

# 2023

## VICTORIAN AND TASMANIAN CROP SOWING GUIDE



**GRDC**

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OCTOBER 2022

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

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**Title:** *2023 Victorian and Tasmanian Crop Sowing Guide*

This publication summarises information on current varieties of the major winter crops grown in Victoria. Local advisers are also a key resource for information relevant to individual localities. This publication aims to prompt growers to ask themselves, “Am I growing the best variety for my situation?” Use it as a guide for discussion with consultants, advisers and marketing agents.

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[grdc.com.au/vic-tas-crop-sowing-guide](http://grdc.com.au/vic-tas-crop-sowing-guide).  
Remember to update it each October.

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## VICTORIAN AND TASMANIAN CROP SOWING GUIDE

The *Victorian and Tasmanian Crop Sowing Guide* outlines information on current varieties of the major winter crops grown in Victoria and Tasmania. The publication aims to prompt growers to ask themselves, “Am I growing the best variety for my situation?”

The *Victorian and Tasmanian Crop Sowing Guide* is compiled by Agriculture Victoria, with sources of additional information listed in each chapter. Local advisers are also a key resource for information relevant to individual localities. Growers are encouraged to use this publication as a guide for discussion with consultants, advisers and marketing agents. For the first time in 2023, information provided in this guide encompasses Victoria and Tasmania.

The sowing guide is published every spring, a timely release to assist growers in making variety choices for the next season. It will be important for growers and advisers to review disease resistance ratings in the Cereal and Pulse Disease Guides in March 2023 to ensure they know the current resistance ratings of varieties. The latest 2022 National Variety Trials (NVT) results will also be available early in 2023 via the NVT website, the Long Term Yield Reporting tool and in the NVT Harvest Reports.

The *Victorian and Tasmanian Crop Sowing Guide* is a joint investment between Grains Research and Development Corporation (GRDC) and Agriculture Victoria. Thank you to GRDC and all contributors for making this publication available to Victoria and Tasmania.

## INTERPRETING CEREAL RESISTANCE CLASSIFICATIONS

Below is an explanation of the resistance ratings used in this guide for **rusts and foliar diseases**, and how they should be interpreted.

- R** Resistant – disease may be found but will be at such a level that no economic management is required, even in instances of high disease pressure.
- MR** Moderately resistant – disease may be observed but no economic management decisions will be required. Preventive sprays not necessary but disease should be monitored. Management of seed quality may be required.
- MS** Moderately susceptible – in the presence of inoculum and in seasons conducive to disease, disease will be seen more readily when inspecting the crop. If seen early in the season, economic management decisions (preventive sprays) may be appropriate. Later occurrence may not require any action. Management of seed quality will be required.
- S** Susceptible – disease will be found easily in the crop. Management decisions will be required to reduce yield loss and will most probably be economic to do so. Management of seed quality will be required.
- VS** Very susceptible – do not grow the variety if the disease in question is a regular occurrence or risk. The variety in question can be a complete loss if sown and no disease management is applied.

## INTERPRETING PULSE RESISTANCE CLASSIFICATIONS

Below is an explanation of the resistance ratings used in this guide for **foliar diseases**, and how they should be interpreted.

- R** Resistant – no symptoms visible. No fungicides are required.
- RMR** Resistant to moderately resistant – the disease may be visible but will not cause significant plant damage or loss. However, under extreme disease pressure or highly favourable environmental conditions fungicide applications may be required, for example, to prevent seed staining.
- MR** Moderately resistant – the disease may be visible but will not cause significant plant damage or loss. However, under high disease pressure or highly favourable environmental conditions, fungicide applications may be required, for example, to prevent seed staining.
- MRMS** Moderately resistant to moderately susceptible – the disease symptoms are moderate and may cause some yield and/or seed quality losses in conducive conditions. Fungicide applications, if applicable, may be required to prevent yield loss and seed staining.
- MS** Moderately susceptible – disease symptoms are moderate to severe and will cause significant yield and seed quality loss in the absence of fungicides in conducive seasons, but not complete crop loss.
- S** Susceptible – the disease is severe and will cause significant yield and seed quality loss, including complete crop loss in the absence of fungicides, in conducive conditions.
- VS** Very susceptible – growing this variety in areas where a disease is likely to be present is very high risk. Significant yield and seed quality losses, including complete crop loss, can be expected without control and the increase in inoculum may create problems for other growers.

## INTERPRETING RESISTANCE CLASSIFICATIONS FOR NEMATODES

Below is an explanation of the resistance ratings used in this guide for **nematodes for both cereals and pulses**, and how they should be interpreted.

- R** Resistant – nematode numbers will decrease when this variety is grown.
- MR** Moderately resistant – nematode numbers will slightly decrease when this variety is grown.
- MS** Moderately susceptible – nematode numbers will slightly increase when this variety is grown.
- S** Susceptible – nematode numbers will increase greatly in the presence of this variety.
- VS** Very susceptible – a large increase in nematode numbers can occur when this variety is grown and this will cause problems to a following intolerant crop.

These classifications are only a guide and yield losses will depend on the environment and seasonal conditions. Disease ratings can change throughout the year. Refer to [NVT disease ratings](#) for the most up-to-date ratings.

## DISEASE RATING COLOUR RANGE

Disease severity scale from very susceptible (VS) to resistant (R)

VS	SVS	S	MSS	MS	MRMS	MR	RMR	R
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Resistance order from best to worst: R > RMR > MR > MRMS > MS > MSS > S > SVS > VS.

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.

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



NVT canola trial at Kaniva, Victoria.

PHOTO: NVT

# INTRODUCTION

## NATIONAL VARIETY TRIALS (NVT)

The variety trials presented in this book are sourced from the NVT program. In Victoria and Tasmania, NVT is an investment fully managed by GRDC on behalf of Australian grain growers; in 2022, field trial management was contracted to three service providers: Kalyx Australia, Birchip Cropping Group and Southern Farming Systems.

NVT provide independent information on varieties for growers. The aim of each trial is to document a ranking of new and widely adopted varieties in terms of grain yield and to provide grain quality information relevant to delivery standards. GRDC also invests in the NVT Pathology program, which determines disease resistance ratings used in the sowing guide.

Conducted to a set of predetermined protocols, NVT 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.

It is acknowledged that an ongoing project of this type would not be possible without the cooperation of growers prepared to contribute sites and who often assist with the management of trials on their property. For more information on the NVT program please visit the NVT website at [nvt.grdc.com.au](http://nvt.grdc.com.au).

## NVT HARVEST REPORTS

The NVT Harvest Reports are a valuable extension to the Victorian and Tasmanian Crop Sowing Guide and will include the latest 2022 yield reports and disease reactions. The NVT Harvest Reports will be published soon after results are released in early 2023 and will be available on the [NVT website](http://NVT website).

## PLANT BREEDER'S RIGHTS (PBR)

Varieties subject to Plant Breeder's Rights at the time of printing are annotated with the symbol (b). Plant Breeder's Rights are a form of intellectual

property that provides exclusive commercial rights to a registered variety of plant for up to 20 years (25 years for trees and some types of vines). They give exclusive rights to:

- produce or reproduce the plant material
- condition the plant material for the purpose of propagation (conditioning includes cleaning, coating, sorting, packaging and grading)
- offer the plant material for sale
- sell the plant material
- import and export the plant material
- stock the plant material for any of the purposes described above.

It should be noted that "Unauthorised commercial propagation or any sale, conditioning, export, import or stocking of propagation material of these registered varieties is an infringement under the *Plant Breeder's Rights Act 1994* and may incur fines of up to \$100,000 for individuals and up to \$275,000 for companies". More information on Plant Breeder's Rights can be found on IP Australia's website: [ipaaustralia.gov.au/plant-breeders-rights](http://ipaaustralia.gov.au/plant-breeders-rights)

## END POINT ROYALTIES (EPRS)

EPRs payable for 2022-23 are quoted from [varietycentral.com.au](http://varietycentral.com.au) and are quoted ex-GST. Compliance with EPR systems is vital to ensure the future of the Australian grains industry through investment in new varieties and long-term productivity gains. EPRs for 2023-24 harvest will become available early in 2023 on the Variety Central website.

## SELECTION CRITERIA

When selecting a variety, growers are encouraged to make their selection based on all available information, including yield, quality, agronomic attributes, disease and pest resistance, individual farm and paddock situation, the access and

availability of target markets, and storage and handling facilities. Cereal maturity classifications and terminology in this guide have been assigned using the [industry guidelines](#) provided by Australian Crop Breeders Ltd (ACB) in 2020. Barley and oat maturity descriptions have been classified by the same system as wheat, with data from the GRDC National Phenology Initiative, South Australian Grain Industry Trust (SAGIT) Project S319 (Improving productivity of oats), and National Hay Agronomy project (AgriFutures Australia project PRJ-011029).

## COMPROMISED TRIALS

The Quarantine Trial Report includes trials that have been compromised and should not be used to make variety selection decisions. These trials may have been affected by (but not limited to) frost, drought, animal damage or spray drift. Only trials that are so poor they cannot be used to adequately compare genetics are not released.

The purpose of the NVT is to allow growers to make informed variety selection decisions; however, compromised trials can be misleading and result in poor variety selection. The yield results tables in each chapter will clearly state whether there is data missing as a result of compromised trials. Information on the quarantined trial results can be found at: [nvt.grdc.com.au/trials/quarantined-trial-reports](http://nvt.grdc.com.au/trials/quarantined-trial-reports)

## LONG-TERM YIELD RESULTS

The long-term yield results presented in the sowing guide are an output of NVT Multi-Environment Trial (MET) analysis. Trials are run in all cropping regions of Victoria (for example, Wimmera, Mallee, South West, North East and North Central) and other states across Australia, and use a five-year rolling dataset.

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 dataset. The analysis, and subsequent reporting systems, have allowed NVT to bring together very large datasets to achieve 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 Reporting tool. The long-term yield results are best viewed at the individual trial/environment level; however, these detailed datasets are too large for printed sowing guides or quick-reference summaries, such as the Victorian and Tasmanian Crop Sowing Guide.

Users can choose to view the 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 groupings and only for varieties present in trials.

The NVT Long Term Yield Reporting tool is designed to run in all web-browsing platforms on computers, tablets and phones. It is available online at [app.nvt.grdc.com.au](http://app.nvt.grdc.com.au).

## COLOUR GRADIENT LEGEND: MEAN VARIETY YIELD PERFORMANCE



Long-term mean yield illustrated by colour gradient from lowest (red) to highest (green), comparable on an annual basis.



# WHEAT

Wheat variety selection is based on several considerations, including grain yield and quality, disease resistance, maturity, and adaptation to the rainfall, elevation, temperature, soil type and, in some cases, grazing suitability. This chapter aims to provide information regarding these attributes to assist with variety selection.

## NEW VARIETIES

The new wheat varieties added this year are bread wheats Brumby<sup>®</sup>, Kingston<sup>®</sup>, LRPB Anvil<sup>®</sup> CL Plus, Reilly<sup>®</sup> and Willaura<sup>®</sup>, durum wheat Patron<sup>®</sup>, and feed wheats BigRed<sup>®</sup> and RGT Waugh<sup>®</sup>. Varietal information is provided below.

## QUALITY CHANGES

Grain Trade Australia (GTA) made no major changes to the quality standards for wheat for the 2022-23 season.

Changes to quality classifications from the 2022 *Victorian Crop Sowing Guide* are as follows:

- Sunmaster<sup>®</sup> was classified as an Australian Prime Hard (APH) wheat for the southern zone. This is one of the first varieties to be classed as APH wheat in the southern zone and represents a new option for Victorian growers to access this quality grade.
- Longsword<sup>®</sup> was classified as Australian White Wheat (AWW) in the southern zone. Longsword<sup>®</sup> previously had a default classification in this zone.

## INDUSTRY UPDATE

In 2021, Wheat Quality Australia (WQA) introduced two new milling wheat classifications, delivering greater access to specialised international markets:

- Australian White Wheat (AWW) – suitable for instant noodle and general-purpose flour export markets, with no minimum protein requirements. AWW provides a specific class to meet these markets.

- Australian Innovative Wheat (AIW) – a class for varieties that exhibit unique end use properties, AIW wheat will aim to meet defined market opportunities. Grown under closed loop contract.

Further information regarding wheat quality can be found at [wheatquality.com.au](http://wheatquality.com.au).

## DISEASE UPDATE

Variety selection is critical for effective management of disease. Use the disease ratings provided in Table 5 to avoid varieties that are highly susceptible to locally important diseases. If it is not possible to avoid highly susceptible cultivars, then the ratings can be used to inform paddock selection and chemical disease control. Table 1 provides some minimum disease targets for varieties in the low, medium and high-rainfall zones.

A significant green bridge during summer and autumn in 2022 provided opportunity for rusts and powdery mildew to develop. These will need to be managed to avoid losses and monitored in the 2023 season, particularly if another green bridge occurs over the 2022-23 summer. For some varieties, rust disease ratings have been provided as a split rating. A slash (/) is used to show the reaction of both the dominant (left) and minor (right) strains.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed National Variety Trials (NVT) results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- [Wheat Southern Region – GRDC GrowNotes™](#)
- [GRDC Southern Region NVT Harvest Reports](#)

**[agriculture.vic.gov.au](http://agriculture.vic.gov.au)**■ **[Agriculture Victoria Cereal Disease Guide.](#)**

Also available as an e-book

■ **[Growing wheat in Victoria](#)****[extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)**

## ■ Expert support on field crop diseases in Victoria at your fingertips

**[StripeRustWM app](#)**

## ■ App to support decision making for management of stripe rust in wheat. Available for iPad and Android tablet users

## VARIETY DESCRIPTIONS

Varieties have been listed according to quality type and in alphabetical order and not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies. Wheat quality is for the southern zone.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. Where possible, in addition to data supplied below from long-term NVT, growers should seek locally relevant agronomy results published through Online Farm Trials ([farmtrials.com.au](http://farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

(<sup>Ⓛ</sup>) Denotes Plant Breeder's Rights apply

**CCN** Cereal cyst nematode

**BYDV** Barley yellow dwarf virus

**RLN** Root lesion nematode

**APH** Australian Prime Hard (min protein 13%)

**AH** Australian Hard (min protein 11.5%)

**APW** Australian Premium White (min protein 10%)

**ASW** Australian Standard White

**ADR** Australian Premium Durum

**AIW** Australian Innovative Wheat

**ANW** Australian Noodle Wheat (protein 9.5–11.5%)

**ASFT** Australian Soft (protein 9.5%)

**AWW** Australian White Wheat

**FEED** Australian Feed

**IMI** Imidazolinone

**SADGA** Southern Australia Durum Growers Association

**NYC** Not yet classified

\* Denotes default classification

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## BREAD WHEAT

**ASCOT<sup>Ⓛ</sup>**

APW quality. Mid-slow maturing. Ascot<sup>Ⓛ</sup> is the first wheat variety to be launched by BASF. Suited to medium to high-rainfall zones for Victoria. Released 2020. Bred by BASF, seed available and marketed by Seednet. EPR \$3.50.

**BALLISTA<sup>Ⓛ</sup>**

AH quality. Quick-mid maturity variety, slightly quicker than Mace<sup>Ⓛ</sup>. High and stable yield across a range of environmental conditions, with CCN resistance. Released 2020. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.50.

**BECKOM<sup>Ⓛ</sup>**

AH quality. Mid maturity suited to sowing in early May. Beckom<sup>Ⓛ</sup> has a short stature and moderate straw strength and performs well across all rainfall zones. Released 2015. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.25.

**BOREE<sup>Ⓛ</sup>**

AH quality. Mid-season maturing variety. Good yellow leaf spot resistance, moderate plant height, slightly taller than Scepter<sup>Ⓛ</sup> with good lodging tolerance. Released 2021 (tested as V09063-47-16). Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.60.

**NEW – BRUMBY<sup>Ⓛ</sup>**

APW quality. A mid maturing variety suited to early May sowing. Brumby<sup>Ⓛ</sup> has a good disease package including stem rust and powdery mildew resistance. Released 2022 (tested as IGW6683) with seed available for 2023. Marketed by InterGrain. EPR \$3.50.

**CALIBRE<sup>Ⓛ</sup>**

AH quality. Quick-mid maturity variety derived from Scepter<sup>Ⓛ</sup>. Moderately long coleoptile length with slightly improved powdery mildew resistance over Scepter<sup>Ⓛ</sup>. Released 2021 (tested as RAC2721). Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.50.

**CATAPULT<sup>Ⓛ</sup>**

AH quality. Mid-slow maturity, suitable for late April to mid-May sowing. Suitable across a range of conditions and environments. Closely related to Scepter<sup>Ⓛ</sup> with similar grain quality, high test weight and low screenings. CCN and yellow leaf spot resistance. Released 2019. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.25.

**CHIEF CL PLUS<sup>Ⓛ</sup>**

APW quality. A mid maturing variety with good pre-anthesis vigour. Clearfield® Plus wheat registered for label rates of Intervix® herbicide. Released 2016. Marketed by InterGrain and available through InterGrain Seedclub members. Not eligible for farmer-to-farmer trade. EPR \$4.25.

**COOLAH<sup>Ⓛ</sup>**

AH quality. Mid-slow maturity suited to end of April to early May sowing. Medium height, producing high test weight and low screenings. Released 2016. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.50.

**COOTA<sup>Ⓛ</sup>**

AH quality. Mid-slow maturity suited to end of April to beginning of May sowing. Broad adaption across low to high-rainfall zones producing low screenings and high test weights. Good lodging resistance coupled with short plant height leads to strong performance in high-rainfall zones or under irrigation. Released 2020. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.60.

**COSMICK<sup>Ⓛ</sup>**

AH quality. Fully awned, mid maturing. Released 2015. Marketed by InterGrain. Free to trade. EPR \$3.85.

**DENISON<sup>Ⓛ</sup>**

APW quality. Slow maturity variety suited to mid-late April sowing. Produces low screenings and high test weights. Released 2020. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.40.

**DS BENNETT<sup>Ⓛ</sup>**

ASW quality. Tall awnless, mid maturing winter wheat suited to medium to high-rainfall zones. Released 2018. Bred by Dow Seeds, seed available from Seednet. EPR \$4.25.

**DS DARWIN<sup>Ⓛ</sup>**

AH quality. Mid maturing and suited to low to medium-rainfall zones. Released 2015. Bred by Dow Seeds and marketed by Seednet. EPR \$4.25.

**DS PASCAL<sup>Ⓛ</sup>**

APW quality. Slow maturing suited to medium to high-rainfall zones and irrigation. Released 2015. Bred by Dow Seeds and marketed by Seednet. EPR \$4.25.

**EG TITANIUM**

AH quality. A mid-slow maturing variety targeted for early planting in medium to high-rainfall zones. Released 2018. Marketed by Elders and Elders-approved commercial partners. EPR \$3.00.

**ELMORE CL PLUS<sup>Ⓛ</sup>**

AH quality. Two-gene tolerance to label rates of Intervix® herbicide. Mid-maturity variety best suited to moderate to high-yielding areas. Released 2011. Bred and marketed by AGT; not eligible for AGT Seed Sharing™. EPR \$3.55.

**GRENADE CL PLUS<sup>Ⓛ</sup>**

AH quality. Two-gene tolerance to label rates of Intervix® herbicide. Quick-mid season variety. Released 2012. Bred and marketed by AGT; not eligible for AGT Seed Sharing™. EPR \$3.80.

**HAMMER CL PLUS<sup>Ⓛ</sup>**

AH quality. Two-gene tolerance to label rates of Intervix® herbicide. Closely related to Mace<sup>Ⓛ</sup> with similar maturity and adaptability. CCN and yellow leaf spot resistance. Released 2020. Bred and marketed by AGT; not eligible for AGT Seed Sharing™. EPR \$4.25.

**ILLABO<sup>Ⓛ</sup>**

AH quality. A quick maturing, dual-purpose winter wheat, two to three days quicker to heading than EGA Wedgetail<sup>Ⓛ</sup>. Developed for early sowing and winter grazing. Good lodging and black point resistance. Released 2018. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.50.

**NEW – KINGSTON<sup>Ⓛ</sup>**

AH quality. Mid maturing, compact plant type with broad adaption. Released 2022 (tested as BSWDH04-062). Bred by BASF and marketed by Seednet. EPR \$3.50.

**KORD CL PLUS<sup>Ⓛ</sup>**

AH quality. Two-gene tolerance to label rates of Intervix® herbicide. Mid maturity. Released 2011. Bred and marketed by AGT; not eligible for AGT Seed Sharing™. EPR \$3.55.

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

**NEW – LRPB ANVIL<sup>Ⓛ</sup> CL PLUS**

AH quality. Clearfield® Plus wheat with two-gene tolerance to label rates of Intervix® herbicide. Quick maturity and bold early growth. Fast grain-fill with large grain, suited to low to medium-rainfall areas. Released 2022 (tested as LPB17-6157). Bred by Grains Innovation Australia (GIA), developed by LongReach and marketed by Pacific Seeds. EPR \$4.25.

**LRPB BALE<sup>Ⓛ</sup>**

APW quality. A slow maturing spring wheat with a long coleoptile length. Delayed flowering and awnless qualities allow it to be delivered as grain or cut for hay, making it a good option for areas prone to frost. Limited NVT evaluation data available for Victoria. Released 2021 (tested as LPB18-7946). Bred by CSIRO and marketed by LongReach. Free to trade. EPR \$3.50.

**LRPB DUAL<sup>Ⓛ</sup>**

AH quality. Mid-slow maturing, awnless spring wheat with a long coleoptile length, making it a good option for areas prone to frost. Limited evaluation data available for Victoria. Released 2021 (tested as LPB18-7982). Bred by CSIRO and marketed by LongReach. Free to trade. EPR \$3.50.

**LRPB KITTYHAWK<sup>Ⓛ</sup>**

AH quality. Mid maturing winter wheat, similar to EGA Wedgetail<sup>Ⓛ</sup>. Developed for early sowing, suited to medium to high-rainfall areas. Susceptible to CCN. Dual-purpose wheat suitable for early winter grazing. Released 2017. Marketed by Pacific Seeds. Free to trade. EPR \$4.25.

**LRPB NIGHTHAWK<sup>Ⓛ</sup>**

APW quality. Very slow spring wheat with unique characteristics, allowing it to be planted earlier in systems that do not traditionally suit winter wheat types. Demonstrated good yields throughout the April sowing window. Released 2019. Bred by LRPB and marketed by Pacific Seeds. EPR \$4.25.

**LRPB SCOUT<sup>Ⓛ</sup>**

AH quality. Mid-spring variety with wide adaptation. Resistant to CCN. Adapted to alkaline soils. Released 2009. Marketed by Pacific Seeds. Free to trade. EPR \$2.80.

**LRPB TROJAN<sup>Ⓛ</sup>**

APW quality. Mid-slow spring variety suited to medium to high-rainfall areas. Released 2013. Marketed by Pacific Seeds. Free to trade. EPR \$4.00.

**MACE<sup>Ⓛ</sup>**

AH quality. Quick-mid maturity, of medium height. A fungicide strategy may be required to control stripe rust. Released 2008. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.00.

**RAZOR CL PLUS<sup>Ⓛ</sup>**

ASW quality. Two-gene tolerance to label rates of Intervix® herbicide. Quick-mid maturing variety derived from Mace<sup>Ⓛ</sup>. Released 2018. Bred and marketed by AGT; not eligible for AGT Seed Sharing™. EPR \$3.30.

**NEW – REILLY<sup>Ⓛ</sup>**

AH quality. Mid maturing variety with medium plant height, suited to low to medium-rainfall zones. Released 2022 (tested as BH1200205-11). Bred by BASF and marketed by Seednet. EPR \$3.50.

**ROCKSTAR<sup>Ⓛ</sup>**

AH quality. Mid-slow maturing variety. Good grain size, moderate plant height, similar to Mace<sup>Ⓛ</sup>. Released 2019. Bred and marketed by InterGrain and available through InterGrain Seedclub members. Free to trade. EPR \$3.50.

**SCEPTER<sup>Ⓛ</sup>**

AH quality. Mid maturing variety of medium height. Intended to replace Mace<sup>Ⓛ</sup>, flowering two days later. Released 2015. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.25.

**SHERIFF CL PLUS<sup>Ⓛ</sup>**

APW quality. Clearfield® Plus wheat with good yield stability. Mid-slow maturing variety registered for label rates of Intervix® herbicide. Released 2018. Bred and marketed by InterGrain and available through InterGrain Seedclub members. Not eligible for farmer-to-farmer trade. EPR \$4.25.

**SUNBLADE CL PLUS<sup>Ⓛ</sup>**

AH quality. Two-gene tolerance to label rates of Intervix® herbicide. Mid maturing variety suited to mid-May sowing across all environments. Medium plant height. Released 2020. Bred and marketed by AGT and not eligible for AGT Seed Sharing™. EPR \$4.35.

**SUNFLEX<sup>Ⓛ</sup>**

AH quality. Slow maturing variety suited to sowing from mid to late April in medium to high-rainfall zones. Short plant height with low screenings and high test weights. Released 2020. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.60.

**SUNMASTER<sup>Ⓛ</sup>**

APH quality. Mid maturing variety of medium height intended to replace Suntop<sup>Ⓛ</sup>. One of the first varieties available with APH quality in the southern zone. Improved stripe rust resistance and physical grain quality package compared with Suntop<sup>Ⓛ</sup>. Useful resistance to RLN (*P. neglectus*) and some resistance to crown rot. Released 2020. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.60.

**VALIANT<sup>Ⓛ</sup> CL PLUS**

AH quality. Slow season Clearfield® Plus spring wheat. Ideally suited to early sowing and useful where there are residue concerns from previous crops. Good yellow leaf spot resistance. Released 2021 (tested as IGW4502). Bred and marketed by InterGrain. EPR \$4.35.

**VIXEN<sup>Ⓛ</sup>**

AH quality. Quick maturing wheat suited to mid-May onwards sowing with moderate plant height. Good yellow leaf spot resistance. Released 2018. Bred and marketed by InterGrain. Free to trade. EPR \$3.50.

**NEW – WILLAURA<sup>Ⓛ</sup>**

AH quality. Slow-very slow maturity, similar to LRPB Beaufort<sup>Ⓛ</sup>. Ideally suited to early sowing in medium to high-rainfall areas. Good lodging resistance coupled with compact plant height leads to good performance in high-rainfall zones and under irrigation. Released 2022 (tested as V12167-048). Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.50.

**SPECIALTY WHEAT****LONGSWORD<sup>Ⓛ</sup>**

AWW quality. A quick maturing, dual-purpose winter wheat suited to low to medium-rainfall areas. Suits April sowing and offers grazing potential. Released 2017. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$2.75.

**LRPB ORYX<sup>Ⓛ</sup>**

ASFT quality. Mid-spring soft wheat variety suited to medium-rainfall zones in Victoria. Moderately susceptible to yellow spot and susceptible to Septoria. Released 2020. Marketed by Pacific Seeds. EPR \$3.75.

**LRPB PARAKEET<sup>Ⓛ</sup>**

ANW quality. Mid-spring noodle wheat variety suited to medium-rainfall zones in Victoria. Moderately susceptible to yellow leaf spot and CCN, and susceptible to Septoria. Released 2020. Marketed by Pacific Seeds. EPR \$3.75.

**DURUM WHEAT****BITALLI<sup>Ⓛ</sup>**

ADR quality. A quick-mid maturing variety. Produces low screenings and high test weight. Released 2019. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.50.

**DBA-ARTEMIS<sup>Ⓛ</sup>**

ADR quality. Well-adapted for production in the southern wheat growing areas, DBA-Artemis<sup>Ⓛ</sup> is mid maturing and comparable in yield with DBA-Aurora<sup>Ⓛ</sup>. Released 2019. Bred by Durum Breeding Australia and marketed by SADGA. EPR \$3.00.

**DBA-AURORA<sup>Ⓛ</sup>**

ADR quality. A mid maturing variety with good early vigour and weed competitiveness. Released 2014. Bred by Durum Breeding Australia and marketed by SADGA. EPR \$3.00.

**DBA MATARO<sup>Ⓛ</sup>**

ADR quality (northern zone). Quick maturity durum wheat variety, comparable to Westcourt<sup>Ⓛ</sup>. Erect plant growth and medium stature. Initially released from Tamworth Agricultural Institute for use in NSW, now being trialled in Victoria. Released 2021 (tested as TD1602). Bred by Durum Breeding Australia and marketed by Seednet. EPR \$3.50.

**DBA SPES<sup>Ⓛ</sup>**

ADR quality. A mid maturing variety. Comparable or slightly better screenings to DBA-Aurora<sup>Ⓛ</sup> with good grain size. Released 2018. Bred by Durum Breeding Australia and marketed by SADGA. EPR \$3.00.

**NEW – PATRON<sup>Ⓛ</sup>**

Quality NYC. A mid maturing durum variety, similar to DBA-Aurora<sup>Ⓛ</sup>, however produces lower screenings and higher test weight. Released 2022 (tested as AGTD109). Bred and marketed by AGT. EPR \$3.50.

**WESTCOURT<sup>Ⓛ</sup>**

ADR quality. A mid maturing variety with a robust grain package of low screenings and high test weight. Released 2019. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.50.

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

## FEED/DUAL-PURPOSE WHEAT

### ANAPURNA

FEED quality. An awned, red-grained, winter wheat. Mid-slow maturing, similar to RGT Accroc. Dual-purpose variety suitable for graze and grain production when sown early in high-rainfall zones or under irrigation. Released 2020. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.20.

### NEW – BIGRED<sup>Ⓛ</sup>

FEED quality. An awned, red-grained winter wheat suited to medium to high-rainfall zones and irrigation. Mid-slow maturing, suitable for dual-purpose applications with early sowing. Released 2021 (tested as AGFWH004718). Marketed by AGF Seeds with good supply for 2023. EPR \$3.65.

### LRPB BEAUFORT<sup>Ⓛ</sup>

FEED quality. An awnless, red-grained, slow-very slow spring variety suited to high-rainfall zones and certain medium-rainfall zones. Good stripe rust and yellow leaf spot resistance. Moderately susceptible to leaf rust, but highly susceptible to stem rust. Released 2008. Marketed by GrainSearch. EPR \$3.00.

### MANNING<sup>Ⓛ</sup>

FEED quality. Slow maturing, dual-purpose, white-grained winter wheat suited to longer growing season zones and irrigation. Released 2014. Bred by CSIRO and GRDC and marketed by GrainSearch. EPR \$3.50.

### RGT ACCROC

FEED quality. An awned, red-grained winter wheat. Mid-slow maturing variety for medium to high-rainfall zones and irrigation. Suitable for dual-purpose applications when early sowing is possible. Released 2017. Bred by RAGT and marketed by Seed Force, an RAGT company. EPR \$4.00.

### RGT CALABRO

FEED quality. An awned, slow maturing, red-grained winter wheat suited to the high-rainfall zone. Released 2017. Bred by RAGT and marketed by Seed Force, an RAGT company. EPR \$4.00.

### RGT CESARIO<sup>Ⓛ</sup>

FEED quality. Mid-slow maturing, awnless, red-grained winter wheat. Suitable for medium to high-rainfall areas of Victoria. A multi-purpose variety that is suited to grazing, silage and grain production. Released 2021 (tested as SFR86-090). Bred by RAGT and marketed by Seed Force, an RAGT company. EPR \$4.00.

### NEW – RGT WAUGH<sup>Ⓛ</sup>

FEED quality. An awned, white-grained winter wheat. Mid-slow maturing variety for medium to high-rainfall zones and irrigation. Suitable for dual-purpose applications when early sowing is possible. Released 2022 (tested as SFR86-085). Bred by RAGT and marketed by Seed Force, an RAGT company. EPR \$4.00.

### RGT ZANZIBAR

FEED quality. Awned, very slow maturing, red-grained spring variety suited to North Central, North East and South West. Released 2017. Bred by RAGT and marketed by Seed Force, an RAGT company. EPR \$4.00.

### SEVERN<sup>Ⓛ</sup>

FEED quality. Quick-mid maturing, awnless, white-grained winter wheat suitable for spring and winter grazing, hay and silage production. Dense tillering habit with excellent straw strength for standability. Suitable for medium and high-rainfall areas in Victoria. Released 2021. Marketed by S&W Seed Company. EPR \$3.00.

### SQP REVENUE<sup>Ⓛ</sup>

FEED quality. A red-grained, slow maturing, awnless winter wheat suited to longer growing season zones and irrigation. Released 2010. Bred by AusGrainz and CSIRO and marketed by GrainSearch. EPR \$3.50

Table 1: Suggested minimum levels of wheat disease resistance for the southern region.

Annual rainfall	Rust			Yellow leaf spot	Septoria tritici
	Stem	Stripe	Leaf		
Low <350mm	MSS	MS	MS	MSS	S
Medium 350 to 500mm	MS	MRMS	MS	MSS	MS
High >500mm*	MRMS	MRMS	MRMS	MSS	MRMS

\*Unless a suitable program of disease control by fungicide applications can be planned and carried out.

Reviewed by Mark McLean, Agriculture Victoria (2022)



**Table 3: Agronomic characteristics of wheat varieties.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeders, National Variety Trials, GRDC research projects and seed companies. Maximum quality for the southern zone has been sourced from Wheat Quality Australia (2022).

	Maximum quality southern zone	Rainfall			Screenings	Maturity	Height	Coleoptile length	Lodging	Sprouting	Awn	Soil tolerance	
		Low <350mm	Med 350 to 500mm	High >500mm								Boron	Acid
<b>BREAD WHEAT</b>													
Ascot <sup>db</sup>	APW		✓	✓	MR	M-S	M	ML	RMR	–	A	–	–
Ballista <sup>db</sup>	AH	✓	✓		MR	Q-M	S	M	MR	–	A	–	–
Beckom <sup>db</sup>	AH	✓	✓	✓	MRMS	M	S	M	MRMS	MSS (P)	A	MT	MT-T
Boree <sup>db</sup>	AH	✓	✓		MR	M	M	M	MR (P)	MSS (P)	A	–	–
Brumby <sup>db</sup>	APW	✓	✓	✓	MR	M	MT	M	MRMS	–	A	–	–
Calibre <sup>db</sup>	AH	✓	✓		MR	Q-M	M	ML	MRMS (P)	MSS (P)	A	–	–
Catapult <sup>db</sup>	AH	✓	✓	✓	MR	M-S	M	M	MRMS	MSS	A	MT	MT-T
Chief CL Plus <sup>db</sup>	APW	✓	✓	✓	MR	M	M	M	MR	S	A	–	–
Coolah <sup>db</sup>	AH		✓	✓	MR	M-S	M	M	MRMS	S	A	I	MT
Coota <sup>db</sup>	AH	✓	✓	✓	R	M-S	S	M	MR	–	A	–	–
Corack <sup>db</sup>	APW	✓	✓		R	Q	S	M	MR	S	A	I	MT-T
Cosmick <sup>db</sup>	AH	✓	✓		MS	M	M	L	MRMS	S-SVS (P)	A	–	–
Cutlass <sup>db</sup>	APW	✓	✓		MRMS	M-S	MT	ML	MRMS	S	A	MT	MT-T
Denison <sup>db</sup>	APW		✓	✓	MR	S	S	M	MRMS	–	A	–	–
DS Bennett <sup>db</sup>	ASW		✓	✓	–	M (+W)	T	–	–	–	AL	–	–
DS Darwin <sup>db</sup>	AH	✓	✓		MR	M	M	S	MR	SVS (P)	A	–	–
DS Pascal <sup>db</sup>	APW		✓	✓	MR	S	M	S	MR	MR (P)	A	–	–
EG Titanium	AH		✓	✓	R	M-S	S	M	R	MR	A	–	MT-T
Elmore CL Plus <sup>db</sup>	AH		✓		MS	M	M	M	MRMS	S	A	I	I
Grenade CL Plus <sup>db</sup>	AH		✓		MR	Q-M	M	ML	MR	S	A	MT	MT-T
Hammer CL Plus <sup>db</sup>	AH	✓	✓		MR	Q-M	S	M	MRMS	–	A	–	–
Illabo <sup>db</sup>	AH	✓	✓	✓	MR (P)	Q (+W)	S	S	MR (P)	S (P)	A	I (P)	MT (P)
Kingston <sup>db</sup>	AH		✓	✓	MR	M	S	–	R	–	A	MT	–
Kord CL Plus <sup>db</sup>	AH	✓	✓		MR	M	M	S	–	SVS	A	MT	MT
LRPB Anvil <sup>db</sup> CL Plus	AH	✓	✓		RMR	Q	MT	M	MRMS	S	A	MII	MT
LRPB Bale <sup>db</sup>	APW		✓		MR	S	T	L	MRMS	MSS	AL	MT	MT-T
LRPB Dual <sup>db</sup>	AH	✓	✓		MR	M-S	MT	L	MR	MSS	AL	MT	MT
LRPB Kittyhawk <sup>db</sup>	AH		✓	✓	MR	M (+W)	M	MS	MR	S	A	I	MT-MI
LRPB Nighthawk <sup>db</sup>	APW		✓		MRMS	VS	M	M	MR	S	A	I	MI
LRPB Scout <sup>db</sup>	AH	✓	✓	✓	MR	M	M	ML	MRMS	MS	A	MI	MT-T
LRPB Trojan <sup>db</sup>	APW		✓	✓	MR	M-S	M	M	MR	MSS	A	MI	MT-MI
Mace <sup>db</sup>	AH	✓	✓		MR	Q-M	M	M	MR	MSS	A	MT	MT-T
Razor CL Plus <sup>db</sup>	ASW	✓	✓		MR	Q-M	M	M	MR	MSS (P)	A	MT	MT-T
Reilly <sup>db</sup>	AH	✓	✓		MR	M	M	–	MRMS (P)	–	A	MI	–
RockStar <sup>db</sup>	AH	✓	✓	✓	MR	M-S	M	M	MR	–	A	–	–
Scepter <sup>db</sup>	AH	✓	✓		MR	M	M	MS	MR	MSS	A	MT	MT-T
Sheriff CL Plus <sup>db</sup>	APW		✓	✓	MR	M-S	M	M	MR	–	A	–	–
Sunblade CL Plus <sup>db</sup>	AH	✓	✓	✓	MS	M	M	MS	MR	–	A	–	–
Sunflex <sup>db</sup>	AH		✓	✓	MR	S	S	MS	MR	–	A	–	–
Sunmaster <sup>db</sup>	APH	✓	✓	✓	MRMS	M	M	M	MR	SVS (P)	A	–	–
Valiant <sup>db</sup> CL Plus	AH	✓	✓	✓	MR	S	M	L	MRMS	–	A	–	–
Vixen <sup>db</sup>	AH	✓	✓	✓	MR	Q	M	M	MR	–	A	–	–
Willaura <sup>db</sup>	AH		✓	✓	MRMS	S-VS	M	M	MR	–	A	–	–

Table 3, cont. next page



Table 3: Agronomic characteristics of wheat varieties (continued).

