB Bondi ^{db}	10	100	113	107	112	114
Kaspa	10	94	105	99	98	100
PBA Butler ^{db}	8	99	–	106	111	106
PBA Gonyah ^{db}	8	98	–	96	92	97
PBA Noosa ^{db}	10	99	99	103	107	106
PBA Oura ^{db}	10	105	96	97	95	93
PBA Pearl	10	108	102	110	121	105
PBA Percy	10	106	93	98	99	85
PBA Taylor ^{db}	10	98	112	102	102	107
PBA Wharton ^{db}	10	100	100	96	89	103
HERBICIDE TOLERANT						
GIA Kastar ^{db}	8	–	74	88	77	85
GIA Ourstar ^{db}	8	–	75	85	67	97

– denotes no data available.

Table 6: Murray Mallee field pea yield performance. NVT data 2019–23. Data for 2020 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	0.21	0.00	1.62	3.94	2.01
	No. trials	1	0	1	1	1
APB Bondi [Ⓛ]	3	–	Data not available	105	106	113
Kaspa	4	88		100	102	99
PBA Butler [Ⓛ]	4	113		104	110	109
PBA Gunyah [Ⓛ]	4	71		103	98	98
PBA Noosa [Ⓛ]	4	126		97	101	103
PBA Oura [Ⓛ]	4	85		102	98	97
PBA Pearl	4	155		100	110	110
PBA Percy	4	97		98	104	93
PBA Taylor [Ⓛ]	4	90		106	103	107
PBA Wharton [Ⓛ]	4	71		105	91	100
HERBICIDE TOLERANT						
GIA Kastar [Ⓛ]	3	–	Data not available	91	83	80
GIA Ourstar [Ⓛ]	3	–		88	72	79

– denotes no data available.

Table 7: South East field pea yield performance. NVT data 2019–23. Data for 2021 and 2022 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.01	3.56	0.00	0.00	2.59
	No. trials	1	1	0	0	1
APB Bondi [Ⓛ]	3	115	112	Data not available	Data not available	106
Kaspa	3	101	99			101
PBA Butler [Ⓛ]	2	113	–			108
PBA Gunyah [Ⓛ]	2	90	–			100
PBA Noosa [Ⓛ]	3	111	101			98
PBA Oura [Ⓛ]	3	89	99			101
PBA Pearl	3	120	110			107
PBA Percy	3	93	96			103
PBA Taylor [Ⓛ]	3	103	107			105
PBA Wharton [Ⓛ]	3	86	100			97
HERBICIDE TOLERANT						
GIA Kastar [Ⓛ]	2	–	80	Data not available	Data not available	84
GIA Ourstar [Ⓛ]	2	–	74			72

– denotes no data available.

CHICKPEA

By Sarah Day, SARDI

No new chickpea varieties will be available to growers in 2025.

All varieties are rated as either susceptible (S) or moderately susceptible (MS) to *Ascochyta* blight infection. This follows observations of severe *Ascochyta* blight on previously resistant chickpea varieties across South Australia and Victoria. Chickpea growers need to carefully consider their risk of infection along with the ability to effectively control the disease prior to choosing to grow this crop in SA. This will be the case in both high and low-rainfall regions as severe disease outbreaks can still occur in the latter for all variety options during wet seasons such as 2022.

Ascochyta blight disease management

It is imperative that all chickpea seed is treated with a thiram-based fungicide to prevent seed transmission of *Ascochyta* blight on to the emerging seedlings. The disease will also survive on stubble and organic matter for several years, so growers must observe a minimum three-year rotation between chickpeas in the same paddock and avoid planting adjacent to last year's chickpea stubble.

All chickpea crops will need to be regularly monitored for infection. Varieties rated:

- MS will require three to four strategic fungicide sprays ahead of rain events, offering two to three weeks of protection, starting at six to eight weeks post-sowing; and
- S will require regular fungicide sprays every two to three weeks throughout the growing season prior to rainfall events.

As the pods of all commercial varieties are susceptible to *Ascochyta* blight, they will also require fungicide sprays ahead of rain fronts during pod setting to protect the pods from seed staining and seed abortion.

SELECTION CRITERIA

The list of suggested varieties for 2025 is shown in Table 1. A range of chickpea types is now available, offering growers the opportunity to exploit particular management and/or market opportunities, providing *Ascochyta* blight can be managed effectively. Information on key selection criteria and yield for each variety can be found in the tables.

When selecting a chickpea type and variety to grow, growers need to make their decision on the basis of *Ascochyta* blight resistance, yield, price and marketability. Other agronomic traits such as maturity, cold tolerance, root lesion nematode (*Pratylenchus* spp.) susceptibility and lodging resistance also need to be considered.

CHICKPEA TYPES

DESI TYPES

Larger seeds are preferred for desi types, regardless of whether they are used for splitting or whole seed use. There has been an increasing use of large whole-seeded desi types in a range of food preparations in the subcontinent, and a small premium has been available for types fitting this use. Newer desi varieties have improved seed size and colour over older varieties and are suited to whole and splitting markets. They are therefore more likely to achieve the higher prices of the benchmark northern region varieties (such as Jimbour).