	Maximum quality southern zone	Rainfall			Screenings	Maturity	Height	Coleoptile length	Lodging	Sprouting	Awn	Soil tolerance	
		Low <350mm	Med 350 to 500mm	High >500mm								Boron	Acid
<b>SPECIALTY WHEAT</b>													
Longsword <sup>db</sup>	AWW	✓	✓	✓	MR	Q (+W)	M	M	MR	–	A	MT (P)	MT (P)
LRPB Oryx <sup>db</sup>	ASFT		✓		MR	M	M	MS	MR	MSS	A	I	MI-I
LRPB Parakeet <sup>db</sup>	ANW		✓		MR	M	MT	M	MRMS	MSS	A	I	MT-MI
<b>DURUM WHEAT</b>													
Bitalli <sup>db</sup>	ADR	✓	✓	✓	–	Q-M	M	M	–	–	A	–	–
DBA-Artemis <sup>db</sup>	ADR		✓	✓	–	M	–	–	–	–	A	–	–
DBA-Aurora <sup>db</sup>	ADR		✓	✓	–	M	M	ML	MR	MR	A	MT	–
DBA Mataroi <sup>db</sup>	ADR		✓		–	Q	M	–	–	–	A	–	–
DBA Spes <sup>db</sup>	ADR		✓	✓	–	M	–	–	–	–	A	–	–
Patron <sup>db</sup>	ADR		✓	✓	–	M	M	M	–	–	A	–	–
Westcourt <sup>db</sup>	ADR	✓	✓	✓	–	M	T	ML	–	–	A	–	–
<b>FEED WHEAT</b>													
Anapurna	Feed			✓	–	M-S (+W)	S	M	R	R	A	–	–
BigRed <sup>db</sup>	Feed		✓	✓	–	M-S (+W)	M	–	–	R	A	–	–
LRPB Beaufort <sup>db</sup>	Feed		✓	✓	–	S-VS	M	–	MRMS	MR	AL	–	MT
Manning <sup>db</sup>	Feed			✓	–	S (+W)	–	–	–	MSS (P)	AL	–	–
RGT Accroc	Feed		✓	✓	–	M-S (+W)	M	–	R	R	A	–	–
RGT Calabro	Feed			✓	–	S (+W)	M	–	R	R	A	–	–
RGT Cesario <sup>db</sup>	Feed		✓	✓	–	M-S (+W)	M	–	R	R	AL	–	–
RGT Waugh <sup>db</sup>	Feed			✓	–	M-S (+W)	M	–	R	–	A	–	–
RGT Zanzibar	Feed	✓	✓	✓	–	VS	MT	–	–	R	A	–	–
Severn <sup>db</sup>	Feed		✓	✓	–	Q-M (+W)	MT	–	–	–	AL	–	–
SQP Revenue <sup>db</sup>	Feed			✓	–	S (+W)	S	–	–	R (P)	AL	–	–

Maximum quality abbreviations listed on page 10.

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

Coleoptile length: S = short, M = medium, L = long. Soil tolerance: I = intolerant, MI = moderately intolerant, MT = moderately tolerant, T = tolerant.

Awn type: A = awned, AL = awnless.

Screening, lodging and sprouting resistance = see key used in Table 5.

(P) = provisional ratings – treat with caution.

\* denotes default classification

– denotes no rating available.

**Table 4: Domestic flour millers' assessment – southern zone wheat varieties.**

HARD WHEAT	Max class grade	End product category			Comment
		Plant bakery	Artisan breads		
Ascot <sup>db</sup>	APW	2	1		Acceptable APW. Good milling extraction. Acceptable/variable bake performance.
Ballista <sup>db</sup>	AH	2	2		Acceptable domestic AH. High dough resistance and good stability. May suit specialist application.
Beckom <sup>db</sup>	AH	2	2		Some interest. Marginal long mix time and tough dough.
Boree <sup>db</sup>	AH	1	3		Some domestic interest. Marginal water absorption, acceptable bake performance. Suit specialist bakery application.
Brumby <sup>db</sup>	APW	2	1		Some domestic interest. Very good milling yield, low water absorption and short mix requirement. Moderate bake results.
Calibre <sup>db</sup>	AH	2	2		Some domestic interest. Good water absorption, strong dough, long mix time. Acceptable bake performance.
Catapult <sup>db</sup>	AH	2	2		Suit domestic mills. Good balanced dough. Acceptable bakery water absorption and performance.
Chief CL Plus <sup>db</sup>	APW	2	1		Acceptable APW. Low water absorption, short mix time. Acceptable rapid bake performance.
Coolah <sup>db</sup>	AH	2	2		Acceptable for domestic mills. Acceptable water absorption, marginal long mix requirement and strong dough resistance, acceptable bake performance.
Coota <sup>db</sup>	AH	3	2		Acceptable domestic AH. Reduced mix time and acceptable bake results.
Cosmick <sup>db</sup>	AH	3	2		Acceptable AH for domestic market.
Denison <sup>db</sup>	APW	3	1		Acceptable domestic APW. Good milling extraction.
DS Bennett <sup>db</sup>	ASW	2	1		Acceptable ASW. Low water absorption and dough strength, acceptable mix time and marginal bake performance.
DS Darwin <sup>db</sup>	AH	2	1		Limited data available. High water absorption may suit domestic mills as blend.
DS Pascal <sup>db</sup>	APW	2	1		Limited data available. Potentially limited domestic interest.
EG Titanium	AH	2	2		Suit domestic mills. Marginal long mix requirement. Acceptable water absorption.
Elmore CL Plus <sup>db</sup>	AH	3	1		Good water absorption and acceptable bake performance. Acceptable AH quality.
Grenade CL Plus <sup>db</sup>	AH	2	2		Marginal strong. Limited domestic interest.
Hammer CL Plus <sup>db</sup>	AH	2	2		Acceptable domestic AH. Good bake results.
Illabo <sup>db</sup>	AH	1	2		Strong dough characteristics. Long mix requirement in bakery. Suit specialist bakery application only.
Kingston <sup>db</sup>	AH	–	2		Limited data available. Indication it is most likely suitable for domestic mills.
Kord CL Plus <sup>db</sup>	AH	3	1		Appears suitable for domestic mills.
LRPB Anvil <sup>db</sup> CL Plus	AH	–	–		Data unavailable.
LRPB Bale <sup>db</sup>	APW	2	1		Acceptable APW. Acceptable milling yield. Good water absorption with short mix requirement. Acceptable bake performance.
LRPB Dual <sup>db</sup>	AH	2	1		Acceptable AH. Acceptable milling yield. Good water absorption, short mix requirement marginal dough strength. Acceptable bake performance.
LRPB Kittyhawk <sup>db</sup>	AH	2	2		Acceptable for domestic mills. Good water absorption and strong doughs. Acceptable bake performance.
LRPB Nighthawk <sup>db</sup>	APW	3	1		Suit domestic mills. Good water absorption, short mix requirement. Acceptable bake performance.
LRPB Scout <sup>db</sup>	AH	2	1		Suitable AH. Marginal long mix time.
LRPB Trojan <sup>db</sup>	APW	2	1		Some interest from domestic mills. Marginal water absorption, long mix time but good bake volume.
Mace <sup>db</sup>	AH	3	1		Suitable as domestic AH.
Razor CL Plus <sup>db</sup>	ASW	2	1		Acceptable ASW. Good water absorption, short mix time, short dough extensibility and low dough strength.
Reilly <sup>db</sup>	AH	–	2		Limited data available. Indication it is most likely suitable for domestic mills.
RockStar <sup>db</sup>	AH	2	2		Suit domestic mills. Marginal bakery water absorption but acceptable bakery performance.
Scepter <sup>db</sup>	AH	2	1		Suit domestic application. Acceptable AH quality.
Sheriff CL Plus <sup>db</sup>	APW	1	1		Suit domestic mills. Acceptable APW. Marginal water absorption and extraction. Short mix time, marginal extensibility and acceptable bake performance.
Sunblade CL Plus <sup>db</sup>	AH	3	1		Acceptable domestic AH. Good milling extraction and rapid bake performance.
Sunflex <sup>db</sup>	AH	2	1		Acceptable domestic AH. Good water absorption and balanced dough. Acceptable bake performance.
Sunmaster <sup>db</sup>	APH	1	2		Some domestic interest. Good water absorption, long mix time, strong dough. Suit specialist bakery application.
Valiant <sup>db</sup> CL Plus	AH	3	1		Suitable as domestic AH. Balanced dough properties.
Vixen <sup>db</sup>	AH	3	2		Suit domestic mills. Acceptable AH. Good extraction, good water absorption and balanced dough. Acceptable bake performance.
Willaura <sup>db</sup>	AH	3	2		Suit domestic mills. Acceptable AH. Acceptable extraction, good water absorption, strong balanced dough. Acceptable bake results.
SOFT OR NOODLE WHEAT	Max class grade	End product category			Comment
		Biscuit	Cake	Hot plate goods	
LRPB Oryx <sup>db</sup>	SF1	3	2	1	Acceptable biscuit quality.
LRPB Parakeet <sup>db</sup>	ANW	2	2	3	Acceptable domestic noodle applications.

Source: Interpretation provided by David Hogan, Quality Manager for Laucke Flour Mills (2022)

On the quality scale, a rating of 3 is preferred for a particular varietal end-use, 3 preferred, 2 suitable, 1 not suitable.

– denotes no data available.

Maximum class grade abbreviations listed on page 10.

Table 5: Disease resistance ratings of wheat varieties.

	Rust			Yellow leaf spot	Septoria tritici blotch	Powdery mildew	CCN res	Root lesion nematode		Crown rot	Common root rot <sup>2</sup>	Black tip (Black point) <sup>A</sup>	Flag smut <sup>2</sup>
	Stem	Stripe	Leaf					<i>P. neglectus</i>	<i>P. thornei</i>				
<b>BREAD WHEAT</b>													
Ascot <sup>db</sup>	MRMS	MSS	RMR	MRMS	S	S	MR	S	S	S	MS	MSS	MS
Ballista <sup>db</sup>	MR	MSS	S	MSS	SVS	SVS	MRMS	S	MRMS	SVS	MS	MRMS (P)	SVS
Beckom <sup>db</sup>	MRMS	MRMS	MSS	MSS	SVS	S	R	S	MSS	S	MSS	MRMS	MRMS
Boree <sup>db</sup>	MR	MSS	S	MRMS	S	VS	MSS (P)	MSS	MSS	S	–	–	–
Brumby <sup>db</sup>	MR (P)	MS (P)	SVS (P)	MS (P)	MSS (P)	R#	–	–	–	–	–	–	–
Calibre <sup>db</sup>	MR	MS	S	MRMS	S	S	MRMS (P)	S (P)	MS	S	–	–	–
Catapult <sup>db</sup>	MR	S	S	MRMS	MSS	S	R	S	MS	MSS	MS	MSS	MS
Chief CL Plus <sup>db</sup>	MR	SVS	MR	MRMS	MSS	SVS	MS	MRMS	MSS	MSS	MS	MS	SVS
Coolah <sup>db</sup>	MR	MRMS	RMR	MSS	MSS	S	S	S	MS	MSS	S	S	R
Coota <sup>db</sup>	RMR	MS	MS	MSS	S	S	MR	MR	MS	MSS	–	–	–
Denison <sup>db</sup>	MS	MSS	S	MRMS	MSS	S	MS	S	S	S	MS	MS (P)	MS
DS Bennett <sup>db</sup>	MRMS	S	SVS	MRMS	MSS	R	S	S	S	VS	S	MSS	SVS
DS Darwin <sup>db1</sup>	MRMS	MS/S (P)	MRMS/SVS	S	S	–	MSS	S	S	S	MSS	MS	MR
DS Pascal <sup>db</sup>	MSS	RMR	MS	MS	MSS	RMR	S	S	S	S	MS	MS	S
EG Titanium	MS	MR	MSS	MSS	MSS	S	R	MSS	MSS	MSS	MSS	MSS	MR
Grenade CL Plus <sup>db</sup>	MR	MRMS	S	S	S	MSS	R	MSS	S	S	MS	MSS	MR
Hammer CL Plus <sup>db</sup>	MR	MS	S	MRMS	MSS	MSS	MRMS	MSS	S	MSS	MSS	MRMS (P)	RMR
Illabo <sup>db</sup>	MRMS	MRMS	S	MS	MSS	R	MRMS	MSS	MSS	S	MSS	MRMS	R
Kingston <sup>db</sup>	S	MSS	S	MSS	S	SVS	MRMS	S	MRMS	S	–	S (P)	–
LRPB Anvil <sup>db</sup> CL Plus	MR	MSS	SVS	MSS	VS	VS	MS (P)	MSS	S	MSS	–	–	–
LRPB Bale <sup>db</sup>	MRMS (P)	MRMS (P)	S (P)	S (P)	MSS (P)	MSS	–	–	–	–	–	–	–
LRPB Dual <sup>db</sup>	MRMS (P)	MR (P)	S (P)	S (P)	MSS (P)	MSS	–	–	–	–	–	–	–
LRPB Kittyhawk <sup>db</sup>	MRMS	MR	MR	MRMS	MRMS	MS	S	S	S	SVS	S	MRMS	RMR
LRPB Nighthawk <sup>db</sup>	RMR	MRMS	MSS	MS	MS	SVS	MS	MSS	MS	MSS	MSS	MS	MSS
LRPB Scout <sup>db</sup>	MRMS	MRMS	MSS	SVS	S	MRMS	R	S	MSS	–	S	S	MR
LRPB Trojan <sup>db</sup>	MRMS	SVS	MR#	MSS	MSS	S	MS	MSS	MSS	MS	MS	MS	SVS
Mace <sup>db</sup>	MRMS	SVS	S	MRMS	SVS	MSS	MRMS	MS	MS	S	MS	MRMS	S
Razor CL Plus <sup>db</sup>	MR	MS	S	MSS	SVS	MSS	MR	S	MS	S	MSS	MS	RMR
Reilly <sup>db</sup>	MR	MRMS	MSS	S	S	S	MRMS	MRMS	MSS	S	–	MR (P)	–
RockStar <sup>db</sup>	MR	S	S	MRMS	S	SVS	MSS	MRMS	MS	S	MSS	MSS	VS
Scepter <sup>db</sup>	MRMS	MSS	MSS	MRMS	S	SVS	MRMS	S	MSS	MSS	MS	MS	MSS
Sheriff CL Plus <sup>db</sup>	MS	S	SVS	MRMS	S	SVS	MS	MRMS	MRMS	S	MS	MS	S
Sunblade CL Plus <sup>db</sup>	MS	MRMS	MSS	MSS	S	SVS	MSS	MSS	MRMS	S (P)	–	–	–
Sunflex <sup>db</sup>	MR	–	RMR/S (P)	MS	MSS	S	MS	S	MSS	MSS (P)	S	MSS	MRMS
Sunmaster <sup>db</sup>	MS	MRMS	RMR#	MSS	S	SVS	MSS	MRMS	MS	MSS	–	–	–
Valiant <sup>db</sup> CL Plus	MR	MSS	S	MRMS	S	VS	MSS (P)	S	Sp	S	–	–	–
Vixen <sup>db</sup>	MRMS	S	SVS	MRMS	S	SVS	MSS	MRMS	MS	S	MS	MSS	SVS
Willaura <sup>db</sup>	RMR (P)	MRMS (P)	MRMS (P)	MS (P)	MSS (P)	VS	–	–	–	–	–	–	–
<b>SPECIALTY WHEAT</b>													
Longsword <sup>db</sup>	MR	R/S	MR#	MRMS	MSS	MSS	MRMS	MRMS	MRMS	MSS	MS	MS	MRMS
LRPB Oryx <sup>db</sup>	MR	MS	RMR#	MSS	SVS	–	–	MSS	MSS	MSS	–	–	–
LRPB Parakeet <sup>db</sup>	MR	RMR	R	MSS	S	SVS	MS	MRMS	S	MSS	MRMS	MS	MSS

Table 5, cont. next page

**Table 5: Disease resistance ratings of wheat varieties (continued).**

	Rust			Yellow leaf spot	Septoria tritici blotch	Powdery mildew	CCN res	Root lesion nematode		Crown rot	Common root rot <sup>2</sup>	Black tip (Black point) <sup>A</sup>	Flag smut <sup>2</sup>
	Stem	Stripe	Leaf					<i>P. neglectus</i>	<i>P. thornei</i>				
<b>DURUM WHEAT</b>													
Bitajir <sup>Ⓛ</sup>	RMR	MRMS	MR	MRMS	MRMS	S	MSS	MSS	RMR	SVS	MS	MS	R
DBA-Artemis <sup>Ⓛ</sup>	MR	MR	RMR	MRMS	MRMS	S	MS	MS	MR	VS	MS	MS	MR
DBA-Aurora <sup>Ⓛ1</sup>	RMR	MR	R	MRMS	MR/S	MSS	MSS	MRMS	RMR	VS	MSS	MS	–
DBA Mataroi <sup>Ⓛ</sup>	MR	MR	MR	MRMS	MSS	S	MS	MS	RMR	SVS	MS	MRMS	R
DBA Spes <sup>Ⓛ</sup>	R	MS	R	MRMS	MS	MSS	MS	MRMS	RMR	VS	MS	MS	R
Westcourt <sup>Ⓛ</sup>	RMR	MR	RMR	MRMS	MS	S	MSS	MS	MR	VS	MRMS	MSS	R
<b>FEED WHEAT</b>													
Anapurna	MSS	RMR	MS	MRMS	MRMS	RMR	MRMS	MS	<i>Sp</i>	SVS	MSS	S (P)	R
LRPB Beaufort <sup>Ⓛ</sup>	SVS	RMR	S	MRMS	MSS	–	S	MS	MSS	S	MSS	MRMS	R
BigRed <sup>Ⓛ</sup>	S (P)	R (P)	MRMS (P)	MR (P)	MRMS (P)	R	–	–	–	–	–	–	–
Manning <sup>Ⓛ</sup>	MR	RMR	MSS	MRMS	MRMS	MS	S	MSS	S	VS	SVS	S	R
RGT Accroc	MS	RMR	SVS	MRMS	MRMS	MSS	S	S	MSS	SVS	S	MRMS	SVS
RGT Calabro	MS	RMR	MSS	MR	MRMS	RMR	S	S	MS	SVS	MSS	MS	RMR
RGT Cesario <sup>Ⓛ</sup>	R	RMR	RMR (P)	MR	MR	RMR	MSS (P)	MRMS	MSS	VS	–	–	–
RGT Waugh <sup>Ⓛ</sup>	MRMS	RMR	S	MRMS	MRMS	R	MSS (P)	MS	MSS	S	–	–	–
RGT Zanzibar	VS	RMR	SVS	MS	S	MRMS	MSS	S	MS (P)	S	S	MRMS	SVS
Severn <sup>Ⓛ</sup>	MS	RMR (P)	MS	MRMS	MS (P)	R	MSS (P)	S	MRMS	S	–	–	–
SQP Revenue <sup>Ⓛ</sup>	RMR	RMR	VS	MRMS	MSS	R	S	S	S	S	SVS	MS	S

Source: [Agriculture Victoria Cereal Disease Guide \(2022\)](#), [NVT Disease Ratings \(2022\)](#)

<sup>1</sup> Indicates historic data that has not been updated in at least 12 months. # May be more susceptible to alternate pathotypes. / = used to show the reaction of both the dominant strain (present in Victoria) on the left and the minor strain (present in NSW in 2020) on the right.

<sup>2</sup> No longer included in NVT disease screening.

<sup>A</sup> Data from 2020 pending 2021 data.

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.

(P) = provisional ratings – treat with caution.

– denotes no rating available.

Table 6: Wheat disease guide summary.

Disease	Organism	Symptoms	Occurrence	Inoculum source	Control
<b>FOLIAR</b>					
Leaf rust	<i>Puccinia triticina</i>	Small orange-brown powdery pustules on leaf.	Develops in spring. Favoured by mild (15°C–22°C), moist weather.	Airborne spores from living wheat plants.	Resistant varieties, control volunteer summer–autumn wheat. Seed dressings and foliar fungicides.
Stem rust	<i>Puccinia graminis</i> f. sp. <i>tritici</i>	Red-brown, powdery, oblong pustules with tattered torn edges on leaf and stem.	Can develop from mid-spring into summer. Favoured by warm (15°C–30°C), humid conditions.	Airborne spores from living plants (wheat, barley, durum and triticale).	Resistant varieties, control volunteer summer–autumn wheat and barley. Foliar fungicides.
Stripe rust	<i>Puccinia striiformis</i> f. sp. <i>tritici</i>	Yellow powdery pustules often in stripes on leaves.	Can develop throughout the growing season. Favoured by cool (8°C–15°C), moist weather.	Airborne spores from living wheat and barley grass plants.	Resistant varieties, fungicides (seed, fertiliser and foliar), control volunteer summer–autumn wheat.
Septoria tritici blotch	<i>Zymoseptoria tritici</i>	Leaf lesions with minute black spots, leaf death.	More common in early sown crops and in wet springs.	Initially airborne spores released from stubble, and then spread by rain-splashed spores within crop.	Resistant varieties, foliar fungicides, seed treatments, stubble removal.
Yellow spot	<i>Pyrenophora tritici-repentis</i>	Leaf lesions often with yellow border, leaf death.	More severe in close rotations when wheat is sown into wheat stubble.	Ascospores from stubble infect plants. Then secondary spread is by airborne spores in spring.	Crop rotation, foliar fungicides, resistant varieties.
BYDV	Barley yellow dwarf virus	Yellowing, dwarfing of infected plants, interveinal chlorosis, reduced seedset.	Most common in perennial grass pastures and in early sown crops.	A virus transmitted by aphids from infected grasses and cereals.	Resistant varieties, seed treatments and/or insecticide treatments to control aphids.
<b>GRAIN</b>					
Bunt	<i>Tilletia laevis</i> , <i>T. tritici</i>	Seed contains a black, foul-smelling mass of spores. Affected grain is not accepted at silos.	Potentially region-wide.	Spores on seed coat infect seedling before it emerges.	Seed-applied fungicide.
Flag smut	<i>Urocystis agropyri</i>	Stunted plants with black, powdery streaks in leaves.	Most likely in crops sown early in warm soils.	Soil and seed-borne spores.	Resistant varieties, seed-applied fungicide.
Loose smut	<i>Ustilago tritici</i>	Black powdery heads on diseased plants.	Region-wide.	Infected seed is the predominant source.	Seed-applied fungicide.
<b>ROOT/CROWN</b>					
Common root rot	<i>Bipolaris sorokiniana</i>	Browning of the roots, sub-crown internode and the stem base. Brown spots on leaves. White heads and pinched grain.	Scattered through crop.	Soil-borne on grass and cereal residues. Also as spores in the soil.	Crop rotation, one year free from hosts.
Crown rot	<i>Fusarium pseudograminearum</i> , <i>F. culmorum</i>	Browning of stem bases, crown and sometimes roots. White heads and pinched grain.	More severe following a wet winter and dry spring, especially on heavy soils that are poorly drained.	Soil-borne on grass and cereal residues.	Crop rotation. Avoid highly susceptible varieties, especially durum wheat.
Cereal cyst nematode (CCN)	<i>Heterodera avenae</i>	Yellow, stunted plants with knotted roots, often in patches.	Light soils and well-structured clays where cereals are common.	Present in most soils in the southern region of Australia.	Resistant varieties, two-year break from susceptible cereals and grasses, in particular wild oats.
Rhizoctonia bare patch	<i>Rhizoctonia solani</i> (AG 8)	Patches of stunted plants with yellow-red erect leaves. Spear-tipped roots.	Associated with reduced tillage and poor weed control in autumn. Discouraged by soils with high organic matter.	Fungus carries over in organic matter in the soil. Wide host range.	Pre-cropping weed control, chemical fallow, cultivation, modified sowing equipment. Group B herbicides may increase severity on some soil types. Read the label.
Root lesion nematode	<i>Pratylenchus thornei</i> , <i>P. neglectus</i>	Reduced tillering, ill-thrift; a lack of root branching and lesions on roots.	Favoured by wheat in rotation with chickpea, medic and vetch.	Survive as dormant nematodes in the soil.	Crop rotation using resistant crops and resistant varieties.
Take-all	<i>Gaeumannomyces graminis</i> var. <i>tritici</i>	Blackening of roots, stem bases and crown. Plant stunting with white heads and pinched grain.	Favoured by a wet spring with a dry finish.	Soil-borne on grass hosts and cereal residues.	Crop rotation, at least one year free of hosts (cereals and grasses, especially barley grass). Fungicide applied to seed or fertiliser.

Source: This table has been developed from information in the publications Wallwork H (2000) (Ed) *Cereal Root and Crown Diseases* (Grains Research and Development Corporation, SARDI) and Wallwork H (2000) (Ed) *Cereal Leaf and Stem Diseases* (Grains Research and Development Corporation, SARDI). Reviewed by Grant Holloway (2022)

**Table 7: Mallee and Wimmera (main season) wheat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

		MALLEE						WIMMERA					
Year			2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)			3.39	0.99	3.27	3.31	2.29		4.86	1.98	4.29	3.77	1.54
	Quality	No. trials	7	4	5	8	8	No. trials	5	3	4	3	1
BREAD WHEAT													
Ascot <sup>db</sup>	APW	25	–	95	102	100	100	11	–	104	98	102	99
Axe <sup>db</sup>	AH	11	93	101	–	–	–	8	93	98	–	–	–
Ballista <sup>db</sup>	AH	21	–	–	116	110	114	8	–	–	111	112	118
Beckom <sup>db</sup>	AH	32	105	101	106	104	103	16	106	103	103	105	101
Boree <sup>db</sup>	AH	16	–	–	–	108	110	4	–	–	–	108	113
Brumby <sup>db</sup>	APW	8	–	–	–	–	111	1	–	–	–	–	117
Calibre <sup>db</sup>	AH	16	–	–	–	111	120	4	–	–	–	112	131
Catapult <sup>db</sup>	AH	25	–	109	106	106	108	11	–	104	108	109	112
Chief CL Plus <sup>db</sup>	APW	25	–	96	96	100	92	16	103	88	100	93	87
Cobalt <sup>db</sup>	APW	9	–	107	97	–	–	3	–	101	–	–	–
Coolah <sup>db</sup>	AH	0	–	–	–	–	–	7	–	103	–	91	–
Coota <sup>db</sup>	AH	0	–	–	–	–	–	8	–	–	97	106	100
Corack <sup>db</sup>	APW	24	105	105	103	103	–	15	103	89	105	85	–
Cosmick <sup>db</sup>	AH	16	99	102	100	–	–	8	100	104	–	–	–
Cutlass <sup>db</sup>	APW	32	103	98	92	100	97	16	98	93	102	103	104
Denison <sup>db</sup>	APW	0	–	–	–	–	–	4	–	–	–	108	118
Derrimut <sup>db</sup>	AH	0	–	–	–	–	–	11	95	94	97	–	–
DS Darwin <sup>db</sup>	AH	16	95	89	91	–	–	12	94	93	92	–	–
EG Titanium	AH	16	–	–	–	100	96	9	91	–	–	96	104
Elmore CL Plus <sup>db</sup>	AH	32	91	90	91	96	94	16	89	98	93	98	98
Emu Rock <sup>db</sup>	AH	32	95	103	103	99	101	16	97	103	99	92	96
Estoc <sup>db</sup>	APW	11	98	96	–	–	–	8	99	98	–	–	–
Gladius <sup>db</sup>	AH	11	94	103	–	–	–	8	95	98	–	–	–
Grenade CL Plus <sup>db</sup>	AH	32	93	97	94	93	97	16	94	100	93	95	95
Hammer CL Plus <sup>db</sup>	AH	21	–	–	99	98	101	4	–	–	–	96	100
Kingston <sup>db</sup>	NYC	21	–	–	108	107	98	8	–	–	101	102	93
Kord CL Plus <sup>db</sup>	AH	32	94	100	89	93	95	16	93	95	95	92	97
LRPB Anvil <sup>db</sup> CL Plus	AH	16	–	–	–	100	105	1	–	–	–	–	105
LRPB Arrow <sup>db</sup>	AH	16	103	97	104	–	–	12	104	97	100	–	–
LRPB Cobra <sup>db</sup>	AH	11	98	87	–	–	–	12	96	93	96	–	–
LRPB Dual <sup>db</sup>	AH	8	–	–	–	–	100	1	–	–	–	–	103
LRPB Phantom <sup>db</sup>	AH	16	95	94	93	–	–	12	94	101	95	–	–
LRPB Scout <sup>db</sup>	AH	32	96	100	103	99	106	16	99	112	98	110	110
LRPB Trojan <sup>db</sup>	APW	32	104	96	99	102	98	16	103	98	101	106	100
Mace <sup>db</sup>	AH	32	104	108	103	101	101	16	105	97	104	93	96
Razor CL Plus <sup>db</sup>	ASW	32	103	110	109	103	106	16	105	105	105	97	102
Reilly <sup>db</sup>	AH	21	–	–	111	110	112	8	–	–	101	110	115
RockStar <sup>db</sup>	AH	21	–	–	111	110	112	8	–	–	112	113	119
Scepter <sup>db</sup>	AH	32	111	115	111	107	109	16	112	104	111	106	110
Sheriff CL Plus <sup>db</sup>	APW	25	–	100	104	103	100	11	–	100	102	104	97
Shield <sup>db</sup>	AH	16	95	101	100	–	–	12	97	106	96	–	–
Sunblade CL Plus <sup>db</sup>	AH	21	–	–	107	105	106	8	–	–	105	110	109
Sunmaster <sup>db</sup>	APH	8	–	–	–	–	102	1	–	–	–	–	102
Valiant <sup>db</sup> CL Plus	AH	8	–	–	–	–	99	4	–	–	–	103	103
Vixen <sup>db</sup>	AH	32	108	116	121	112	113	16	110	110	113	102	111
Wallup <sup>db</sup>	AH	9	–	90	90	–	–	12	98	90	89	–	–
Yitpi <sup>db</sup>	AH	32	96	94	88	94	93	16	93	92	95	96	96
SPECIALTY WHEAT													
LRPB Impala <sup>db</sup>	ASFT	0	–	–	–	–	–	15	92	103	93	101	–
LRPB Oryx <sup>db</sup>	ASFT	0	–	–	–	–	–	13	94	–	94	95	94
LRPB Parakeet <sup>db</sup>	ANW	0	–	–	–	–	–	13	91	–	94	93	94
FEED WHEAT													
LRPB Beaufort <sup>db</sup>	FEED	0	–	–	–	–	–	4	–	–	–	110	110
Tenfour <sup>db</sup>	FEED	9	–	99	103	–	–	12	103	94	99	–	–

– denotes no data available.

Maximum quality abbreviations listed on page 10.

Source: National Variety Trials (2017–2021)

**Table 8: North Central and North East (main season) wheat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

		NORTH CENTRAL					NORTH EAST						
Year			2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)			3.49	–	3.00	4.26	4.83		4.86	–	4.00	5.60	6.66
	Quality	No. trials	2	–	3	2	2	No. trials	4	–	4	3	3
<b>BREAD WHEAT</b>													
Ascot <sup>db</sup>	APW	7	–		104	101	107	10	–		106	104	107
Ballista <sup>db</sup>	AH	7	–		122	111	112	10	–		113	104	106
Beckom <sup>db</sup>	AH	9	108		109	107	105	14	108		109	108	108
Boree <sup>db</sup>	AH	4	–		–	112	109	6	–		–	107	107
Brumby <sup>db</sup>	APW	2	–		–	–	109	3	–		–	–	105
Calibre <sup>db</sup>	AH	4	–		–	114	106	6	–		–	105	102
Catapult <sup>db</sup>	AH	7	–		116	111	105	10	–		109	106	106
Chief CL Plus <sup>db</sup>	APW	7	–		102	100	93	10	–		100	100	97
Cobalt <sup>db</sup>	APW	4	105		104	–	–	5	104		102	–	–
Condo <sup>db</sup>	AH	4	98		100	–	–	8	100		98	–	–
Coolah <sup>db</sup>	AH	9	104		86	100	109	14	99		95	104	106
Coota <sup>db</sup>	AH	7	–		103	102	100	10	–		104	105	108
Corack <sup>db</sup>	APW	7	107		106	104	–	11	107		105	102	–
Cosmick <sup>db</sup>	AH	8	102		101	102	106	5	102		101	–	–
Cutlass <sup>db</sup>	APW	9	107		92	103	103	14	104		97	106	107
Denison <sup>db</sup>	APW	4	–		–	110	105	6	–		–	109	109
Derrimut <sup>db</sup>	AH	5	95		96	–	–	8	96		98	–	–
DS Bennett <sup>db</sup>	ASW	4	94		78	–	–	8	92		85	–	–
DS Darwin <sup>db</sup>	AH	5	92		99	–	–	8	96		98	–	–
DS Pascal <sup>db</sup>	APW	4	86		87	–	–	8	87		90	–	–
EG Titanium	AH	6	100		–	99	96	10	95		92	100	98
EGA Gregory <sup>db</sup>	APW*	8	97		77	93	94	14	94		83	93	89
Elmore CL Plus <sup>db</sup>	AH	9	95		88	94	98	14	94		92	97	100
Grenade CL Plus <sup>db</sup>	AH	9	92		103	96	96	14	94		98	92	91
Hammer CL Plus <sup>db</sup>	AH	4	–	Trial failed	–	102	93	6	–	Trial failed	–	95	86
Kingston <sup>db</sup>	NYC	7	–		113	112	107	10	–		109	107	104
Kord CL Plus <sup>db</sup>	AH	9	95		99	95	93	13	97		96	93	89
LRPB Anvil <sup>db</sup> CL Plus	AH	2	–		–	–	103	3	–		–	–	91
LRPB Arrow <sup>db</sup>	AH	5	100		108	–	–	8	102		104	–	–
LRPB Cobra <sup>db</sup>	AH	5	101		102	–	–	14	101		108	106	109
LRPB Dual <sup>db</sup>	AH	2	–		–	–	95	3	–		–	–	93
LRPB Havoc <sup>db</sup>	AH	5	99		115	–	–	8	104		108	–	–
LRPB Phantom <sup>db</sup>	AH	5	103		95	–	–	6	100		98	–	–
LRPB Scout <sup>db</sup>	AH	9	105		106	107	110	11	102		105	105	–
LRPB Trojan <sup>db</sup>	APW	9	108		100	106	107	14	104		104	107	107
Mace <sup>db</sup>	AH	9	101		111	102	97	14	104		106	98	94
QAL 2000 <sup>db</sup>	AGP*	0	–		–	–	–	8	–		93	98	103
Razor CL Plus <sup>db</sup>	ASW	9	101		114	103	104	14	104		108	98	94
Reilly <sup>db</sup>	AH	7	–		109	108	110	10	–		106	104	104
RockStar <sup>db</sup>	AH	7	–		120	110	108	10	–		113	109	115
Scepter <sup>db</sup>	AH	9	110		119	111	109	14	111		113	107	107
Sheriff CL Plus <sup>db</sup>	APW	7	–		112	104	99	10	–		108	103	104
Sunblade CL Plus <sup>db</sup>	AH	7	–		106	104	108	10	–		109	110	115
Sunmaster <sup>db</sup>	APH	4	–		–	102	106	6	–		–	111	116
Suntop <sup>db</sup>	AH	4	102		91	–	–	8	100		100	–	–
Valiant <sup>db</sup> CL Plus	AH	4	–		–	98	104	6	–		–	102	106
Vixen <sup>db</sup>	AH	9	112		125	114	112	14	113		118	108	106
Wallup <sup>db</sup>	AH	5	95		98	–	–	8	98		98	–	–
Yitpi <sup>db</sup>	AH	9	98		94	98	92	14	96		92	94	88
<b>SPECIALTY WHEAT</b>													
LRPB Impala <sup>db</sup>	ASFT	7	94	Trial failed	100	98	–	9	95	Trial failed	93	92	–
LRPB Oryx <sup>db</sup>	ASFT	9	95		103	97	95	13	98		98	94	92
LRPB Parakeet <sup>db</sup>	ANW	9	93		98	97	94	14	92		93	91	88

Table 8, cont. next page

**Table 8: North Central and North East (main season) wheat results. NVT long-term yield expressed as a percentage of mean yield (continued).**

		NORTH CENTRAL						NORTH EAST					
Year			2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)			3.49	–	3.00	4.26	4.83		4.86	–	4.00	5.60	6.66
	Quality	No. trials	2	–	3	2	2	No. trials	4	–	4	3	3
FEED WHEAT													
DS Faraday <sup>db</sup>	FEED	4	99	Trial failed	79	–	–	8	96	Trial failed	86	–	–
DS Tull <sup>db</sup>	FEED	4	95		99	–	–	7	94		96	–	–
LRPB Beaufort <sup>db</sup>	FEED	6	102		–	101	111	9	100		–	105	114
RGT Zanzibar	FEED	8	99		82	95	101	14	97		93	108	122
Tenfour <sup>db</sup>	FEED	5	103		108	–	–	4	–		106	–	–

\* denotes default classification.

– denotes no data available.

Maximum quality abbreviations listed on page 10.

Source: [National Variety Trials \(2017–2021\)](#)



**Table 9: North East and South West (early season) wheat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

		NORTH EAST						SOUTH WEST					
Year			2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)			5.87	2.74	5.75	6.79	6.80		5.94	5.05	5.95	6.62	6.32
	Quality	No. trials	1	1	1	2	2	No. trials	2	3	3	2	3
<b>BREAD WHEAT</b>													
Ascot <sup>db</sup>	APW	4	–	–	–	99	99	5	–	–	–	105	98
Beckom <sup>db</sup>	AH	7	102	118	109	97	96	13	106	98	105	106	89
Bolac <sup>db</sup>	AH	2	96	104	–	–	–	5	98	98	–	–	–
Catapult <sup>db</sup>	AH	6	–	126	117	99	103	11	–	104	107	107	104
Chara	AH	2	97	100	–	–	–	5	99	92	–	–	–
Coolah <sup>db</sup>	AH	7	104	106	102	98	100	8	99	101	101	–	–
Coota <sup>db</sup>	AH	5	–	–	110	96	97	8	–	–	105	106	94
Cutlass <sup>db</sup>	APW	7	108	105	110	98	100	13	105	96	93	97	92
Denison <sup>db</sup>	APW	5	–	–	116	100	103	8	–	–	101	103	102
DS Bennett <sup>db</sup>	ASW	3	106	91	104	–	–	13	105	106	103	102	113
DS Darwin <sup>db</sup>	AH	3	93	105	96	–	–	0	–	–	–	–	–
DS Pascal <sup>db</sup>	APW	7	98	102	97	104	102	13	100	105	109	105	108
EG Jet <sup>db</sup>	APW	3	97	100	97	–	–	13	101	107	112	107	111
EG Titanium	AH	3	101	108	99	–	–	13	93	95	92	94	91
EGA Gregory <sup>db</sup>	APW*	7	99	95	99	85	90	0	–	–	–	–	–
EGA Wedgetail <sup>db</sup>	APW*	7	93	85	92	97	97	13	95	95	90	91	96
Elmore CL Plus <sup>db</sup>	AH	5	97	102	98	91	–	10	96	94	92	94	–
Forrest	APW	3	91	89	89	–	–	8	92	95	91	–	–
Illabo <sup>db</sup>	AH	7	93	94	95	105	102	13	101	103	106	103	104
Kiora <sup>db</sup>	AH	2	96	92	–	–	–	8	96	98	95	–	–
Longsword <sup>db</sup>	AWW	7	94	99	100	103	99	13	105	98	102	103	92
LRPB Kittyhawk <sup>db</sup>	AH	6	95	90	–	97	98	7	94	98	–	94	–
LRPB Lancer <sup>db</sup>	AH	5	89	108	92	94	–	0	–	–	–	–	–
LRPB Nighthawk <sup>db</sup>	APW	6	–	89	95	103	101	11	–	100	98	98	101
LRPB Trojan <sup>db</sup>	APW	7	104	118	108	97	97	13	103	100	106	106	94
RockStar <sup>db</sup>	AH	5	–	–	116	107	107	8	–	–	119	115	113
Scepter <sup>db</sup>	AH	2	–	119	116	–	–	6	–	100	103	–	–
Sheriff CL Plus <sup>db</sup>	APW	5	–	–	106	98	97	8	–	–	106	106	95
Sunflex <sup>db</sup>	AH	4	–	107	106	107	–	8	–	108	110	107	–
Sunlamb <sup>db</sup>	ASW	3	87	77	87	–	–	0	–	–	–	–	–
Suntop <sup>db</sup>	AH	2	97	–	99	–	–	0	–	–	–	–	–
Tungsten <sup>db</sup>	AH	4	–	–	–	98	99	0	–	–	–	–	–
Valiant <sup>db</sup> CL Plus	AH	4	–	–	–	107	106	5	–	–	–	109	113
Willaura <sup>db</sup>	AH	2	–	–	–	–	114	3	–	–	–	–	126
<b>FEED WHEAT</b>													
BigRed <sup>db</sup>	FEED	2	–	–	–	–	117	3	–	–	–	–	125
DS Faraday <sup>db</sup>	FEED	2	97	97	–	–	–	0	–	–	–	–	–
DS Tull <sup>db</sup>	FEED	2	96	107	–	–	–	0	–	–	–	–	–
LRPB Beaufort <sup>db</sup>	FEED	7	119	107	114	115	116	13	108	113	115	111	126
Manning <sup>db</sup>	FEED	1	92	–	–	–	–	13	95	104	99	96	115
RGT Accroc	FEED	7	102	81	100	117	115	13	106	109	107	103	121
RGT Calabro	FEED	7	93	78	93	115	111	13	103	107	107	103	116
RGT Cesario <sup>db</sup>	FEED	4	–	–	–	118	115	5	–	–	–	103	119
RGT Waugh <sup>db</sup>	FEED	4	–	–	–	108	105	5	–	–	–	107	115
RGT Zanzibar	FEED	7	105	100	109	116	112	13	112	108	113	111	111
Severn <sup>db</sup>	FEED	4	91	91	–	–	102	8	99	103	–	–	106
SF Adagio	FEED	3	95	82	94	–	–	8	104	109	111	–	–
SQP Revenue <sup>db</sup>	FEED	0	–	–	–	–	–	8	97	110	109	–	–

Source: National Variety Trials (2017–2021)

\* denotes default classification.

– denotes no data available.

Maximum quality abbreviations listed on page 10.

**Table 10: Mallee, North Central and Wimmera (early season) wheat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

		MALLEE					NORTH CENTRAL			WIMMERA						
Year		2017	2018	2019	2020	2021		2017	2018		2017	2018	2019	2020	2021	
Mean yield (t/ha)		4.21	–	3.65	5.23	3.67		5.04	2.29		–	–	4.97	3.47	–	
	Quality	No. trials	1	–	1	1	1	No. trials	1	1	No. trials	–	–	1	1	–
BREAD WHEAT																
Ascot <sup>db</sup>	APW	1	–	93	–	–	0	–	–	1			106	–		
Catapult <sup>db</sup>	AH	3	–	96	108	108	1	–	111	2			109	108		
Coolah <sup>db</sup>	AH	2	100	95	–	–	2	103	101	1			93	–		
Coota <sup>db</sup>	AH	2	–	–	106	107	0	–	–	1			–	106		
Cutlass <sup>db</sup>	APW	3	111	–	106	112	2	103	101	1			–	107		
Denison <sup>db</sup>	APW	2	–	–	109	109	0	–	–	1			–	108		
DS Bennett <sup>db</sup>	ASW	2	91	106	–	–	2	96	98	1			107	–		
DS Pascal <sup>db</sup>	APW	4	102	117	101	104	2	94	95	2			104	102		
EG Titanium	AH	3	–	92	98	99	1	–	104	2			97	99		
EGA Wedgetail <sup>db</sup>	APW*	4	92	104	92	86	2	95	97	2			99	96		
Elmore CL Plus <sup>db</sup>	AH	3	–	90	98	103	0	–	–	2			91	96		
Forrest	APW	2	83	109	–	–	2	70	83	1			91	–		
Illabo <sup>db</sup>	AH	4	98	103	100	92	2	97	99	2			107	101		
Longsword <sup>db</sup>	AWW	4	80	70	101	83	2	81	94	2			100	92		
LRPB Bale <sup>db</sup>	APW	1	–	–	–	95	0	–	–	0			–	–		
LRPB Kittyhawk <sup>db</sup>	AH	2	87	–	91	–	2	82	88	1			–	94		
LRPB Nighthawk <sup>db</sup>	APW	3	–	114	97	99	1	–	92	2			99	98		
LRPB Trojan <sup>db</sup>	APW	2	109	–	104	–	2	113	108	1			–	104		
RockStar <sup>db</sup>	AH	3	–	124	112	121	0	–	–	2			115	115		
Sheriff CL Plus <sup>db</sup>	APW	3	–	96	103	107	1	–	114	2			102	106		
Yitpi <sup>db</sup>	AH	3	103	–	99	102	2	107	103	1			–	100		
FEED WHEAT																
LRPB Beaufort <sup>db</sup>	FEED	4	108	112	107	107	2	101	100	2			110	106		
Severn <sup>db</sup>	FEED	1	92	–	–	–	2	87	92	0			–	–		

Source: National Variety Trials (2017–2021)

Trials were not sown in North Central after 2018.

\* denotes default classification.

– denotes no data available.

Maximum quality abbreviations listed on page 10.

**Table 11: South West Victoria and Northern Midlands Tasmania (long season) wheat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

		SOUTH WEST						NORTHERN MIDLANDS					
Year			2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)			5.07	5.36	5.59	7.85	4.68		7.75	10.86	11.36	10.58	10.85
	Quality	No. Trials	1	2	2	1	1	No. Trials	1	1	1	1	1
<b>BREAD WHEAT</b>													
Denison <sup>db</sup>	APW	2	–	–	–	94	89	2	–	–	–	100	93
DS Bennett <sup>db</sup>	ASW	7	112	99	108	101	123	5	107	112	116	100	103
DS Pascal <sup>db</sup>	APW	5	96	92	98	–	–	3	98	90	99	–	–
EG Jet <sup>db</sup>	APW	2	–	–	–	97	81	2	–	–	–	92	84
EGA Wedgetail <sup>db</sup>	APW*	6	92	90	95	89	86	4	96	88	93	93	–
Forrest	APW	5	91	85	88	–	–	3	94	96	95	–	–
Illabo <sup>db</sup>	AH	7	97	96	102	97	85	5	97	92	96	93	86
Longsword <sup>db</sup>	AWW	6	88	91	101	86	–	4	98	76	89	91	–
LRPB Kittyhawk <sup>db</sup>	AH	5	91	94	–	90	84	4	97	85	–	94	91
LRPB Nighthawk <sup>db</sup>	APW	6	–	96	96	97	86	4	–	93	93	96	92
LRPB Trojan <sup>db</sup>	APW	7	97	89	105	86	80	3	100	81	100	–	–
Sunlamb <sup>db</sup>	ASW	3	99	92	–	–	–	1	92	–	–	–	–
Valiant <sup>db</sup> CL Plus	AH	1	–	–	–	–	92	1	–	–	–	–	88
<b>FEED WHEAT</b>													
Anapurna	FEED	4	–	–	106	117	120	3	–	–	108	109	116
BigRed <sup>db</sup>	FEED	1	–	–	–	–	120	1	–	–	–	–	121
Brennan	FEED	7	92	92	84	91	93	5	94	93	95	95	96
Einstein	FEED	7	99	102	93	97	104	5	102	96	100	104	108
LRPB Beaufort <sup>db</sup>	FEED	7	109	107	117	108	97	5	105	101	108	97	91
Manning <sup>db</sup>	FEED	7	106	105	98	98	121	5	109	102	109	109	118
Naparoo <sup>db</sup>	FEED	7	97	85	51	93	98	5	78	102	103	77	83
RGT Accroc	FEED	7	116	115	115	116	130	5	111	121	114	114	123
RGT Calabro	FEED	7	108	113	119	106	115	5	114	104	106	116	120
RGT Cesario <sup>db</sup>	FEED	2	–	–	–	120	127	2	–	–	–	115	126
RGT Ivory	FEED	0	–	–	–	–	–	4	94	–	90	104	109
RGT Waugh <sup>db</sup>	FEED	2	–	–	–	107	110	2	–	–	–	114	119
RGT Zanzibar	FEED	7	107	102	114	104	99	4	103	–	107	96	91
Severn <sup>db</sup>	FEED	4	96	96	–	–	93	3	98	95	–	–	94
SF Adagio	FEED	5	107	110	103	–	–	3	105	109	106	–	–
SQP Revenue <sup>db</sup>	FEED	7	108	107	112	106	112	5	107	108	107	106	108

Source: National Variety Trials (2017–2021)

\* denotes default classification.

– denotes no data available.

Maximum quality abbreviations listed on page 10.

**Table 12: Wimmera (durum) wheat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

WIMMERA							
Year			2017	2018	2019	2020	2021
Mean yield (t/ha)			5.56	4.05	4.27	4.39	3.70
	Quality	No. trials	1	1	1	1	1
Bitalli <sup>db</sup>	ADR	5	108	106	108	115	112
Caparoi <sup>db</sup>	ADR	5	100	101	97	99	101
DBA-Artemis <sup>db</sup>	ADR	5	104	107	100	108	110
DBA-Aurora <sup>db</sup>	ADR	5	108	104	105	115	111
DBA Bindaroi <sup>db</sup>	ADR	4	–	98	99	98	98
DBA Mataroi <sup>db</sup>	ADR	1	–	–	–	–	106
DBA Spes <sup>db</sup>	ADR	5	105	103	103	109	107
DBA Vittaroi <sup>db</sup>	ADR	4	–	101	105	111	105
EGA Bellaroi <sup>db</sup>	ADR	4	93	97	93	87	–
Hyperno <sup>db</sup>	ADR	5	102	100	101	104	102
Patron <sup>db</sup>	ADR	1	–	–	–	–	123
Saintly <sup>db</sup>	ADR	5	101	98	103	102	98
Tjilkuri	ADR	5	102	103	99	104	105
Westcourt <sup>db</sup>	ADR	4	–	105	100	101	105
WID802	ADR	5	106	104	105	111	109

Source: National Variety Trials (2017–2021)

– denotes no data available.

Maximum quality abbreviations listed on page 10.

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# BARLEY

Barley growers in Victoria have access to many barley varieties. Identifying the variety that is best suited to a region and gives the greatest return requires consideration of several factors including relative yield, disease resistance, marketing options, and the probability of achieving particular quality grades. The decision to grow either a malting or non-malting variety may depend on one or more factors, including the difference in payments between malting and non-malting grades related to yield differences, the probability of producing a malting grade barley, availability of malting storage segregations in storage facilities, disease resistance and agronomic considerations. It is important that growers contact grain marketers to discuss market demand. Malting barley is grown, stored and sold on a variety-specific basis and it is important to ascertain if the variety chosen can be stored and marketed in your area.

## NEW VARIETIES

New varieties undertaking Barley Australia malt accreditation (now managed by Grains Australia Limited) are available to sow in 2023 as non-malting barley varieties. Varietal information is provided below.

**Titan AX<sup>Ⓛ</sup>** is the world's first CoAXium<sup>®</sup> barley variety, registered for use with Aggressor<sup>®</sup> herbicide. Marketed by Australian Grain Technologies (AGT), Titan AX<sup>Ⓛ</sup> (tested as AGTB0325) will be submitted for consideration by Barley Australia for malt evaluation.

**Zena<sup>Ⓛ</sup> CL** is a potential malting barley, bred and marketed by InterGrain. Released 2022 (tested as IGB20125T), Zena<sup>Ⓛ</sup> CL was accepted into malt evaluation in 2022.

**Combat<sup>Ⓛ</sup>** (tested as IGB1944) is a new non-malting barley variety, bred and marketed by InterGrain with seed available for sowing in 2023.

**Fandaga<sup>Ⓛ</sup>** is an international malting barley marketed by AGF Seeds (tested as NORD 14/2404). Fandaga<sup>Ⓛ</sup> is not currently undertaking Barley Australia malt

accreditation and market acceptance may be limited for both domestic and export malting markets.

## QUALITY CHANGES

Grain Trade Australia (GTA) has made no major changes to barley quality standards for the 2022-23 season.

## INDUSTRY UPDATE

In May 2022, Barley Australia merged with Grains Australia Limited, with a new barley industry council within Grains Australia ensuring continued delivery of key services to industry, including varietal classification, trade and market access, and existing malting accreditation processes.

Potential market access restrictions in some export destinations may be in place as a result of maximum residue limits (MRLs) in those destinations. Growers are encouraged to speak with their relevant bulk handling companies and grain buyers to keep updated with their plans for handling Clearfield<sup>®</sup> barley (Spartacus CL<sup>Ⓛ</sup>, Maximus<sup>Ⓛ</sup> CL or Scope CL<sup>Ⓛ</sup>) treated with herbicides registered for use on those varieties (for example, Intervix<sup>®</sup>, Intercept<sup>®</sup> and Sentry<sup>®</sup>). Growers are also encouraged to speak to their agronomists or advisers. Information will be updated as required at [barleyaustralia.com.au/ba-industry-updates](http://barleyaustralia.com.au/ba-industry-updates).

## MALT EVALUATION

In 2022, Bottler<sup>Ⓛ</sup> and Kiwi<sup>Ⓛ</sup> were granted Barley Australia malt accreditation. Buff<sup>Ⓛ</sup> and Laperouse<sup>Ⓛ</sup> had insufficient grain available to complete stage two evaluation in 2021 and have been carried over to continue in 2022. Beast<sup>Ⓛ</sup> and Cyclops<sup>Ⓛ</sup> passed stage one evaluation in 2021; however, there was insufficient grain available to complete stage two evaluation. They are expected to begin stage two in 2023.

Minotaur<sup>Ⓛ</sup> was accepted into malt accreditation in 2021 and passed stage one in 2022. Commodus<sup>Ⓛ</sup> CL

passed stage one evaluation in 2021 and will commence stage two evaluation in 2022. The outcome of malt evaluation of these varieties will be updated on [barleyaustralia.com.au](http://barleyaustralia.com.au) in March 2023.

The Barley Australia website lists malting varieties that are preferred by industry members. These varieties are highlighted in the variety listings as 'Malting barley (preferred variety)'. The level of demand for domestic and export markets in Victoria is shown in Table 2.

## DISEASE UPDATE

Diseases have the potential to cause significant issues during favourable seasons with yield losses of 15 to 20 per cent possible in susceptible varieties. Avoid sowing susceptible varieties into infected stubble, control the green bridge, and apply fungicides and insecticides proactively to maximise production.

Stubble-borne diseases, spot form of net blotch, net form of net blotch and scald are most common in paddocks where barley residue is present from previous seasons. Leaf rust can also be damaging following wet summer/autumn conditions that have allowed a green bridge. Ensure good coverage of effective seed treatments to provide control of bunt and smut diseases. Some products can also provide suppression of foliar diseases, so check the label and choose the appropriate product for your situation.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- [Barley Southern Region – GRDC GrowNotes™](#)
- [GRDC Southern Region NVT Harvest Reports](#)

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Agriculture Victoria Cereal Disease Guide](#). Also available as an e-book
- [Growing barley in Victoria](#)

[barleyaustralia.com.au](http://barleyaustralia.com.au)

- [List of preferred malting barley varieties](#)
- [Updated status of malting barley evaluation](#)

[extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

## VARIETY DESCRIPTIONS

Varieties have been listed according to quality classification grade and in alphabetical order and not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. Where possible, in addition to data supplied below from long-term NVT, growers should seek locally relevant agronomy results published through Online Farm Trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

- (b) Denotes Plant Breeder's Rights apply
- CCN** Cereal cyst nematode
- BYDV** Barley yellow dwarf virus
- GIA** Grains Innovation Australia
- NFNB** Net form of net blotch
- SFNB** Spot form of net blotch
- IMI** Imidazolinone

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## MALTING BARLEY

### BOTTLER<sup>(b)</sup>

A quick maturing variety suited to medium to high-rainfall environments, with export malt type grain. Bottler<sup>(b)</sup> was granted Barley Australia malt accreditation in 2022. Released by GrainSearch in 2018. Bred by Sejet. Now marketed by Seednet. EPR \$4.00.

### COMMANDER<sup>(b)</sup>

A quick-mid maturing variety best suited to 375 to 500mm rainfall districts, particularly the Wimmera and Mallee. It is broadly adapted and performs well under favourable spring conditions. Commander<sup>(b)</sup> is inherently lower in grain protein content, like Scope CL<sup>(b)</sup>. It has moderately weak straw and can lodge under either high-yield environments or if unfavourable conditions occur between grain fill and harvest. Grain size is generally excellent compared with other varieties, but it is prone to low test weights in some seasons. Released 2008. Marketed by Seednet. EPR \$3.80.

**COMPASS<sup>Ⓛ</sup>**

Compass<sup>Ⓛ</sup> is a very quick maturing variety. It is closely related to Commander<sup>Ⓛ</sup> but is significantly higher yielding and earlier flowering with typical May sowing. Compass<sup>Ⓛ</sup> has relatively weak straw strength and is prone to lodging in high-yielding environments. Compass<sup>Ⓛ</sup> has excellent physical grain quality with high retention, low screenings and moderate test weight. Released 2013. Bred by University of Adelaide. Seed available from Seednet. EPR \$3.80.

**KIWI<sup>Ⓛ</sup>**

Kiwi<sup>Ⓛ</sup> is a quick-mid maturing variety best suited to high-rainfall zone districts. Average yields are stronger than Fairview<sup>Ⓛ</sup> and Westminster<sup>Ⓛ</sup> in these districts. Grain plumpness is comparable with RGT Planet<sup>Ⓛ</sup>. Accepted as a malting barley in 2022, it has an export and domestic malt quality profile. Released 2020. Limited seed is available from Malteurop for the open market. EPR \$3.00.

**LA TROBE<sup>Ⓛ</sup>**

Very quick maturing variety for low to medium-rainfall environments. A semi-dwarf plant type providing resistant to moderately resistant lodging resistance and a moderately resistant head loss risk. The variety has a short coleoptile and sowing depth should be considered. Good sprouting tolerance, excellent test weight and moderately good grain plumpness. Retains good demand as a non-herbicide tolerant malting variety in GrainCorp regions of Victoria. Released 2013. Developed by InterGrain. Free to trade. EPR \$4.00.

**LEABROOK<sup>Ⓛ</sup>**

Leabrook is a very quick maturing, medium-tall barley variety with similar plant type and disease resistance to Compass<sup>Ⓛ</sup>. It has a higher plump grain percentage and lower screenings. Leabrook<sup>Ⓛ</sup> was granted Barley Australia malt accreditation in 2021. Released 2020. Bred by University of Adelaide. Seed available and marketed by Seednet. EPR \$3.80.

**LG ALESTAR<sup>Ⓛ</sup>**

LG Alestar<sup>Ⓛ</sup> is a quick maturing variety with maturity similar to Commander<sup>Ⓛ</sup>, suited to the medium to high-rainfall regions. LG Alestar<sup>Ⓛ</sup> has good straw strength, excellent head retention and test weight. LG Alestar<sup>Ⓛ</sup> consistently produces high quality malt, ideal for domestic and boutique brewing, as well as export brewing. LG Alestar<sup>Ⓛ</sup> was granted Barley Australia malt accreditation in 2021. Released 2017. Bred by Elders with seed available from Elders and Elders-approved commercial partners. EPR \$3.00.

**MAXIMUS<sup>Ⓛ</sup> CL**

Maximus<sup>Ⓛ</sup> CL is a very quick-quick maturing Clearfield<sup>®</sup> barley. It has an improved disease resistance package, including for net blotches, compared with Spartacus CL<sup>Ⓛ</sup> and has good grain size. It has a short coleoptile length and it is recommended that sowing depth be considered carefully. Maximus<sup>Ⓛ</sup> CL was granted Barley Australia malt accreditation in 2021. Released 2020. Bred and marketed by InterGrain. Seed available through InterGrain Seedclub members. EPR \$4.25.

**RGT PLANET<sup>Ⓛ</sup>**

RGT Planet<sup>Ⓛ</sup> is a quick maturing variety. It has elastic maturity, making it suited to low to high-rainfall regions. RGT Planet<sup>Ⓛ</sup> is quick to establish and produces high early biomass for excellent weed competition. Good straw strength and head retention, and generally has good test weight and low screenings. RGT Planet<sup>Ⓛ</sup> was granted Barley Australia malt accreditation in 2019 and is suitable for both domestic and export markets. Released 2016. Bred by RAGT and marketed by Seed Force, an RAGT company. EPR \$4.00.

**SCOPE CL<sup>Ⓛ</sup>**

A moderately tall, quick maturing barley suitable across a range of medium-rainfall environments. Scope CL<sup>Ⓛ</sup> can be prone to head loss and lodging under certain environmental conditions. Scope CL<sup>Ⓛ</sup> has moderate grain size and inherently low grain protein. It is registered for the use of appropriate imidazolinone herbicides. Accredited as malting barley in 2013, growers are advised to consult with their grain marketer about segregation and pricing. Released 2010. Marketed by Seednet. EPR \$3.50.

**SPARTACUS CL<sup>Ⓛ</sup>**

Spartacus CL<sup>Ⓛ</sup> is a very quick maturing, CCN-resistant Clearfield<sup>®</sup> barley. It is a semi-dwarf and is ideally suited to the low to medium-rainfall regions. It is agronomically similar to La Trobe<sup>Ⓛ</sup> but has slightly improved lodging tolerance with a low head loss risk and has short rachilla hair length, reducing itchiness. It is registered for the use of appropriate imidazolinone herbicides. Accredited as a malting barley in 2018, demand for domestic and export markets is high. Growers are advised to consult with their grain marketer about segregation and pricing. Seed available from InterGrain Seedclub members. EPR \$4.25.

**WESTMINSTER<sup>Ⓛ</sup>**

A quick-mid maturing variety with medium to tall stiff straw and good head retention. Westminster<sup>Ⓛ</sup> is best suited to high-rainfall areas in southern Victoria. Accredited as malting barley in 2013. Released 2009. Contact GrainSearch for seed enquiries. EPR \$3.00.

**FOOD-GRADE BARLEY****HINDMARSH<sup>Ⓛ</sup>**

A very quick maturing, semi-dwarf variety recommended for the 325 to 450mm rainfall regions. Hindmarsh<sup>Ⓛ</sup> has a relatively short coleoptile and deep sowing should be avoided to maximise crop establishment and yield potential. Hindmarsh<sup>Ⓛ</sup> is free-threshing with good resistance to head loss among non-malting varieties. Released 2006. Marketed by Seednet. EPR \$1.50.

**NON-MALTING BARLEY****NEW – COMBAT<sup>Ⓛ</sup>**

Mid-maturing non-malting variety with a semi-prostrate growth habit providing more weed competition than Rosalind<sup>Ⓛ</sup>. Released 2022 (tested as IGB1944). Bred by InterGrain with seed available for planting in 2023 from local resellers or InterGrain Seedclub members. EPR \$3.50.

**NEW – FANDAGA<sup>Ⓛ</sup>**

Fandaga<sup>Ⓛ</sup> is a medium height, mid maturing variety suited to medium to high-rainfall rainfall regions with early disease resistance. Grown as a malting barley internationally, Fandaga<sup>Ⓛ</sup> is not currently undertaking Barley Australia malt accreditation and market acceptance may be limited for both domestic and export malting markets. Growers are encouraged to discuss options for delivery with domestic maltsters. Released 2022 (tested as NORD 14/2404). Marketed by AGF Seeds. EPR \$3.65.

**FATHOM<sup>Ⓛ</sup>**

A quick maturing variety with broad adaption. It has low screenings, similar to Maritime<sup>Ⓛ</sup>. Fathom<sup>Ⓛ</sup> has a long coleoptile and excellent early vigour, giving weed competitiveness and tolerance to deep planting, especially on sandy soils. Fathom<sup>Ⓛ</sup> is well suited to wider row spacings and is an alternative to Hindmarsh<sup>Ⓛ</sup>, particularly where more reliable establishment and improved early vigour are sought. Fathom<sup>Ⓛ</sup> is moderately tall, possesses good head loss tolerance but is prone to lodging in high-yielding environments. Developed by University of Adelaide. Released 2011. Marketed by Seednet. EPR \$2.00.

**ROSALIND<sup>Ⓛ</sup>**

A very broadly adapted, very quick maturing semi-dwarf, feed variety with good yield stability. Maturity is typically slightly later than La Trobe<sup>Ⓛ</sup>, but earlier than Scope CL<sup>Ⓛ</sup>. It is ideally suited to May sowings. Rosalind<sup>Ⓛ</sup> has strong lodging tolerance and low head loss risk. Bred by InterGrain. Released 2015. Free to trade and available from InterGrain Seedclub members. EPR \$3.50.

**NEW – TITAN AX<sup>Ⓛ</sup>**

Titan AX<sup>Ⓛ</sup> is the world's first CoAXium<sup>®</sup> barley variety, with tolerance to Group 1 herbicide Aggressor<sup>®</sup>. A mid maturing variety derived from Compass<sup>Ⓛ</sup> with similar maturity to RGT Planet<sup>Ⓛ</sup>. Wide adaption but is particularly suited to low-medium rainfall or Mallee environments. Titan AX<sup>Ⓛ</sup> is a potential malting variety and will be submitted for consideration by Barley Australia for malt evaluation. Released 2022 (tested as AGTB0325). Bred and marketed by AGT. Seed available through AGT Affiliates and eligible for AGT Seed Sharing<sup>™</sup>. EPR \$4.55.

**VARIETIES CURRENTLY UNDERGOING MALT EVALUATION****BEAST<sup>Ⓛ</sup>**

Beast<sup>Ⓛ</sup> is a quick maturing variety suited to medium to low-rainfall environments and performs well in stressed growing conditions. Similar plant type to Compass<sup>Ⓛ</sup> offering useful levels of early vigour and weed competitiveness, but care should be taken in lodging-susceptible conditions. Beast<sup>Ⓛ</sup> will undergo stage two malt evaluation in 2023, with the earliest possible decision expected in 2024. Released in 2020 and marketed by AGT. Seed available through AGT Affiliates and is eligible for AGT Seed Sharing<sup>™</sup>. EPR \$4.00.

**COMMODUS<sup>Ⓛ</sup> CL**

Commodus<sup>Ⓛ</sup> CL is a quick-mid maturing Clearfield<sup>®</sup> barley, agronomically similar to Compass<sup>Ⓛ</sup>. Ideally suited to lighter soils and medium to low-rainfall environments. Commodus<sup>Ⓛ</sup> CL has an effective disease resistance package although possesses poor lodging tolerance and a medium head loss risk. Commodus<sup>Ⓛ</sup> CL is undergoing stage two Barley Australia malt accreditation with the earliest decision expected in 2023. Released 2020. Collaboratively bred by GIA and InterGrain. Marketed by InterGrain. EPR \$4.24.



**CYCLOPS<sup>Ⓛ</sup>**

Cyclops<sup>Ⓛ</sup> is a quick-mid maturity variety that is broadly adapted and particularly suited to the low to medium-rainfall environments. Short plant type with lower lodging risk compared with Compass<sup>Ⓛ</sup> types. Cyclops<sup>Ⓛ</sup> is undergoing Barley Australia malt accreditation with the earliest decision expected in 2024. Released 2021 (tested as AGTB0200) and marketed by AGT. Seed available through AGT Affiliates and eligible for AGT Seed Sharing™. EPR \$4.00

**LAPEROUSE<sup>Ⓛ</sup>**

A quick maturing variety comparable to Commander<sup>Ⓛ</sup> with a medium plant height. Very good straw strength and standability, and good head loss resistance. Undergoing stage two Barley Australia malt accreditation with the earliest decision expected in 2023. Released 2020. Bred by University of Adelaide and SECOBRA Recherches. Seed available from Seednet. EPR \$3.80.

**MINOTAUR<sup>Ⓛ</sup>**

Minotaur<sup>Ⓛ</sup> is a mid-slow maturity variety suited to the medium to high-rainfall zones, slightly slower in maturity than RGT Planet<sup>Ⓛ</sup>. Minotaur<sup>Ⓛ</sup> has shown wide adaption to multiple environments and tends to maintain performance across tougher seasons compared with similar maturing varieties. Minotaur<sup>Ⓛ</sup> is undergoing Barley Australia malt accreditation with the earliest decision expected in 2024. Released 2021 (tested as AGTB0213) and marketed by AGT. Seed available through AGT Affiliates and is eligible for AGT Seed Sharing™. EPR \$4.00.

**NEW – ZENA<sup>Ⓛ</sup> CL**

A mid maturing Clearfield® barley variety suited to medium to high-rainfall environments. Closely related to RGT Planet<sup>Ⓛ</sup> with similar agronomic characteristics, with the addition of herbicide tolerance. Zena<sup>Ⓛ</sup> CL was accepted to Barley Australia malt accreditation in 2022. Released 2022 (tested as IGB20125T). Collaboratively bred by GIA and InterGrain. Available from InterGrain Seedclub members. EPR \$4.25

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

**Table 1: Barley time of sowing guide based on phenology speed.**

This table is a guide only and has been compiled from the GRDC invested National Phenology Initiative UOM1806-001RTX and CSP2206-012RTX – National Phenology Initiative – Phase 2.

MALLEE		April				May				June				
Speed	Example cultivar													
Quick-mid	Commander <sup>db</sup>				Yellow	Green	Red							
Quick	RGT Planet <sup>db</sup>				Yellow	Green	Green	Red						
Very quick	Spartacus CL <sup>db</sup>					Yellow	Green	Green	Red					
WIMMERA		April				May				June				
Quick-mid	Commander <sup>db</sup>					Yellow	Green	Red						
Quick	RGT Planet <sup>db</sup>					Yellow	Green	Green	Red					
Very quick	Spartacus CL <sup>db</sup>						Yellow	Green	Green	Red				
NORTH CENTRAL		April				May				June				
Quick-mid	Commander <sup>db</sup>					Yellow	Green	Red						
Quick	RGT Planet <sup>db</sup>					Yellow	Green	Green	Red					
Very quick	Spartacus CL <sup>db</sup>						Yellow	Green	Green	Red				
NORTH EAST		April				May				June				
Quick-mid	Commander <sup>db</sup>					Yellow	Green	Red						
Quick	RGT Planet <sup>db</sup>					Yellow	Green	Green	Red					
Very quick	Spartacus CL <sup>db</sup>						Yellow	Green	Green	Red				
SOUTH WEST		April				May				June				
Quick-mid	Westminster <sup>db</sup>					Yellow	Green	Green	Red					
Quick	RGT Planet <sup>db</sup>						Yellow	Green	Green	Red				
Very quick	Rosalind <sup>db</sup>							Yellow	Green	Green	Red			

Yellow = earlier than optimum.  
 Green = optimum sowing time.  
 Red = later than optimum.

**Table 2: Barley variety demand<sup>1</sup> for preferred malting varieties and agronomic characteristics.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeders and seed companies. Domestic and export market demand has been sourced from [Barley Australia \(2022\)](#).

Variety	Domestic brewing industries <sup>2</sup>	Export brewing industries	Height	Maturity	Head loss	Plump grain rating	Lodging
<b>MALTING BARLEY</b>							
Bottler <sup>db</sup>	–	–	M	Q	–	–	–
Commander <sup>db</sup>	outclassed*		M	Q-M	MS	8	S
Compass <sup>db</sup>	low	low	MT	VQ	MS	9	S
Kiwi <sup>db</sup>	–	–	MT	Q-M	–	–	–
La Trobe <sup>db</sup>	–	medium	S-MS	VQ	MR	6	RMR
Leabrook <sup>db</sup>	developing markets		MT	VQ	MS	9	S
LG Alestar <sup>db</sup>	developing markets		M	Q	R	8	R
Maximus <sup>db</sup> CL	developing markets		MS	VQ-Q	–	8	R
RGT Planet <sup>db</sup>	medium	high	M	Q	R	7	R
Scope CL <sup>db</sup>	outclassed*		MT	Q	MS	6	S
Spartacus CL <sup>db</sup>	high	high	MS	VQ	R	7	R
Westminster <sup>db</sup>	low	low	MT	Q-M	R	–	R
<b>NON-MALTING BARLEY</b>							
Combat <sup>db</sup>	–	–	M	M	MS	–	MS
Fandaga <sup>db</sup>	–	–	M	M	–	–	–
Fathom <sup>db</sup>	–	–	MT	Q	MR	9	MR
Hindmarsh <sup>dbf</sup>	–	–	S-MS	VQ	MR	6	RMR
Rosalind <sup>db</sup>	–	–	MS	VQ	R	6-7	R
Titan AX <sup>db</sup>	–	–	MT	M	MS	9	S
<b>BARLEY UNDER MALT EVALUATION</b>							
Variety	Target accreditation date	Height	Maturity	Head loss	Plump grain rating	Lodging	
Beast <sup>db</sup>	2024	MT	Q	MS	9	MSS	
Commodus <sup>db</sup> CL	2023	MT	Q-M	MS	9	S	
Cyclops <sup>db</sup>	2024	MS	Q-M	MRMS	8	RMR	
Laperouse <sup>db</sup>	2023	M	Q	R	8-9	R	
Minotaur <sup>db</sup>	2024	M	M-S	MR	7	R	
Zena <sup>db</sup> CL	2024	M	M	R	7	R	

<sup>1</sup> Demand in Victoria is determined by marketing companies who are members of Barley Australia. <sup>2</sup> Domestic demand by Australian malting companies: malt produced may be used by the domestic brewing industry or exported.

<sup>f</sup> Food grade barley. \* denotes variety has mostly been replaced by better-yielding varieties.

Height: T = tall, MT = moderately tall, M = medium, MS = moderately short, S = short. Maturity: VQ = very quick, Q = quick, M = mid.

Head loss and lodging: see Table 3 for key. Plump grain: relative scale: 1 = small or unreliable grain size; 9 = large or reliable grain size.

– denotes no rating available.

**Table 3: Disease resistance ratings of barley varieties.**

Variety	Leaf scald	Spot form net blotch	Net form net blotch	Powdery mildew	Leaf rust	CCN resistance	Root lesion nematode	
							<i>P. neglectus</i>	<i>P. thornei</i>
<b>MALTING BARLEY</b>								
Bottler <sup>Ⓛ</sup>	SVS	S	MR	R	MRMS	–	MS	RMR
Commander <sup>Ⓛ</sup>	SVS	MSS	MS	MS	S	R	MRMS	MRMS
Compass <sup>Ⓛ</sup>	SVS	MS	MRMS#	MS	SVS	R	MRMS	MR
Kiwi <sup>Ⓛ</sup>	SVS	MSS	MRMS	RMR	MS	S	MRMS	RMR
La Trobe <sup>Ⓛ</sup>	SVS	S	MR	MSS	S	R	MRMS	MRMS
Leabrook <sup>Ⓛ</sup>	SVS	MS	MR	MS	SVS	RMR	MRMS	RMR
LG Alestar <sup>Ⓛ</sup>	S	S	MRMS#	MR	MRMS	R (P) <sup>^</sup>	MR	MR
Maximus <sup>Ⓛ</sup> CL	S	MS	MRMS	MS	S	R	MRMS	MR
RGT Planet <sup>Ⓛ</sup>	S	SVS	SVS	R	MRMS	R	MRMS	MR
Scope CL <sup>Ⓛ</sup>	SVS	MSS	MR	RMR	S	S	MRMS	MRMS
Spartacus CL <sup>Ⓛ</sup>	SVS	SVS	S	MSS	S	R	MRMS	MRMS
Westminster <sup>Ⓛ</sup>	S	S	MRMS	RMR	MRMS	–	MRMS	MS
<b>NON-MALTING BARLEY</b>								
Banks <sup>Ⓛ</sup>	SVS	S	MR	MRMS	SVS	S	MS	MR
Combat <sup>Ⓛ</sup>	S	MR	MR (P)	MS	MS	–	–	–
Fandaga <sup>Ⓛ</sup>	SVS	S	MR (P)	R	S	–	–	–
Fathom <sup>Ⓛ</sup>	S	RMR	MS	MRMS	MS	R	MRMS	MR
Hindmarsh <sup>Ⓛ</sup> <sup>Ⓛ</sup>	SVS	SVS	MS	MSS	S	R	MRMS	MRMS
Rosalind <sup>Ⓛ</sup>	S	S	MR	MSS	MR	R	MRMS	MR
Titan AX <sup>Ⓛ</sup>	SVS	MS	MRMS (P)	MRMS	S	R (P)	–	–
<b>BARLEY UNDER MALT EVALUATION</b>								
Beast <sup>Ⓛ</sup>	SVS	MS	MR#	MSS	S	MR	MRMS	MRMS
Commodus <sup>Ⓛ</sup> CL	SVS	MSS	MR#	MS	S	R	MRMS	S (P)
Cyclops <sup>Ⓛ</sup>	SVS	MSS	MR (P)	MSS	SVS	S	S (P)	MRMS
Laperouse <sup>Ⓛ</sup>	VS	MRMS	MR	MS	SVS	S	MR	MR
Minotaur <sup>Ⓛ</sup>	VS	S	R#	S	VS	R	MRMS	MR
Zena <sup>Ⓛ</sup> CL	MRMS#	S	MSS (P)	R	MS	–	–	–

Source: [Agriculture Victoria Cereal Disease Guide \(2022\)](#), [NVT Disease ratings \(2022\)](#)

<sup>Ⓛ</sup> Food grade barley. # may be more susceptible to alternate pathotypes. ^ line contains a few susceptible off types.

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.

(P) = provisional ratings – treat with caution.

– denotes no rating available.

Table 4: Barley disease guide summary.

Disease	Organism	Symptoms	Occurrence	Inoculum source	Control
<b>FOLIAR</b>					
Scald	<i>Rhynchosporium commune</i>	Water-soaked areas on leaves. Lesions appear grey/green then bleached with brown margins.	Years with frequent rain, and early sown crops.	Residues of barley and barley grass. Can be seed-borne. Spores spread by rain splash.	Avoid sowing into barley stubble. Avoid very susceptible varieties. Seed and foliar fungicides.
Net blotch spot form	<i>Pyrenophora teres f. maculata</i>	Dark brown spots to 10mm, with yellow margins.	Infection from stubble especially in wet autumn conditions.	Barley and barley grass stubble, also airborne spores from infected crops.	Avoid sowing into barley stubble. Avoid very susceptible varieties. Foliar fungicides.
Net blotch net form	<i>Pyrenophora teres f. teres</i>	Small brown spots that develop into dark brown streaks on leaf blades that have net-like appearance.	Spores can be produced for more than two years on stubble. Moist conditions, temperatures in the 15 to 25°C range.	Survives on infected barley and barley grass residues. Windborne spores.	Avoid sowing into barley stubble. Avoid very susceptible varieties. Foliar fungicides.
Powdery mildew	<i>Blumeria graminis f.sp. hordei</i>	White powdery spores on upper leaf surfaces, underside of leaves turn yellow to brown.	Favoured by high humidity and temperature of 15 to 22°C. Worse in high-fertility paddocks and early sown crops.	Volunteer barley, barley grass and crop residue. Airborne spores.	Manage green bridge. Grow resistant varieties. Seed and foliar fungicides.
Leaf rust	<i>Puccinia hordei</i>	Small circular orange pustules on upper leaf surface.	Moist conditions with temperatures in the range 15 to 22°C.	Living plant hosts including barley, barley grass and star of Bethlehem.	Manage green bridge and control star of Bethlehem. Grow resistant varieties and control. Foliar fungicides.
Stem rust	<i>Puccinia graminis</i>	Large red-brown pustules. Rupture of leaf and stem surface.	Infection requires temperatures in the 15 to 30°C range and moist conditions.	Living plant hosts including volunteer cereals (wheat, barley, triticale and rye).	Manage green bridge. Grow resistant varieties.
BGSR (barley grass stripe rust)	<i>Puccinia striiformis</i>	Yellow powdery pustules in stripes on the leaves.	Can develop throughout the growing season.	Barley grass and susceptible barley varieties.	Monitor susceptible varieties.
BYDV	Barley yellow dwarf virus	Yellow stripes between leaf veins, some leaves red. Sterile heads and dwarfing plants.	Virus is transmitted by aphids.	Hosts include all cereals and many grasses.	Resistant varieties. Chemical control of aphids may be suitable for high-value crops.
<b>GRAIN</b>					
Covered smut	<i>Ustilago segetum var. hordei</i>	Dark, compacted heads, grain replaced by smut balls.	Spores germinate in infected grain when temperatures are between 14 to 25°C.	Infected seed.	Use disease-free seed, apply seed treatments with good coverage.
Loose smut	<i>Ustilago tritici</i>	Dark brown powdery spores replace grain.	Moist conditions at flowering and when temperatures are between 16 to 22°C.	Infected seed.	Use disease-free seed, apply seed treatments with good coverage.
<b>ROOT/CROWN</b>					
Crown rot	<i>Fusarium pseudo-graminearum, F. culmorum</i>	'Whiteheads' or deadheads most obvious after flowering, pink discolouration under leaf sheaths.	Most common on heavy or poorly drained soils. Favoured by moist, humid conditions with temperatures between 15 to 30°C.	Survives in infected stubble residue for up to two years. Hosts include wheat, barley, triticale and some grasses.	Crop rotation with pulses and canola.
Pythium root rot (Damping off)	<i>Pythium</i> spp.	Stunted seedlings, reduced tillering, pale stunted or stubby roots with light brown tips.	Favoured by wet conditions. Increased risk where high rainfall occurs after sowing.	Spores survive in soil or plant debris for up to five years.	Avoid deep sowing into cold wet soils, especially when direct drilling. Ensure good nutrient levels.
Common root rot	<i>Bipolaris sorokiniana</i>	Brown discolouration of roots, sub-crown internode and crown. Plant stunting, brown spots on leaves and reduced tillers.	Scattered through crop.	Wheat, barley, triticale and rye.	Crop rotation.
Cereal cyst nematode (CCN)	<i>Heterodera avenae</i>	Yellow, stunted plants. Knotted roots.	Light soils and well-structured clays where cereals are commonly grown.	Present in most soils in the southern region.	Resistant varieties, break from susceptible cereals and grasses, particularly wild oat.
Root lesion nematode	<i>Pratylenchus thornei, P. neglectus</i>	Reduced tillering, ill-thrift, lesions on roots, lack of branching of root system.	Favoured by cereals in rotation with chickpea, medic and vetch.	Survives as dormant nematodes in the soil.	Crop rotation using resistant crops and resistant varieties.
Take-all	<i>Gaeumannomyces graminis var. tritici</i> (Ggt)	Stunted or yellowing plants, 'whiteheads' at heading.	Fungus thrives under warm, damp conditions.	Fungus survives over summer in crowns and roots of wheat, barley and grass plants.	Crop rotations, at least one year free of hosts (cereals and grasses, especially barley grass). Fungicide applied to seed or fertiliser.