SMALL KABULI TYPES

Bulk markets for the small kabuli Genesis™ 090 have been developed in recent years and generally have attracted a higher price than the desi types. However, growers need to be aware that these bulk markets have previously been oversupplied

by several overseas countries and they may be required to hold seed from time to time as marketing opportunities are not always available or may be limited in terms of size and price. Seed size is small, six to eight millimetres, so will not attract the higher prices of the larger seeded kabuli types (such as PBA Monarch[Ⓛ] and Genesis™ Kalkee). Further premiums may be obtained by grading and selling the seed on size.

MEDIUM-LARGE KABULI TYPES

PBA Monarch[Ⓛ] and Genesis™ Kalkee produce predominantly 8 to 10mm seed for traditionally larger-seeded kabuli markets where larger seed size is imperative to attract premium prices. Uniformity of seed size is also important in these markets and may be difficult to achieve for the large types such as Genesis™ Kalkee due to its relatively poor adaptation to dry finishing conditions. The medium-sized PBA Monarch[Ⓛ] is likely to produce more uniform-sized seed under these conditions.

Table 1: Agronomic and disease characteristics of chickpea varieties.

Variety	Seed size (g/100 seeds)	Kabuli main seed size (mm)	Seed colour	Market type suitability	Early vigour	Flowering	Maturity	Plant height	Lodging resistance maturity	Ascochyta blight*	<i>Pratylenchus neglectus</i> resistance	<i>Pratylenchus thornei</i> resistance
DESI TYPE												
CBA Captain [Ⓛ]	18–20		Yellow-brown	Split and whole	Moderate	Mid	Mid	Medium-tall	MR	S	MR	MS
PBA Maiden [Ⓛ]	21–24		Yellow-tan	Premium whole	Moderate	Early-mid	Mid	Short-med	MS	S	MRMS	MRMS
PBA Slasher [Ⓛ]	17–19		Light brown	Split and whole	Poor/mod	Mid	Mid	Short-med	MS	S	MRMS	MRMS
PBA Striker [Ⓛ]	20–22		Light brown	Split and whole	Good	Early	Early	Short-med	MS	S	MRMS	MRMS
KABULI TYPE												
Genesis™ 090	26–35	7–8	Cream	6–8mm	Good	Mid	Mid	Medium	MR	MS	MRMS	MS
Genesis™ Kalkee	40–46	8–9	Cream	8–10mm	Good	Mid-late	Late	Tall	R	S	MRMS	MS
PBA Magnus [Ⓛ]	42–48	9	Cream-beige	9–10mm	Poor/mod	Mid	Mid	Medium	MRMS	S	MR	MSS
PBA Monarch [Ⓛ]	37–43	8–9	Cream	8–9mm	Poor/mod	Early	Early	Medium	MS	S	MRMS	MS
PBA Royal [Ⓛ]	39	8	Cream-beige	8–9mm	Moderate	Early-mid	Mid	Medium	MR	MS	MR	MS

Source: Pulse Breeding Australia trials program 2012–17 and NVT Online (nvt.qrdc.com.au)

R = resistant, MR = moderately resistant, MRMS = moderately resistant to moderately susceptible, MS = moderately susceptible, MSS = moderately susceptible to susceptible, S = susceptible.

* = Foliar Ascochyta blight ratings for southern region only (pathotype 1).

CHICKPEA VARIETY NOTES

DESI CHICKPEA VARIETIES

CBA CAPTAIN[Ⓛ]

CBA Captain[Ⓛ] is a desi type chickpea with broad adaptation and a medium seed size. It has good grain yields in SA. CBA Captain[Ⓛ] has excellent harvestability with improved plant height and height to the lowest pod compared with all other desi varieties adapted to the southern region. It is a mid flowering and mid maturing variety, similar to Genesis™ 090. It has superior grain quality to current southern desi varieties based on seed shape, size and colour. CBA Captain[Ⓛ] meets the requirement of a Jimbour type suitable for the subcontinent market. Seed can be obtained through CBA seed distributors. EPR \$4.50 ex-GST.

PBA MAIDEN[Ⓛ]

PBA Maiden[Ⓛ] is a large-seeded desi chickpea for the medium to low-rainfall environments of southern Australia. PBA Maiden[Ⓛ] has a semi-spreading plant type and height similar to PBA Slasher[Ⓛ]. It has a seed size greater than current southern desi varieties (approximately 30 per cent larger than PBA Slasher[Ⓛ]) with a yellow-tan seed coat. PBA Maiden[Ⓛ] is targeted for whole seed markets where its large, angular-shaped and bright yellow-tan seed coat is well suited to specific requirements. Growers are advised to investigate delivery and marketing options for PBA Maiden[Ⓛ] prior to growing this variety due to its unique and favourable seed characteristics. Larger uniform seed size is more likely in medium-rainfall regions. Seed is licensed to Seednet. EPR \$4.00 ex-GST.

PBA SLASHER[Ⓛ]

PBA Slasher[Ⓛ] is high yielding in all chickpea-growing areas of SA, providing Ascochyta blight can be managed. It has a semi-spreading plant type with mid flowering and mid maturity. PBA Slasher[Ⓛ] is suitable for the split and whole seed markets. Seed is licensed to Seednet. EPR \$4.00 ex-GST.

PBA STRIKER[Ⓛ]

PBA Striker[Ⓛ] is a high-yielding desi chickpea with good early vigour. It is an early flowering and maturing variety and will provide a high-yielding alternative to all chickpea varieties in the medium to low-rainfall environments of southern Australia, providing Ascochyta blight can be managed. PBA Striker[Ⓛ] has a similar plant type to PBA Slasher[Ⓛ] but with larger seed size than all other southern desi varieties. Seed of PBA Striker[Ⓛ] is also light in colour and has good milling characteristics. Due to its early maturity and Ascochyta blight susceptibility, PBA Striker[Ⓛ] is not recommended for high-rainfall and long-growing season districts. Seed is licensed to Seednet. EPR \$4.00 ex-GST.

KABULI CHICKPEA VARIETIES

GENESIS™ 090

Genesis™ 090 is a small-seeded kabuli type chickpea. Genesis™ 090 has medium height with erect branches and yields similar to PBA Monarch[Ⓛ] but lower than PBA Slasher[Ⓛ] and PBA Striker[Ⓛ]. For seed distribution contact PBSeeds. EPR \$5.00 ex-GST.

GENESIS™ KALKEE

Genesis™ Kalkee is a large-seeded kabuli type, mid to late in flowering and late maturity. For seed distribution contact PBSeeds. EPR \$5.00 ex-GST.

PBA MAGNUS[Ⓛ]

PBA Magnus[Ⓛ] is a large-seeded kabuli chickpea. It has a significant yield advantage over Genesis™ Kalkee, particularly in short growing environments, due to its slightly earlier flowering and maturity. It is well adapted to the medium-rainfall chickpea growing regions of south-eastern Australia, where the large seed size can be obtained. PBA Magnus[Ⓛ] has a similar plant type to Genesis™ 090 and similar mid flowering and mid maturity. Seed of PBA Magnus[Ⓛ] is larger than Genesis™ Kalkee, with a cream-beige seed coat and good wrinkling characteristics. It has received favourable feedback on seed quality from domestic and international traders. PBA Magnus[Ⓛ] is licensed to PBSeeds. EPR \$6.50 ex-GST.

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PBA MONARCH[Ⓛ]

PBA Monarch[Ⓛ] is a high-yielding, medium-sized kabuli chickpea with adaptation to all kabuli-growing areas of Australia. PBA Monarch[Ⓛ] is particularly well suited to the shorter-seasoned, medium-rainfall environments of south-eastern Australia due to improved adaptation through earlier flowering and maturity compared with Genesis™ 090 and Genesis™ Kalkee. It has similar yields and larger seed size than Genesis™ 090, although it is higher yielding than this variety in low-yielding (<1t/ha) situations. In shorter growing seasons, PBA Monarch[Ⓛ] may have larger and more consistent seed size than other medium-sized varieties due to its earlier pod fill timing. Seed is licensed to Seednet. EPR \$6.50 ex-GST.

PBA ROYAL[Ⓛ]

PBA Royal[Ⓛ] is a high-yielding, medium-sized kabuli chickpea. It is particularly well adapted to the medium-rainfall chickpea-growing regions of south-eastern Australia. PBA Royal[Ⓛ] has medium plant height with early to mid flowering and mid maturity. Seed is licensed to Seednet. EPR \$6.50 ex-GST.

Table 2: Yorke Peninsula desi and kabuli chickpea yield performance. NVT data 2019–23. Data for 2020 and 2023 not available.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
DESI						
	Mean yield (t/ha)	0.67	0.00	0.60	2.48	0.00
Variety	No. trials	1	0	1	1	0
PBA Seamer [Ⓛ]	1	–	Data not available	–	94	Data not available
PBA Striker [Ⓛ]	3	122		75	104	
PBA Slasher [Ⓛ]	3	111		99	101	
PBA Maiden [Ⓛ]	3	119		83	102	
Neelam [Ⓛ]	3	107		88	102	
CBA Captain [Ⓛ]	3	85		107	97	
KABULI						
	Mean yield (t/ha)	1.32	0.00	0.47	2.50	0.00
Variety	No. trials	1	0	1	1	0
Genesis™ 090	3	106	Data not available	125	98	Data not available
PBA Royal [Ⓛ]	3	92		114	98	
PBA Monarch [Ⓛ]	3	93		92	100	
Almaz [Ⓛ]	3	86		103	100	
PBA Magnus [Ⓛ]	3	89		106	96	
Genesis™ Kalkee	3	77		83	101	

NVT are not designed to allow comparisons of varieties between desi and kabuli chickpeas where they are not evaluated in the same trial.

– denotes no data available.

Table 3: Mid North desi and kabuli chickpea yield performance. NVT data 2016–20. Data for 2020 not available.

Long-term yield expressed as a percentage of mean yield.

	Year	2016	2017	2018	2019	2020
DESI						
	Mean yield (t/ha)	2.38	0.97	0.53	0.71	0.00
Variety	No. trials	1	1	1	1	0
CBA Captain ^{db}	4	113	105	109	100	Data not available
PBA Maiden ^{db}	4	99	98	96	102	
PBA Slasher ^{db}	4	106	102	101	102	
PBA Striker ^{db}	4	96	103	99	105	
KABULI						
	Mean yield (t/ha)	1.53	2.90	2.69	1.78	0.00
Variety	No. trials	1	1	1	1	0
Genesis™ 090	4	113	105	104	104	Data not available
Genesis™ Kalkee	4	91	97	89	90	
PBA Magnus ^{db}	4	108	95	106	106	
PBA Monarch ^{db}	4	84	94	100	104	
PBA Royal ^{db}	4	122	103	106	102	

NVT are not designed to allow comparisons of varieties between desi and kabuli chickpeas where they are not evaluated in the same trial. Chickpeas are no longer tested in NVT in Mid North; historical data shown above.