Source: This table has been developed from information in the publications Wallwork H (2000) (Ed) *Cereal Root and Crown Diseases* (Grains Research and Development Corporation, SARDI) and Wallwork H (2000) (Ed) *Cereal Leaf and Stem Diseases* (Grains Research and Development Corporation, SARDI). Reviewed by Mark McLean, Agriculture Victoria (2022)

**Table 5: Mallee and Wimmera (main season) barley results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

	MALLEE						WIMMERA					
Year		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		3.70	1.89	3.28	3.52	2.45		5.21	3.90	5.66	4.72	1.37
	No. trials	4	6	5	6	6	No. trials	4	3	4	3	1
<b>MALTING BARLEY</b>												
Bass <sup>db</sup>	15	96	95	98	–	–	11	98	98	96	–	–
Baudin <sup>db</sup>	0	–	–	–	–	–	7	92	95	–	–	–
Bottler <sup>db</sup>	0	–	–	–	–	–	15	102	101	101	101	99
Commander <sup>db</sup>	27	98	98	96	99	103	15	98	100	97	103	103
Compass <sup>db</sup>	27	100	115	108	104	115	15	99	105	97	101	110
Fairview <sup>db</sup>	0	–	–	–	–	–	11	97	–	98	97	–
Flinders <sup>db</sup>	0	–	–	–	–	–	14	95	94	94	94	–
Gairdner	15	85	91	87	–	–	11	87	89	89	–	–
GrangeR <sup>db</sup>	9	95	–	92	–	–	14	98	96	97	97	–
Kiwi <sup>db</sup>	0	–	–	–	–	–	15	99	99	98	98	98
La Trobe <sup>db</sup>	27	102	111	106	104	102	15	98	96	101	95	94
Leabrook <sup>db</sup>	27	104	115	111	107	118	15	104	109	101	105	114
LG Alestar <sup>db</sup>	12	–	–	–	93	88	15	98	96	98	97	93
Maximus <sup>db</sup> CL	23	–	107	106	107	106	11	–	95	99	95	100
RGT Planet <sup>db</sup>	27	110	101	106	105	100	15	110	108	110	108	104
Scope CL <sup>db</sup>	27	93	96	93	94	93	11	93	94	95	–	–
Spartacus CL <sup>db</sup>	27	99	107	104	104	102	15	96	92	98	93	95
Westminster <sup>db</sup>	0	–	–	–	–	–	7	–	–	93	94	–
<b>NON-MALTING BARLEY</b>												
Banks <sup>db</sup>	15	101	104	103	–	–	11	101	103	100	–	–
Biere <sup>db</sup>	15	82	92	86	–	–	8	82	–	88	–	–
Combat <sup>db</sup>	0	–	–	–	–	–	1	–	–	–	–	104
Explorer	0	–	–	–	–	–	11	101	97	104	–	–
Fandaga <sup>db</sup>	0	–	–	–	–	–	1	–	–	–	–	107
Fathom <sup>db</sup>	27	103	115	109	104	109	15	101	102	102	99	102
Hindmarsh <sup>db</sup>	15	102	110	107	–	–	11	98	95	100	–	–
LG Maltstar <sup>db</sup>	11	–	93	96	–	–	11	102	103	100	–	–
Nitro	0	–	–	–	–	–	7	–	–	104	107	–
Oxford	4	95	–	–	–	–	7	100	97	–	–	–
Rosalind <sup>db</sup>	27	108	111	111	109	107	15	105	102	106	101	104
<b>BARLEY UNDER MALT EVALUATION</b>												
Beast <sup>db</sup>	17	–	–	112	108	117	8	–	–	100	100	110
Buff <sup>db</sup>	23	–	110	104	101	103	11	–	101	102	100	99
Commodus <sup>db</sup> CL	12	–	–	–	102	113	4	–	–	–	100	109
Cyclops <sup>db</sup>	12	–	–	–	113	116	4	–	–	–	107	111
Laperouse <sup>db</sup>	27	102	103	104	108	111	15	101	100	99	102	109
Minotaur <sup>db</sup>	12	–	–	–	110	110	4	–	–	–	107	110
Yeti <sup>db</sup>	17	–	–	107	107	111	8	–	–	98	98	107
Zena <sup>db</sup> CL	0	–	–	–	–	–	1	–	–	–	–	103

Source: National Variety Trials (2017–2021)

– denotes no data available.

**Table 6: North Central and North East (main season) barley results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

Year	NORTH CENTRAL					NORTH EAST						
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021		
Mean yield (t/ha)	4.77	2.91	3.90	4.32	5.17	4.97	4.45	5.56	5.02	5.28		
	No. trials	2	2	1	1	2	No. trials	1	1	1	1	1
MALTING BARLEY												
Bass <sup>db</sup>	5	98	97	94	–	–	3	101	99	96	–	–
Baudin <sup>db</sup>	4	89	101	–	–	–	2	97	95	–	–	–
Bottler <sup>db</sup>	8	102	94	99	99	102	5	98	101	102	101	102
Commander <sup>db</sup>	8	93	98	98	102	98	5	104	94	95	93	96
Compass <sup>db</sup>	8	97	117	103	100	96	5	105	102	100	95	95
Fairview <sup>db</sup>	0	–	–	–	–	–	3	98	–	96	101	–
Flinders <sup>db</sup>	6	95	95	93	95	–	4	101	95	92	104	–
Gairdner	5	85	96	87	–	–	3	92	93	89	–	–
GrangeR <sup>db</sup>	1	–	–	92	–	–	3	100	96	95	–	–
Kiwi <sup>db</sup>	0	–	–	–	–	–	5	98	98	98	103	103
La Trobe <sup>db</sup>	8	102	113	106	103	101	5	98	103	101	100	97
Leabrook <sup>db</sup>	8	102	115	106	103	100	5	106	105	104	99	99
LG Alestar <sup>db</sup>	8	98	89	93	95	97	5	96	98	98	101	101
Maximus <sup>db</sup> CL	6	–	111	104	102	95	4	–	100	96	110	107
RGT Planet <sup>db</sup>	8	113	95	107	105	114	5	97	108	114	106	105
Scope CL <sup>db</sup>	5	92	99	95	–	–	3	97	95	93	–	–
Spartacus CL <sup>db</sup>	8	100	111	103	101	95	5	101	100	95	106	103
Westminster <sup>db</sup>	0	–	–	–	–	–	3	97	–	91	98	–
NON-MALTING BARLEY												
Banks <sup>db</sup>	5	101	104	101	–	–	3	101	102	102	–	–
Charger	4	98	102	–	–	–	2	95	101	–	–	–
Combat <sup>db</sup>	2	–	–	–	–	114	1	–	–	–	–	96
Explorer	4	102	87	–	–	–	2	96	98	–	–	–
Fandaga <sup>db</sup>	0	–	–	–	–	–	1	–	–	–	–	104
Fathom <sup>db</sup>	8	102	116	107	102	101	5	99	105	104	97	96
Hindmarsh <sup>db</sup>	5	103	113	106	–	–	3	100	103	99	–	–
LG Maltstar <sup>db</sup>	5	100	91	96	–	–	3	99	100	102	–	–
Nitro	2	–	–	101	102	–	2	–	–	105	106	–
Oxford	4	100	77	–	–	–	2	101	94	–	–	–
Rosalind <sup>db</sup>	8	109	111	109	105	105	5	101	107	107	109	106
Topstart	4	99	72	–	–	–	2	98	93	–	–	–
BARLEY UNDER MALT EVALUATION												
Beast <sup>db</sup>	4	–	–	107	104	98	3	–	–	101	100	99
Buff <sup>db</sup>	8	100	109	105	102	104	5	98	103	104	93	92
Commodus <sup>db</sup> CL	3	–	–	–	100	95	2	–	–	–	95	95
Cyclops <sup>db</sup>	3	–	–	–	111	108	2	–	–	–	106	105
Laperouse <sup>db</sup>	8	100	105	102	105	97	5	109	97	95	107	107
Minotaur <sup>db</sup>	3	–	–	–	108	106	2	–	–	–	111	110
Yeti <sup>db</sup>	4	–	–	103	103	94	3	–	–	96	109	107
Zena <sup>db</sup> CL	2	–	–	–	–	111	1	–	–	–	–	105

Source: National Variety Trials (2017–2021)

– denotes no data available.

**Table 7: South West Victoria and Northern Midlands Tasmania (long season) barley results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

SOUTH WEST								NORTHERN MIDLANDS		
Year		2016	2017	2018	2019	2020	2021		2020	2021
Mean yield (t/ha)		7.25	5.09	4.69	5.74	6.38	8.85		10.05	9.94
	No. trials	3	3	2	3	3	2	No. trials	1	1
MALTING BARLEY										
Bass <sup>db</sup>	11	92	90	99	92	–	–	0	–	–
Bottler <sup>db</sup>	16	107	107	99	100	106	103	0	–	–
Commander <sup>db</sup>	16	92	95	94	93	97	97	2	92	95
Compass <sup>db</sup>	16	88	101	102	93	99	98	2	105	98
Fairview <sup>db</sup>	14	103	95	99	98	97	–	1	93	–
Flinders <sup>db</sup>	14	94	92	99	97	92	–	1	88	–
Gairdner	11	81	93	89	83	–	–	0	–	–
GrangeR <sup>db</sup>	14	97	104	97	102	101	–	1	105	–
Kiwi <sup>db</sup>	16	102	98	97	100	99	99	2	96	100
Leabrook <sup>db</sup>	16	99	103	99	95	104	99	2	106	103
LG Alestar <sup>db</sup>	16	105	100	99	104	101	102	2	98	101
Maximus <sup>db</sup> CL	8	–	–	–	103	105	96	2	108	94
Navigator	8	94	92	100	–	–	–	0	–	–
RGT Planet <sup>db</sup>	16	115	110	101	115	111	111	2	111	109
Spartacus CL <sup>db</sup>	16	94	96	110	98	96	93	2	96	85
Westminster <sup>db</sup>	16	97	95	98	99	93	98	2	93	100
NON-MALTING BARLEY										
Banks <sup>db</sup>	11	100	97	106	100	–	–	0	–	–
Capstan	11	108	99	100	92	–	–	0	–	–
Charger	8	94	104	96	–	–	–	0	–	–
Explorer	11	100	97	84	92	–	–	0	–	–
Fandaga <sup>db</sup>	2	–	–	–	–	–	107	1	–	99
LG Maltstar <sup>db</sup>	11	108	101	96	99	–	–	0	–	–
Nitro	8	105	–	–	110	101	–	1	100	–
Oxford	11	109	102	105	104	–	–	0	–	–
Rosalind <sup>db</sup>	16	104	109	100	101	110	104	2	112	105
Topstart	16	110	104	105	99	105	98	2	110	106
Urambie <sup>db</sup>	16	93	91	91	91	92	94	2	86	97
BARLEY UNDER MALT EVALUATION										
Beast <sup>db</sup>	2	–	–	–	99	–	–	0	–	–
Cyclops <sup>db</sup>	5	–	–	–	–	109	108	2	108	100
Laperouse <sup>db</sup>	13	–	99	110	100	99	95	2	100	90
Minotaur <sup>db</sup>	5	–	–	–	–	101	104	2	95	95
Yeti <sup>db</sup>	8	–	–	–	99	101	97	2	101	95

Source: National Variety Trials (2016–2021)

– denotes no data available.

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# OAT

## NEW VARIETIES

There is one new milling oat variety for 2023. Koala<sup>®</sup> was bred by SARDI and is marketed by Seednet. There are three new hay oat varieties available for sowing in 2023. Archer<sup>®</sup>, Wallaby<sup>®</sup> and Kultarr<sup>®</sup> have all been bred and marketed by InterGrain. Varietal information is provided below.

## QUALITY

Variety selection should be based on agronomic traits, potential grain quality and marketing or end-use options. Grain quality traits for the milling industry include high groat per cent, high  $\beta$ -glucan, low screenings and high hectolitre weight. Growers should contact their buyer to ascertain which varieties will be accepted for milling quality prior to planting. Grain quality traits for improved animal feed include low hull lignin, high groat percentage, high protein and high oil content, resulting in high grain digestibility. Important hay quality traits are high digestibility, high water-soluble carbohydrates, low fibre and high protein.

The option of oats for hay is increasing in popularity where growers have identified them as profitable, using this as a tool to manage herbicide resistance and to spread risk. Market demand for export hay continues to be strong.

## DISEASE UPDATE

Red leather leaf and bacterial blight are common foliar diseases of oats in Victoria, while crown and stem rusts may be an issue following wet summer conditions. Red leather leaf is most severe in medium and high-rainfall zones, while bacterial blight can be found in all oat-growing regions. To reduce risk of loss from these stubble-borne diseases, growers should avoid sowing into oat stubble and choose resistant varieties where possible. Where red leather leaf infection develops, foliar fungicide application at tillering and stem elongation has been found to provide

effective suppression. At present there are no foliar treatment options for bacterial blight. Fungicides can be used to control stem rust, with applications during flag leaf emergence to ear emergence stages most effective.

## ROYALTIES

Where applicable, growers selling oat grain/seed or export hay will pay an end point royalty (EPR). An EPR of \$2/tonne (ex-GST) applies on all oat varieties bred by the National Oat Breeding Program for grain and hay production released prior to 2021. Varieties released after 2021 have individual EPR rates. Refer to [aexco.com.au](http://aexco.com.au) for further information on hay, grain and seed royalties.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- [Oats Southern Region – GRDC GrowNotes™](#)
- [GRDC Southern Region NVT Harvest Reports](#)

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing oats in Victoria](#)
- [Agriculture Victoria Cereal Disease Guide](#). Also available as an e-book

[aexco.com.au](http://aexco.com.au)

- [Producing Quality Oat Hay booklet](#)

[extensionAUS.com.au/FCDVic](http://extensionAUS.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

## VARIETY DESCRIPTIONS

Varieties have been listed according to quality classification grade and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. Where possible, in addition to data supplied below from long-term NVT, growers should seek locally relevant agronomy results published through Online Farm Trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

Ⓛ Denotes Plant Breeder's Rights apply

**AEXCO** Australian Exporters Company

**APVMA** Australian Pesticides and Veterinary Medicines Authority

**CCN** Cereal cyst nematode

**BYDV** Barley yellow dwarf virus

**GIA** Grains Innovation Australia

**IMI** Imidazolinone

**SARDI** South Australian Research and Development Institute

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## MILLING OAT

### **BANNISTER**<sup>Ⓛ</sup>

A quick maturing tall dwarf milling variety with wide adaptation. Compared with Mitika<sup>Ⓛ</sup> it is about 13cm taller and flowers three to four days later. Similar to Mitika<sup>Ⓛ</sup> for groat percentage. Not suited to areas where CCN is a problem. Released 2013. Bred by SARDI National Oat Breeding Program and marketed by Seednet. EPR \$2.30.

### **BILBY**<sup>Ⓛ</sup>

A dwarf, quick-maturing milling oat. Grain yield similar to Williams<sup>Ⓛ</sup> and Bannister<sup>Ⓛ</sup>, with improved grain quality, low screenings, high groat percentage and improved β-glucan content. Not suited to areas where CCN is a problem. Released 2019. Bred by SARDI National Oat Breeding Program and marketed by Barenbrug. EPR \$2.50.

### **DURACK**<sup>Ⓛ</sup>

Very quick maturing, moderately tall variety widely adaptable to low to medium-rainfall zones and late planting in high-rainfall regions. Good early vigour and good lodging resistance with low screenings. Released 2016. Bred by SARDI National Oat Breeding Program and marketed by Barenbrug. EPR \$2.30.

### **NEW – KOALA**<sup>Ⓛ</sup>

A mid maturing, tall dwarf milling variety. Similar to Bannister<sup>Ⓛ</sup>, with improved rust resistance and higher grain yield in Victoria. Tested as 09143-35. Bred by SARDI National Oat Breeding Program and marketed by Seednet with seed production in 2023. EPR \$2.50.

### **KOWARI**<sup>Ⓛ</sup>

A quick maturing dwarf milling variety, slightly taller than Mitika<sup>Ⓛ</sup> and suited to medium to high-rainfall zones. It has good grain quality, improved β-glucan content and low screenings with good feed value. Not suited to areas where CCN is a problem. Released 2017. Bred by SARDI National Oat Breeding Program and marketed by Barenbrug. EPR \$2.50.

### **MITIKA**<sup>Ⓛ</sup>

A quick maturing dwarf variety suited to high-rainfall areas. It has excellent grain quality and provides excellent feed value. It is not suited to areas where CCN is a problem. Released 2005. Marketed by Barenbrug. EPR \$2.00.

### **WILLIAMS**<sup>Ⓛ</sup>

A quick maturing, short-tall milling oat suited to medium to high-rainfall zones. It is 15cm taller than Mitika<sup>Ⓛ</sup>, 5cm taller than Bannister<sup>Ⓛ</sup> and 15cm shorter than Yallara<sup>Ⓛ</sup>. A similar variety to Bannister<sup>Ⓛ</sup> but with slightly inferior grain quality. Produces high screenings when grown in low-rainfall areas. Released 2013. Bred by SARDI National Oat Breeding Program and marketed by Barenbrug. EPR \$2.30.

### **YALLARA**<sup>Ⓛ</sup>

Medium to tall, quick maturing variety suited to milling and hay. Suitable for growing in drier areas. Released 2009. Bred by SARDI and marketed by Seednet. EPR \$2.00.

## HAY OAT

### NEW – ARCHER<sup>Ⓛ</sup>

Mid maturing hay oat with single-gene IMI tolerance. Medium plant height with good early vigour and hay colour retention. Improved tolerance to soil residual IMI herbicides, ideal for use where there are IMI residue concerns. Registered with IBS Sentry<sup>®</sup> herbicide for hay and seed production **only**. A Sentry<sup>®</sup> registration for use in grain has been submitted to APVMA, expected late 2022. Pending successful registration, grain will be able to be used as feed grain for a domestic market only and will be unable to be delivered to any local grain receival sites. Released 2022 (tested as GIA1803-040). Bred by GIA and marketed by InterGrain with seed available from local resellers and InterGrain Seedclub members. EPR \$3.65.

### BRUSHER<sup>Ⓛ</sup>

Quick maturing tall oat, well suited to low and medium-rainfall areas. Released 2003. Bred by SARDI and marketed by AEXCO. EPR \$2.00.

### FORESTER<sup>Ⓛ</sup>

A medium height, very slow hay variety adapted to high-rainfall and irrigated cropping regions. It has excellent lodging and shattering resistance and good early vigour. Released 2012. Bred by SARDI and marketed by AEXCO. EPR \$2.00.

### KINGBALE<sup>Ⓛ</sup>

Kingbale<sup>Ⓛ</sup> is a single-gene IMI-tolerant oaten hay variety. Mid-slow maturing tall variety with improved tolerance to soil residual IMI herbicides. Registered with IBS Sentry<sup>®</sup> herbicide for hay and seed production **only**. A Sentry<sup>®</sup> registration for use in grain has been submitted to APVMA, expected late 2022. Pending successful registration, grain will be able to be used as feed grain for a domestic market only and will be unable to be delivered to any local grain receival sites. Released 2019. Bred by GIA and marketed by InterGrain with seed available from local resellers and InterGrain Seedclub members. EPR \$3.65.

### KOORABUP<sup>Ⓛ</sup>

Mid-tall potential hay oat with mid-quick maturity. Similar height, grain yield and stem diameter to Yallara<sup>Ⓛ</sup> but has a later maturity of two to four days. Hay quality is similar to Wintaroo<sup>Ⓛ</sup>. Released 2019. Bred by SARDI and marketed by AEXCO. EPR \$2.00.

### NEW – KULTARR<sup>Ⓛ</sup>

A quick-mid maturing hay oat variety with tall plant height. Slightly later to flower than Brusher<sup>Ⓛ</sup>, similar to Mulgara<sup>Ⓛ</sup>. Preliminary hay quality data indicated suitable quality profile. Released 2022 (tested as 07423-18). Marketed by InterGrain with seed available from local resellers and InterGrain Seedclub members. EPR \$3.00.

### MULGARA<sup>Ⓛ</sup>

Quick maturing tall oat. Excellent hay colour and quality similar to Wintaroo<sup>Ⓛ</sup> with good grain yield. Released 2009. Bred by SARDI and marketed by AEXCO. EPR \$2.00.

### TUNGOO<sup>Ⓛ</sup>

A medium to tall, mid-slow maturing variety. Grain yield poor, but hay yield similar to Kangaroo. Released 2012. Bred by SARDI and marketed by AEXCO. EPR \$2.00.

### NEW – WALLABY<sup>Ⓛ</sup>

Mid-slow maturing hay oat variety with similar yields to Mulgara<sup>Ⓛ</sup> and Brusher<sup>Ⓛ</sup>. Good digestibility, high water-soluble carbohydrate levels and low neutral detergent fibres. Moderately tall plant height and likely suited to medium to high-rainfall zones. Released 2022 (tested as 07079-9). Bred by SARDI and marketed by InterGrain with seed available from local resellers and InterGrain Seedclub members. EPR \$3.00.

### WINTAROO<sup>Ⓛ</sup>

Tall, mid maturing variety for all rainfall zones. Released 2003. Bred by SARDI and marketed by AEXCO. EPR \$2.00.

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

**Table 1: Oat time of sowing based on phenology speed.**

This table is a guide only and has been compiled from data provided by SAGIT Project S319 (Improving productivity of oats) and AgriFutures Australia Project PRJ-011029 (National Hay Agronomy).

MALLEE		April			May			June		
Speed	Example cultivar									
Very slow	Forester <sup>db</sup>	Yellow	Green	Red						
Mid-slow	Kingbale <sup>db</sup>			Yellow	Green	Red				
Mid	Wintaroo <sup>db</sup>				Yellow	Green	Red			
Quick	Yallara <sup>db</sup>				Yellow	Green	Green	Red		
Very quick	Durack <sup>db</sup>					Yellow	Green	Green	Red	
WIMMERA		April			May			June		
Very slow	Forester <sup>db</sup>		Yellow	Green	Red					
Mid-slow	Kingbale <sup>db</sup>				Yellow	Green	Red			
Mid	Wintaroo <sup>db</sup>					Yellow	Green	Red		
Quick	Yallara <sup>db</sup>					Yellow	Green	Green	Red	
Very quick	Durack <sup>db</sup>						Yellow	Green	Green	Red
NORTH CENTRAL		April			May			June		
Very slow	Forester <sup>db</sup>		Yellow	Green	Red					
Mid-slow	Kingbale <sup>db</sup>				Yellow	Green	Red			
Mid	Wintaroo <sup>db</sup>					Yellow	Green	Red		
Quick	Yallara <sup>db</sup>					Yellow	Green	Green	Red	
Very quick	Durack <sup>db</sup>						Yellow	Green	Green	Red
NORTH EAST		April			May			June		
Very slow	Forester <sup>db</sup>		Yellow	Green	Red					
Mid-slow	Kingbale <sup>db</sup>				Yellow	Green	Red			
Mid	Wintaroo <sup>db</sup>					Yellow	Green	Red		
Quick	Yallara <sup>db</sup>					Yellow	Green	Green	Red	
Very quick	Durack <sup>db</sup>						Yellow	Green	Green	Red
SOUTH WEST		April			May			June		
Very slow	Forester <sup>db</sup>		Yellow	Green	Red					
Mid-slow	Kingbale <sup>db</sup>				Yellow	Green	Red			
Mid	Wintaroo <sup>db</sup>					Yellow	Green	Red		
Quick	Yallara <sup>db</sup>						Yellow	Green	Green	Red
Very quick	Durack <sup>db</sup>							Yellow	Green	Green

Yellow = earlier than optimum.  
 Green = optimum sowing time.  
 Red = later than optimum.

**Table 2: Agronomic characteristics of oat varieties and disease resistance ratings.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, National Oat Breeding Program and seed companies.

Variety	End use	Height	Maturity	Hectolitre weight	Stem rust	Leaf rust	CCN resistance	BYDV	<i>Septoria avenae</i>	Bacterial blight	Red leather leaf
<b>MILLING OATS</b>											
Bannister <sup>db</sup>	M	TD	Q	H	S	MSS	MR	MS	MSS	S	MSS
Bilby <sup>db</sup>	M	D	Q	H	S	MS	VS	S	SVS	SVS	S
Durack <sup>db</sup>	M/H	MT	VQ	H	S	MR/S	MRMS	MSS	S	S	SVS
Koala <sup>db</sup>	M	TD	M	H	S	MSS	R	S	MSS	MSS	S
Kowari <sup>db</sup>	M	D	Q	H	S	S	S	S	S	MSS	S
Mitika <sup>db</sup>	M	D	Q	H	S	S	VS	SVS	SVS	MSS	SVS
Williams <sup>db</sup>	M	ST	Q	H	S	MRMS	VS	MSS	MSS	MSS	MRMS
Yallara <sup>db</sup>	M/H	MT	Q	H	S	S	R	MSS	MSS	MS	SVS
<b>HAY OATS</b>											
Archer <sup>db1</sup>	H	M	M	–	–	MR (P)	S (P)	–	–	–	–
Brusher <sup>db</sup>	H/G/F	T	Q	M	SVS	S	MR	SVSp	MSS	S	MS
Forester <sup>db</sup>	H	M	VS	L	S	MS	MS	S	MR	S	MRMS
Kingbale <sup>db</sup>	H	T	M-S	–	–	–	R	MSp	MSS	MSS (P)	S
Koorabup <sup>db</sup>	H	MT	M-Q	H	S	MSS	MRMS	MS	MRMS#	S	SVS
Kultarr <sup>db1</sup>	H	T	M-Q	–	–	MS (P)	MS (P)	MRMS (P)	MS (P)	–	–
Mulgara <sup>db</sup>	H/F	T	Q	M	MS	MS	R	MSS (P)	S	MSS (P)	SVS
Tungoo <sup>db</sup>	H	MT	M-S	L	S	MS	R	MS	MRMS#	MR/MSS	S
Wallaby <sup>db1</sup>	H	MT	M-S	–	MS (P)	MS (P)	Rp	Rp	MSS (P)	–	–
Wintaroo <sup>db</sup>	H/G	T	M	M	S	S	R	MSS	MSS	S (P)	S

Source: Agriculture Victoria Cereal Disease Guide (2022), NVT Disease Ratings (2022)

End use: M = milling, F = feed grain, G = grazing, H = hay. Hectolitre weight: VH = very heavy, H = heavy, M = medium, L = light.

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

<sup>1</sup> indicates breeding company data. / = pathotype differences. # may be more susceptible to alternate pathotypes.

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.

(P) = provisional ratings – treat with caution.

– denotes no rating available.

**Table 3: Oat disease guide summary.**

Disease	Organism	Symptoms	Occurrence	Hosts	Control
<b>FOLIAR</b>					
Leaf rust	<i>Puccinia coronata</i> f.sp. <i>avenae</i>	Small circular orange pustules on upper leaf surface.	More severe during moist conditions with temperatures between 15 to 22°C.	Volunteer oats and wild oats.	Resistant varieties. Control volunteer and wild oats over the summer.
Stem rust	<i>Puccinia graminis</i> f.sp. <i>avenae</i>	Large red-brown pustules, rupture in leaf surface.	Infection requires warm (15 to 30°C) moist conditions.	Volunteer oats and wild oats.	Resistant varieties. Control volunteer and wild oats over summer.
Septoria blotch	<i>Phaeosphaeria avenaria</i>	Dark brown purple spots on leaves, sheaths and stems. Head and grain may become infected.	Prefers cool, rainy weather, especially coastal districts.	Spores spread in autumn by raindrop splashes from oat residues.	Resistant varieties. Crop rotation. Fungicide.
BYDV	Barley yellow dwarf virus	Leaf tip and margins turn red with interveinal chlorosis, mottling and stunting.	Transmitted by aphids.	Hosts include all cereals and grasses, including pastures.	Resistant varieties. Control of aphid vectors with insecticides.
Halo blight	<i>Pseudomonas syringae</i> pv. <i>coronafaciens</i>	Light green, yellow or brown halo spot on leaves and sheaths. Leaves may wither and die.	Moist weather provides ideal conditions.	Bacteria on seed and crop debris are spread by rain splash, direct leaf contact, or aphids.	Avoid susceptible varieties, use clean seed in clean paddocks. Avoid sowing into infected oat stubble.
Stripe blight	<i>Pseudomonas syringae</i> pv. <i>striaefaciens</i>	Spots on leaves lengthen to form brown stripes on leaves and sheaths. Leaves may wither and die.	Moist weather provides ideal conditions.	Bacteria on seed and crop debris are spread by rain splash, direct leaf contact or aphids.	Avoid susceptible varieties, use clean seed in clean paddocks. Avoid sowing into infected oat stubble.
Powdery mildew	<i>Blumeria graminis</i> f.sp. <i>avenae</i>	White powdery spores on upper leaf surfaces. Underside of leaves turn yellow to brown.	Favoured by high humidity and temperatures between 15 to 22°C.	Volunteer oats, oat stubble, windborne spores.	Avoid very susceptible varieties.
Red leather leaf	<i>Spermospora avenae</i>	Long reddish lesions with buff centres. Leaves may look and feel leathery.	High rainfall provides ideal conditions.	Stubble and rain splash.	Avoid susceptible varieties. Crop rotation and fungicides.
<b>GRAIN</b>					
Smut	<i>Ustilago segetum</i> var. <i>hordei</i> and <i>Ustilago avenae</i>	Grain replaced with dark brown-black powdery spores.	Moist conditions at flowering and temperatures between 15 to 25°C.	Air-borne spores lodge in hulls, glumes or seed coats.	Clean seed and use seed treatment.
<b>ROOT/CROWN</b>					
Cereal cyst nematode (CCN)	<i>Heterodera avenae</i>	Yellow or pale green patches in crop. Stunted, weak plants with knotted root systems.	Can survive in soil between susceptible cereal crops for up to two years.	Cereals and some grasses, especially wild oats.	Resistant or tolerant varieties. Crop rotation. Weed control.

Source: This table has been developed from information in the publications Wallwork H (2000) (Ed) *Cereal Root and Crown Diseases* (Grains Research and Development Corporation, SARDI) and Wallwork H (2000) (Ed) *Cereal Leaf and Stem Diseases* (Grains Research and Development Corporation, SARDI). Reviewed by Mark McLean, Agriculture Victoria (2022)

**Table 4: North Central and North East oat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

NORTH CENTRAL							NORTH EAST					
Year		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		3.70	0.63	2.00	4.65	5.94		4.08	1.88	2.94	4.23	5.22
	No. trials	2	2	2	2	2	No. trials	1	1	1	1	1
Bannister <sup>db</sup>	10	109	105	108	107	113	5	106	110	98	105	120
Bilby <sup>db</sup>	10	100	106	110	100	102	5	103	98	112	105	111
Durack <sup>db</sup>	10	91	98	93	90	79	5	96	91	105	84	58
Echidna	10	93	84	99	104	110	5	89	97	86	108	116
Koala <sup>db</sup>	10	103	89	102	109	119	5	95	107	82	110	128
Koorabup <sup>db</sup>	10	96	89	91	93	85	5	94	103	87	72	44
Kowari <sup>db</sup>	10	96	103	101	96	93	5	100	92	111	102	98
Mitika <sup>db</sup>	10	94	99	94	95	89	5	97	93	104	95	83
Possum	8	95	97	94	98	–	4	96	93	101	102	–
Williams <sup>db</sup>	10	113	106	96	105	106	5	109	115	90	96	101
Yallara <sup>db</sup>	10	96	93	99	92	85	5	97	102	96	73	48

Source: National Variety Trials (2017–2021)

– denotes no data available.

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

**Table 5: South West oat results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

SOUTH WEST						
Year		2017	2018	2019	2020	2021
Mean yield (t/ha)		3.14	3.83	4.94	4.82	5.69
	No. trials	2	1	2	2	2
Bannister <sup>db</sup>	9	99	103	115	108	113
Bilby <sup>db</sup>	9	106	102	101	106	97
Durack <sup>db</sup>	9	97	95	77	82	77
Echidna	9	104	107	107	102	111
Koala <sup>db</sup>	9	100	107	119	108	122
Koorabup <sup>db</sup>	9	85	97	82	70	84
Kowari <sup>db</sup>	9	106	99	93	102	91
Mitika <sup>db</sup>	9	101	97	87	94	89
Possum	7	103	99	94	100	–
Williams <sup>db</sup>	9	88	96	112	101	113
Yallara <sup>db</sup>	9	90	98	81	73	80

Source: National Variety Trials (2017–2021)

– denotes no data available.

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# TRITICALE

Triticale is no longer evaluated as part of the GRDC National Variety Trials (NVT) program. **Variety descriptions, agronomic information and disease reactions will continue to be presented in this publication.**

Triticale, a cross between wheat and cereal rye, has a niche on farms across Victoria due to several attributes. It has a reputation for tolerance to harsh soil conditions such as acid and alkaline soils and soils of low trace element availability. It is a tall crop bred for greater straw strength and can be useful in rocky paddocks or circumstances where crops have been known to lodge.

## NEW VARIETIES

There is one new triticale variety available for 2023. Razoo is bred by Cooper & Elleway. Varietal information is provided below.

## DISEASE UPDATE

In general, triticale has useful levels of resistance to diseases and requires less disease protection than other cereal crops. However, rusts may need management following the development of more virulent pathotypes. Consult a current cereal variety disease guide for ratings against the latest strains.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results up to 2015 and links to variety information

[grdc.com.au](http://grdc.com.au)

- [Triticale Southern Region – GRDC GrowNotes™](#)

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing Triticale in Victoria](#)
- [Agriculture Victoria Cereal Disease Guide](#). Also available as an e-book

[extensionAUS.com.au/FCDVic](http://extensionAUS.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

## VARIETY DESCRIPTIONS

Varieties have been listed according to type and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation, along with marketing requirements and access to markets. Where possible, in addition to data supplied below, growers should seek locally relevant agronomy results published through Online Farm trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

Ⓛ Denotes Plant Breeder's Rights apply

**TBC** To be confirmed

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

### **ASTUTE**<sup>Ⓛ</sup>

A mid-season fully awned variety suited to medium to high-yielding environments. An alternative to Hawkeye<sup>Ⓛ</sup>. Released 2015. Bred and marketed by AGT, available through AGT Seed Sharing™ and AGT affiliates. EPR \$2.75.

### **BISON**<sup>Ⓛ</sup>

An early to mid-season reduced-awn variety best suited to low to medium-yielding environments. Released 2015. Bred and marketed by AGT, available through AGT Seed Sharing™ and AGT affiliates. EPR \$2.75.

### **CARTWHEEL**<sup>Ⓛ</sup>

A long-season dual-purpose triticale suitable for grazing and grain. Recovery from grazing is excellent in the winter months. Grain yield is equivalent to Tobruk<sup>Ⓛ</sup> in southern NSW dual-purpose mixed-cereal trials. Released 2017. Bred by University of Sydney. Seed available from AGF Seeds. EPR TBC.

### **FUSION**<sup>Ⓛ</sup>

A mid-season, fully awned grain-only triticale variety. A moderately tall variety that yields well in dry or short finishes. Released 2012. Bred and marketed by AGT, available through AGT Seed Sharing™. EPR \$3.00.

### **JOEY**

An early to mid-season tall, reduced-awn variety suitable for forage and grain production. Joey has good early vigour and fast winter forage production. High test weight. Released 2020. Bred by Cooper & Elleway. No EPR.

### **KM10**

A fast-growing, very early to early maturing variety with good early production of forage. Tends to produce smaller grain and is ideally suited to short-season environments. Released 2015 by Cooper & Elleway. No EPR.

### **KOKODA**<sup>Ⓛ</sup>

A long-season dual-purpose line that can be sown early March (some off-types may occur when sown early). Good first dry matter production equivalent to Endeavour<sup>Ⓛ</sup> and excellent recovery in winter for second dry matter production. In NSW trials, first and second dry matter production often yielded better than winter wheats. Useful for hay production as it is semi-awnless. Released in 2019. Bred by University of Sydney. Seed available from AGF Seeds. EPR TBC.

### **NEW – RAZOO**

A spring triticale with mid maturity, medium-tall height and reduced awns suitable for forage and grain production. Good early vigour, fast winter forage growth, good weed competition and soil erosion control. Large, dense grain suitable for milling as well as feed. Released 2022 (tested as WMRA8-R5). Bred by Cooper & Elleway. No EPR.

### **WONAMBI**

A later maturing spring or facultative type variety suitable for grazing, forage conservation and grain production. Released 2018 by Cooper & Elleway and marketed by Naracoorte Seeds. No EPR.

**Table 1: Triticale time of sowing guide.**

This table is a guide only and has been compiled from observations of the breeder and agronomists.

MALLEE	April				May				June				July			
Late				Yellow	Green	Green	Green	Red								
Mid-late				Yellow	Green	Green	Green	Red								
Mid					Yellow	Green	Green	Green	Red							
Early-mid						Yellow	Green	Green	Green	Red						
WIMMERA	April				May				June				July			
Late				Yellow	Green	Green	Green	Red								
Mid-late				Yellow	Green	Green	Green	Red								
Mid						Yellow	Green	Green	Green	Red						
Early-mid							Yellow	Green	Green	Green	Red					
NORTH CENTRAL	April				May				June				July			
Late				Yellow	Green	Green	Green	Red								
Mid-late				Yellow	Green	Green	Green	Red								
Mid						Yellow	Green	Green	Green	Red						
Early-mid							Yellow	Green	Green	Green	Red					
NORTH EAST	April				May				June				July			
Late			Yellow	Green	Green	Green	Green	Red								
Mid-late				Yellow	Green	Green	Green	Red								
Mid						Yellow	Green	Green	Green	Red						
Early-mid							Yellow	Green	Green	Green	Red					
SOUTH WEST	April				May				June				July			
Late							Yellow	Green	Green	Green	Red					
Mid-late							Yellow	Green	Green	Green	Red					
Mid								Yellow	Green	Green	Green	Red				
Early-mid									Yellow	Green	Green	Green	Red			

Yellow = earlier than optimum.  
 Green = optimum sowing time.  
 Red = later than optimum.

- INTRO
- WHEAT
- BARLEY
- OAT
- TRITICALE
- CANOLA
- FIELD PEA
- LENTIL
- FABA BEAN
- LUPIN
- CHICKPEA
- VETCH
- NOTES

**Table 2: Agronomic characteristics of triticale varieties and disease resistance ratings.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder. Disease reactions have been sourced from Agriculture Victoria Cereal Disease Guide (2022).

Variety	Rainfall			Maturity	Height	Rust			Yellow leaf spot	Septoria tritici	CCN resistance
	Low <350mm	Med 350 to 500mm	High >500mm			Stem	Stripe	Leaf			
Astute <sup>†</sup>		✓	✓	M	M-T	RMR	MSS	RMR	MRMS	RMR	R
Bison <sup>†</sup>	✓	✓		E-M	T	RMR	MR	RMR	MR	RMR	R
Cartwheel <sup>†</sup>		✓	✓	L	–	R	RMR	R	MR	RMR	R
Fusion <sup>†</sup>	✓	✓		M	M-T	R	S	R	MR	MR	R
Joey	✓	✓		E-M	T	S	MSS	RMR	MR	RMR	MS
KM10	✓	✓		VE-E	M-T	R	S	MR/S (P)	MR	MR	S
Kokoda <sup>†</sup>		✓	✓	M-L	–	R	RMR#	RMR	MR	RMR	MR
Razoo	✓	✓		M	M-T	MS	MSS	R	MR	RMR	MS
Wonambi		✓	✓	M-L	T	R	S	R	MR	MR	MS

Maturity: VE = very early, E = early, M = mid, L = late, Height: M = medium, T = tall.

<sup>†</sup> indicates historic data that has not been updated in at least 12 months. # may be more susceptible to alternate pathotypes. / = pathotype differences.

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.

(P) = provisional ratings – treat with caution.

– denotes no rating available.

## ACKNOWLEDGEMENTS

Mark McLean            Agriculture Victoria  
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Kath Cooper            Cooper & Elleway

# CANOLA

Canola is used for its seed, which is crushed for edible and industrial purposes. While most Australian canola is exported to Europe for biodiesel, most of Victoria's canola is crushed domestically and used in margarine, cooking oil, salad oil and edible oil blends. After the oil is extracted, the by-product is a protein-rich meal used by intensive livestock industries.

## NEW VARIETIES

Sixteen new canola varieties have been released with seed available for sowing in 2023. Not all varieties (including new and older varieties) have been trialled in recent years. Varietal descriptions below include the years each variety has been included in NVT.

New listings for 2023 are:

- Conventional varieties – Outlaw<sup>Ⓛ</sup>
- Glyphosate-tolerant varieties – DG Hotham TF, Nuseed Hunter TF, Nuseed Eagle TF
- Imidazolinone-tolerant varieties – AGFCA014120, Hyola<sup>®</sup> Solstice CL, RGT Clavier<sup>™</sup> CL
- Triazine-tolerant varieties – ATR-Bluefin<sup>Ⓛ</sup>, Bandit TT<sup>Ⓛ</sup>, DG Torrens TT<sup>Ⓛ</sup>, HyTTec<sup>®</sup> Velocity, InVigor<sup>®</sup> T 4511, Renegade TT<sup>Ⓛ</sup>, RGT Baseline<sup>™</sup> TT
- Dual-herbicide tolerant varieties – Hyola<sup>®</sup> Regiment XC, Pioneer<sup>®</sup> PY520TC

Varieties removed this year are:

- Glyphosate-tolerant varieties – InVigor<sup>®</sup> R 3520, InVigor<sup>®</sup> R 5520P, Nuseed GT-53
- Imidazolinone-tolerant varieties – VICTORY<sup>®</sup> V7001CL
- Triazine-tolerant varieties – ATR-Mako<sup>Ⓛ</sup>, SF Ignite<sup>®</sup> TT, Pioneer<sup>®</sup> 45T03 TT
- Dual-herbicide tolerant variety – BASF 3000 TR

## DUAL-PURPOSE WINTER CANOLA

Long season dual-purpose winter canola varieties for grazing and/or grain production can perform well in the high-rainfall zone. These dual-purpose hybrids are usually sown in autumn but are occasionally sown in late spring or early to mid-summer and grazed until autumn. Winter-type canola varieties are not evaluated through the NVT program. Consult the GRDC publication [Spring Sown Winter Canola](#).

## SPECIALTY CANOLA (HOLL)

Specialty canola varieties produce oilseeds with a highly stable oil profile (high oleic, low linolenic acids, or HOLL). This produces an oil with extended frying life and improved shelf stability. Specialty canola is grown under closed-loop contracts with a premium paid to growers when the grain meets specifications. Specialty canola is grown in the same way as commodity canola and varieties are identified as such in their varietal descriptions.

## LIBERTYLINK<sup>®</sup> CANOLA

LibertyLink<sup>®</sup> canola, developed by BASF, offers a new mode of action for post-emergent weed control. LibertyLink<sup>®</sup> hybrids combine tolerance to Liberty<sup>®</sup> herbicide with existing herbicide options to produce dual-herbicide-tolerant hybrids. These hybrids include the PodGuard<sup>®</sup> trait to reduce harvest losses and flexible timing of windrowing or direct heading. Further information on LibertyLink<sup>®</sup> canola can be found at [myseed.com.au](http://myseed.com.au).

## DISEASE UPDATE

Blackleg has two forms – crown canker that causes disease at the base of the plant, and upper canopy infection (UCI) causing disease in the stems and branches. These forms are separate infections, although both originate from the same canola stubble. Crown canker and UCI will occur in most crops in most years but are unlikely to both cause yield loss within the same crop, in the same year.

Late-sown crops that remain as seedlings during the winter period are likely to get crown canker, but will flower in the spring, avoiding UCI. Early sown crops will be beyond the 4-5 leaf stage prior to June and will avoid crown canker, but may flower in late July–early August, which leads to UCI on the flowers and branches.

Two types of blackleg resistance genes exist in Australian canola varieties: major gene and quantitative resistance (QR). QR reduces the severity of crown canker but does not completely stop the disease. Quantitative genes are additive; the more genes present in a cultivar, the higher the resistance. Recent research has shown that QR is also effective against UCI. Major gene resistance is effective against both crown canker and UCI, but many cultivars in Australia do not have effective major gene resistance, as major genes are easily overcome by the blackleg fungus.

Varieties are classified into resistance groups that describe the major genes present (Table 2). Effective major resistance genes stop the blackleg fungus from infecting the plant; however, blackleg can change rapidly, overcoming major resistance genes. Varieties reliant on major resistance genes tend to become more susceptible over time; if the major gene is overcome it will be completely ineffective. A cultivar can have none, one or multiple major resistance genes, and Australian cultivars normally have a combination of major genes and QR, therefore not becoming completely susceptible if the major gene is overcome. If you have grown the same variety for three years or more and have observed increasing disease severity causing yield loss, it may be prudent to choose a variety from a different resistance group.

Varietal resistance ratings are reported each year in the BlacklegCM app and the Blackleg Management Guide. Growers are encouraged to consult these resources when choosing canola varieties. The app will predict yield losses and enable you to explore different management and fungicide options, and the Blackleg Management Guide is updated twice a year to reflect frequent changes in blackleg resistance.

The UCI BlacklegCM app was released in August 2022. This application is a spray decision tool based on the presence of leaf lesions (which indicates the effective major gene is overcome), date of first flower and possible fungicide options. Although there are no UCI blackleg ratings available, further research is underway to develop them.

Australian canola varieties have no known resistance to sclerotinia. In some seasons, the level of sclerotinia stem rot varies between canola varieties; this relates to differences in region, time of flowering and rainfall events. The SclerotiniaCM app can predict yield losses and provide likely estimates of economic returns from fungicide applications.

## MORE INFORMATION

### [nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

### [grdc.com.au](http://grdc.com.au)

- [Canola Southern Region – GRDC GrowNotes™](#)
- [Blackleg Management Guide](#) updated each autumn and spring
- [Tips & Tactics: Better Mouse Management](#)
- [Ten Tips for Early-Sown Canola](#)
- [20 Tips for Profitable Canola – Victoria](#)
- [GRDC Southern Region NVT Harvest Reports](#)

### [agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing canola](#)
- [Blackleg of canola](#)
- [Canola diseases](#)

### [BlacklegCM app](#)

- Decision support tool for profitable management of blackleg. Best used on tablet. Not available on iPhone

### [UCI BlacklegCM app](#)

- Decision support tool for profitable management of UCI blackleg. Available on Android and iPhone

### [SclerotiniaCM app](#)

- Forecasting model to assist canola growers with fungicide application decisions. Best used on tablet. Not available on iPhone

### [extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

### [canolaflowering.com.au](http://canolaflowering.com.au)

- A simple phenology model that uses 60 years of local weather data to calculate a range of possible flowering dates for a specific environment. Developed by CSIRO

## VARIETY DESCRIPTIONS

Varieties have been listed according to type and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. Where possible, in addition to data supplied below from long-term NVT, growers should seek locally relevant agronomy results published through Online Farm Trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

(b) Denotes Plant Breeder's Rights apply

**OP** Open pollinated

**QR** Quantitative resistance

**UCI** Upper canopy infection

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## CONVENTIONAL VARIETIES

### Hybrid – NUSEED DIAMOND

Early maturing hybrid of medium height suited to medium-rainfall zones. Blackleg rating RMR. NVT tested 2012–20. Released 2013. Marketed by Nuseed.

### Hybrid – NUSEED QUARTZ

Mid maturing hybrid of medium height, bred to replace AV-Garnet<sup>(b)</sup>. Suited to medium to high-rainfall zones. Blackleg rating R. NVT tested 2016–20. Released 2017. Marketed by Nuseed.

### NEW – OP – OUTLAW<sup>(b)</sup>

Early maturing OP conventional canola variety. Suited to low to medium-rainfall zones. Tall plant height similar to AV-Garnet<sup>(b)</sup>. Anticipated blackleg rating MRMS (company rating). Released 2022. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$10.00.

## GLYPHOSATE-TOLERANT VARIETIES

### Hybrid – DG BINDO TF

Early-mid maturing TruFlex® hybrid with medium height and very good seedling vigour. Blackleg rating MRMS. NVT tested 2021-22. Released 2021. Bred and marketed by Nutrien Ag Solutions.

### NEW – Hybrid – DG HOTHAM TF

Mid maturing TruFlex® hybrid with medium-tall height. Suited to medium to high-rainfall zones. Blackleg rating R. NVT tested as DG2103XX. Bred and marketed by Nutrien Ag Solutions.

### Hybrid – DG LOFTY TF

Early maturing TruFlex® hybrid. Medium height and very good seedling vigour. Blackleg rating R. NVT tested 2021-22. Released 2021. Bred and marketed by Nutrien Ag Solutions.

### Hybrid – HYOLA® 410XX

Early-mid maturing TruFlex® hybrid variety suited to low to high-rainfall zones including irrigation. Blackleg rating MR. NVT tested 2019–22. Bred and marketed by Pacific Seeds.

### Hybrid – InVigor® R 4022P

Early-mid maturing TruFlex® hybrid, with PodGuard®. Suited to low to medium-rainfall zones. Blackleg rating MR. NVT tested 2019–22. Bred and marketed by BASF.

### Hybrid – InVigor® R 4520P

Early-mid season TruFlex® hybrid with PodGuard®. Good seedling vigour and medium height. InVigor® R 4520P is suitable in mid and late season areas. Blackleg rating MRMS. NVT tested 2019–22. Bred and marketed by BASF.

### Hybrid – NUSEED CONDOR TF

Mid maturing TruFlex® hybrid. Tall height. Blackleg rating R. Tested in Bayer group regulated trials 2018-19 as Xseed™ Condor, NVT tested 2019–22. Bred and marketed by Nuseed.

### NEW – Hybrid – NUSEED EAGLE TF

Mid maturing TruFlex® hybrid variety. Suited to medium to high-rainfall zones. Tall plant height. Blackleg rating R. NVT tested 2021-22 as NCH20Q732. Released 2022. Bred and marketed by Nuseed.

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**Hybrid – NUSEED EMU TF**

Early maturing TruFlex® hybrid. Suited to low and medium-rainfall areas with a medium height. Blackleg rating MR. NVT tested 2019–22. Bred and marketed by Nuseed.

**NEW – Hybrid – NUSEED HUNTER TF**

Early-mid maturing TruFlex® hybrid variety. Suited to low to medium-rainfall zones. Medium plant height. Blackleg rating RMR. NVT tested 2021–22 as NCH20Q733. Released 2022. Bred and marketed by Nuseed.

**Hybrid – NUSEED RAPTOR TF**

Early-mid maturing TruFlex® hybrid. Medium height. Blackleg rating R. Tested in Bayer group regulated trials 2018–19 as Xseed™ Raptor, NVT tested 2017–22. Bred and marketed by Nuseed.

**Hybrid – PIONEER® 44Y27 RR**

Early-mid maturing Roundup Ready® hybrid. Ideally suited to low to medium-rainfall zones. Blackleg rating RMR. NVT tested 2016–22. Marketed by Pioneer Seeds.

**Hybrid – PIONEER® 44Y30 RR**

Early-mid maturing Roundup Ready® hybrid. Adaptable across a broad range of environments. Blackleg rating MR. NVT tested 2020–22. Released 2021. Marketed by Pioneer Seeds.

**Hybrid – PIONEER® 45Y28 RR**

Mid maturing Roundup Ready® hybrid. Suited to mid-high yielding environments. Medium-tall height. Blackleg rating RMR. NVT tested 2017–22. Released 2018. Marketed by Pioneer Seeds.

**VICTORY® Specialty Hybrid – VICTORY® V5003RR**

Mid maturing specialty (high oleic, low linolenic acid oil) hybrid. Medium height. Blackleg rating RMR. NVT tested 2016–21. Released 2018. Bred by Cargill. Marketed by AWB under contract.

**VICTORY® Specialty Hybrid – VICTORY® V55-04TF**

Mid maturing TruFlex® specialty (high oleic, low linolenic acid oil) hybrid. Medium height. Suited to early sowing and higher rainfall areas. Blackleg rating RMR. NVT tested 2021 as 19TH6009. Released 2022. Bred by Cargill. Marketed by AWB under contract.

**IMIDAZOLINONE-TOLERANT VARIETIES****NEW – Hybrid – AGFCA014120**

Late maturing dual-purpose Clearfield® winter variety. Potential to produce very high biomass. Suited to early sowing and spring sowing in high-rainfall areas. Not tested in NVT. Released 2023. Marketed by AGF Seeds with limited seed available.

**Hybrid – HYOLA® 970CL**

Late maturing winter dual-purpose hybrid with very high biomass dry matter and tall plant height. Adapted to high to very high-rainfall zones. Blackleg rating R. Blackleg group H. Tested in company trials 2016–22. Marketed by Pacific Seeds.

**Hybrid – HYOLA® EQUINOX CL**

Mid maturing spring Clearfield® hybrid. Suitable for medium and high-rainfall zones. Blackleg rating R. Blackleg group ADF. NVT tested 2021–22. Released 2021. Bred and marketed by Pacific Seeds.

**Hybrid – HYOLA® FEAST CL**

Mid-late maturing winter hybrid, slightly earlier than Hyola® 970CL. Adapted to medium-high to very high-rainfall zones. Blackleg rating R. Blackleg group H. Tested in company trials 2018–22. Released 2021. Marketed by Pacific Seeds.

**NEW – Hybrid – HYOLA® SOLSTICE CL**

Mid maturing Clearfield® hybrid variety. Suited to medium to high-rainfall zones. Blackleg rating RMR. NVT tested 2021–22 as PS-21CL208. Released 2022. Bred and marketed by Pacific Seeds.

**Hybrid – PHOENIX CL**

Mid-late maturing dual-purpose winter variety. Potential to produce very high biomass, with a slightly shorter mature plant height than some other dual-purpose canola. Suited to early sowing and spring sowing in high-rainfall areas. Blackleg rating R. Not tested in NVT. Independent trial results demonstrate good grain yield and oil content. Released 2019. Marketed by AGF Seeds.

**Hybrid – PIONEER® 43Y92 CL**

Early maturing hybrid suited to low to medium-rainfall zones. Blackleg rating RMR. NVT tested 2016–22. Released 2017. Marketed by Pioneer Seeds.



**Hybrid – PIONEER® 44Y94 CL**

Mid-early maturing Clearfield® hybrid. Medium-tall height. Suited to a range of rainfall zones in dryland and irrigation areas. Blackleg rating RMR. NVT tested 2019–22. Released 2020. Marketed by Pioneer Seeds.

**Hybrid – PIONEER® 45Y93 CL**

Mid maturing hybrid. Suited to medium to high-rainfall and irrigation zones. Medium-tall height. Blackleg rating RMR. NVT tested 2017–22. Released 2018. Marketed by Pioneer Seeds.

**Hybrid – PIONEER® 45Y95 CL**

Mid maturing hybrid. Suited to medium to high-rainfall environments and irrigation zones. Blackleg rating RMR. NVT tested 2021–22. Released 2021. Marketed by Pioneer Seeds.

**NEW – Hybrid – RGT CLAVIER™ CL**

Late maturing winter dual-purpose hybrid with very high biomass dry matter and tall plant height. Adapted to high and very high-rainfall zones. Blackleg rating R. Not tested in NVT. Released 2022. Marketed by Seed Force, an RAGT company. EPR \$12.00.

**Hybrid – RGT NIZZA™ CL**

Early winter dual-purpose hybrid. Suited to early sowing and spring sowing in high-rainfall areas. Blackleg rating R. Not tested in NVT. Released 2021. Bred and marketed by Seed Force, an RAGT company. EPR \$12.00.

**VICTORY® Specialty Hybrid – VICTORY® V7002CL**

Early-mid maturing specialty (high oleic, low linolenic acid oil) hybrid. Short to medium height. NVT tested 2017–21. Bred by Cargill. Marketed by AWB under contract.

**VICTORY® Specialty Hybrid – VICTORY® V75-03CL**

Mid maturing specialty (high oleic, low linolenic acid oil) hybrid. Medium plant height. Blackleg rating RMR. NVT tested 2018–21. Released 2019. Bred by Cargill. Marketed by AWB under contract.

**TRIAZINE-TOLERANT VARIETIES****NEW – OP – ATR-BLUEFIN<sup>Ⓛ</sup>**

Early maturing triazine-tolerant OP canola variety. Suited to low-rainfall zones. Short height. Blackleg rating RMR. NVT tested 2020–22 as NT0289. Released 2021. Bred and marketed by Nuseed. EPR \$5.00

**OP – ATR-BONITO<sup>Ⓛ</sup>**

Early-mid maturing variety for low to medium-rainfall zones. Short to medium height. Alternative to ATR-Stingray<sup>Ⓛ</sup> or ATR-Gem<sup>Ⓛ</sup>. Blackleg rating MS. NVT tested 2012–22. Released 2013. Bred and marketed by Nuseed. EPR \$5.00.

**OP – ATR-STINGRAY<sup>Ⓛ</sup>**

Early maturing variety. Short to medium height. Blackleg rating MRMS. NVT tested 2010–22. Released 2011. Bred by AgSeed Research and Agriculture Victoria. Marketed by Nuseed.

**OP – ATR-WAHOO<sup>Ⓛ</sup>**

Mid maturing variety for medium to high-rainfall zones and irrigation. Medium height. Blackleg rating MRMS. NVT tested 2013–22. Released 2013. Bred and marketed by Nuseed. EPR \$5.00.

**NEW – OP – BANDIT TT<sup>Ⓛ</sup>**

Early maturing triazine-tolerant OP canola variety, similar in maturity to ATR-Stingray<sup>Ⓛ</sup>. Suited to low to medium-rainfall zones. Medium plant height. Blackleg rating MS. NVT tested 2021–22 as AGTC0006. Released 2022. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$10.00.

**OP – DG BIDGEE TT<sup>Ⓛ</sup>**

Early-mid maturing open pollinated variety. Medium height. Blackleg rating R. NVT tested 2020–22 as DG1903TT. Released 2021. Bred and marketed by Nutrien Ag Solutions. EPR \$5.00.

**OP – DG MURRAY TT<sup>Ⓛ</sup>**

Mid-late maturing open pollinated variety with good seedling vigour and medium height. Blackleg rating R. NVT tested 2019–22. Released 2021. Bred and marketed by Nutrien Ag Solutions. EPR \$5.00.

**NEW – OP – DG TORRENS TT<sup>Ⓛ</sup>**

Early-mid maturing open pollinated triazine-tolerant variety with short-medium height. Suited to low to medium-rainfall zones. Blackleg rating RMR. NVT tested as DG1924TT. Released 2022. Bred and marketed by Nutrien Ag Solutions. EPR \$5.00.

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**Hybrid – HYOLA® BLAZER TT**

Mid-early maturing hybrid. Suited to medium-high to very high-rainfall zones including irrigation. Blackleg rating R. Blackleg group ADF. NVT tested 2019–22. Released 2020. Bred and marketed by Pacific Seeds.

**Hybrid – HyTTec® TRIDENT**

Early maturing hybrid. Medium-tall height. Suitable for low to medium-rainfall zones. Blackleg rating R. NVT tested 2017–22. Released 2019. Bred and marketed by Nuseed. EPR \$5.00.

**Hybrid – HyTTec® TRIFECTA**

Mid maturing hybrid variety. Medium-tall height. Suitable for medium to high-rainfall zones. Blackleg rating R. NVT tested 2018–22. Released 2020. Marketed by Nuseed. EPR \$5.00.

**Hybrid – HyTTec® TROPHY**

Early to mid-early maturing hybrid. Medium-tall height. Blackleg rating R. NVT tested 2017–22. Released 2017. Marketed by Nuseed. EPR \$5.00.

**NEW – Hybrid – HyTTec® VELOCITY**

Early maturing triazine-tolerant hybrid canola variety. Suited to low-rainfall zones. Medium height. Blackleg rating MRMS. NVT tested 2020–22 as NCH19T588. Released 2022. Bred and marketed by Nuseed. EPR \$5.00.

**Hybrid – InVigor® T 4510**

Early-mid maturing hybrid. Medium-tall height. Suited to low to medium-rainfall zones. Blackleg rating MR. Released 2016. NVT tested 2016–22. Marketed by BASF.

**NEW – Hybrid – InVigor® T 4511**

Early-mid triazine-tolerant hybrid of medium height. Excellent early vigour ideally suited to early and mid-season growing regions. Higher seedling vigour and higher oil, a replacement for InVigor® T 4510. Blackleg rating R. NVT tested 2021-22. Released 2022. Marketed by BASF.

**Hybrid – InVigor® T 6010**

Mid-late maturing hybrid variety. Suited to medium to high-rainfall zones. Medium plant height. Replacement for InVigor® T 4510 in higher-rainfall areas. Blackleg rating MRMS. NVT tested 2019–22. Released 2020. Marketed by BASF.

**Specialty OP – MONOLA® 420TT**

Early-mid maturing open pollinated specialty variety. Short height. Suitable alternative to Monola® 416TT. Blackleg rating RMR. NVT tested 2019–22. Released 2020. Marketed under closed loop contract through Nuseed.

**Specialty OP – MONOLA® 422TT**

Early-mid maturing open pollinated specialty variety. Short height. Suitable alternative to Monola® 420TT or Monola® 416TT. Blackleg rating MR. NVT tested 2020–22. Released 2021. Marketed under a closed-loop contact through Nuseed.

**Specialty Hybrid – MONOLA® H421TT**

Early maturing hybrid specialty variety. Medium height. Suitable for low to medium-rainfall zones or a late sowing option. Blackleg rating RMR. NVT tested 2019–22. Marketed under closed-loop contract through Nuseed.

**NEW – OP – RENEGADE TT<sup>Ⓛ</sup>**

Early-mid maturing triazine-tolerant OP canola variety. Suited to low to medium-rainfall zones. Short to medium plant height. Blackleg rating MRMS. NVT tested 2021-22 as AGTC0034. Released 2022. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$10.00.

**NEW – Hybrid – RGT BASELINE™ TT**

Mid maturing triazine-tolerant hybrid variety. Suited to medium to high-rainfall zones. High oil. Medium-tall height. Blackleg rating MRMS. Blackleg group BC. NVT tested 2021-22 as SFR65-059TT. Released 2022. Bred and marketed by Seed Force, an RAGT company. EPR \$10.00

**Hybrid – RGT CAPACITY™ TT**

Early-mid maturing. Suited to low-medium rainfall areas. Medium height. Blackleg rating MRMS. Blackleg group B. NVT tested 2019–22. Released 2021. Marketed by Seed Force, an RAGT company. EPR \$10.00.

**Hybrid – SF DYNATRON® TT**

Mid maturing hybrid canola. Medium-tall height. Blackleg rating MRMS. Blackleg group BC. NVT tested 2019–22. Released 2020. Marketed by Seed Force, an RAGT company. EPR \$10.00.

**Hybrid – SF SPARK® TT**

Early maturing hybrid. Suited to low-medium rainfall areas. Medium height. Blackleg rating MR. Blackleg group ABDS. NVT tested 2018–22. Released 2018. Marketed by Seed Force, an RAGT company. EPR \$10.00.

## DUAL HERBICIDE-TOLERANT VARIETIES

### GLYPHOSATE + IMIDAZOLINONE

#### Hybrid – HYOLA® BATTALION XC

Early maturing TruFlex® + Clearfield® hybrid variety with medium height. Suited to low and medium-rainfall areas. Blackleg rating R. Blackleg group ADF. NVT tested 2021–22. Released 2021. Marketed by Pacific Seeds.

#### Hybrid – HYOLA® GARRISON XC

Mid-early maturing TruFlex® + Clearfield® hybrid variety of medium-tall height. Suited low to high-rainfall zones. Blackleg rating R. Blackleg group ADF. NVT tested 2019–22. Bred and marketed by Pacific Seeds.

#### NEW – Hybrid – HYOLA® REGIMENT XC

Mid maturing TruFlex® + Clearfield® hybrid variety. Suited to medium to high-rainfall zones. Blackleg rating R. NVT tested 2021–22 as 21XC316. Released 2022. Bred and marketed by Pacific Seeds.

### IMIDAZOLINONE + TRIAZINE

#### Hybrid – HYOLA® ENFORCER CT

Mid-early maturing Clearfield® + triazine-tolerant hybrid variety. Suited to medium-low to high-rainfall zones. Medium height. Blackleg rating R. Blackleg group ADF. NVT tested 2019–22. Released 2020. Bred and marketed by Pacific Seeds.

#### NEW – Hybrid – PIONEER® PY520TC

Mid maturing Clearfield® + triazine-tolerant hybrid variety. Suited to medium to high-rainfall zones. Medium height. Blackleg rating MR. NVT tested 2021–22. To be released 2023. Marketed by Pioneer Seeds.

### GLUFOSINATE + TRIAZINE

#### Hybrid – InVigor® LT 4530P

LibertyLink® hybrid with tolerance to both Liberty® + triazine herbicides and PodGuard® trait for shattering tolerance. Early-mid maturing variety suited to medium-rainfall zones. Blackleg rating RMR. NVT tested 2020–22. Released 2021. Marketed by BASF.

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**Table 1: Canola time of sowing guide based on phenology speed.**

Recommended sowing dates for key Victorian locations for three phenology<sup>1</sup> types. Following these sowing guidelines will ensure varieties flower within their ideal optimal start of flowering (OSF) window. This table is a guide only and has been taken from the GRDC publication 20 Tips for Profitable Canola, December 2019.

NORTH EAST	March				April				May			
Slow			Yellow	Yellow	Green	Green	Green	Red				
Mid					Yellow	Green	Green	Green	Red	Red		
Fast							Yellow	Green	Green	Green	Red	
MALLEE	March				April				May			
Slow			Yellow	Yellow	Green	Green	Green	Red				
Mid					Yellow	Green	Green	Green	Red	Red		
Fast							Yellow	Green	Green	Green	Red	
WIMMERA	March				April				May			
Slow			Yellow	Yellow	Green	Green	Green	Red				
Mid					Yellow	Green	Green	Green	Red	Red		
Fast							Yellow	Green	Green	Green	Red	
SOUTH WEST	March				April				May			
Slow			Yellow	Yellow	Green	Green	Green	Green	Red	Red		
Mid					Yellow	Green	Green	Green	Red	Red	Red	
Fast							Yellow	Green	Green	Green	Red	

<sup>1</sup> Phenology response to early sowing, before 15 April. Rankings may vary for later sowing dates.

Yellow = earlier than optimum; potential yield reduction.

Green = optimum sowing time.

Red = later than optimum; potential yield reduction.

**Table 2: Canola variety spring 2022 blackleg ratings.**

Blackleg resistance ratings are for crown canker only. Upper canopy and pod infection can only be managed by growing a variety with major gene resistance (blackleg resistance group). Blackleg resistance ratings are released in autumn and spring each year in the [Blackleg Management Guide](#), which outlines the steps to effectively manage blackleg in canola. Definitions of resistance ratings and management options are provided in the [Blackleg Management Guide](#). Updated ratings will be available in autumn 2023.

Variety	Maturity	Phenology (response to early sowing) <sup>1</sup>	Year of release	Blackleg resistance rating bare seed	Blackleg resistance rating + ILeVo <sup>®</sup>	Blackleg resistance rating + Saltro <sup>®</sup>	Blackleg resistance group	Type
<b>CONVENTIONAL CANOLA</b>								
Nuseed Diamond	early	fast	2013	RMR	R	R	ABF	hybrid
Nuseed Quartz	mid	mid	2017	R	–	–	ABD	hybrid
Outlaw <sup>®</sup>	early	fast <sup>2</sup>	2022	MRMS (P) <sup>2</sup>	–	–	Aρ <sup>2</sup>	open
<b>GLYPHOSATE-TOLERANT CANOLA</b>								
DG Bindo TF	early-mid	–	2021	MRMS	–	R	AB	TruFlex <sup>®</sup> , hybrid
DG Hotham TF	mid	–	2022	R	–	–	ABH	TruFlex <sup>®</sup> , hybrid
DG Lofty TF	early	–	2021	R	–	–	ABH	TruFlex <sup>®</sup> , hybrid
Hyola <sup>®</sup> 410XX	early-mid	mid-fast*	2019	MR	R	R	ABD	TruFlex <sup>®</sup> , hybrid
InVigor <sup>®</sup> R 4022P	early-mid	mid-fast*	2019	MR	R	R	ABC	TruFlex <sup>®</sup> , hybrid
InVigor <sup>®</sup> R 4520P	early-mid	–	2020	MRMS	R	R	B	TruFlex <sup>®</sup> , hybrid
Nuseed Condor TF	mid	–	2020	R	–	R	ABD	TruFlex <sup>®</sup> , hybrid
Nuseed Eagle TF	mid	mid-slow <sup>2</sup>	2022	R	–	–	ABD	TruFlex <sup>®</sup> , hybrid
Nuseed Emu TF	early	fast <sup>2</sup>	2021	MR	–	R	AB	TruFlex <sup>®</sup> , hybrid
Nuseed Hunter TF	early-mid	mid-fast <sup>2</sup>	2022	RMR	–	–	AB	TruFlex <sup>®</sup> , hybrid
Nuseed Raptor TF	early-mid	mid-fast*	2019	R	–	–	AD	TruFlex <sup>®</sup> , hybrid
Pioneer <sup>®</sup> 44Y27 RR	early-mid	mid-fast	2017	RMR	R	R	B	Roundup Ready <sup>®</sup> , hybrid
Pioneer <sup>®</sup> 44Y30 RR	early-mid	mid <sup>2</sup>	2021	MR	R	R	AB	Roundup Ready <sup>®</sup> , hybrid
Pioneer <sup>®</sup> 45Y28 RR	mid	mid-slow <sup>2</sup>	2018	RMR	R	R	BC	Roundup Ready <sup>®</sup> , hybrid
VICTORY <sup>®</sup> V5003RR	mid	–	2018	RMR	R	–	AB	Roundup Ready <sup>®</sup> , hybrid, specialty oil
VICTORY <sup>®</sup> V55-04TF	mid	–	2022	RMR	R	–	tbd	TruFlex <sup>®</sup> , hybrid, specialty oil
<b>IMIDAZOLINONE-TOLERANT CANOLA</b>								
AGFCA014120	late	winter	2022	–	–	–	–	Clearfield <sup>®</sup> , hybrid
Hyola <sup>®</sup> 970CL	late	winter	2014	R	R	R	H	Clearfield <sup>®</sup> , hybrid
Hyola <sup>®</sup> Equinox CL	mid	mid-fast	2021	R	–	R	ADF	Clearfield <sup>®</sup> , hybrid
Hyola <sup>®</sup> Feast CL	mid-late	winter	2021	R	–	R	H	Clearfield <sup>®</sup> , hybrid
Hyola <sup>®</sup> Solstice CL	mid	–	2022	RMR	–	–	ADFH	Clearfield <sup>®</sup> , hybrid
Phoenix CL	mid-late	winter	2019	R	–	–	B	Clearfield <sup>®</sup> , hybrid
Pioneer <sup>®</sup> 43Y92 CL	early	mid-fast	2017	RMR	R	R	B	Clearfield <sup>®</sup> , hybrid
Pioneer <sup>®</sup> 44Y94 CL	mid-early	mid-fast <sup>2</sup>	2020	RMR	R	R	BC	Clearfield <sup>®</sup> , hybrid
Pioneer <sup>®</sup> 45Y93 CL	mid	mid-slow*	2018	RMR	R	R	BC	Clearfield <sup>®</sup> , hybrid
Pioneer <sup>®</sup> 45Y95 CL	mid	mid-slow <sup>2</sup>	2021	RMR	–	R	C	Clearfield <sup>®</sup> , hybrid
RGT Clavier™ CL	late	winter	2022	R	R	R	tbd	Clearfield <sup>®</sup> , hybrid
RGT Nizza™ CL	early	winter	2021	R	R	R	B	Clearfield <sup>®</sup> , hybrid
VICTORY <sup>®</sup> V7002CL	early-mid	–	2017	–	–	–	ABF	Clearfield <sup>®</sup> , hybrid, specialty oil
VICTORY <sup>®</sup> V75-03CL	mid	mid-slow*	2019	RMR	R	–	AB	Clearfield <sup>®</sup> , hybrid, specialty oil
<b>TRIAZINE-TOLERANT CANOLA</b>								
ATR-Bluefin <sup>®</sup>	early	fast <sup>2</sup>	2021	RMR	–	–	AB	open
ATR-Bonito <sup>®</sup>	early-mid	mid-fast	2013	MS	RMR	R	A	open
ATR-Stingray <sup>®</sup>	early	fast	2011	MRMS	R	R	C	open
ATR-Wahoo <sup>®</sup>	mid	mid-slow	2013	MRMS	–	–	A	open
Bandit TT <sup>®</sup>	early	fast <sup>2</sup>	2022	MS	R	R	A	open
DG Bidgee TT <sup>®</sup>	early-mid	–	2021	R	R	R	H	open
DG Murray TT <sup>®</sup>	mid-late	–	2021	R	R	R	H	open
DG Torrens TT <sup>®</sup>	early-mid	–	2022	RMR	–	–	H	open

Table 2, cont. next page

**Table 2: Canola variety spring blackleg ratings (continued).**

Variety	Maturity	Phenology (response to early sowing) <sup>1</sup>	Year of release	Blackleg resistance rating bare seed	Blackleg resistance rating + ILeVo <sup>®</sup>	Blackleg resistance rating + Saltra <sup>®</sup>	Blackleg resistance group	Type
<b>TRIAZINE-TOLERANT CANOLA (Cont.)</b>								
Hyola <sup>®</sup> Blazer TT	mid-early	–	2020	R	–	R	ADF	hybrid
HyTtec <sup>®</sup> Trident	early	mid-fast	2019	R	–	R	AD	hybrid
HyTtec <sup>®</sup> Trifecta	mid	–	2020	R	–	R	ABD	hybrid
HyTtec <sup>®</sup> Trophy	mid-early	mid	2017	R	R	R	AD	hybrid
HyTtec <sup>®</sup> Velocity	early	fast <sup>2</sup>	2022	MRMS	–	–	AB	hybrid
InVigor <sup>®</sup> T 4510	early-mid	mid-fast	2016	MR	R	R	BF	hybrid
InVigor <sup>®</sup> T 4511	early-mid	–	2022	R	R	–	tbd	hybrid
InVigor <sup>®</sup> T 6010	mid-late	–	2020	MRMS	R	R	BC	hybrid
Monola <sup>®</sup> 420TT	early-mid	–	2020	RMR	–	–	AD	open, specialty oil
Monola <sup>®</sup> 422TT	early-mid	–	2021	MR	–	–	BC	open, specialty oil
Monola <sup>®</sup> H421TT	early	–	2020	RMR	–	R	BC	hybrid, specialty oil
Renegade TT <sup>®</sup>	early-mid	mid-fast <sup>2</sup>	2022	MRMS	R	R	A	open
RGT Baseline <sup>™</sup> TT	mid	mid-slow <sup>2</sup>	2022	MRMS	R	R	B	hybrid
RGT Capacity <sup>™</sup> TT	early-mid	–	2021	MRMS	R	R	B	hybrid
SF Dynatron <sup>®</sup> TT	mid	–	2020	MRMS	R	R	BC	hybrid
SF Spark <sup>®</sup> TT	early	fast*	2018	MR	R	R	ABDS	hybrid
<b>DUAL-HERBICIDE-TOLERANT CANOLA</b>								
Hyola <sup>®</sup> Battalion XC	early	fast <sup>2</sup>	2021	R	–	R	ADF	TruFlex <sup>®</sup> + Clearfield <sup>®</sup> , hybrid
Hyola <sup>®</sup> Enforcer CT	mid-early	–	2020	R	–	R	ADF	Clearfield <sup>®</sup> + triazine, hybrid
Hyola <sup>®</sup> Garrison XC	mid-early	mid-fast <sup>2</sup>	2020	R	–	R	ADF	TruFlex <sup>®</sup> + Clearfield <sup>®</sup> , hybrid
Hyola <sup>®</sup> Regiment XC	mid	–	2022	R	–	–	ADFH	TruFlex <sup>®</sup> + Clearfield <sup>®</sup> , hybrid
InVigor <sup>®</sup> LT 4530P	early-mid	–	2021	RMR	R	R	BF	LibertyLink <sup>®</sup> + triazine, hybrid
Pioneer <sup>®</sup> PY520TC	mid	mid-slow <sup>2</sup>	2023	MR	R	R	BC	Clearfield <sup>®</sup> + triazine, hybrid

Source: GRDC Blackleg Management Guide, Spring (2022), 20 Tips for Profitable Canola – Victoria (2019)

\*One year (2019) experimental data only. <sup>1</sup> Phenology response to early sowing, before 15 April. Rankings may vary for later sowing dates. <sup>2</sup> indicates breeding company data.

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

est = estimate by marketing company.

tbd = to be determined (further testing required).

(P) = provisional ratings – treat with caution.

– denotes no rating available.

**Table 3: Canola disease guide summary.**

Disease	Organism	Symptoms	Occurrence	Inoculum source	Control
Blackleg	<i>Leptosphaeria maculans</i>	Leaf lesions, which may develop into canker on stem at or near ground level, plant death. Lesions on flowers, pods and branches in the upper canopy.	Spores from canola stubble are released in autumn and after subsequent rainfall events. Spores infect leaves of the new crop and the upper canopy later in the season.	Canola stubble.	Resistant cultivars. Avoid sowing next to last year's canola stubble. Fungicides can be used. See Blackleg Management Guide and BlacklegCM app for tablets.
Sclerotinia stem rot	<i>Sclerotinia</i> spp.	White fluffy growth on the stem, causing plant parts above this point to die. Affected area greyish white, sclerotia form on and inside the stems.	Favoured by wet spring weather during flowering.	Survives as sclerotia in the soil.	Sow clean seed and isolate from last year's infected paddocks. Fungicides applied during early bloom. See SclerotiniaCM app for tablets.
Damping off	<i>Rhizoctonia</i> spp., <i>Pythium</i> spp. and <i>Fusarium</i> spp.	Pre-emergence rot and seedlings fail to emerge. Emerged plants collapse at ground level with leaves turning orange/purple. Surviving plants stunted.	In soils that have not been cultivated after opening rains. During cold/wet periods.	Hyphal growth in the soil.	Seed dressings. Cultivation after the break of the season reduces these diseases but increases erosion risk.
Alternaria leaf spot and black spot	<i>Alternaria brassicae</i>	Dark, target-like, round spots that initially appear on leaves. Can spread to stems and pods and cause pod shattering.	Infection spreads with wet humid weather throughout season. Severe pod infection possible if wet during spring.	Canola stubble.	No current control known.