Table 4: Victorian Mallee desi and kabuli chickpea yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
DESI						
	Mean yield (t/ha)	1.40	1.84	1.78	1.73	2.00
Variety	No. trials	2	2	2	1	2
CBA Captain ^{db}	9	104	97	103	93	101
Neelam ^{db}	9	102	102	99	103	105
PBA Maiden ^{db}	9	107	102	99	103	111
PBA Seamer ^{db}	1	–	–	–	92	–
PBA Slasher ^{db}	9	107	101	105	103	102
PBA Striker ^{db}	9	114	104	103	107	113
KABULI						
	Mean yield (t/ha)	1.46	1.81	1.75	1.37	2.04
Variety	No. trials	2	2	2	1	2
Almaz ^{db}	7	92	101	–	100	90
Genesis™ 090	9	96	99	104	100	94
Genesis™ Kalkee	7	90	102	88	99	–
PBA Magnus ^{db}	8	102	96	100	–	102
PBA Monarch ^{db}	9	97	100	95	99	99
PBA Royal ^{db}	9	99	99	106	98	93

NVT are not designed to allow comparisons of varieties between desi and kabuli chickpeas where they are not evaluated in the same trial.

– denotes no data available.

Table 5: Wimmera desi and kabuli chickpea yield performance. NVT data 2019–23. Data for 2021 not available.

Long-term yield expressed as a percentage of mean yield.

	Year	2019	2020	2021	2022	2023
DESI						
	Mean yield (t/ha)	1.47	1.63	0.00	1.80	1.15
Variety	No. trials	2	2	0	2	2
CBA Captain [Ⓛ]	8	98	96	Data not available	92	95
Neelam [Ⓛ]	8	102	103		100	104
PBA Maiden [Ⓛ]	8	107	105		97	104
PBA Seamer [Ⓛ]	2	–	–		96	–
PBA Slasher [Ⓛ]	8	102	106		104	108
PBA Striker [Ⓛ]	8	107	111		102	116
KABULI						
	Mean yield (t/ha)	1.38	1.73	0.00	1.53	1.24
Variety	No. trials	2	2	0	2	2
Almaz [Ⓛ]	8	90	94	Data not available	105	100
Genesis™ 090	8	100	101		107	97
Genesis™ Kalkee	8	88	89		98	97
PBA Magnus [Ⓛ]	8	98	94		86	91
PBA Monarch [Ⓛ]	8	97	95		97	98
PBA Royal [Ⓛ]	8	93	101		106	105

NVT are not designed to allow comparisons of varieties between desi and kabuli chickpeas where they are not evaluated in the same trial.

– denotes no data available.

LUPIN

By Amanda Pearce, SARDI and Matt Aubert, AGT

No new lupin varieties will be available to South Australian growers in 2025.

Narrow-leaved lupins (*Lupinus angustifolius*) are well suited to acidic and sandy soils. They continue to be grown in suitable areas as a key component of the farming system and cropping rotation.

DOMESTIC MARKETING

Producers wanting to sell lupin grain into the Victorian and NSW markets must satisfy Anthracnose freedom, market access and transporting protocols. Anthracnose grain tests are the most common means of verifying Anthracnose freedom for marketing. Please refer to the most current information for biosecurity requirements in Victoria (agriculture.vic.gov.au/biosecurity/moving-plants-and-plant-products/plant-quarantine-manual) and the restrictions that apply to exporting to NSW (dpi.nsw.gov.au/biosecurity).

LUPIN AGRONOMY

A common problem reported by SA growers is the poor emergence and establishment of lupin crops. This affects early vigour, but it also enhances any effects of pre-emergent herbicides. Growers are encouraged to seek germination tests on sowing seed so that seeding rates can be increased to compensate for poor germination rates or alternative seed sourced.

Manganese deficiency has been a problem for growers in recent seasons. Lupin plants have a high demand for manganese during seed development and maturity. Manganese deficiency can have a negative influence on seed development and cause seed to split or shrivel in pods. Deficient plants can be slow to ripen, remaining green for longer and causing difficulty at harvest. Manganese deficiency can be overcome by applying manganese. Timing is important and manganese should be applied at mid-flowering of the first lateral, by which time growth of the first pods on the main stem should be 2 to 2.5 centimetres long.

Table 1: Disease resistance characteristics of lupin varieties.

Variety	Anthracnose resistance	Cucumber mosaic virus resistance	Phomopsis (pod infection) resistance	Phomopsis (stem infection) resistance	Sclerotinia stem rot resistance
Coyote [Ⓛ]	MRMS	MRMS	MRMS	S	S (P)
Jenabillup [Ⓛ]	MS	MRMS	MR	MS	S (P)
Lawler [Ⓛ]	MR	MRMS	MS	MR	S (P)
Mandelup [Ⓛ]	MRMS	MRMS	S	MR	S (P)
PBA Barlock [Ⓛ]	RMR	MRMS	MR	MR	S (P)
PBA Bateman [Ⓛ]	MRMS	MR	MS	RMR	S (P)
PBA Gunyidi [Ⓛ]	MRMS	MRMS	MRMS	RMR	S (P)
PBA Jurien [Ⓛ]	RMR	MS	MRMS	RMR	S (P)
Wonga	MR	MR	MR	MR	S (P)

Source: NVT Disease Ratings, nvt.grdc.com.au

R = resistant, RMR = resistant to moderately resistant, MR = moderately resistant, MRMS = moderately resistant to moderately susceptible, MS = moderately susceptible, S = susceptible, VS = very susceptible.