Source: Reviewed by Marcroft Grains Pathology (2022)

**Table 4: Mallee canola (low-medium rainfall) results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis. These trials were not structured to allow comparisons between different chemistry types.

GLYPHOSATE-TOLERANT CANOLA						
Year		2017	2018	2019	2020	2021
Mean yield (t/ha)		1.48	1.81	1.75	2.42	–
	No. trials	3	1	3	2	–
DG 408RR	7	106	103	102	–	Trial failed
Hyola® 404RR	7	96	88	82	–	
Hyola® 410XX	5	–	–	90	99	
Hyola® Battalion XC	2	–	–	–	93	
Hyola® Garrison XC	5	–	–	92	98	
InVigor® R 3520	9	102	102	108	98	
InVigor® R 4022P	5	–	–	116	103	
InVigor® R 4520P	2	–	–	–	105	
Nuseed Emu TF	2	–	–	–	96	
Nuseed Raptor TF	2	–	–	–	92	
Pioneer® 43Y23 RR	4	100	97	–	–	
Pioneer® 43Y29 RR	7	105	–	113	105	
Pioneer® 44Y27 RR	9	108	105	105	102	
IMIDAZOLINONE-TOLERANT CANOLA						
Year		2017	2018	2019	2020	2021
Mean yield (t/ha)		1.41	1.23	1.49	2.21	–
	No. trials	3	2	3	2	–
Hyola® 575CL	8	91	81	89	–	Trial failed
Pioneer® 43Y92 CL	10	102	101	96	101	
Pioneer® 44Y90 CL	10	105	110	106	105	
Saintly CL	6	104	–	99	–	
VICTORY® V7002CL	10	98	92	92	92	
TRIAZINE-TOLERANT CANOLA						
Year		2017	2018	2019	2020	2021
Mean yield (t/ha)		1.44	1.64	1.33	2.28	–
	No. trials	3	1	3	2	–
ATR-Bluefin <sup>ⓓ</sup>	2	–	–	–	93	Trial failed
ATR-Bonito <sup>ⓓ</sup>	9	95	94	99	95	
ATR-Stingray <sup>ⓓ</sup>	9	91	84	82	89	
BASF 3000 TR	7	100	100	102	–	
DG Murray TT <sup>ⓓ</sup>	3	–	–	93	–	
Hyola® 350TT	9	106	103	99	100	
Hyola® 559TT	1	–	102	–	–	
Hyola® Blazer TT	3	–	–	110	105	
Hyola® Enforcer CT	4	–	–	92	98	
HyITec® Trident	6	–	108	96	106	
HyITec® Trophy	9	108	107	99	107	
HyITec® Velocity	1	–	–	–	111	
InVigor® LT 4530P	2	–	–	–	107	
InVigor® T 3510	4	–	106	105	–	
InVigor® T 4510	9	108	112	111	108	
Pioneer® 44T02 TT	9	104	96	93	96	
RGT Capacity™ TT	2	–	–	–	108	
SF Dynatron® TT	5	–	–	115	111	
SF Spark® TT	6	–	102	99	101	

– denotes no data available.

Source: National Variety Trials (2017–2021)

**Table 5: North Central and North East canola (medium-high rainfall) results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis. These trials were not structured to allow comparisons between different chemistry types.

GLYPHOSATE-TOLERANT CANOLA												
Year	NORTH CENTRAL						NORTH EAST					
		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		2.75	0.95	1.80	2.60	2.81		1.86	0.87	1.23	2.81	2.90
	No. trials	2	1	2	2	2	No. trials	2	2	2	2	2
DG 408RR	5	103	104	107	–	–	5	100	101	104	–	–
DG 460RR	2	99	99	–	–	–	4	100	98	–	–	–
DG Bindo TF	2	–	–	–	–	105	1	–	–	–	–	105
DG Hotham TF	0	–	–	–	–	–	1	–	–	–	–	106
DG Lofty TF	2	–	–	–	–	100	1	–	–	–	–	99
Hyola® 404RR	3	95	95	–	–	–	4	95	101	–	–	–
Hyola® 410XX	6	–	–	101	101	103	4	–	–	103	105	–
Hyola® 506RR	1	–	101	–	–	–	6	101	105	104	–	–
Hyola® Battalion XC	4	–	–	–	100	105	1	–	–	–	112	–
Hyola® Garrison XC	6	–	–	104	101	107	6	–	–	107	112	110
Hyola® Regiment XC	2	–	–	–	–	116	2	–	–	–	–	119
InVigor® R 3520	3	–	108	104	–	–	0	–	–	–	–	–
InVigor® R 4022P	6	–	–	116	114	107	6	–	–	137	114	105
InVigor® R 4520P	6	–	–	123	119	113	6	–	–	147	122	111
InVigor® R 5520P	7	105	106	109	104	–	10	108	105	117	110	104
Monola® G11	2	98	99	–	–	–	4	97	100	–	–	–
Nuseed Condor TF	2	–	–	114	–	–	4	–	–	119	120	–
Nuseed Emu TF	4	–	–	–	106	103	3	–	–	120	107	–
Nuseed GT-42	2	97	100	–	–	–	4	94	97	–	–	–
Nuseed GT-53	5	102	106	104	–	–	8	100	101	96	106	–
Nuseed Hunter TF	1	–	–	–	–	115	0	–	–	–	–	–
Nuseed Raptor TF	6	–	–	107	107	114	6	–	–	105	113	116
Pioneer® 43Y23 RR	3	100	100	–	–	–	0	–	–	–	–	–
Pioneer® 43Y29 RR	6	107	–	115	113	–	6	108	–	125	112	–
Pioneer® 44Y27 RR	9	105	109	108	111	110	7	105	110	113	108	–
Pioneer® 45Y25 RR	3	103	101	–	–	–	6	100	95	104	–	–
Pioneer® 45Y28 RR	3	106	110	–	–	–	8	106	105	–	113	114
VICTORY® V5003RR	7	95	91	93	94	–	10	92	88	82	92	96
VICTORY® V55-04TF	0	–	–	–	–	–	2	–	–	–	–	103
IMIDAZOLINONE-TOLERANT CANOLA												
Year	NORTH CENTRAL						NORTH EAST					
		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		2.62	0.84	1.74	2.82	3.12		1.93	0.85	1.10	2.96	2.94
	No. trials	2	1	2	2	2	No. trials	2	2	2	2	2
Banker CL	3	105	104	–	–	–	3	106	102	–	–	–
Hyola® 575CL	5	93	85	92	–	–	6	90	88	87	–	–
Hyola® Equinox CL	4	–	–	–	102	104	4	–	–	–	109	106
Hyola® Solstice CL	2	–	–	–	–	110	1	–	–	–	–	113
Pioneer® 43Y92 CL	7	104	108	104	106	–	2	106	–	–	–	–
Pioneer® 44Y90 CL	7	102	102	106	107	–	8	102	102	110	104	–
Pioneer® 44Y94 CL	4	–	–	–	112	111	6	–	–	115	109	111
Pioneer® 45Y91 CL	3	102	102	–	–	–	8	103	100	103	105	–
Pioneer® 45Y93 CL	4	105	–	110	–	–	9	104	100	109	109	109
Pioneer® 45Y95 CL	1	–	111	–	–	–	4	–	108	123	–	112
Saintly CL	4	105	108	107	–	–	6	108	111	122	–	–
VICTORY® V7002CL	9	93	86	91	95	91	8	90	89	85	87	–
VICTORY® V75-03CL	1	–	89	–	–	–	6	–	90	82	89	–

Table 5, cont. next page



**Table 5: North Central and North East canola (medium-high rainfall) results. NVT long-term yield expressed as a percentage of mean yield (continued).**

TRIAZINE-TOLERANT CANOLA												
Year	NORTH CENTRAL						NORTH EAST					
		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		2.54	0.69	1.57	2.40	2.94		1.61	0.93	1.25	2.84	2.71
	No. trials	2	1	2	1	2	No. trials	2	2	2	2	2
ATR-Bluefin <sup>Ⓛ</sup>	3	–	–	–	86	84	1	–	–	–	83	–
ATR-Bonito <sup>Ⓛ</sup>	8	94	81	94	95	91	6	90	88	–	90	–
ATR-Mako <sup>Ⓛ</sup>	2	91	79	–	–	–	4	85	86	–	–	–
ATR-Stingray <sup>Ⓛ</sup>	6	93	80	–	89	87	0	–	–	–	–	–
ATR-Wahoo <sup>Ⓛ</sup>	0	–	–	–	–	–	4	91	84	–	–	–
Bandit TT <sup>Ⓛ</sup>	1	–	–	–	–	92	1	–	–	–	–	89
BASF 3000 TR	5	93	92	87	–	–	0	–	–	–	–	–
DG 560TT	3	96	95	–	–	–	4	94	95	–	–	–
DG 670TT	1	–	99	–	–	–	7	101	98	104	102	–
DG Bidgee TT <sup>Ⓛ</sup>	2	–	–	–	–	102	1	–	–	–	–	105
DG Murray TT <sup>Ⓛ</sup>	2	–	–	92	–	–	3	–	–	78	–	103
DG Torrens TT <sup>Ⓛ</sup>	3	–	–	–	98	101	2	–	–	–	102	102
Hyola® 350TT	5	101	106	100	–	–	6	103	107	106	–	–
Hyola® 550TT	3	–	109	99	–	–	4	–	109	102	–	–
Hyola® 559TT	3	96	101	–	–	–	4	95	103	–	–	–
Hyola® 580CT	1	94	–	–	–	–	4	90	90	–	–	–
Hyola® 650TT	0	–	–	–	–	–	3	97	99	–	–	–
Hyola® Blazer TT	3	–	–	–	113	113	4	–	–	–	115	115
Hyola® Enforcer CT	5	–	–	102	101	105	6	–	–	106	108	108
HyITec® Trident	7	106	125	105	110	113	6	–	–	102	110	117
HyITec® Trifecta	3	–	123	–	–	114	7	–	114	116	117	117
HyITec® Trophy	8	106	117	109	110	111	10	108	110	110	111	113
InVigor® LT 4530P	3	–	–	–	105	100	4	–	–	–	105	97
InVigor® T 4510	8	105	109	108	108	106	10	107	108	115	107	105
InVigor® T 4511	2	–	–	–	–	108	2	–	–	–	–	110
InVigor® T 6010	1	–	–	–	105	–	6	–	–	117	110	104
Monola® 416TT	3	90	72	–	–	–	6	85	81	85	–	–
Monola® 420TT	4	–	85	82	86	–	8	–	93	78	83	86
Monola® 422TT	1	–	–	–	90	–	4	–	–	–	84	89
Monola® 515TT	0	–	–	–	–	–	3	81	83	–	–	–
Monola® H421TT	2	–	–	86	91	–	6	–	–	87	87	91
Pioneer® 44T02 TT	6	99	110	90	92	–	2	101	–	–	–	–
Pioneer® 45T03 TT	1	–	96	–	–	–	4	–	97	95	–	–
Pioneer® PY520TC	0	–	–	–	–	–	1	–	–	–	–	110
Renegade TT <sup>Ⓛ</sup>	1	–	–	–	–	95	1	–	–	–	–	92
RGT Baseline™ TT	1	–	–	–	–	106	2	–	–	–	–	108
RGT Capacity™ TT	5	–	–	110	107	104	6	–	–	116	108	104
SF Dynatron® TT	5	–	–	113	112	107	6	–	–	115	107	105
SF Ignite® TT	3	103	101	–	–	–	10	104	97	104	107	104
SF Spark® TT	6	–	99	97	99	99	4	–	–	95	98	–
SF Turbine TT	8	101	103	102	101	101	10	102	102	103	102	102

Source: National Variety Trials (2017–2021)

– denotes no data available.

**Table 6: Wimmera and South West canola (medium-high rainfall) results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis. These trials were not structured to allow comparisons between different chemistry types

GLYPHOSATE-TOLERANT CANOLA												
Year	WIMMERA						SOUTH WEST					
		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		3.09	1.94	1.87	3.22	2.83		2.74	2.45	2.67	3.36	3.93
	No. trials	2	1	2	2	2	No. trials	3	3	2	2	3
DG 408RR	4	107	108	104	–	–	0	–	–	–	–	–
DG 460RR	3	98	98	–	–	–	6	97	97	–	–	–
DG Bindo TF	2	–	–	–	–	104	1	–	–	–	–	111
DG Hotham TF	2	–	–	–	–	104	1	–	–	–	–	117
Hyola® 404RR	3	93	93	–	–	–	0	–	–	–	–	–
Hyola® 410XX	6	–	–	102	102	103	4	–	–	98	96	–
Hyola® 506RR	5	98	98	98	–	–	8	98	96	93	–	–
Hyola® 540XC	2	–	–	96	–	–	4	–	–	99	97	–
Hyola® Battalion XC	4	–	–	–	102	102	0	–	–	–	–	–
Hyola® Garrison XC	6	–	–	107	105	104	7	–	–	101	94	103
Hyola® Regiment XC	2	–	–	–	–	112	0	–	–	–	–	–
InVigor® R 3520	3	–	102	104	–	–	0	–	–	–	–	–
InVigor® R 4022P	6	–	–	115	110	106	7	–	–	110	112	104
InVigor® R 4520P	6	–	–	122	116	110	7	–	–	119	121	113
InVigor® R 5520P	9	105	103	110	105	100	13	108	109	110	108	105
Nuseed Condor TF	6	–	–	114	115	114	7	–	–	115	112	120
Nuseed Eagle TF	1	–	–	–	–	112	3	–	–	–	–	112
Nuseed Emu TF	2	–	–	–	102	–	0	–	–	–	–	–
Nuseed GT-42	2	100	104	–	–	–	1	97	–	–	–	–
Nuseed GT-53	7	106	110	103	110	–	10	106	108	110	111	–
Nuseed Hunter TF	1	–	–	–	–	115	0	–	–	–	–	–
Nuseed Raptor TF	6	–	–	108	112	112	2	–	–	109	–	–
Pioneer® 43Y29 RR	6	110	–	114	112	–	4	115	–	–	122	–
Pioneer® 44Y27 RR	7	106	108	106	110	–	1	108	–	–	–	–
Pioneer® 44Y30 RR	4	–	–	–	114	110	5	–	–	–	120	113
Pioneer® 45Y25 RR	5	109	108	108	–	–	8	110	113	119	–	–
Pioneer® 45Y28 RR	7	110	111	–	114	112	10	112	115	–	116	123
VICTORY® V5003RR	9	97	97	93	96	96	12	94	95	98	99	100
VICTORY® V55-04TF	2	–	–	–	–	101	2	–	–	–	–	106
IMIDAZOLINONE-TOLERANT CANOLA												
Year	WIMMERA						SOUTH WEST					
		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		3.12	2.12	2.01	3.43	2.65		2.87	2.70	3.13	3.61	4.21
	No. trials	2	1	2	3	3	No. trials	3	3	3	2	3
Hyola® 575CL	5	94	93	91	–	–	9	92	91	95	–	–
Hyola® Equinox CL	6	–	–	–	100	104	5	–	–	–	88	93
Hyola® Solstice CL	3	–	–	–	–	108	0	–	–	–	–	–
Pioneer® 43Y92 CL	5	101	102	103	–	–	0	–	–	–	–	–
Pioneer® 44Y90 CL	8	104	103	104	105	–	6	106	105	–	–	–
Pioneer® 44Y94 CL	8	–	–	108	112	112	6	–	–	111	115	118
Pioneer® 45Y91 CL	8	102	101	104	102	–	11	103	104	103	102	–
Pioneer® 45Y93 CL	8	108	107	108	110	–	11	110	–	113	115	117
Pioneer® 45Y95 CL	5	–	110	112	–	111	9	–	115	116	–	121
Saintly CL	4	102	101	107	–	–	9	105	104	102	–	–
VICTORY® V7002CL	11	93	93	90	92	95	0	–	–	–	–	–
VICTORY® V75-03CL	9	–	95	91	94	97	9	–	92	94	95	95

Table 6, cont. next page

**Table 6: Wimmera and South West canola (medium-high rainfall) results. NVT long-term yield expressed as a percentage of mean yield (continued).**

TRIAZINE-TOLERANT CANOLA												
Year	WIMMERA						SOUTH WEST					
		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		3.02	1.85	1.78	3.13	2.55		2.76	2.60	2.93	3.21	3.87
	No. trials	2	1	2	3	3	No. trials	3	3	3	2	3
ATR-Bluefin <sup>Ⓢ</sup>	1	–	–	–	85	–	0	–	–	–	–	–
ATR-Bonito <sup>Ⓢ</sup>	6	95	91	–	93	–	0	–	–	–	–	–
ATR-Mako <sup>Ⓢ</sup>	2	92	91	–	–	–	1	90	–	–	–	–
ATR-Stingray <sup>Ⓢ</sup>	3	92	88	–	–	–	0	–	–	–	–	–
ATR-Wahoo <sup>Ⓢ</sup>	0	–	–	–	–	–	14	95	97	101	101	97
Bandit TT <sup>Ⓢ</sup>	2	–	–	–	–	95	1	–	–	–	–	87
BASF 3000 TR	3	91	93	–	–	–	0	–	–	–	–	–
DG 670TT	7	102	101	103	103	–	11	103	104	105	107	–
DG Bidgee TT <sup>Ⓢ</sup>	3	–	–	–	–	101	0	–	–	–	–	–
DG Murray TT <sup>Ⓢ</sup>	8	–	–	95	97	98	5	–	–	–	89	100
DG Torrens TT <sup>Ⓢ</sup>	3	–	–	–	101	–	2	–	–	–	101	–
Hyola® 350TT	5	99	100	100	–	–	3	–	98	–	–	–
Hyola® 530XT	2	–	–	97	–	–	3	–	–	93	–	–
Hyola® 550TT	3	–	102	99	–	–	6	–	98	94	–	–
Hyola® 559TT	3	95	100	–	–	–	6	93	92	–	–	–
Hyola® 580CT	8	96	97	91	95	–	11	93	93	96	96	–
Hyola® 650TT	1	–	103	–	–	–	6	98	99	–	–	–
Hyola® Blazer TT	7	–	–	113	114	110	5	–	–	–	116	121
Hyola® Enforcer CT	8	–	–	104	102	104	6	–	–	97	92	99
HyTTec® Trident	9	–	113	103	109	117	1	105	–	–	–	–
HyTTec® Trifecta	6	–	–	–	114	112	11	–	115	111	112	119
HyTTec® Trophy	11	107	110	108	110	111	14	108	109	107	108	114
InVigor® LT 4530P	4	–	–	–	101	98	5	–	–	–	104	93
InVigor® T 4510	11	104	104	107	106	106	14	107	106	105	108	106
InVigor® T 4511	3	–	–	–	–	109	3	–	–	–	–	105
InVigor® T 6010	8	–	–	112	107	98	8	–	–	111	112	107
Monola® 416TT	5	91	86	89	–	–	5	89	87	–	–	–
Monola® 420TT	3	–	89	83	–	–	5	–	82	82	78	–
Monola® 515TT	2	80	–	–	–	–	4	77	74	–	–	–
Monola® H421TT	2	–	–	86	–	–	1	–	–	83	–	–
Pioneer® 44T02 TT	3	94	100	–	–	–	0	–	–	–	–	–
Pioneer® 45T03 TT	3	–	96	98	–	–	8	–	97	96	93	–
Pioneer® PY520TC	2	–	–	–	–	110	1	–	–	–	–	119
Renegade TT <sup>Ⓢ</sup>	2	–	–	–	–	94	2	–	–	–	–	90
RGT Baseline™ TT	3	–	–	–	–	104	3	–	–	–	–	116
RGT Capacity™ TT	8	–	–	109	106	102	1	–	–	108	–	–
SF Dynatron® TT	8	–	–	110	111	105	3	–	–	–	–	117
SF Ignite® TT	9	105	103	–	106	98	14	106	109	110	110	110
SF Spark® TT	8	–	–	97	99	101	0	–	–	–	–	–
SF Turbine TT	11	101	101	102	101	101	0	–	–	–	–	–

– denotes no data available.

Source: National Variety Trials (2017–2021)

**ACKNOWLEDGEMENTS**

Steve Marcroft      Marcroft Grains Pathology



# FIELD CROP DISEASES VICTORIA

## EXPERT SUPPORT AT YOUR FINGERTIPS

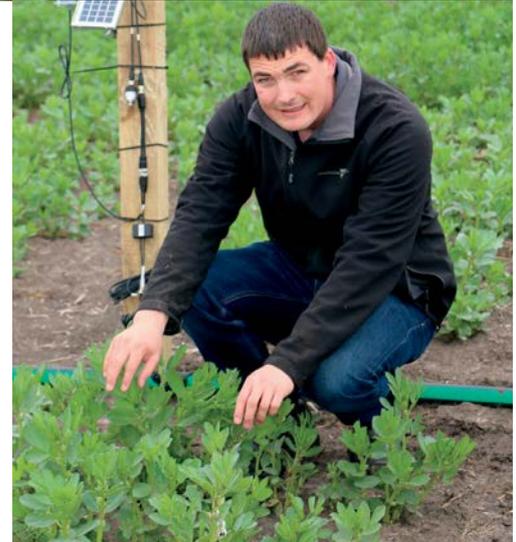
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# FIELD PEA

## NEW VARIETIES

There were no new field pea varieties released in 2022.

## DISEASE UPDATE

There has been only one significant change to field pea resistance ratings. GIA Ourstar<sup>®</sup> was downgraded to susceptible (provisional) to bacterial blight.

Blackspot risk is a key disease consideration and the risks can be predicted based on weather data. Therefore, the appropriate control strategy can be implemented. A forecast is distributed weekly via SMS or email during the sowing season. To subscribe to 'Blackspot Manager' visit [agric.wa.gov.au/crops/grains/pulses/field-peas](http://agric.wa.gov.au/crops/grains/pulses/field-peas) or for SMS, text 'Blackspot' with your name and nearest weather station or location to 0475 959 932, or email your name, phone number and nearest weather station or location to [BlackspotManager@dpird.wa.gov.au](mailto:BlackspotManager@dpird.wa.gov.au).

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- [Field Pea Southern Region – GRDC GrowNotes™](#)
- [GRDC Southern Region NVT Harvest Reports](#)

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing Field Pea in Victoria](#)
- [Agriculture Victoria Pulse Disease Guide](#). Also available as an e-book

[extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

[pulseaus.com.au](http://pulseaus.com.au)

- [Growing Pulses – Field Pea](#)
- [Crop protection permits in pulses](#)

## VARIETY DESCRIPTIONS

Varieties have been listed according to type and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

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Abbreviations used are:

(D) Denotes Plant Breeder's Rights apply

**BLRV** Bean leafroll virus

**GIA** Grains Innovation Australia

**IMI** Imidazolinone

**PSbMV** Pea seed-borne mosaic virus

**PBA** Pulse Breeding Australia

**SU** Sulfonylurea

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## KASPA GRAIN TYPE

### GIA KASTAR<sup>Ⓛ</sup>

GIA Kastar<sup>Ⓛ</sup> was the first Kasper-type field pea with improved tolerance to registered in-crop and residual IMI herbicides. Mid flowering and early-mid maturing. Erect growth habit with a semi-leafless plant type, resistant to pod shatter at maturity. GIA Kastar<sup>Ⓛ</sup> has good resistance to powdery mildew. Uniform red to brown-coloured seed coat, medium in size, marketable for human consumption in the Indian/Asian subcontinent. Released 2019. Bred by GIA with seed available from AG Schilling & Co. EPR \$3.00.

### KASPA<sup>Ⓛ</sup>

A late flowering, semi-leafless, semi-dwarf field pea. Kasper<sup>Ⓛ</sup> is the benchmark for field peas with its broad adaption and high yield potential. Suited to longer growing season environments. Kasper<sup>Ⓛ</sup> has fair to good lodging resistance at maturity and pods are resistant to shattering. Released 2002. Commercialised by Seednet. EPR \$2.00.

### PBA BUTLER<sup>Ⓛ</sup>

Mid to late flowering semi-dwarf. High yield potential and adapted to medium to high-rainfall regions. Grains are similar to PBA Gunyah<sup>Ⓛ</sup> in colour and size. Released 2017. Seed available from Seednet. EPR \$2.70.

### PBA GUNYAH<sup>Ⓛ</sup>

An early to mid flowering, semi-leafless, semi-dwarf field pea. Broadly adapted and better suited to shorter growing season environments. Fair to good lodging resistance at maturity and pods are resistant to shattering. Released 2010. Commercialised by Seednet. EPR \$2.50.

### PBA TAYLOR<sup>Ⓛ</sup>

PBA Taylor<sup>Ⓛ</sup> is an early to mid flowering and maturing semi-dwarf, semi-leafless Kasper-type field pea, with non-shattering pod. Wide adaption and good yield potential, which makes it suitable for cultivation across the southern cropping belt. Resistant to PSbM and BLR viruses. Released 2021 (tested as OZP1408). Seed available from Seednet. EPR \$2.70.

### PBA TWILIGHT<sup>Ⓛ</sup>

An early flowering, early maturing, semi-dwarf field pea, better suited to short growing season environments and low-rainfall zones. PBA Twilight<sup>Ⓛ</sup> has fair to good lodging resistance at maturity and pods are resistant to shattering. Released 2010. Commercialised by Seednet. EPR \$2.50.

### PBA WHARTON<sup>Ⓛ</sup>

An early-mid flowering, early maturity, semi-dwarf field pea. Adapted across short to medium growing season environments and is a suitable variety for crop topping when sowing is delayed. Resistant to PSbM and BLR viruses and good resistance to powdery mildew. PBA Wharton<sup>Ⓛ</sup> has improved tolerance to soil boron and pods are resistant to shattering. Released 2013. Commercialised by Seednet. EPR \$2.60.

## DUN GRAIN TYPE

### GIA OURSTAR<sup>Ⓛ</sup>

GIA Ourstar<sup>Ⓛ</sup> is the first Dun-type pea with improved tolerance to registered in-crop and residual Group 2 herbicides (combined IMI and SU). Early-mid flowering and early-mid maturing. Similar plant type and growth habit to PBA Oura<sup>Ⓛ</sup>. Medium size, light green to tan-coloured grain, suited to human consumption markets or stockfeed. Released 2019. Seed available from AG Schilling & Co. EPR \$3.00.

### MORGAN

Tall, late flowering, semi-leafless pea that produces small grain. Lower yield potential than other varieties but is suitable for the lower rainfall regions as a dual-purpose pea that can be used for forage in drought years. Moderate non-sugar-pod resistance to shattering. Grain size is small and less suitable for human consumption markets. Released 1998. Seed available from Hart Bros Seeds. Free to trade.

### PBA OURA<sup>Ⓛ</sup>

Early to mid flowering and maturing, semi-dwarf, erect growing field pea. Good yield potential and broadly adapted. Fair to good lodging resistance at maturity and has moderate non-sugar-pod resistance to shattering. Released 2011. Commercialised by Seednet. EPR \$2.60.

**PBA PERCY**

An early flowering and maturing conventional pea. High yield potential and broadly adapted. Moderately tolerant to salinity. Poor lodging resistance and requires specialised pea pickup fronts for harvesting. Released 2011. EPR \$2.60.

**YELLOW PEA TYPE****PBA PEARL**

An early to mid flowering, semi-leafless, semi-dwarf field pea. PBA Pearl is broadly adapted and produces medium white grain. Good lodging resistance at maturity and has moderate non-sugar-pod resistance to shattering. Marketable for human consumption or for stockfeed. Released 2012. No EPR.

**BLUE PEA TYPE****PBA NOOSA<sup>†</sup>**

Early-mid flowering and maturing blue field pea. PBA Noosa<sup>†</sup> is the first blue pea to be released with improved bleaching tolerance. Improved level of resistance to downy mildew and resistant to BLR virus. Comparative yield to Kaspera and Dun-type varieties and higher than existing blue pea variety Excell. To maintain grain quality, growers should focus on pea weevil management and timely harvest. Opportunity for premium quality niche markets, initially for domestic human consumption. Released 2021 (tested as OZPB1308). Commercialised by PB Seeds with seed available for 2023 season. EPR \$6.50.

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

**Table 1: Field pea adaptability for Victorian rainfall zones.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	RAINFALL ZONE		
	Low <350mm	Med 350 to 500mm	High >500mm
<b>KASPA GRAIN TYPE</b>			
GIA Kastar <sup>db</sup>		✓	
PBA Butler <sup>db</sup>	✓	✓	✓
PBA Gonyah <sup>db</sup>	✓	✓	
Kaspa <sup>db</sup>		✓	✓
PBA Taylor <sup>db</sup>	✓	✓	
PBA Twilight <sup>db</sup>	✓	✓	
PBA Wharton <sup>db</sup>	✓	✓	
<b>DUN GRAIN TYPE</b>			
GIA Ourstar <sup>db</sup>	✓	✓	
PBA Oura <sup>db</sup>	✓	✓	
PBA Percy	✓	✓	
<b>YELLOW PEA GRAIN TYPE</b>			
PBA Pearl	✓	✓	

**Table 2: Agronomic characteristics of field pea varieties.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	Plant habit	Plant vigour, early season	Flowering time	Maturity time	Plant lodging resistance at maturity	Pod shattering at maturity	Boron tolerance	Salinity tolerance
<b>KASPA GRAIN TYPE</b>								
GIA Kastar <sup>db</sup>	SD-SL	moderate-low	mid	early-mid	fair-good	R: SP	–	–
Kaspa <sup>db</sup>	SD-SL	moderate	late	mid	fair-good	R: SP	I	I
PBA Butler <sup>db</sup>	SD-SL	high	mid-late	mid	good	R: SP	I	I
PBA Gonyah <sup>db</sup>	SD-SL	high	early-mid	early	fair-good	R: SP	I	MI
PBA Taylor <sup>db</sup>	SD-SL	high	early-mid	early-mid	fair-good	R: SP	I	I
PBA Twilight <sup>db</sup>	SD-SL	high	early	early	fair-good	R: SP	I	I
PBA Wharton <sup>db</sup>	SD-SL	moderate	early-mid	early	fair-good	R: SP	MT	MT
<b>DUN GRAIN TYPE</b>								
GIA Ourstar <sup>db</sup>	SD-SL	moderate-low	early-mid	early-mid	fair-good	MR: NSP	–	–
Morgan	Tall-SL	high	late	late	poor-fair	MR: NSP	I	I
PBA Oura <sup>db</sup>	SD-SL	moderate	early-mid	early-mid	fair-good	MR: NSP	MI	I
PBA Percy	C	high	early	early	poor	MR: NSP	I	MT
<b>YELLOW PEA GRAIN TYPE</b>								
PBA Pearl	SD-SL	moderate	early-mid	early-mid	good	MR: NSP	MI	MI
<b>BLUE PEA GRAIN TYPE</b>								
PBA Noosa <sup>db</sup>	SD-SL	high	early-mid	early-mid	fair-good	R: SP	I	MT

SD = semi-dwarf, C = conventional, SL = semi-leafless, S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant, SP = sugar pod type pod, NSP = non sugar pod type, I = intolerant, MT = moderately tolerant, MI = moderately intolerant.

– denotes no rating available.



Table 3: Disease resistance ratings of field pea varieties.

Variety	Blackspot (Ascochyta) <sup>1</sup>	Bacterial blight	Downy mildew	Powdery mildew	PSbMV <sup>2</sup>	BLRV (field rating) <sup>2</sup>	Root lesion nematode ( <i>Pratylenchus</i> )	
							<i>P. neglectus</i>	<i>P. thornei</i>
<b>KASPA GRAIN TYPE</b>								
GIA Kastar <sup>db</sup>	MS	S	S	RMR	–	–	MR	MSS
Kaspa <sup>db</sup>	MS	S	S	S	S	S	RMR	MRMS
PBA Butler <sup>db</sup>	MS	MS	S	S	S	S	RMR	MRMS
PBA Gunyai <sup>db</sup>	MS	S	S	S	S	S	RMR	MRMS
PBA Taylor <sup>db</sup>	MS	S	S	S	R	R	RMR	MRMS
PBA Twilight <sup>db</sup>	MS	S	S	S	S	S	MR	MRMS
PBA Wharton <sup>db</sup>	MS	S	S	RMR	R	R	MR	MRMS
<b>DUN GRAIN TYPE</b>								
GIA Ourstar <sup>db</sup>	MS	S (P)	S	S	–	–	MRMS (P)	MSS
PBA Oura <sup>db</sup>	MS	MS	S	S	S	R	MR	MRMS
PBA Percy	MS	MRMS	S	S	S	S	RMR	RMR
<b>YELLOW PEA GRAIN TYPE</b>								
PBA Pearl	MS	MS	S	S	S	R	MR	MRMS
<b>BLUE PEA GRAIN TYPE</b>								
PBA Noosa <sup>db</sup>	MS	S	MS	S	S	R	MR	MRMS

Source: [NVT Disease Ratings \(2021\)](#)<sup>1</sup> Indicates historic data that has not been updated in at least 12 months. <sup>2</sup> Indicates breeding company data.

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

(P) = provisional ratings – treat with caution.

– denotes no rating available.

Table 4: Field pea disease guide summary.

Disease	Organism	Symptoms	Occurrence	Hosts	Control
Ascochyta blight (Blackspot)	<i>Didymella pinodes</i> (synonym: <i>Mycosphaerella pinodes</i> ) <i>Phoma medicaginis</i> var. <i>pinodella</i> , <i>Phoma Koolunga</i> and <i>Didymella pisi</i>	Most obvious on stems and lower leaves. Purplish-black discolouration of lower stem. Dark brown spotting of pods and leaves. Blackening of stem base and upper tap root.	Common in all pea growing regions; most crops are affected to some extent. Favoured by wet conditions. Most damage in early sown crops.	Peas and most legumes.	Crop rotation. Later sowing. Fungicidal seed dressings. Disease-free seed.
Bacterial blight	<i>Pseudomonas syringae</i> pv. <i>pisi</i> , and <i>P. syringae</i> pv. <i>syringae</i>	Water-soaked spots on leaflets and stipules. Yellowish-brown fan-shaped lesion on stipules.	Sporadic in wetter regions. Most severe in early sown crops already damaged by frost, hail, heavy rain or machinery.	Peas for pv. <i>pisi</i> and alternate hosts for pv. <i>syringae</i>	Crop rotation. Disease-free seed. Resistant varieties.
Downy mildew	<i>Peronospora viciae</i>	Brown blotches on upper leaf surface. Underside of leaves covered by masses of fluffy 'mouse-grey' spores.	Sporadic in all regions. Damage most severe in wetter districts.	Peas	Resistant varieties. Seed fungicidal treatment.
Powdery mildew	<i>Erysiphe pisi</i>	Leaves covered by a film of powdery white spores. Infected plants have a blue-white colour.	Can occur in most regions towards the end of the season. Most common in late-sown crops.	Peas	Resistant varieties. Avoid late sowing. Apply foliar fungicide application at flowering as an economic option for disease-prone areas.
Septoria leaf blotch	<i>Septoria pisi</i>	Straw-coloured blotches on leaves, stems and tendrils. Pin-head sized black spots within lesions.	Present in most pea growing regions. Damage most severe on short, semi-leafless varieties.	Peas	Destroy crop residue. Most varieties are moderately susceptible. Crop rotation.
<b>VIRUS DISEASES</b>					
PSbMV	Pea seed-borne mosaic virus	Downward curling of leaves, mosaic, stunting.	Present in all pea production areas.	Host range limited to Fabaceae.	This virus is seed-borne in peas. Virus-free seed is recommended.
TuYV	Turnip yellows virus	Yellowing of whole plant but can be symptomless in some varieties.	Present in all pea production areas.	Wide host range.	Managing aphids and weeds, resistant varieties.
BLRV	Bean leafroll virus	Yellowing, stunting and leaf rolling.	Present in all pea production areas.	Host range limited to Fabaceae.	Managing aphids and weeds, resistant varieties.

Source: [Identification and Management of Field Crop Diseases in Victoria \(2022\)](#)

**Table 5: Mallee and Wimmera field pea results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

Year	MALLEE					WIMMERA						
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021		
Mean yield (t/ha)	1.59	1.05	2.08	1.77	2.34	2.66	3.09	2.21	3.81	–		
	No. trials	3	2	3	4	3	No. trials	2	1	2	2	–
GIA Kastar <sup>Ⓛ</sup>	7	–	–	–	75	89	2	–	–	–	78	Trial failed
GIA Ourstar <sup>Ⓛ</sup>	7	–	–	–	87	81	2	–	–	–	86	
Kaspa <sup>Ⓛ</sup>	15	99	91	100	93	104	7	87	99	77	94	
Parafield	5	79	85	–	–	–	3	71	75	–	–	
PBA Butler <sup>Ⓛ</sup>	11	107	97	108	–	109	5	99	105	94	–	
PBA Gonyah <sup>Ⓛ</sup>	11	100	96	99	–	100	5	95	102	89	–	
PBA Noosa <sup>Ⓛ</sup>	12	–	101	99	102	100	5	–	97	104	101	
PBA Oura <sup>Ⓛ</sup>	15	96	102	95	100	94	7	100	94	107	99	
PBA Pearl	15	103	108	103	109	101	7	111	95	124	107	
PBA Percy <sup>Ⓛ</sup>	15	97	103	91	100	90	7	89	85	113	98	
PBA Taylor <sup>Ⓛ</sup>	15	110	100	108	103	107	7	102	109	100	104	
PBA Wharton <sup>Ⓛ</sup>	15	97	101	97	97	96	7	106	110	95	98	

Source: National Variety Trials (2017–2021)

– denotes no yield result available

## ACKNOWLEDGEMENTS

Jason Brand	Agriculture Victoria
Joshua Fanning	Agriculture Victoria
Larn McMurray	Grains Innovation Australia
Janine Sounness	PB Seeds
Simon Crane	Seednet

# LENTIL

## NEW VARIETIES

There are no new lentil varieties available for sowing in 2023.

## DISEASE UPDATE

There were conducive disease conditions during 2021, and 2022 is presenting similar challenges. With conducive disease conditions an increased risk of Botrytis grey mould (BGM) and Ascochyta blight was identified, which resulted in a provisional status added to several varieties' resistance ratings. For BGM, these varieties included PBA Jumbo2<sup>ϕ</sup> and PBA Hallmark<sup>ϕ</sup>. For Ascochyta blight these varieties included GIA Leader<sup>ϕ</sup>, PBA Jumbo2<sup>ϕ</sup> and PBA Ace<sup>ϕ</sup>. These varieties should be monitored more closely, and it is advised to check for any further ratings changes when the next ratings are released in early 2023.

## AGRONOMIC UPDATE

With the introduction of newer varieties with different herbicide tolerance traits, it is essential that growers adhere to the latest available herbicide application requirements as specified on labels. In addition, it is important to consider implications of the use of these traits across the whole farming system, as some herbicides can remain at residual concentrations in the soil and affect the growth of proceeding crops.

Growers are encouraged to sow lentils in the optimal sowing window for their cropping region and avoid delayed sowing, unless there is a strategic management advantage related to disease or weed control, or they are being sown in a frost-prone region. In Victoria, heat events and rapidly drying soil during late spring in the flowering and podding phase occur almost every year and

can cause significant yield loss when sowing has been delayed. As a result, earlier sowing has generally proved beneficial.