LUPIN VARIETY NOTES

PBA BARLOCK[Ⓛ]

With improved metribuzin tolerance over the older varieties, PBA Barlock[Ⓛ] allows growers to use this herbicide for weed control. PBA Barlock[Ⓛ] is moderately resistant to lodging in high-rainfall regions and shows improved pod shatter resistance compared with Mandelup[Ⓛ]. PBA Barlock[Ⓛ] is licensed to SeedNet. EPR \$2.50 ex-GST.

PBA BATEMAN[Ⓛ]

Released in the eastern states in the spring of 2017, it has similar agronomic features to PBA Jurien[Ⓛ]. PBA Bateman[Ⓛ] shows similar tolerance to metribuzin as PBA Jurien[Ⓛ], PBA Barlock[Ⓛ] and PBA Gunyidi[Ⓛ]. Seed is medium in size, similar to Mandelup[Ⓛ]. PBA Bateman[Ⓛ] is licensed to SeedNet. EPR \$2.60 ex-GST.

COYOTE[Ⓛ]

Coyote[Ⓛ] is the first narrow-leaf lupin variety released by AGT, coming out in Western Australia in the spring of 2019. Coyote[Ⓛ] has metribuzin tolerance similar to Mandelup[Ⓛ]. It has similar maturity to PBA Barlock[Ⓛ], which is slightly later than PBA Jurien[Ⓛ]. Coyote[Ⓛ] is susceptible to stem Phomopsis so caution is advised for growers in higher-rainfall areas when looking to graze stubbles. Coyote[Ⓛ] is licensed to AGT. EPR \$3.00 ex-GST.

PBA GUNYIDI[Ⓛ]

PBA Gunyidi[Ⓛ] was released in WA in September 2011 as a potential Mandelup[Ⓛ] replacement with improved resistance to pod shattering. This feature may enable growers to harvest later without incurring significant losses. It flowers and matures slightly later than Mandelup[Ⓛ]. PBA Gunyidi[Ⓛ] is licensed to Seednet. EPR \$2.50 ex-GST.

JENABILLUP[Ⓛ]

Extensively evaluated in SA trials, Jenabillup[Ⓛ] typically has an advantage over Mandelup[Ⓛ] in regions with a longer growing season. In these regions, its extended flowering window can assist with increased yield. Jenabillup[Ⓛ] flowers slightly later and for a longer period than Mandelup[Ⓛ], making it less suitable to crop-topping. Jenabillup[Ⓛ] does not have tolerance to metribuzin herbicide. Jenabillup[Ⓛ] is licensed to Seednet. EPR \$2.30 ex-GST.

PBA JURIE[Ⓛ]

Released in WA in the spring of 2015, it is tolerant to metribuzin. PBA Jurien[Ⓛ] has similar agronomic characteristics to PBA Gunyidi[Ⓛ], flowering slightly earlier. It is like Mandelup[Ⓛ] in height and can be moderately susceptible to lodging in high-rainfall regions. PBA Jurien[Ⓛ] has medium to large seed, like Mandelup[Ⓛ], and the alkaloid content is similar to PBA Gunyidi[Ⓛ]. PBA Jurien[Ⓛ] is licensed to Seednet. EPR \$2.50 ex-GST.

LAWLER[Ⓛ]

Lawler[Ⓛ] is an elite yielding alternative to Coyote[Ⓛ] and PBA Jurien[Ⓛ]. It is the second narrow-leaf lupin variety release for AGT, released in the spring of 2023. Lawler[Ⓛ] has metribuzin tolerance similar to PBA Jurien[Ⓛ]. It has similar to slightly quicker maturity to Mandelup[Ⓛ]. Lawler[Ⓛ] has improved stem Phomopsis resistance over Coyote[Ⓛ]. Lawler[Ⓛ] is licensed to AGT. EPR \$4.00 ex-GST.

MANDELUP[Ⓛ]

Mandelup[Ⓛ] is an established variety widely adapted to SA conditions. It is tall with good early vigour and very early flowering and maturity. This makes it well suited to low to medium-rainfall districts in SA while still yielding well in higher-rainfall areas. Its early maturity makes it suitable for crop-topping, with careful attention to correct timing. It can suffer pod loss/partial pod shattering with delayed harvest, and seed quality can suffer if wet conditions occur during harvest. Mandelup[Ⓛ] is licensed to Seednet and marketed by Barenbrug. EPR \$2.30 ex-GST.

Table 2: Lower Eyre Peninsula lupin yield performance. NVT data 2019–23. Data from 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	1.32	1.89	0.00	3.22	2.01
	No. trials	1	1	0	1	1
Coyote [Ⓛ]	3	–	109	Data not available	103	109
Jenabillup [Ⓛ]	4	95	111		100	103
Jindalee	3	93	86		78	–
Lawler [Ⓛ]	3	–	100		104	103
Mandelup [Ⓛ]	4	96	101		102	100
PBA Barlock [Ⓛ]	4	82	110		104	100
PBA Bateman [Ⓛ]	4	109	114		103	107
PBA Gunyidi [Ⓛ]	4	107	112		100	105
PBA Jurien [Ⓛ]	4	83	107		108	100
Wonga	4	88	105		90	97

– denotes no data available.

Table 3: Mid North lupin yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	1.45	1.90	1.39	4.73	2.45
	No. trials	1	1	1	1	1
Coyote [Ⓛ]	4	–	109	120	101	107
Jenabillup [Ⓛ]	5	105	108	101	104	104
Jindalee	4	76	108	100	84	–
Lawler [Ⓛ]	4	–	98	104	101	103
Mandelup [Ⓛ]	5	101	98	97	102	101
PBA Barlock [Ⓛ]	5	102	101	90	107	104
PBA Bateman [Ⓛ]	5	112	110	110	104	107
PBA Gunyidi [Ⓛ]	5	109	111	109	103	105
PBA Jurien [Ⓛ]	5	104	95	88	108	106
Wonga	5	92	111	99	96	94

– denotes no data available.

Table 4: Murray Mallee lupin yield performance. NVT data 2019–23. Data for 2019 and 2021 not available.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	0.00	2.05	0.00	3.83	0.93
	No. trials	0	1	0	1	1
Coyote ^{db}	3	Data not available	101	Data not available	101	123
Jenabillup ^{db}	3	Data not available	107	Data not available	102	110
Jindalee	2	Data not available	96	Data not available	75	–
Lawler ^{db}	3	Data not available	98	Data not available	103	104
Mandelup ^{db}	3	Data not available	100	Data not available	103	98
PBA Barlock ^{db}	3	Data not available	108	Data not available	107	102
PBA Bateman ^{db}	3	Data not available	107	Data not available	103	120
PBA Gunyidi ^{db}	3	Data not available	106	Data not available	101	117
PBA Jurien ^{db}	3	Data not available	105	Data not available	112	99
Wonga	3	Data not available	106	Data not available	90	101

– denotes no data available.

Table 5: South East lupin yield performance. NVT data 2019–23.

Long-term yield expressed as a percentage of mean yield.

Variety	Year	2019	2020	2021	2022	2023
	Mean yield (t/ha)	2.11	2.68	1.66	2.06	0.70
	No. trials	2	3	2	3	1
Coyote ^{db}	9	–	110	97	87	144
Jenabillup ^{db}	11	107	101	103	124	113
Jindalee	10	97	75	85	86	–
Lawler ^{db}	9	–	106	100	91	111
Mandelup ^{db}	11	98	101	102	104	97
PBA Barlock ^{db}	11	99	102	108	135	98
PBA Bateman ^{db}	11	114	107	102	115	134
PBA Gunyidi ^{db}	11	112	104	101	115	127
PBA Jurien ^{db}	11	95	106	111	127	96
Wonga	11	105	88	97	122	92

– denotes no data available.

VETCH

By Stuart Nagel, Angus Kennedy and Melissa McCallum, SARDI

No new vetch varieties are available to growers for the 2025 season.

Vetch is a multipurpose species grown mostly as a break crop in rotation with cereals. It is highly valued for its benefits to subsequent cereal and oilseed crops. The nitrogen accumulation and disease break benefits are greater compared to other pulse species, particularly in low-rainfall areas. On sandy soils, vetches provide better soil protection than field peas due to better stubble retention.

VETCH TYPES

Common vetch (*Vicia sativa*)

Common vetches provide a high level of versatility within a cropping system due to the multiple potential end-uses. Common vetch can be grown for fodder production as either a hay or silage crop, or grazed in-season. It can also be utilised as a brown or green manure to conserve water for the following crop and as a weed management method. Newer common vetch varieties have less toxin in the grain than older varieties like Blanchefleur and Languedoc, and can be fed at up to 20 per cent of a pig production diet ration and without limit to ruminant livestock. Note common vetch grain is not used for human consumption.

Common vetches are highly adaptable, often producing good dry matter and grain yield in marginal and lower rainfall areas. They also perform well in medium to high-rainfall areas when combined with a disease management strategy.

Purple vetch (*Vicia benghalensis*) and woolly pod vetch (*Vicia villosa*)

Forage vetches are primarily used for fodder production, green manure or grazing in mid to late winter. These varieties produce a large amount of biomass and can be successfully grown in rainfall areas above 400 millimetres. Grain from these species (purple and woolly pod vetches) CANNOT

be fed to any livestock. As such, care must be taken to ensure any grazing is stopped before pod setting, and similarly for hay or silage production.

Benefits to the following crop are similar for forage vetches as they are for common vetch, with a good cereal disease break, and increased nitrogen and soil water availability in the following year.

HERBICIDE TOLERANCE

There are no response differences between common vetch varieties to registered herbicides for control of broadleaf weeds and no differences between varieties to registered herbicides for grass weed control. It should be noted that Broadstrike® is registered for use in popany but not in other vetches.

DISEASE MANAGEMENT

Vetch production can be negatively affected by three main diseases: rust, Botrytis grey mould (BGM) and Ascochyta blight. An integrated disease management plan should be used to reduce the incidence and yield impact of these diseases.