Vegetative and reproductive frosts have been relatively common in the past few seasons. A new vegetative frost rating has been released for this season, highlighting significant differences in varieties. Trials demonstrated a link with yield loss, with grain yield being up to 30 per cent lower where high levels of vegetative damage were seen, compared with areas of lower damage. From an agronomic perspective, higher levels of damage were observed in areas with stubble on the soil surface compared with standing stubble.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- [Lentil Southern Region – GRDC GrowNotes™](#)
- [GRDC Southern Region NVT Harvest Reports](#)

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing Lentil in Victoria](#)
- [Agriculture Victoria Pulse Disease Guide](#). Also available as an e-book

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- Expert support on field crop diseases in Victoria at your fingertips

[pulseaus.com.au](http://pulseaus.com.au)

- Growing Pulses – Lentils
- Crop protection permits in pulses

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Abbreviations used are:

Ⓛ Denotes Plant Breeder's Rights apply

**BGM** Botrytis grey mould

**GIA** Grains Innovation Australia

**GRDC** Grains Research and Development Corporation

**IMI** Imidazolinone

**MET** Metribuzin

**PBA** Pulse Breeding Australia

**SARDI** South Australian Research and Development Institute

**SU** Sulfonylurea

**TBC** To be confirmed

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## CONVENTIONAL LENTIL

### PBA ACE<sup>Ⓛ</sup>

Vigorous, medium-sized, mid-season red lentil with grey seed. Best suited to medium to higher-rainfall areas replacing Nugget and PBA Jumbo<sup>Ⓛ</sup>. Intolerant to salinity and boron. High milling quality. Released 2012. Seed available from PB Seeds. EPR \$5.00.

### PBA BOLT<sup>Ⓛ</sup>

Medium-sized red lentil with grey seed, adapted to the Mallee and northern Wimmera. Similar to PBA Flash<sup>Ⓛ</sup> with early-mid maturing and improved

boron and salinity tolerance. Its susceptibility to BGM makes it less suited to medium to high-rainfall areas in wetter years and with early sowing. A good variety for timely crop topping to control weeds. Erect habit and good lodging resistance make it easier to harvest in dry seasons. Released 2012. Seed available from PB Seeds. EPR \$5.00.

### PBA GIANT<sup>Ⓛ</sup>

Largest-seeded green lentil in Australia. PBA Giant<sup>Ⓛ</sup> is broadly adapted but best suited to the medium-rainfall growing regions. Similar yield to Boomer with improved shattering resistance, although timely harvest is still required to minimise shattering. Less susceptible to lodging at maturity than Boomer. Released 2014. Seed available from PB Seeds. EPR \$5.00.

### PBA GREENFIELD<sup>Ⓛ</sup>

Medium-sized green lentil broadly adapted but best suited to the medium-rainfall growing regions. Highest yielding green lentil variety with yields similar to PBA Ace<sup>Ⓛ</sup>. Improved salinity tolerance and resistance to shattering, although timely harvest is still required. Released 2014. Seed available from PB Seeds. EPR \$5.00.

### PBA JUMBO2<sup>Ⓛ</sup>

Highest yielding, large-seeded red lentil, yielding approximately 9 to 13 per cent higher than PBA Jumbo<sup>Ⓛ</sup>. A direct replacement for PBA Jumbo<sup>Ⓛ</sup> and Aldinga. Similar seed size to PBA Jumbo<sup>Ⓛ</sup> and Aldinga, with a grey seed coat. Mid flowering with maturity similar to PBA Jumbo<sup>Ⓛ</sup>. Well suited to no-till inter-row sowing into standing stubble. Tolerance to soil boron is similar to PBA Bolt<sup>Ⓛ</sup>. Suited to medium to high-rainfall regions where it produces uniform larger seed size, well suited to premium large red split markets. Released 2014. Seed available from PB Seeds. EPR \$5.00.

## IMIDAZOLINONE-TOLERANT LENTIL

### GIA LEADER<sup>Ⓛ</sup>

GIA Leader<sup>Ⓛ</sup> is an IMI-tolerant red lentil variety with high disease resistance (both BGM and Ascochyta blight) and improved vegetative frost tolerance compared with PBA Hurricane XT<sup>Ⓛ</sup>. Similar Group 2 (IMI and SU) herbicide tolerance to existing XT varieties. Medium-sized seed with a grey coat colour. Mid-late maturing, similar to Nugget. Spreading plant type that can assist protection of pods at maturity. Suited to early sowing times. Released 2021 (tested as GIA1701L). Seed available from PB Seeds. EPR \$5.40.

**GIA LIGHTNING<sup>Ⓛ</sup>**

GIA Lightning<sup>Ⓛ</sup> is a new, broadly adapted, IMI-tolerant, small, round red lentil with a grey seed coat. Similar Group 2 (IMI and SU) herbicide tolerance to existing XT varieties. Upright plant structure aids in harvestability, with superior adaptation to light sandy soils than GIA Thunder<sup>Ⓛ</sup>, making it suitable for growing in Mallee regions. Released 2022 (tested as GIA2003L). Bred by GIA with seed available from PB Seeds. EPR \$5.40.

**GIA THUNDER<sup>Ⓛ</sup>**

GIA Thunder<sup>Ⓛ</sup> is a new, broadly adapted, IMI-tolerant, small, rounded red lentil with a grey seed coat. Similar Group 2 (IMI and SU) herbicide tolerance to existing XT varieties. Similar maturity to PBA Hurricane XT<sup>Ⓛ</sup>, with improved vegetative frost tolerance. Released 2022 (tested as GIA2002L). Bred by GIA, seed under small-scale controlled release with PB Seeds. EPR \$5.40.

**PBA HALLMARK XT<sup>Ⓛ</sup>**

Mid-season maturing with a medium seed size and grey seed coat. Greater early vigour and improved ratings to Botrytis grey mould compared with PBA Hurricane XT<sup>Ⓛ</sup>. Tolerant to Intercept<sup>®</sup> herbicide, improved tolerance to the herbicide flumetsulam plus reduced sensitivity to some SU and IMI herbicide residues from prior crop applications, and improved tolerance to Brodal<sup>®</sup>. Provides an alternative market class option to the popular small red lentil PBA Hurricane XT<sup>Ⓛ</sup>. Released 2018. Seed available from PB Seeds. EPR \$5.40.

**PBA HIGHLAND XT<sup>Ⓛ</sup>**

Herbicide-tolerant, small, red lentil variety that will complement other tolerant varieties such as PBA Hallmark XT<sup>Ⓛ</sup> and PBA Hurricane XT<sup>Ⓛ</sup>. Tolerant to Intercept<sup>®</sup> herbicide, improved tolerance to the herbicide flumetsulam plus reduced sensitivity to some SU and IMI herbicide residues from prior crop applications. Early-mid maturing, a point of difference to other Group 2 tolerant lines. Performs well in drier regions such as the Victorian Mallee. Moderate to good early vigour and early flowering traits. It has improved resistance to Ascochyta blight and maintains this level of resistance against an increasingly prevalent pathogen isolate that is virulent on other Group 2 tolerant varieties. A good alternative herbicide-tolerant variety with high yielding capability, particularly in drier regions and seasons. Released 2019. Seed available from PB Seeds. EPR \$5.40.

**PBA HURRICANE XT<sup>Ⓛ</sup>**

A small-seeded red lentil that is mid flowering and mid maturing. Tolerant to Intercept<sup>®</sup> herbicide, improved tolerance to the herbicide flumetsulam plus reduced sensitivity to some SU and IMI herbicide residues from prior crop applications. Released 2013. Seed available from PB Seeds. EPR \$5.00.

**PBA KELPIE XT<sup>Ⓛ</sup>**

Large-seeded, herbicide-tolerant lentil variety. PBA Kelpie XT<sup>Ⓛ</sup> seed size is 93 per cent of PBA Jumbo2<sup>Ⓛ</sup>, with a grey seed coat and red cotyledon. Moderate to good early vigour, early-mid flowering and maturing, it is widely adapted to lentil growing regions of Australia. Released 2020. Seed available from Seednet. EPR \$5.40.

**DUAL HERBICIDE-TOLERANT LENTIL****GIA METRO<sup>Ⓛ</sup>**

A medium to large-sized red lentil by 100 grain weight with a large seed diameter and a grey seed coat. GIA Metro<sup>Ⓛ</sup> is the first lentil to combine IMI and MET herbicide tolerances. This combination of herbicide tolerance expands production and weed control options in lentils, particularly on light-textured soils prone to damage from applications of Group 5 herbicides. Grain yields are lower than existing lentil varieties in the absence of weed pressure or where weeds are effectively controlled without crop damage from Group 5 herbicides. Released 2022 (tested as GIA2004L). Bred by GIA using a metribuzin trait from a project with investment from GRDC and SARDI. Seed available from PB Seeds under small-scale controlled release. EPR TBC.

**GIA SIRE<sup>Ⓛ</sup>**

GIA Sire<sup>Ⓛ</sup> is the first IMI-tolerant lentil with improved tolerance to clopyralid herbicide soil residues from a prior crop, applied according to product label directions. A very small rounded red lentil with a grey seed coat, suitable for the Indian subcontinent's small-sized lentil markets. GIA Sire<sup>Ⓛ</sup> is best suited to early sowing and favourable lentil growing areas to maximise growth, height and yield. Avoid low-fertility sandy soils and low-rainfall, frost-prone environments. Released 2022 (tested as GIA1703L). Bred by GIA with seed available from PB Seeds under small-scale controlled release. EPR TBC.

**Table 1: Lentil adaptability for Victorian rainfall zones.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	RAINFALL ZONE		
	Low <350mm	Med 350 to 500mm	High >500mm*
<b>CONVENTIONAL LENTIL</b>			
PBA Ace <sup>db</sup>		✓	✓
PBA Bolt <sup>db</sup>	✓	✓	
PBA Giant <sup>db</sup>		✓	
PBA Greenfield <sup>db</sup>		✓	
PBA Jumbo2 <sup>db</sup>	✓	✓	✓
<b>IMIDAZOLINONE-TOLERANT LENTIL</b>			
GIA Leader <sup>db</sup>	✓	✓	✓
GIA Lightning <sup>db</sup>	✓	✓	✓
GIA Thunder <sup>db</sup>	✓	✓	✓
PBA Hallmark XT <sup>db</sup>		✓	✓
PBA Highland XT <sup>db</sup>	✓	✓	
PBA Hurricane XT <sup>db</sup>	✓	✓	✓
PBA Kelpie XT <sup>db</sup>		✓	✓
<b>DUAL-HERBICIDE-TOLERANT LENTIL</b>			
GIA Metro <sup>db</sup>	✓	✓	✓
GIA Sire <sup>db</sup>	✓	✓	✓

\* Lentils are highly susceptible to waterlogging and soil acidity. Caution is advised in areas where these issues are likely to be a concern.

**Table 2: Agronomic characteristics of lentil varieties.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	Flowering time	Maturity	Vigour	Vegetative frost	Lodging	Shattering	Salinity	Boron
<b>CONVENTIONAL LENTIL</b>								
PBA Ace <sup>db</sup>	mid	mid	good	mod-good	MRMS	MRMS	I	I
PBA Bolt <sup>db</sup>	early-mid	early-mid	mod-good	mod-good	R	R	MI	MI
PBA Giant <sup>db</sup>	mid	mid-late	good	–	MS	MRMS	I	MI
PBA Greenfield <sup>db</sup>	mid	mid-late	good	–	MS	MR	MI	I
PBA Jumbo2 <sup>db</sup>	mid	mid	mod-good	mod-good	MRMS	R	I	MI
<b>IMIDAZOLINONE-TOLERANT LENTIL</b>								
GIA Leader <sup>db</sup>	mid-late	mid-late	mod	mod-good	MR	RMR (P)	–	–
GIA Lightning <sup>db</sup>	mid-late	mid	mod	mod-poor	MR	RMR (P)	–	–
GIA Thunder <sup>db</sup>	mid	mid	mod	mod-good	MRMS	RMR (P)	–	–
PBA Hallmark XT <sup>db</sup>	mid	mid	mod-good	mod-poor	MR	R	MI	I
PBA Highland XT <sup>db</sup>	early	early-mid	mod-good	mod-poor	MR	MR	MI	I
PBA Hurricane XT <sup>db</sup>	mid	mid	mod	poor	MR	R	I	I
PBA Kelpie XT <sup>db</sup>	early-mid	early-mid	mod-good	mod-good	MRMS	R	MI	I
<b>DUAL-HERBICIDE-TOLERANT LENTIL</b>								
GIA Metro <sup>db</sup>	late	mid-late	mod-poor	good	MR	RMR (P)	–	–
GIA Sire <sup>db</sup>	mid-late	mid	poor	poor	MR	RMR (P)	–	–

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

I = intolerant, MT = moderately tolerant, MI = moderately intolerant.

(P) = provisional ratings – treat with caution.

– denotes no rating available.

**Table 3: Seed quality of lentil varieties.**

The seed quality characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and marketing companies.

Variety	Market category	Grain type	Seed coat	Seed shape
<b>CONVENTIONAL LENTIL</b>				
PBA Ace <sup>db</sup>	MRS	red	grey	lens
PBA Bolt <sup>db</sup>	MRS	red	grey	lens
PBA Giant <sup>db</sup>	large green	yellow	green	lens
PBA Greenfield <sup>db</sup>	medium green	yellow	green	lens
PBA Jumbo2 <sup>db</sup>	LRS	red	grey	lens
<b>IMIDAZOLINONE-TOLERANT LENTIL</b>				
GIA Leader <sup>db</sup>	MRS	red	grey	lens
GIA Lightning <sup>db</sup>	SRP	red	grey	round
GIA Thunder <sup>db</sup>	SRP	red	grey	round
PBA Hallmark XT <sup>db</sup>	MRS	red	grey	lens
PBA Highland XT <sup>db</sup>	SRP	red	grey	round
PBA Hurricane XT <sup>db</sup>	SRP	red	grey	round
PBA Kelpie XT <sup>db</sup>	LRS	red	grey	lens
<b>DUAL-HERBICIDE-TOLERANT LENTIL</b>				
GIA Metro <sup>db</sup>	MRS/LRS <sub>p</sub>	red	grey	lens
GIA Sire <sup>db</sup>	SRP	red	grey	round

SRP small red premium round, MRS medium red split, LRS large red split.  
<sub>p</sub> = provisional ratings – treat with caution.

**Table 4: Disease resistance ratings of lentil varieties.**

Variety	Ascochyta blight (foliar) <sup>2</sup>	Botrytis grey mould (BGM)	Root lesion nematode ( <i>Pratylenchus</i> )	
			<i>P. neglectus</i>	<i>P. thornei</i>
<b>CONVENTIONAL LENTIL</b>				
PBA Ace <sup>db</sup>	RMR (P)	MS	MR	MRMS
PBA Bolt <sup>db</sup>	MRMS	S	MR	MR
PBA Giant <sup>db1</sup>	MR	MS	MR	MRMS
PBA Greenfield <sup>db1</sup>	MRMS	MR	MR	MR
PBA Jumbo2 <sup>db</sup>	RMR (P)	RMR (P)	MR	MRMS
<b>IMIDAZOLINONE-TOLERANT LENTIL</b>				
GIA Leader <sup>db</sup>	MR (P)	MR (P)	R	MR
GIA Lightning <sup>db</sup>	MRMS (P)	MS (P)	R	MR
GIA Thunder <sup>db</sup>	MRMS (P)	MRMS (P)	MR	R
PBA Hallmark XT <sup>db</sup>	MRMS	MR (P)	MR	MRMS
PBA Highland XT <sup>db</sup>	MR	MS	MR	MRMS
PBA Hurricane XT <sup>db</sup>	MRMS	MS	MRMS	MRMS
PBA Kelpie XT <sup>db</sup>	MRMS	MRMS (P)	MRMS	MRMS
<b>DUAL-HERBICIDE-TOLERANT LENTIL</b>				
GIA Metro <sup>db</sup>	MR (P)	MRMS (P)	MR	MRMS
GIA Sire <sup>db</sup>	MS (P)	MS (P)	MR	MR

<sup>1</sup> Indicates historic data that has not been updated in at least 12 months.

<sup>2</sup> The Ascochyta blight rating presented is the most susceptible rating combining both Pathotype 1 and 2, with both pathotypes identified in Victoria.

R = resistant, RMR = resistant to moderately resistant, MR = moderately resistant, MRMS = moderately resistant to moderately susceptible, MS = moderately susceptible, S = susceptible, VS = very susceptible.  
(P) = provisional ratings – treat with caution.

Source: [NVT Disease Ratings \(2022\)](#)

**Table 5: Lentil disease guide summary.**

Disease	Organism	Symptoms	Occurrence	Hosts	Control
Ascochyta blight	<i>Ascochyta lentis</i>	Leaves: small, round, whitish-grey lesions with brown margins. Lesions contain small black fruiting bodies of the fungus. Lesions can also form on stems causing premature death. Pod infection can ultimately result in dark discolourations on seed.	Common in all lentil growing regions in southern Australia. Ratings may vary between varieties. Damage is most likely in wet seasons.	Lentils – seed, stubble and self-sown plants.	Fungicidal seed dressings. Resistant varieties. Foliar fungicides. Crop rotation. Avoid early sowing.
Botrytis grey mould	<i>Botrytis cinerea</i>	Leaves: white, round lesions/spots without black fruiting bodies as in <i>Ascochyta</i> blight.	Most likely to occur in dense, lodged crops when there is frequent rain late in spring.	Most legumes including chickpeas, faba bean and vetch.	Fungicidal seed dressings. Low plant density. Avoid early sowing. Foliar fungicides. Crop rotation. Resistant varieties.
	<i>B. fabae</i>	Stems: pale brown-grey lesions form on stems that are covered with fluffy grey mould. Botrytis grey mould can cause branches to die and cause discoloured and shrivelled seed.			
		In severe cases large brown patches can form in the crop.			
VIRUS DISEASES					
AMV	Alfalfa mosaic virus	Tip necrosis. Young leaves are pale green, small, twisted and distorted. A faint mosaic pattern may appear.	Prevalent in lentil production regions with high aphid numbers.	Wide host range including most pulses, some horticultural plants and weeds.	Virus-free seed, management of weeds, resistant varieties.
CMV	Cucumber mosaic virus	Yellowing, stunting. Young leaves are pale green, small, twisted and distorted. A faint mosaic pattern may appear.	Common in all lentil growing areas with high aphid numbers.	Very wide host range including most pulses, pastures, some horticultural plants and weeds.	Virus-free seed, management of weeds, resistant varieties.
TuYV	Turnip yellows virus	Yellowing, stunting. Produces the most severe symptoms of all the viruses but can be symptomless in some varieties.	Present in all lentil production areas with high aphid numbers.	Very wide host range including most pulses and brassicas, some horticultural plants and many weed species.	Managing weeds and aphids, resistant varieties.

Source: *Identification and Management of Field Crop Diseases in Victoria* (2022)**Table 6: Mallee and Wimmera lentil results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

Year	No. trials	MALLEE					WIMMERA					No. trials
		2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	
Mean yield (t/ha)		1.24	0.56	2.04	1.58	2.77		2.24	2.71	1.94	2.49	–
	No. trials	3	3	2	3	1	No. trials	2	1	2	2	–
CONVENTIONAL LENTIL												
PBA Ace <sup>db</sup>	12	120	111	104	110	103	7	104	103	105	102	Trial failed
PBA Blitz <sup>db</sup>	5	–	–	92	78	–	4	–	–	93	103	
PBA Bolt <sup>db</sup>	12	97	99	99	99	100	7	99	100	99	99	
PBA Flash <sup>db</sup>	6	115	104	–	–	–	3	102	97	–	–	
PBA Jumbo <sup>db</sup>	6	106	101	–	–	–	3	99	94	–	–	
PBA Jumbo2 <sup>db</sup>	12	118	107	105	105	103	7	105	100	106	107	
HERBICIDE-TOLERANT LENTIL												
GIA Leader <sup>db</sup>	6	–	–	101	108	101	4	–	–	101	98	Trial failed
GIA Lightning <sup>db</sup>	4	–	–	–	116	108	2	–	–	–	99	
GIA Sire <sup>db</sup>	1	–	–	–	–	100	0	–	–	–	–	
GIA Thunder <sup>db</sup>	4	–	–	–	118	108	2	–	–	–	106	
PBA Hallmark XT <sup>db</sup>	12	92	99	99	106	96	7	95	102	98	93	
PBA Highland XT <sup>db</sup>	12	101	99	102	105	97	7	98	100	101	100	
PBA Hurricane XT <sup>db</sup>	12	93	98	99	103	100	7	98	101	99	98	
PBA Kelpie XT <sup>db</sup>	12	104	96	100	90	95	7	101	95	102	105	

GIA Metro was only trialled in South Australia and not in Victoria in 2021. – denotes no data available.

Source: *National Variety Trials* (2017–2021)**ACKNOWLEDGEMENTS**Jason Brand  
Joshua FanningAgriculture Victoria  
Agriculture VictoriaLarn McMurray  
Janine SounnessGrains Innovation Australia  
PB Seeds



# FABA BEAN

## NEW VARIETIES

There were no new faba bean varieties released in 2022.

## DISEASE UPDATE

There is only one significant change to faba bean resistance ratings in 2021, with PBA Marne<sup>Ⓛ</sup> downgraded from MRMS to a provisional rating of MS for Ascochyta blight. We have seen increased disease severity in conducive conditions in susceptible varieties such as PBA Bendoc<sup>Ⓛ</sup>. It is important, particularly in higher risk areas, to select more resistant varieties and not rely on fungicides for disease control. This will reduce the chance of fungicide resistance developing.

A successful integrated disease management plan will reduce the reliance on fungicides. This includes paddock rotation, good agronomy, selecting a more resistant variety, seed treatments, in-crop monitoring, fungicide applications and rotation of fungicide actives.

## AGRONOMIC UPDATE

With the introduction of the newer herbicides Overwatch<sup>®</sup> and Reflex<sup>®</sup>, which provide broad spectrum weed control, growers can now be less reliant on the IMI tolerance provided by PBA Bendoc<sup>Ⓛ</sup>, particularly in higher weed populations. Growers should always consult their agronomist and follow label guidelines when deciding on a weed control strategy.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- Faba Bean Southern Region – GRDC GrowNotes™
- [GRDC Southern Region NVT Harvest Reports](#)



[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing Faba Bean in Victoria](#)
- [Agriculture Victoria Pulse Disease Guide](#). Also available as an e-book

[extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

[pulseaus.com.au](http://pulseaus.com.au)

- [Growing Pulses – Faba Bean](#)

## VARIETY DESCRIPTIONS

Varieties have been listed according to type and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. Where possible, in addition to data supplied below from long-term NVT, growers should seek locally relevant agronomy results published through Online Farm Trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

Ⓛ Denotes Plant Breeder's Rights apply

IMI Imidazolinone

PBA Pulse Breeding Australia

PSbMV Pea seed-borne mosaic virus

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## FABA BEAN VARIETIES

### FARAH<sup>Ⓛ</sup>

Farah<sup>Ⓛ</sup> is an older, early-mid maturing faba bean variety, best adapted to medium-rainfall environments. It has increased susceptibility to disease and lower yields compared with current industry standards, PBA Samira<sup>Ⓛ</sup> and PBA Amberley<sup>Ⓛ</sup>. Released 2003. Free to trade. EPR \$3.00.

### NURA<sup>Ⓛ</sup>

Shorter than Fiesta VF and Farah<sup>Ⓛ</sup> and less likely to lodge, however bottom pods are closer to the ground. Needs to be sown early as it flowers about seven days later than Fiesta VF but it matures at a similar time. Released 2005. Commercialised by Seednet. EPR \$3.00.

### PBA AMBERLEY<sup>Ⓛ</sup>

Mid flowering and mid-late maturing. Good standing ability and a low level of 'necking'. Grain size similar to PBA Samira<sup>Ⓛ</sup>, although slightly larger. High yield advantage over other varieties in high-rainfall regions. PBA Amberley<sup>Ⓛ</sup> has the highest resistance rating to chocolate spot with an MRMS resistance rating, the first faba bean variety to achieve this. Seed available from Seednet. EPR \$3.50.

### PBA BENDOC<sup>Ⓛ</sup>

Mid flowering and early-mid maturing, with medium height. Medium-sized seed suited to the Middle East markets. Improved tolerance to some Group 2 herbicides, with Nufarm's Intercept<sup>®</sup> the registered product for use on PBA Bendoc<sup>Ⓛ</sup>. It is important to note that growers must adhere to product label rates, plant-back periods and all label directions for use. Released 2018. Developed by PBA. Seed available from Seednet. EPR \$3.90.

### PBA MARNE<sup>Ⓛ</sup>

An early-mid flowering, high-yielding faba bean with good adaptation to lower-rainfall and short-season areas. Potential to expand faba bean production into areas that are considered marginal and improve reliability in established areas during below-average rainfall seasons. Light brown, medium-sized seed. Suitable for mixing with current faba bean varieties for export to the major food markets in the Middle East. Released 2018. Developed by PBA. Seed available from Seednet. EPR \$3.50.

### PBA RANA<sup>Ⓛ</sup>

Mid-flowering and maturing variety suited to higher-rainfall, long-season regions. Seed is medium-large and is considered high quality by the major Egyptian market. Released 2011. Developed by PBA. Commercialised by Seednet. EPR \$3.50.

### PBA SAMIRA<sup>Ⓛ</sup>

A high-yielding variety with wide adaptation. Later flowering compared with Fiesta VF and Farah<sup>Ⓛ</sup> means PBA Samira<sup>Ⓛ</sup> can take advantage of late rainfall in longer-season environments. Seed is slightly larger than Farah<sup>Ⓛ</sup> and is suited to Middle East markets. Released 2014. Developed by PBA. Commercialised by Seednet. EPR \$3.50.

### PBA ZAHRA<sup>Ⓛ</sup>

A high-yielding, mid flowering and mid-late maturing variety. Performs well in longer-season environments. Seed is larger than Farah<sup>Ⓛ</sup> and similar to PBA Rana<sup>Ⓛ</sup>, suitable to Middle East markets. Released 2016. Developed by PBA. Commercialised by Seednet. EPR \$3.50.

## BROAD BEAN VARIETIES

### AQUADULCE

Tall, late-flowering broad bean with some tolerance to waterlogging as well as iron and manganese deficiencies. Best suited to high-rainfall districts. Released 1982. No EPR.

### PBA KAREEMA

PBA Kareema is a direct replacement for the variety Aquadulce. Requires a long growing season like Aquadulce, best suited to high-rainfall districts. Released 2010. No EPR.

**Table 1: Faba bean adaptability for Victorian rainfall zones.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	RAINFALL ZONE		
	Low <350mm	Med 350 to 500mm	High >500mm
<b>FABA BEAN</b>			
Farah <sup>Ⓛ</sup>	✓	✓	✓
Nura <sup>Ⓛ</sup>		✓	✓
PBA Amberley <sup>Ⓛ</sup>		✓	✓
PBA Bendoc <sup>Ⓛ</sup>		✓	✓
PBA Marne <sup>Ⓛ</sup>	✓	✓	✓
PBA Rana <sup>Ⓛ</sup>		✓	✓
PBA Samira <sup>Ⓛ</sup>	✓	✓	✓
PBA Zahra <sup>Ⓛ</sup>		✓	✓
<b>BROAD BEAN</b>			
Aquadulce		✓	✓
PBA Kareema		✓	✓

**Table 2: Agronomic characteristics of faba bean varieties.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	Seed size	Seed colour	Plant height	Flowering time	Maturity	Lodging resistance
<b>FABA BEAN</b>						
Farah <sup>Ⓛ</sup>	medium	light brown/brown	medium	early-mid	early-mid	MS
Nura <sup>Ⓛ</sup>	small-med	light buff	short	mid	early-mid	MR
PBA Amberley <sup>Ⓛ</sup>	med-large	light brown	medium	mid	mid-late	R
PBA Bendoc <sup>Ⓛ</sup>	medium	light brown	medium	mid	early-mid	MS
PBA Marne <sup>Ⓛ</sup>	medium	light brown	medium	early-mid	early-mid	MR
PBA Rana <sup>Ⓛ</sup>	med-large	light brown	med-tall	mid	mid	MR
PBA Samira <sup>Ⓛ</sup>	medium	light brown	medium	mid	mid	MR
PBA Zahra <sup>Ⓛ</sup>	med-large	light brown	med-tall	mid	mid-late	MR
<b>BROAD BEAN</b>						
Aquadulce	large	light brown	tall	late	mid-late	MS
PBA Kareema	large	light brown	tall	late	late	MS

Reviewed by Samuel Catt, University of Adelaide (2022)

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible.

**Table 3: Disease resistance ratings of faba bean varieties.**

Variety	Ascochyta blight	Chocolate spot (botrytis)	Cercospora	Rust	PSbMV seed staining <sup>1</sup>	Root lesion nematode ( <i>Pratylenchus</i> )	
						<i>P. thornei</i>	<i>P. neglectus</i> <sup>3</sup>
<b>FABA BEAN</b>							
Farah <sup>db</sup>	S	S	S	VS	S (P)	MS	MR
Nura <sup>db</sup>	RMR	MS	S	VS	VS (P)	MS	MR
PBA Amberley <sup>db</sup>	RMR	MRMS	S	VS	–	MS (P)	MR
PBA Bendoc <sup>db</sup>	MR	S	S	VS	S (P)	MRMS (P)	RMR (P)
PBA Marne <sup>db</sup>	MS (P)	S	S	MRMS	MR (P)	MS	MR
PBA Rana <sup>db</sup>	MRMS	MS	S	VS	MR (P)	MS	MR
PBA Samira <sup>db</sup>	RMR	MS	S	S	S (P)	MRMS	MR
PBA Zahra <sup>db</sup>	MRMS	MS	S	S	S (P)	MRMS	MR
<b>BROAD BEAN</b>							
Aquadulce	MS	MS	S	MR <sup>2</sup>	S (P)	MS	MR
PBA Kareema	MR	MS	S	MRMS <sup>2</sup>	S (P)	–	–

Source: NVT Disease Ratings (2022)

<sup>1</sup> Indicates historic data that has not been updated in at least 12 months. <sup>2</sup> Indicates breeding company data. <sup>3</sup> No longer included in NVT disease screening.

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

(P) = provisional ratings – treat with caution.

– denotes no rating available.

Table 4: Faba bean disease guide summary.

Disease	Organism	Symptoms	Occurrence	Hosts	Control
Ascochyta blight	<i>Ascochyta fabae</i>	Large, light tan to grey lesions on leaves. Small black fruiting bodies develop within spots. Centres of lesions may fall out, leaving holes in leaves. Sunken lesions on stem similar in colour to leaf lesions. Brown-black discolouration of grain.	Common in all faba bean growing areas in southern Australia. Usually the first disease present in new crops. Most severe in wet seasons.	Faba bean, vetch. Spores spread by wind and rain.  Infected seed.	Resistant varieties. Crop rotation. Control volunteer plants. Clean seed. Foliar fungicides.
Chocolate spot	<i>Botrytis fabae</i>	Passive phase: small chocolate-coloured spots scattered over leaves.	Occurs in all areas where beans are grown. Disease usually becomes established in late winter and becomes more severe as day temperatures increase during spring. Can destroy unprotected crops in wet seasons.	Faba bean. Spores spread by wind and rain.	Resistant varieties. Crop rotation. Control volunteer plants. Foliar fungicides.
	<i>B. cinerea</i>	Aggressive phase: tissue around spots turns dark grey and black. Leaves die and blacken.			
Cercospora leaf spot	<i>Cercospora zonata</i>	Dark irregular lesions, with a distinct margin on the leaf. Easily confused with Ascochyta blight or chocolate spot but distinguished by the concentric pattern within lesions.	Occurs in all areas where beans are grown.	Faba bean, vetch.	Foliar fungicides.
Rust	<i>Uromyces viciae-fabae</i>	Numerous small, orange-brown rust pustules, surrounded by a light-yellow halo on the leaves of infected plants.	Most prevalent in northern Australia. Crops usually affected late in the season.	Faba bean	Crop rotation. Control volunteer plants. Foliar fungicides.
Sclerotinia stem rot	<i>Sclerotinia trifoliorum</i> var. <i>fabae</i>	Infection usually begins close to ground level and slimy wet rot extends into stem and down into the roots. Plants easily pulled from soil and have blackened base covered with cottony, white fungus growth. Usually isolated plants that suddenly wilt and collapse. Sclerotia on surface and within stem turn from white to black.	Rapid development of disease in wet, cool conditions.	Wide host range. Foliar form of disease spread by airborne spores. Fungus survives in the soil for many years.	Crop rotation. Lower sowing rates, wider row spacing and good weed control.
Stem nematode	<i>Ditylenchus dipsaci</i>	Patches of malformed and stunted plants with curling leaves and water-soaked spots. Stem may die back, turning reddish-brown colour.	Most severe in wet seasons.	Faba bean, pea, oat, wild oat. Infected seed, straw or soil. Nematodes can survive many years in seed, straw or soil.	Seed test. Crop rotation.
VIRUS DISEASES					
SCSV	Subterranean clover stunt virus	Stunting, tip yellowing, small and thick leaves.	Prevalent in all bean growing areas, symptoms appear early on faba bean.	Sub-clover, faba bean, lupin, lentil, chickpea, lucerne, soybean.	Managing aphids and weeds.
BLRV	Bean leafroll virus	Interveinal yellowing, leaf rolling, stunting, leathery leaves.	Occurs in all bean growing areas.	The host range is limited to Fabaceae.	Managing aphids .

Source: *Identification and Management of Field Crop Diseases in Victoria* (2022)

**Table 5: North East and South West faba bean results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

Year	NORTH EAST			SOUTH WEST			
	2019	2020	2021	2020	2021		
Mean yield t/ha	–	3.94	5.07	3.89	6.05		
	No. trials	–	1	1	No. trials	1	
Farah <sup>db</sup>	2	Trial failed	104	96	2	104	96
Fiesta VF	2		104	103	2	105	98
Nura <sup>db</sup>	2		103	92	2	102	94
PBA Amberley <sup>db</sup>	2		103	103	2	109	102
PBA Bendoc <sup>db</sup>	2		97	93	2	94	98
PBA Marne <sup>db</sup>	2		95	110	2	80	99
PBA Rana <sup>db</sup>	1		–	90	1	–	93
PBA Samira <sup>db</sup>	2		103	100	2	113	101
PBA Zahra <sup>db</sup>	2		96	103	2	96	100

Source: National Variety Trials (2017–2021)

– denotes no data available.

**Table 6: Wimmera faba bean results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

Year	WIMMERA					
	2017	2018	2019	2020	2021	
Mean yield t/ha	4.00	2.79	2.59	4.44	2.66	
	No. trials	2	2	2	3	3
Farah <sup>db</sup>	12	96	96	95	104	97
Fiesta VF	12	96	96	95	99	98
Nura <sup>db</sup>	12	96	95	94	105	96
PBA Amberley <sup>db</sup>	12	99	99	100	101	100
PBA Bendoc <sup>db</sup>	12	102	101	102	103	99
PBA Marne <sup>db</sup>	12	99	99	96	85	101
PBA Rana <sup>db</sup>	9	86	86	86	–	92
PBA Samira <sup>db</sup>	12	99	99	100	104	100
PBA Zahra <sup>db</sup>	12	102	100	101	96	102

Source: National Variety Trials (2017–2021)

– denotes no data available.

## ACKNOWLEDGEMENTS

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 Samuel Catt            University of Adelaide

# LUPIN

## NEW VARIETIES

There is one new lupin variety available for sowing in Victoria for 2022. Lawler<sup>®</sup> is a narrow-leaf lupin variety, bred and marketed by AGT. Varietal information is provided below.

## DISEASE UPDATE

There are no significant varietal resistance rating changes in lupins for 2022. It is important to utilise an integrated disease management plan to prevent disease. This includes paddock rotations, good agronomy practices, selecting more resistant varieties, seed treatments, in-crop monitoring, fungicide applications and rotation of fungicide actives.

Agriculture Victoria reminds growers that there are restrictions for lupin seed entering Victoria, which must be complied with to avoid a lupin anthracnose outbreak. This also applies to machinery used for lupins and used packaging. For more information contact an Agriculture Victoria plant biosecurity officer by telephoning 1800 878 962.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- [Lupin Southern Region – GRDC GrowNotes™](#)
- [GRDC Southern Region NVT Harvest Reports](#)

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing Lupin in Victoria](#)
- [Agriculture Victoria Pulse Disease Guide](#). Also available as an e-book

[extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

[pulseaus.com.au](http://pulseaus.com.au)

- [Growing pulses – Lupin](#)
- [Crop protection permits in pulses](#)

## VARIETY DESCRIPTIONS

Varieties have been listed according to type and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. Where possible, in addition to data supplied below from long-term NVT, growers should seek locally relevant agronomy results published through Online Farm Trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

(b) Denotes Plant Breeder's Rights apply

PBA Pulse Breeding Australia

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

## NARROW-LEAFED LUPIN VARIETIES

### COYOTE<sup>Ⓛ</sup>

Coyote<sup>Ⓛ</sup> performs well across a very broad range of soil types, rainfall zones and yield potentials. It is early maturing (slightly slower than PBA Jurien<sup>Ⓛ</sup>), with metribuzin tolerance similar to Mandelup<sup>Ⓛ</sup>. Coyote<sup>Ⓛ</sup> is susceptible to Phomopsis; graze lupin stubbles with care in high-risk environments. Released 2019. Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.00.

### JENABILLUP<sup>Ⓛ</sup>

Tall, mid-flowering, narrow-leaf lupin with early vigour. Moderately resistant to lodging and suitable for medium to high-rainfall areas. Longer flowering window compared with Mandelup<sup>Ⓛ</sup>, making it less suitable for crop topping. Poor tolerance of foliar metribuzin. Released 2007. Free to trade. EPR \$2.30.

### NEW – LAWLER<sup>Ⓛ</sup>

Early maturing variety, slightly quicker than Mandelup<sup>Ⓛ</sup>. Lawler<sup>Ⓛ</sup> is widely adapted throughout southern and eastern Australian lupin growing areas. Lawler<sup>Ⓛ</sup> has an improved stem Phomopsis rating compared with Coyote<sup>Ⓛ</sup> and is tolerant of metribuzin. Released 2022 (tested as AGTP0006). Bred and marketed by AGT and eligible for AGT Seed Sharing™. EPR \$3.00.

### MANDELUP<sup>Ⓛ</sup>

A tall, very early flowering and maturing variety suited to low to medium-rainfall zones. Suitable for crop topping. Mandelup<sup>Ⓛ</sup> may lodge in high-rainfall zones. Pod shatter with delayed harvest, and poorer seed germination rate and establishment may occur with rain before harvest. It can produce unacceptable levels of seed Phomopsis under high disease pressure. Good tolerance to metribuzin. Released 2004. Free to trade. EPR \$2.30.

### PBA BARLOCK<sup>Ⓛ</sup>

Early variety with slightly later flowering and maturity than Mandelup<sup>Ⓛ</sup>, with a greater yield potential, reduced lodging and good resistance to pod shatter. Similar metribuzin tolerance to that of Mandelup<sup>Ⓛ</sup> and better than Wonga. Released 2014. Commercialised by Seednet. EPR \$2.50.

### PBA BATEMAN<sup>Ⓛ</sup>

Early flowering lupin variety with improved virus resistance. Well suited to high-rainfall zones. PBA Bateman<sup>Ⓛ</sup> has similar harvest grain loss risk and resistance to pod shatter as PBA Barlock<sup>Ⓛ</sup>. Similar tolerance to metribuzin as PBA Jurien<sup>Ⓛ</sup>, PBA Barlock<sup>Ⓛ</sup> and PBA Gunyidi<sup>Ⓛ</sup>. Released 2017. Seed available from Seednet. EPR \$2.60.

### PBA JURIE<sup>Ⓛ</sup>

Early maturing variety. Early flowering, slightly earlier than PBA Barlock<sup>Ⓛ</sup>. Similar in height to Mandelup<sup>Ⓛ</sup>, MS to lodging in high-rainfall regions. Medium to large seed, similar to Mandelup<sup>Ⓛ</sup>. Alkaloid content similar to PBA Gunyidi<sup>Ⓛ</sup>. Tolerance to metribuzin is better than Mandelup<sup>Ⓛ</sup>. Released 2015. Developed by PBA. Commercialised by Seednet. EPR \$2.50.