BGM can proliferate and develop high levels of infestation in cool, wet growing seasons. It is likely to develop later in the season during spring and affect hay/silage quality and value, as well as grain production. Currently, there are no resistant varieties available, and fungicides and canopy management are the best methods to limit disease impacts.

Ascochyta occurs in the earlier stages of vetch crop growth. It is associated with reduced dry matter and grain production. There is variable resistance available within the current vetch varieties. However, a fungicide regime is recommended based on targeted end-use of the vetch crop.

Rust-infected vetch crops, which are used for fodder, either as a grazer crop or as a hay/silage product, may induce abortions in pregnant livestock. Therefore, it is important to manage this disease by choosing resistant varieties

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where possible. All varieties released by the National Vetch Breeding Program are resistant to rust. However, it is still recommended to have an integrated pest management plan, including fungicide applications, to maintain varietal resistance and disease control.

In 2020, Agriculture Victoria conducted disease screening for BGM and *Ascochyta* in vetch. The vetch resistance ratings were updated based on these screening results. Vetch is not part of the NVT ratings process, but the same approach was used in the vetch ratings as is used for NVT ratings in other pulse crops.

VETCH VARIETY NOTES

When selecting a vetch variety, growers also need to consider their individual farm and paddock situations and, most importantly, the intended end-use for the crop. Selections should be made using all of the available information.

COMMON VETCH

MORAVA

Morava is a late maturing common vetch variety. Morava is MS (P) to *Ascochyta* and VS (P) to BGM, which is associated with the high biomass production in wet, cool environment. It is also R to rust. Morava has a high potential for dry matter production and also a high grain yield potential. It is a later flowering (115+ days) and maturing variety and performs well in rainfall zones above 400mm. Morava is a soft-seeded, non-shattering variety. Morava was the first vetch variety bred in Australia by the SARDI National Vetch Breeding Program and released in 1998. Seed can be sourced from Barenbrug Australia.

STUDENICA[Ⓛ]

Studenica[Ⓛ] is a very early maturing common vetch variety. It is the earliest vetch variety to flower, with 85 to 90 days from sowing to flowering. It is a white flowering vetch variety that is R to rust and MRMS (P) to *Ascochyta* and S (P) to BGM. Studenica[Ⓛ] is characterised by its good winter-active growth and vigour compared to other vetch varieties. It produces good early biomass even under low temperatures in winter, providing a good early fodder option. Studenica[Ⓛ] also has a high yielding potential for both dry matter and grain, with good potential in the marginal and lower rainfall areas.

It has a good fit in mixed farming systems due to its early biomass production. Studenica[Ⓛ] was bred by the SARDI National Vetch Breeding Program in conjunction with GRDC and SAGIT and released in 2021. Seed can be sourced from S&W Seeds.

RASINA

Rasina is an early-mid maturing common vetch variety. It flowers in 95 to 105 days and matures 15 to 20 days earlier than Morava. It is a smaller plant with podding starting lower in the plant. Rasina is rated R for rust, S (P) for both *Ascochyta* and BGM. However, the open canopy of Rasina leads to less disease infection. Rasina has a high grain yield potential, particularly in rainfall environments below 380mm, dry matter production is moderate. Rasina was bred by the SARDI National Vetch Breeding Program and released in 2006, Seed can be sourced from Barenbrug Australia.

TIMOK[Ⓛ]

Timok[Ⓛ] is a mid maturing common vetch variety. It flowers between Rasina and Morava in 100 to 105 days from sowing. Timok[Ⓛ] has improved establishment over Morava. It is R to rust, MRMS (P) to *Ascochyta* and S (P) to BGM. Timok[Ⓛ] is well suited to grain production in areas with rainfall above 380mm. Its dry matter production is competitive with Morava in higher-rainfall areas (>400mm) but has improved dry matter production than Morava in lower-rainfall areas. Timok[Ⓛ] was bred by the SARDI National Vetch Breeding Program in 2012 and seed can be sourced from S&W Seeds.

VOLGA[Ⓛ]

Volga[Ⓛ] is an early maturing common vetch variety. It flowers earlier than Rasina in 95 to 100 days. It has very good early establishment and R to rust. It is MRMS (P) to *Ascochyta* and S (P) to BGM. Volga[Ⓛ] is well suited to the low to medium-rainfall areas with very high grain production potential due to its early maturity. It has high dry matter production potential in these environments. Volga[Ⓛ] was bred by the SARDI National Vetch Breeding Program and released in 2012. Seed can be sourced from Barenbrug Australia.

Blanchefleur, Cummins and Languedoc are older vetch varieties that have been outclassed by newer releases.

PURPLE VETCH

POPANY

Popany is a very late flowering purple vetch variety. It has a growing period of more than 125 days before podding from sowing. It has high dry matter production potential and is well suited to mid to high-rainfall areas. Grain yield of Popany is very low and seeds are much smaller than common vetch. It is R to rust, MR (P) to Ascochyta and S (P) to BGM. Popany has a black seed coat with distinctive white hilum, it also possesses five to 10 per cent hard seeds. Grain from Popany can be used as a bird feed in mixtures with other recommended grains. Popany seed and purple vetch seed CANNOT be used to feed any livestock.