## ALBUS LUPIN VARIETIES

### LUXOR<sup>Ⓛ</sup>

Luxor<sup>Ⓛ</sup> is earlier flowering than its sister line Rosetta. Resistant to pleiochaeta root rot (the cause of many seedling deaths in older varieties). Released in 2005. Commercialised by Seednet. EPR \$2.80.

### MURRINGO<sup>Ⓛ</sup>

Mid flowering variety suited to medium to high-rainfall zones. Slightly longer maturity time to Luxor<sup>Ⓛ</sup>. Suitable sowing window of late-April to mid-May. Murringo<sup>Ⓛ</sup> should not be grown within one kilometre of other albus lupin varieties to avoid contamination. Released 2017. Seed available from Seednet. EPR \$3.20.



**Table 1: Lupin adaptability for Victorian rainfall zones.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	RAINFALL ZONE		
	Low <350mm	Med 350 to 500mm	High >500mm
<b>NARROW-LEAFED LUPIN</b>			
Coyote <sup>db</sup>	✓	✓	
Jenabillup <sup>db</sup>		✓	✓
Lawler <sup>db</sup>	✓	✓	✓
Mandelup <sup>db</sup>	✓	✓	
PBA Barlock <sup>db</sup>	✓	✓	
PBA Bateman <sup>db</sup>	✓	✓	✓
PBA Jurien <sup>db</sup>	✓	✓	
<b>ALBUS LUPIN</b>			
Luxor <sup>db</sup>		✓	
Murringo <sup>db</sup>		✓	

**Table 2: Agronomic characteristics of lupin varieties.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	Flowering time	Height	Lodging	Pod shattering	Aphid resistance
<b>NARROW-LEAFED LUPIN</b>					
Coyote <sup>db</sup>	E	T	MR	–	–
Jenabillup <sup>db</sup>	M	T	MR	MS	MR
Lawler <sup>db</sup>	VE-E	M-T	MRMS	–	–
Mandelup <sup>db</sup>	VE-E	T	MS	MS	R
PBA Barlock <sup>db</sup>	E	M	MR	R	R
PBA Bateman <sup>db</sup>	E	M	MRMS	MRMS	R
PBA Jurien <sup>db</sup>	E	T	MS	MR	–
<b>ALBUS LUPIN</b>					
Luxor <sup>db</sup>	E-M	M-T	R	R	S
Murringo <sup>db</sup>	M	M	R	R	S

Reviewed by Matt Aubert, AGT Breeding (2022)

Flowering time: VE = very early, E = early, M = mid, L = late. Height: S = short, M = medium, T = tall.

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, VS = very susceptible.

– denotes no rating available.

**Table 3: Disease resistance ratings of lupin varieties.**

Variety	Brown leaf spot	Pleiochaeta root rot <sup>2</sup>	Cucumber mosaic virus (CMV) (seed transmitted)	Anthracnose	Phomopsis	
					Stem	Pod/seed
<b>NARROW-LEAFED LUPIN</b>						
Coyote <sup>db</sup>	MS (P)	MR (P)	MR	MRMS (P)	S (P)	MRMS
Jenabillup <sup>db</sup>	MRMS	MR (P)	MRMS	MS	MS	MR
Lawler <sup>db</sup>	MS (P)	MR (P)	MRMS	MR	MR (P)	MS (P)
Mandelup <sup>db</sup>	MS	MRMS (P)	MRMS	MRMS	RMR	S
PBA Barlock <sup>db</sup>	MS	MRMS	MR	RMR	MR	MR
PBA Bateman <sup>db</sup>	MS	MR (P)	MR	MRMS	RMR	MS
PBA Jurien <sup>db</sup>	MS	MR	MS	RMR	RMR	MR
<b>ALBUS LUPIN</b>						
Luxor <sup>db1</sup>	MR	R	Immune	VS	MR	S
Murringo <sup>db1</sup>	MR	MR	Immune	VS	MS	S

Source: NVT Disease Ratings (2022)

<sup>1</sup> Indicates historic data that has not been updated in at least 12 months. <sup>2</sup> Disease no longer screened in NVT.

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

(P) = provisional ratings – treat with caution.

**Table 4: Lupin disease guide summary.**

Disease	Organism	Symptoms	Occurrence	Inoculum source	Control
<b>FUNGAL DISEASES</b>					
Brown leaf spot	<i>Pleiochaeta setosa</i>	Dark brown spots on cotyledons leaves and pods, often net-like on leaves, infected leaves drop off, lesions may girdle stem.	Very common but losses usually minor in dry areas, yield loss can be significant in cool damp areas.	Spores in soil and lupin trash, rain-splash and windblown.	Fungicide seed dressings, crop rotations, resistant varieties selection, early sowing.
Pleiochaeta root rot	<i>Pleiochaeta setosa</i>	Browning and rotting of tap and lateral roots, seedling plant death.	Serious reduction in lupin plant density and vigour.	Spores in soil infecting roots usually at seedling stage.	Minimum four-year rotation between lupins, sowing 4–5cm deep to avoid spore layer, fungicide seed dressings.
Rhizoctonia	<i>Rhizoctonia</i> spp.	Bare patches in crop, spear-tipped root ends, hypocotyl rot and stain.	Can be severe in isolated patches, reduces stand density, favoured by minimum tillage, wet soils and mild conditions.	Soil-borne infection with wide host range, survives as fungal fragments in soil and plant debris.	Rotation of crops with other pulses, tillage can help, increased seedling rate.
Anthracnose	<i>Colletotrichum lupini</i>	Stems/branches bend over, brown lesions with pink/orange spore masses in crook bend, dark lesions with pink/orange spores on flower spike and pods.	Severe infections can result in severing of stems or total pod abortion resulting in complete crop failure.	Seed-borne disease, infected seed produces infected seedlings. Spread in crop by rain-splash and wind.	Clean seed and machinery, destroy infected regrowth, resistant varieties, fungicide seed dressings reduce seedling infection.
Phomopsis stem and pod blight	<i>Diaporthe toxica</i>	Dark purplish lesions that bleach with age and contain black fruiting bodies and can cause plants to lodge. Severe lesions may girdle the stem and kill the plant.  Saprophytic growth of fungus in stubble and seed produces mycotoxin, which causes lupinosis in grazing animals.	Can infect stems, leaves, pods and seeds of lupins. Prematurely dying plants after pod set can be seen in crops, particularly in parts of the paddock stressed by drought, frost or herbicides.	Fungus can survive on lupin trash and seed, rain-splash and windblown.	Crop rotation and increasing the break between lupin crops, variety selection, seed treatment.
Sclerotinia	<i>Sclerotinia sclerotiorum</i>	White fungal growth containing black sclerotia in upper stem, branches or colonising pods. Stem death above lesion. Sclerotia contaminating harvested seed.	Most common in higher rainfall or wetter regions with dense canopies. More likely with canola in the rotation but can affect several broadleaf crops.	Sclerotia survive in soil and trash for several years. Wide host range in broadleaf crops.	Avoid lupins following broadleaf crops or pasture (particularly canola). No variety resistance.
<b>VIRUS DISEASES</b>					
CMV	Cucumber mosaic virus	All growth after infection is dwarfed, leaflets are yellowed and bunched.	Early widespread infection severely reduces yield. Minor infections prevent use of harvested grain as seed.	Seed-borne infection in narrow-leaf lupin, aphids transmit the disease within a crop. Wide host range.	Sow virus-free seed, use a seed test, high sowing rates and cereal barriers around crops reduce aphid transmission.
BYMV (Black pod syndrome)	Bean yellow mosaic virus	Brown necrotic streaks as plant dies back from growing point of stem, shepherd crook of stem, pods blackened and flat, leaves yellow, plants wilt and die.	Occurs in all lupin growing areas. Can be severe in higher-rainfall areas.	Seed-borne in albus but not narrow-leafed lupin, aphid spread in crop, many host species.	Sow virus-free seed. High plant density, cereal buffer.

Source: *Identification and Management of Field Crop Diseases in Victoria* (2022)**Table 5: Mallee narrow-leafed lupin results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

MALLEE						
Year		2017	2018	2019	2020	2021
Mean yield (t/ha)		1.08	0.85	1.31	1.58	1.76
	No. trials	1	1	2	2	2
Coyote <sup>db</sup>	6	108	129	–	95	101
Jenabillup <sup>db</sup>	6	100	101	119	101	–
Lawler <sup>db</sup>	4	–	–	–	96	100
Mandelup <sup>db</sup>	7	87	–	99	92	95
PBA Barlock <sup>db</sup>	7	82	–	101	91	93
PBA Bateman <sup>db</sup>	7	–	116	116	98	101
PBA Gunyi <sup>db</sup>	6	104	–	115	99	101
PBA Jurien <sup>db</sup>	6	89	–	106	89	95
Quilinock	8	90	104	110	96	96
Wonga	8	79	83	100	98	92

Source: *National Variety Trials* (2017–2021)

– denotes no data available.

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Matt Aubert	Australian Grain Technologies
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# CHICKPEA

## NEW VARIETIES

There were no new chickpea varieties released in 2022.

## DISEASE UPDATE

All chickpeas remain at least moderately susceptible (MS) to Ascochyta blight. Therefore, an integrated disease management plan is essential when growing chickpeas. Despite their susceptibility, an MS variety still offers significantly more resistance to Ascochyta blight compared with a susceptible (S) variety.

A successful integrated disease management plan will include paddock rotation, good agronomy, selecting a more resistant variety, seed treatments, in-crop monitoring, fungicide applications and rotation of fungicide actives.

## AGRONOMIC UPDATE

Chickpeas have a relatively broad sowing window, particularly in the medium and high-rainfall zones, if subsoil moisture is available. While long-term results indicate that sowing early within the window is generally most profitable, recent seasons have demonstrated the poor tolerance of chickpeas to cold temperatures during flowering and podding. Later sowing (June and July) or even spring sowing can be a profitable option for chickpeas. This minimises costs associated with weed and disease control and the impact of cold temperatures. Chickpeas have excellent adaptation to higher temperatures during the reproductive phase, when stored soil moisture is available.

## MORE INFORMATION

[nvt.grdc.com.au](http://nvt.grdc.com.au)

- Detailed NVT results and links to variety information
- NVT Long Term Yield Reporter

[grdc.com.au](http://grdc.com.au)

- [Chickpea Southern Region – GRDC GrowNotes™](#)
- [GRDC Southern Region NVT Harvest Reports](#)

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

- [Growing Chickpea in Victoria](#)
- [Agriculture Victoria Pulse Disease Guide](#). Also available as an e-book

[extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)

- Expert support on field crop diseases in Victoria at your fingertips

[pulseaus.com.au](http://pulseaus.com.au)

- [Crop protection permits in pulses](#)
- [Chickpea Disease Management Strategy](#)

## VARIETY DESCRIPTIONS

Varieties have been listed according to type and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of the breeder, NVT, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. Where possible, in addition to data supplied below from long-term NVT, growers should seek locally relevant agronomy results published through Online Farm Trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Abbreviations used are:

(b) Denotes Plant Breeder's Rights apply

**CBA** Chickpea Breeding Australia

**PBA** Pulse Breeding Australia

End point royalty (EPR) 2022-23 quoted \$/tonne ex-GST.

## DESI TYPE

### CBA CAPTAIN<sup>Ⓛ</sup>

Medium seed size variety with broad adaptation to Victorian desi chickpea growing areas. Erect plant type with good plant height and height to lowest pod. Mid flowering and early to mid maturing in Victorian growing environments. Good grain size, similar to PBA HatTrick<sup>Ⓛ</sup>, and meets the requirements of a 'Jimbour type' suitable for the subcontinent market. Released 2020. Chickpea Breeding Australia seed partners for Victoria are PB Seeds and AG Schilling & Co. EPR \$4.50.

### PBA MAIDEN<sup>Ⓛ</sup>

Medium-large angular seed size, yellow-tan in colour. Mid flowering and mid maturing. Growers are advised to investigate delivery and marketing options prior to growing this variety due to its unique and favourable seed characteristics. Suitable for the whole seed market. Released 2013. EPR \$4.00.

### PBA SLASHER<sup>Ⓛ</sup>

PBA Slasher<sup>Ⓛ</sup> is a mid flowering and maturing variety. Seed is medium sized, tan-brown in colour and has excellent milling quality. Suitable for both split and whole seed markets. Released 2009. Commercialised by Seednet. EPR \$4.00.

### PBA STRIKER<sup>Ⓛ</sup>

Excellent adaptation to short season environments due to early flowering and maturity. Medium seed size. Excellent milling quality. Released 2012. Commercialised by Seednet. EPR \$4.00.

## KABULI TYPE

### GENESIS™ 090

Genesis™ 090 is a small seed (7–8mm) type kabuli. It has potential to be grown as an alternative to desi chickpeas, or as a higher-yielding but potentially lower-priced grain alternative to large seed type kabuli varieties such as PBA Magnus<sup>Ⓛ</sup> and Genesis™ Kalkee. Released 2005. Seed available from PB Seeds. EPR \$5.00.

### GENESIS™ KALKEE

Genesis™ Kalkee is mid-late flowering and late maturity with seed size larger than PBA Royal<sup>Ⓛ</sup>, PBA Monarch<sup>Ⓛ</sup> and Almaz<sup>Ⓛ</sup>, with a tall and erect plant habit. Released 2012. Seed available from PB Seeds. EPR \$5.00.

### PBA MAGNUS<sup>Ⓛ</sup>

The largest seeded kabuli with similar plant type to Genesis™ 090. Early-mid flowering and maturing. Adapted to kabuli growing regions of Victoria and South Australia. An excellent replacement for Genesis™ Kalkee due to its larger seed size and where an erect plant type is not essential. Very good seed size and shape. Released 2020. Seed available from PB Seeds. EPR \$6.50.

### PBA MONARCH<sup>Ⓛ</sup>

Suited to shorter-season, medium-rainfall environments due to improved adaptation through earlier flowering and maturity. Medium seed size, larger than Genesis™ 090, similar to Almaz<sup>Ⓛ</sup>. Semi-spreading plant similar to PBA Slasher<sup>Ⓛ</sup>. Some susceptibility to lodging, particularly when biomass is high. Released 2013. Commercialised by Seednet. EPR \$6.50.

### PBA ROYAL<sup>Ⓛ</sup>

A medium-seeded kabuli with a larger seed size and higher yield than Genesis™ 090 in medium-rainfall Victorian environments. Released 2019. Seed available from Seednet. EPR \$6.50.

**Table 1: Chickpea adaptability for Victorian rainfall zones.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	RAINFALL ZONE		
	Low <350mm	Med 350 to 500mm	High >500mm
<b>DESI TYPE</b>			
CBA Captain <sup>d</sup>	✓	✓	
PBA Maiden <sup>d</sup>		✓	
PBA Slasher <sup>d</sup>		✓	
PBA Striker <sup>d</sup>	✓	✓	
<b>KABULI TYPE</b>			
Genesis™ 090	✓	✓	
Genesis™ Kalkee		✓	✓
PBA Magnus <sup>d</sup>		✓	✓
PBA Monarch <sup>d</sup>	✓	✓	✓
PBA Royal <sup>d</sup>	✓	✓	✓

**Table 2: Agronomic characteristics of chickpea varieties.**

The agronomic characteristics in this table are provided as a guide only and have been compiled from observations of the breeder, agronomic research projects and seed companies.

Variety	Av. 100 seed weight (g)	Seed size group	Seed size (mm)	Vigour	Flowering	Maturity	Height	Lodging resistance
<b>DESI TYPE</b>								
CBA Captain <sup>d</sup>	20	medium	–	good	mid	early-mid	tall	MR
PBA Maiden <sup>d</sup>	24	med-large	–	mod	mid	mid	short-mid	MS
PBA Slasher <sup>d</sup>	18	medium	–	poor-mod	mid	mid	short-mid	MS
PBA Striker <sup>d</sup>	22	medium	–	good	early	early	short-mid	MS
<b>KABULI TYPE</b>								
Genesis™ 090	31	small	7-8	good	mid	mid	mid	MR
Genesis™ Kalkee	45	large	8-10	good	mid-late	late	tall	R
PBA Magnus <sup>d</sup>	47	large	8-10	poor-mod	early-mid	early-mid	mid	MS
PBA Monarch <sup>d</sup>	40	medium	8-9	poor-mod	early	early	mid	S
PBA Royal <sup>d</sup>	36	medium	8	mod	mid	mid	mid	MR

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible.  
– denotes no rating available.

**Table 3: Disease resistance ratings of chickpea varieties.**

All chickpea varieties are rated as S or MS to foliar Ascochyta blight infection. Chickpea crops will require multiple fungicide applications to control Ascochyta blight in most seasons. All varieties are susceptible to pod infection and will require protection during podding to prevent seed staining and abortion.

Variety	Botrytis grey mould	Ascochyta blight <sup>2</sup> (foliar rating)	Phytophthora root rot <sup>3</sup> ( <i>P. medicaginis</i> )	Root lesion nematode ( <i>Pratylenchus</i> )	
				<i>P. neglectus</i>	<i>P. thornei</i>
<b>DESI TYPE</b>					
CBA Captain <sup>Ⓛ</sup>	S	MS (P)	S	MR	MS
PBA Maiden <sup>Ⓛ</sup>	S	S	VS	MRMS	MRMS
PBA Slasher <sup>Ⓛ</sup>	S	S	VS	MRMS	MRMS
PBA Striker <sup>Ⓛ</sup>	S	S	VS	MRMS	MRMS
<b>KABULI TYPE</b>					
Genesis™ 090	S	MS	VS	MRMS	MSS
Genesis™ Kalkee	S	S	VS	MRMS	MS
PBA Magnus <sup>Ⓛ</sup>	S	S	VS	MR	MSS
PBA Monarch <sup>Ⓛ1</sup>	S	S	VS	MRMS	MS
PBA Royal <sup>Ⓛ</sup>	S	MS	VS	MS	MS

Sources: [NVT Disease ratings \(2022\)](#)

<sup>1</sup> Indicates historic data that has not been updated in at least 12 months. <sup>2</sup> Ascochyta blight pathotype group 1 is more prevalent in Victoria and South Australia.

<sup>3</sup> Phytophthora root rot (*P. medicaginis*) ratings are breeder data, with the exception of CBA Captain<sup>Ⓛ</sup> from NVT.

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, VS = very susceptible.

(P) = provisional ratings – treat with caution.

Table 4: Chickpea disease guide summary.

Disease	Organism	Symptoms	Occurrence	Host	Control	
Ascochyta blight	<i>Phoma rabiei</i> (formerly known as <i>Ascochyta rabiei</i> )	Pale brown lesions on leaves, stems and pods. Lesions may have a grey centre containing small black fruiting bodies. Infected stems wither and break.	Occurs in all regions. Affects both kabuli and desi types. Most severe in spring.	Chickpea.	Fungicide seed dressing, foliar fungicides, rotation, avoid susceptible varieties, avoid early sowing.	
Botrytis grey mould	<i>Botrytis cinerea</i>	Poor emergence and death of young plants. Soft rot at the base of the stem. Grey mould growth on leaves, stems and pods. Lodging of plants in dense crops. Discolouration of seed with grey mould.	Occurs in all regions. Affects both kabuli and desi types. Most severe in wet seasons. Dense crops are more likely to be affected.	Chickpea and most pulses, including lentil and faba bean.	Fungicide seed dressings, lower plant densities, avoid early sowing.	
Sclerotinia	<i>Sclerotinia sclerotiorum</i>	Scattered dead plants within a crop. Cottony white fungal growth on the lower stems of dead plants. Soft rot and white mould on stems and pods.	Occurs in all chickpea growing regions. Most severe in wet seasons where chickpea is planted in fields recently cropped to chickpea.	Most pulses, oilseeds and broadleaf weeds.	Crop rotation. (Seed dressings of no benefit.)	
Damping-off	<i>Pythium</i> spp.	Poor crop establishment under wet conditions. Seed rotting in the ground. Sudden death of young seedlings.	Problem in all regions, particularly in soils that become very wet just after sowing. More severe on kabuli than desi chickpea.	Chickpea, most pulses.	Fungicide seed dressings, avoid poorly drained soils.	
Phytophthora	<i>Phytophthora megasperma</i>	Plants suddenly wither and die, particularly after waterlogging. Dark brown to black discolouration of the tap root.	Most serious disease in northern Australia. May be a problem in poorly drained soils in southern Australia under wet conditions.	Chickpea, lucerne.	Resistant varieties.	
Phoma blight	<i>Phoma medicaginis</i> var. <i>pinodella</i>	Blackening of the stem near ground level. Dark, tan-coloured lesions on leaves, stems and pods.	Common in most chickpea growing regions. Most severe in wet seasons.	Most legumes.	Crop rotation.	
Root lesion nematode	<i>Pratylenchus thornei</i> , <i>P. neglectus</i>	Ill-thrift, lack of branching of root system, small dark stripes on roots.	Favoured by wheat in rotation with chickpea, medic and vetch.	Wheat, chickpea, medic, vetch, narbon bean.	Crop rotation (predictive soil test available).	
VIRUS DISEASES						
AMV	Alfalfa mosaic virus	Tip necrosis.	Occurs in all chickpea growing areas.	Wide host range including most pulses, some horticultural plants and weeds.	Virus-free seed. Resistant varieties.	
		The leaves and stems of desi varieties become red/brown.				Seasons and districts with major aphid flights.
		The leaves and stems of kabuli varieties turn yellow.				
CMV	Cucumber mosaic virus	Yellowing, stunting, offshoots.	Prevalent in chickpea growing regions.	Very wide host range, including most pulses, pastures, horticultural crops and weeds.	Virus-free seed. Resistant varieties.	
		The leaves and stems of desi varieties become red/brown.				Seasons and districts with major aphid flights.
		The leaves and stems of kabuli varieties turn yellow.				
TuYV	Turnip yellows virus	Yellowing, stunting offshoots.	Occurs in all chickpea growing areas.	Very wide host range, including most pulses, brassicas and weeds.	Managing aphids and weeds, resistant varieties.	
		The leaves and stems of desi varieties become red/brown.				Seasons and districts with major aphid flights.
		The leaves and stems of kabuli varieties turn yellow.				

Source: *Identification and Management of Field Crop Diseases in Victoria* (2022)

**Table 5: Mallee and Wimmera chickpea results. NVT long-term yield expressed as a percentage of mean yield.**

Mean yield illustrated by colour gradient from lowest to highest, comparable on an annual basis.

DESI CHICKPEA												
	MALLEE					WIMMERA						
Year		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		1.66	0.54	1.47	1.86	1.72		1.93	1.38	1.52	1.60	–
	No. trials	1	2	2	2	2	No. trials	2	2	2	2	–
CBA Captain <sup>Ⓛ</sup>	9	101	111	106	96	105	8	104	108	98	102	Trial failed
Neelam <sup>Ⓛ</sup>	9	104	101	101	100	104	8	98	101	101	103	
PBA Maiden <sup>Ⓛ</sup>	9	101	103	103	104	105	8	97	89	101	111	
PBA Slasher <sup>Ⓛ</sup>	9	103	103	103	101	105	8	100	98	102	107	
PBA Striker <sup>Ⓛ</sup>	9	103	106	107	100	107	8	104	101	102	107	
KABULI CHICKPEA												
	MALLEE					WIMMERA						
Year		2017	2018	2019	2020	2021		2017	2018	2019	2020	2021
Mean yield (t/ha)		1.37	0.53	1.45	1.81	1.79		1.80	1.45	1.37	1.73	–
	No. trials	1	2	2	2	2	No. trials	2	2	2	2	–
Almaz <sup>Ⓛ</sup>	7	89	94	91	99	–	8	97	94	95	91	Trial failed
Genesis™ 090	9	107	97	97	99	102	8	98	108	102	98	
Genesis™ Kalkee	9	82	97	90	98	84	8	96	92	90	89	
PBA Magnus <sup>Ⓛ</sup>	9	90	105	102	98	95	8	105	98	96	97	
PBA Monarch <sup>Ⓛ</sup>	9	92	94	98	104	94	8	100	87	101	100	
PBA Royal <sup>Ⓛ</sup>	9	103	100	99	99	102	8	97	102	99	101	

– denotes no yield result available.

Source: National Variety Trials (2017–2021)

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# VETCH

Vetch is a multi-purpose crop, grown mostly as a break crop in rotation with cereals in a wide range of soil types. Common vetch varieties are versatile, providing crop for grain production, early grazing as green pasture or for dry grazing, hay production or green and brown manure. Grain vetches are grown in lower to mid-rainfall cereal areas of southern Australia, with grain yields similar to peas in these areas. Vetch is valued for benefits to subsequent cereal and oil seed crops in the rotation. These benefits are usually greater than from other pulses, particularly in lower-rainfall areas. On sandy soils vetches provide better soil protection than peas and better stubble retention in the soil.

Grain from Morava, Studenica<sup>Ⓛ</sup>, Volga<sup>Ⓛ</sup> and Timok<sup>Ⓛ</sup> can be used without limit to feed all ruminants, and up to 20 per cent in the diet of pigs. These varieties possess less toxin in grain compared with Blanchefleur and Languedoc.

Forage vetches (purple vetch or woolly pod vetch) are used only for hay, green manure or mid to late winter feed for grazing and grow successfully in areas of 400 to 650mm of annual rainfall.

Vetch grain is not suitable for human consumption and grain from woolly pod vetch varieties cannot be used to feed livestock.

## NEW VARIETIES

There are no new vetch varieties for 2023.

## DISEASE UPDATE

A successful integrated disease management plan in vetch will include paddock rotation, good agronomy, selecting a more resistant variety, seed treatments, in-crop monitoring, fungicide applications and rotation of fungicide actives. The other important factor is the end use of a vetch crop (grain, hay, feed, manure etc.) and it is important to factor this in when assessing the cost of disease management strategies and any relevant withholding periods.

Resistance ratings in vetch are sporadic, with the last resistance testing completed during 2020 at Agriculture Victoria. These ratings should, therefore, only be used as a guide.

## INSECTS

All vetch species and varieties are susceptible in early growth stages to redlegged earth mite and lucerne flea. They can also be susceptible to blue green and cowpea aphids from early growth through to pod maturity, as well as to native budworm during pod formation and filling.

## HERBICIDE TOLERANCE

### COMMON VETCH

There are no differences between common vetch varieties to registered herbicides to control broadleaf and grass weeds.

### PURPLE VETCH

Flumetsulam herbicides can be used to control some broadleaf weeds in Popany. All herbicides registered for use on crops must be used according to the label.

### WOOLLY POD VETCH

As this species is a poor competitor with weeds early in the season, care should be taken with paddock selection and herbicide choices. There is little difference in variety tolerances to registered herbicides.

## MORE INFORMATION

[agriculture.vic.gov.au](http://agriculture.vic.gov.au)

■ [Agriculture Victoria Pulse Disease Guide](#).

Also available as an e-book

[extensionaus.com.au/FCDVic](http://extensionaus.com.au/FCDVic)

■ Expert support on field crop diseases in Victoria at your fingertips

[grdc.com.au](http://grdc.com.au)

■ [Vetch Southern Region – GRDC GrowNotes™](#)

## VARIETY DESCRIPTIONS

Varieties have been listed according to type and in alphabetical order, not in order of preference. The agronomic characteristics in these descriptions are provided as a guide only and have been compiled from observations of breeders, agronomic research projects and/or seed companies.

When selecting a variety, growers are encouraged to consider their individual farm and paddock situation along with marketing requirements and access to markets. In addition to data supplied below, growers should seek locally relevant agronomy results published through Online Farm Trials ([www.farmtrials.com.au](http://www.farmtrials.com.au)), GRDC updates and various grower group publications.

Ⓛ Denotes Plant Breeder's Rights apply.

## COMMON VETCH (*VICIA SATIVA*)

### BLANCHEFLEUR

Blanchefleur is a mid maturing variety with white flowers and reddish brown/mottled seed with orange cotyledons. Very susceptible to rust. Blanchefleur is well suited to above 350mm rainfall areas, where rust is not a common problem. Export market opportunities of orange cotyledon varieties such as Blanchefleur are limited to small bird seed markets in Europe and seed for grazing and green manure crops only. Blanchefleur grains possess 0.9–1.6 per cent of anti-nutritional level (BCN). Blanchefleur is an old variety; seed sources may be hard to find and rely on grower-to-grower trading. Where possible newer disease-resistant varieties should be grown. No EPR.

### LANGUEDOC

Languedoc is an early flowering and maturing variety recommended for low (<350mm) rainfall areas. Susceptible to lodging, harvest can be difficult under certain conditions. Languedoc generally exceeds Blanchefleur's grain yield in areas with less than 350mm rainfall. Its hard seed content is generally around 5 to 10 per cent. Highly

susceptible to rust. Languedoc grains possess 1.0 to 1.6 per cent of anti-nutritional level (BCN). Languedoc is an old variety; seed sources may be hard to find and rely on grower-to-grower trading. Where possible newer disease-resistant varieties should be grown. No EPR.

### MORAVA

Morava is a rust-resistant, late flowering vetch variety with 100 per cent soft seeds. Grain yield is superior to other vetches in high-rainfall (>420mm) areas, and to Blanchefleur and Languedoc in all other areas in the presence of rust. It has large seed and is more resistant to shattering than other vetch varieties. Morava produces higher herbage yields than all other common vetch varieties. Morava is very susceptible to Botrytis grey mould. It is later flowering and maturing than Blanchefleur and grain yield will be reduced in environments with dry finishes. Anti-nutritional level (BCN) of Morava is 0.65 per cent. Seed available from Barenbrug. No EPR.

### RASINA

Rasina is soft-seeded vetch and replaces Languedoc and Blanchefleur in low to medium-rainfall areas for grain production. Resistant to rust, but susceptible to Ascochyta blight and susceptible to Botrytis grey mould. Not expected to replace Morava in higher-rainfall districts or for hay production. Rasina has a dark brown speckled seed coat with dark beige cotyledons. The level of anti-nutritional factors is 0.6 to 0.8 per cent. No EPR.

### STUDENICA<sup>Ⓛ</sup>

Studenica<sup>Ⓛ</sup> is a very early flowering and maturing variety (flowering between 85 to 90 days) with white flowers. Anti-nutritional level (BCN) similar to Morava. It has the best winter growth and vigour of all common vetch varieties and is more tolerant to vegetative frost than other varieties. It is targeted at mixed farmers in low-rainfall areas (<350 mm) looking to fill the winter feed gap, or late planting for spring fodder and hay. Its strength is its winter growth, where it puts on significantly more bulk/dry matter prior to September than other varieties. Grain yields for Studenica<sup>Ⓛ</sup> are comparable with other varieties. In most areas, winter growth and ability to produce early fodder/grazing sets it apart. Winter growth/vigour of Studenica<sup>Ⓛ</sup> was assessed in August at two low-rainfall sites in Victoria and South Australia during 2018. Studenica<sup>Ⓛ</sup> produced a minimum of 0.8 tonne of dry matter over other common vetch varieties. This variety is expected to completely replace Languedoc in rotations. Seed available from S&W Seed Co. No EPR.

**TIMOK<sup>Ⓛ</sup>**

Timok<sup>Ⓛ</sup> is a multipurpose vetch variety, suitable for grain/seed and hay/silage production in mid/high-rainfall (>380mm) areas. It is a high yielding common vetch variety with good early establishment and is soft seeded. Timok<sup>Ⓛ</sup> is targeted at mid-high rainfall regions but will still perform for grain production in low-rainfall environments. Toxin levels in the grain are around 0.57 per cent. Seed available from S&W Seed Co. No EPR.

**VOLGA<sup>Ⓛ</sup>**

Volga<sup>Ⓛ</sup> is a high-yielding grain/seed variety for low and mid-rainfall areas. Particularly suited to shorter season areas, it is earlier flowering and maturing than Blanchefleur which results in earlier nodule development. Early maturity may limit yield potential relative to longer growing season varieties in high-rainfall areas. Volga<sup>Ⓛ</sup> has high grain and herbage yields. Well-suited to situations where the season finishes sharply. Suitable in many soil types with pH 5.8–9.4. Moderately resistant to moderately susceptible to Ascochyta blight. Toxin levels are around 0.54 per cent. Volga<sup>Ⓛ</sup> seed size is very similar to Morava seeds. Seed available from Barenbrug. No EPR.

**PURPLE VETCH  
(VICIA BENGHALENSIS)****BENATAS™**

Benatas™ is a cool season, soft-seeded purple vetch variety, an alternative to Popany in longer growing regions. Tolerant of moderate waterlogging, it is suitable for rainfall areas between 350 and 800mm. Suitable for pasture, hay/silage and green manure. Bred by Tasglobal Seeds and marketed by Stephen Pasture Seeds. No EPR.

**POPANY**

Popany is a late-maturing variety. Suitable for mid to high-rainfall (>400mm) areas for hay/silage. Grain yield is significantly lower than yields from common vetch varieties, along with a smaller seed size, and seeding rates should be lowered accordingly. Grain from this variety can be used as a bird feed mix with other recommended grains. Seed coat is black with distinctive white hilum. Popany has the best tolerance of all vetches to waterlogging. No EPR.

**WOOLLY POD VETCHES  
(VICIA VILLOSA SUBSP.)**

Note: Grain from woolly pod vetches cannot be used to feed livestock.

**CAPELLO**

Lower in grain yield compared with common vetches, but higher in dry matter production in rainfall areas greater than 450mm. Grazing from 10-node stage to podding only. Not recommended for grazing earlier than this and once plants begin to develop seeds in pods. Not suitable for hay/silage in areas receiving less than 400mm of rainfall annually. Capello is a selected soft seed variety from Namoi but has been prone to dormant seeds. Seed available from Barenbrug. No EPR.

**HAYMAKER PLUS**

Lower in grain yield compared with common vetch varieties, but higher in dry matter production in high-rainfall areas. Grazing from 10-node stage to podding only. Haymaker Plus is very susceptible to botrytis grey mould. Soft seeded variety, however prone to dormant seeds. Seed available from Barenbrug. No EPR.

**RM4<sup>Ⓛ</sup>**

A multipurpose variety used for hay/silage, grazing, green/brown manure or seed. Suitable for a range of soil types. RM4<sup>Ⓛ</sup> produces high levels of dry matter with good early establishment. Considered a soft seed variety although a small percentage may be dormant. Early maturing. Significantly higher in dry matter production in rainfall areas of less than 400mm, but suitable for rainfall areas of 400 to 600mm. Performs better for grain production in sharp finishing seasons compared with other woolly pod varieties. Seed available from Barenbrug. No EPR.

INTRO

WHEAT

BARLEY

OAT

TRITICALE

CANOLA

FIELD PEA

LENTIL

FABA BEAN

LUPIN

CHICKPEA

VETCH

NOTES

**Table 1: Vetch adaptability for Victorian rainfall zones.**

Vetch varieties listed by end usage. The characteristics in this table are provided as a guide only and have been compiled from data from [South Australian Crop Sowing Guide](#), observations of the breeder, agronomic research projects and seed companies.

Variety	Rainfall zone				
	<350mm	350 to 400mm	400 to 450mm	450 to 600mm	>600mm
<b>GRAIN</b>					
Blanche fleur		✓	✓		
Morava		✓	✓	✓	✓
Rasina	✓	✓	✓	✓	
Studenica <sup>db</sup>	✓	✓	✓		
Timok <sup>db</sup>	✓	✓	✓	✓	✓
Volga <sup>db</sup>	✓	✓	✓		
<b>HAY/SILAGE/GRAZING AND GREEN MANURE</b>					
Benatas <sup>tm</sup>		✓	✓	✓	✓
Blanche fleur	✓	✓			
Capello			✓	✓	✓
Haymaker			✓	✓	✓
Morava	✓	✓	✓	✓	✓
Popany		✓	✓	✓	✓
Rasina	✓	✓			
RM4 <sup>db</sup>	✓	✓	✓	✓	✓
Studenica <sup>db</sup>	✓	✓	✓		
Timok <sup>db</sup>	✓	✓	✓	✓	✓
Volga <sup>db</sup>	✓	✓	✓		

Source: Stuart Nagel, South Australian Research and Development Institute (reviewed 2022)

**Table 2: Agronomic characteristics and disease ratings<sup>3</sup> of vetch varieties.**

Variety	Maturity	Yield potential	Dry matter	Flower colour	% of pod shattering	% of hard seeds	Rust <sup>2</sup>	Ascochyta blight	Botrytis grey mould
<b>COMMON VETCH</b>									
Blanche fleur <sup>1</sup>	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 <sup>db</sup>	very early	high	high	white	0-2	0	R	MR (P)	S (P)
Timok <sup>db</sup>	mid	high	very high	purple	0-2	0-2	R	S (P)	S (P)
Volga <sup>db</sup>	early	very high	high	purple	0-2	2-5	R	MRMS (P)	S (P)
<b>PURPLE VETCH</b>									
Benatas <sup>tm</sup>	late	low	very high	purple	low	low	–	MRMS (P)	S (P)
Popany	very late	low	high	purple	20-30	5-10	R	MR (P)	S (P)
<b>WOOLLY POD VETCH</b>									
Haymaker Plus <sup>1</sup>	late	low	very high	purple	5-10	20-30	R	S	VS
Capello	late	low	very high	purple	5-10	15-20	R	MR (P)	S (P)
RM4 <sup>db</sup>	mid	mod	very high	purple	2-5	2-5	R	MR (P)	S (P)

<sup>1</sup> Indicates historic data that has not been updated in at least 12 months. <sup>2</sup> Indicates breeding company data. <sup>3</sup> Vetch is not included in the NVT; Ascochyta and Botrytis grey mould ratings are from Agriculture Victoria in 2020.

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

(P) = provisional ratings – treat with caution.

– denotes no rating available.

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

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

Variety	Grain yield (t/ha)	% of Blanchefleur	Dry matter (t/ha)	% of Morava	Dry matter (t/ha)	% of Capello
<b>COMMON VETCH</b>						
Blanchefleur	1.82	100	–	–	–	–
Morava	1.84	102	4.94	100	–	–
Timok <sup>Ⓛ</sup>	2.18	120	5.20	105	–	–
Volga <sup>Ⓛ</sup>	2.44	134	5.39	109	–	–
Mean yield	2.07	–	5.06	–	–	–
<b>WOOLLY POD VETCH</b>						
Capello	–	–	–	–	6.23	100
Haymaker Plus	–	–	–	–	6.26 (2009–12)	100.4
RM4 <sup>Ⓛ</sup>	–	–	–	–	6.71	107.7
Mean yield	–	–	–	–	6.40	–
<b>PURPLE VETCH</b>						
Popany	–	–	–	–	5.28 (2009–12)	84.75

Source: Stuart Nagel, South Australian Research and Development Institute (Reviewed 2022)

– denotes no data available.

**Table 4: Hay yields of common vetch varieties from low-rainfall cropping environments.**

Data compiled from independent trials over three years at four different sites in South Australia.

Variety	HAY YIELD (t/ha)			
	2014	2015	2016	3-year average
Studenica <sup>Ⓛ</sup>	2.24	3.09	2.19	2.51
Rasina	–	2.86	2.21	2.54
Timok <sup>Ⓛ</sup>	2.13	3.15	2.08	2.45
Volga <sup>Ⓛ</sup>	2.26	3.06	2.45	2.59

Source: Stuart Nagel, South Australian Research and Development Institute (Reviewed 2022)

– denotes no data available.

**Table 5: Plant density and recommended seeding rates for vetch.**

End use	Common vetch		Woolly pod vetch		Purple vetch	
	Plant density (plants per sq.m.)	Sowing rate (kg/ha)	Plant density (plants per sq.m.)	Sowing rate (kg/ha)	Plant density (plants per sq.m.)	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

Source: Stuart Nagel, South Australian Research and Development Institute (Reviewed 2022)

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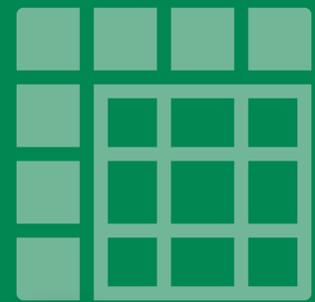
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