WOOLLY POD VETCH

RM4^{db}

RM4^{db} (*Vicia villosa* subsp. *eriocarpa*) is a mid flowering woolly pod vetch variety. It has good early establishment compared to currently available woolly pod vetches. It is a soft-seeded (two to five per cent hard) woolly pod variety that has a very high dry matter production potential. RM4^{db} produces good dry matter in mid to low-rainfall areas, far superior to other woolly pod vetch varieties, and is also suited to higher-rainfall areas. It also has a moderate grain yield potential; however, grain from woolly pod vetch CANNOT be used to feed any livestock. RM4^{db} was bred by the SARDI National Vetch Breeding Program and seed can be sourced from Barenbrug Australia.

Capello and Haymaker are older vetch varieties that have been outclassed by newer releases.

Table 1: Agronomic characteristics and disease ratings of vetch varieties.

Variety	Maturity	Yield potential		Flower colour	% of		Disease reaction		
		Grain	Dry matter		Pod shattering	Hard seeds	Rust ¹	Ascochyta ²	Botrytis ²
COMMON VETCH (<i>VICIA SATIVA</i>)									
Blanchefleur	Mid	High	Mod	White	5–10	5–10	VS	MS	S
Morava	Late	High	High	Purple	0	0	R	MS (P)	VS (P)
Rasina	Early–mid	High	Mod	Purple	0–2	0	R	S (P)	S (P)
Studenica ^{db}	Very early	High	High	White	0–2	0	R	MR (P)	S (P)
Timok ^{db}	Mid	High	Very high	Purple	0–2	0–2	R	S (P)	S (P)
Volga ^{db}	Early	Very high	High	Purple	0–2	2–5	R	MRMS (P)	S (P)
PURPLE VETCH (<i>VICIA BENGHALENSIS</i> SUBSP. <i>BENGHALENSIS</i>)									
Popany	Very late	Low	High	Purple	20–30	5–10	R	MR (P)	S (P)
WOOLLY POD VETCH (<i>VICIA VILLOSA</i> SUBSP.)									
Capello	Late	Low	Very high	Purple	5–10	15–20	R	MR (P)	S (P)
Haymaker	Late	Low	Very high	Purple	5–10	20–30	R	S	VS
RM4 ^{db}	Mid	Moderate	Very high	Purple	2–5	2–5	R	MR (P)	S (P)

Source: Stuart Nagel, SARDI, Agriculture Victoria Pulse Disease Guide (2022)

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible.
(P) = provisional rating and subject to change when additional data becomes available.

¹ Indicates breeding company data. ² Vetch is not included in the NVT; Ascochyta and Botrytis grey mould ratings are from Agriculture Victoria in 2020.

Table 2: Plant density and recommended seeding rates for vetch.

End-use	Common vetch varieties		Woolly pod vetch varieties		Purple vetch varieties	
	Plant density (plants per m ²)	Sowing rate (kg/ha)	Plant density (plants per m ²)	Sowing rate (kg/ha)	Plant density (plants per m ²)	Sowing rate (kg/ha)
Grain	40–60	40–50	40–50	25–40	40–50	25–40
Hay/silage	50–70	50–60	50–60	30–45	50–60	30–45
Grazing	50–70	50–60	50–60	30–45	50–60	30–45
Green manure	60–70	55–65	60–70	45–50	50–60	30–45

Table 3: Grain and dry matter yield for common vetch varieties.

Variety	Grain yield (t/ha)	% of Volga [Ⓛ]	Dry matter yield (t/ha)	% of Morava
Studenica [Ⓛ]	1.66	86	4.73	92
Rasina	1.79	92	–	–
Morava	1.59	82	5.14	100
Volga [Ⓛ]	1.94	100	4.82	94
Timok [Ⓛ]	1.93	100	4.92	96
Mean yield	1.78		4.90	

This table has been compiled from independent trials with a five-year average over five different trial sites in South Australia.
– denotes no data available.

Table 4: Hay yields (t/ha) of common vetch varieties from low-rainfall cropping environments.

Variety	2014	2015	2016	Three-year average
Studenica [Ⓛ]	2.24	3.09	2.19	2.51
Rasina	–	2.86	2.21	2.54
Timok [Ⓛ]	2.13	3.15	2.08	2.45
Volga [Ⓛ]	2.26	3.06	2.45	2.59

Data compiled from independent trials over three years at four different sites in South Australia.
– denotes no data available.

Table 5: Dry matter yield for woolly pod and purple vetch varieties.

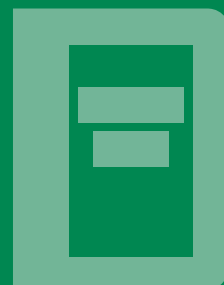
Variety	Dry matter (t/ha)	% of Capello
WOOLLY POD VETCH		
Capello	5.7	100
RM4 [Ⓛ]	5.9	104
Mean yield	5.8	
PURPLE VETCH		
Popany	5.28 (2009–12)	85

This table has been compiled from independent trials with a five-year average over five different trial sites in South Australia.

NVT tools



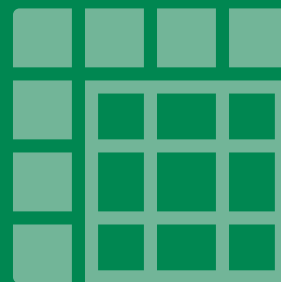
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