

PBA Kareema[®]

Broad Bean



PBA

PULSE BREEDING AUSTRALIA

Better pulse varieties faster

Improved quality broad bean



MAIN ADVANTAGES

PBA Kareema[®] is a broad bean suited to all current broad bean growing areas in the south-east of South Australia and southern Victoria.

PBA Kareema[®] maintains the yield and adaptation characteristics of Aquadulce, while combining improved seed quality (freedom from “evergreen” seeds and larger, more uniform seeds) with improved resistance to ascochyta blight.

SEED PROTECTION & ROYALTIES

PBA Kareema[®] is protected under Plant Breeder’s Rights (PBR) legislation. Growers can only retain seed from production of PBA Kareema[®] for their own seed use.

An End Point Royalty (EPR) of \$4.40 per tonne (GST inclusive), which includes breeder royalties, applies upon delivery of this variety.

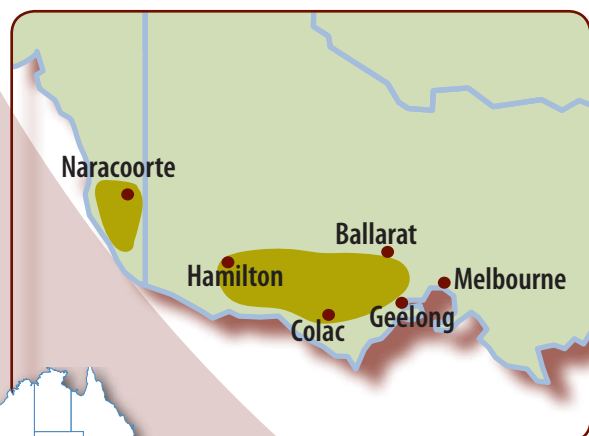
Seed is available from the commercial partner Keith Seeds.

KEY FEATURES

Adapted broad bean variety with good grain quality and high yield potential, combined with increased disease resistance.

- High yielding in all current broad bean production regions.
- No “evergreen” seeds.
- Larger and more uniform seed than Aquadulce.
- Moderately Resistant/Resistant (MR/R) to ascochyta blight.
- Moderately Resistant (MR) to rust.
- Similar tolerance of plant physical stresses as Aquadulce.
- Similar plant type and maturity to Aquadulce.

AREA OF ADAPTATION



YIELD & ADAPTATION

PBA Kareema[®] is well adapted to the very high rainfall, broad bean districts in the lower south-east of South Australia.

Trial evaluation indicates that PBA Kareema[®] is adapted to a similar range of environments as Aquadulce.

PBA Kareema[®] requires a long pod filling period to achieve maximum yield and optimum seed size and quality.

Production in areas with a sudden finish to the growing season could result in a significant proportion of smaller seeds, and is likely to produce lower yields than faba bean varieties.

Yield of broad beans in the south-east of South Australia

Trial	PBA Kareema [®] averaged yields (t/ha) expressed as % of Aquadulce's yield							
	2008	2007	2005	2004	2003	2002	2001	2000
Millicent								
PBA Kareema [®] (t/ha)	2.47	3.09	2.36	3.27	3.00	4.80	5.70	2.60
PBA Kareema [®]	97	99	103	108	91	134	120	111
Aquadulce (%)	100	100	100	100	100	100	100	100
Bool Lagoon								
PBA Kareema [®] (t/ha)		3.52	4.60	2.69	4.55	1.52	5.30	5.41
PBA Kareema [®]		100	105	97	103	97	105	125
Aquadulce (%)		100	100	100	100	100	100	100
Conmurra								
PBA Kareema [®] (t/ha)				5.93	4.23	3.08	3.59	3.14
PBA Kareema [®]				100	104	89	107	119
Aquadulce (%)				100	100	100	100	100

Source: Trial results from PBA (Pulse Breeding Australia)

Disease resistance rating of faba and broad bean varieties in southern Australia

Variety	Ascochyta blight	Chocolate spot	Cercospora leaf spot	Rust
PBA Kareema [®]	MR/R	MS	S	MR
Aquadulce	MS	MS	S	MS
Farah [®]	MR/R	S	S	S
Fiesta VF	MR/MS	S	S	S
Manafest	VS	MS	S	MS
Nura [®]	MR/R	MS/MR	S	MR

Source: Trial results from PBA (Pulse Breeding Australia)

R = Resistant, MR = Moderately Resistant, MS = Moderately Susceptible, S = Susceptible, VS = Very Susceptible



DISEASE MANAGEMENT

Ascochyta blight

- PBA Kareema[®] is Moderately Resistant/Resistant (MR/R) to ascochyta blight, its level of resistance is greater than Aquadulce and similar to Farah[®] and Nura[®].
- For the targeted region of production, the risk of ascochyta blight is high and the disease should be monitored and managed.
- Foliar fungicides that target ascochyta control at 6-8 weeks post-sowing may still be required in high risk situations.
- The improved resistance to ascochyta blight should reduce the risk of seed staining due to this disease.
- Ascochyta protection during podding should only be needed in high risk situations.

Chocolate spot

- PBA Kareema[®] is rated as Moderately Susceptible (MS) to chocolate spot, similar to Aquadulce.
- The risk of chocolate spot is high in the target region and the disease should be monitored and managed with strategic fungicide applications as for Aquadulce.
- Foliar fungicides that target chocolate spot are recommended to be applied at early to mid-flowering, before canopy closure.
- Additional applications of fungicides that target chocolate spot are recommended during late flowering and pod fill in high risk situations.

Cercospora leaf spot

- PBA Kareema[®] is Susceptible (S) to cercospora leaf spot, similar to Aquadulce and all other Australian faba bean varieties.
- The risk of cercospora leaf spot is greatest in paddocks with a long history of cultivation of faba/broad bean and when bean crops are grown in tight rotations.
- A foliar fungicide that targets cercospora leaf spot is recommended to be applied at 5-8 weeks post-sowing.

Rust

- PBA Kareema[®] is rated as Moderately Resistant (MR) to rust. Field screening in northern NSW indicates that it is more resistant than Aquadulce and comparable to Nura[®].
- A foliar fungicides that targets rust is only required in high risk situations.

AGRONOMY

Plant characteristics

PBA Kareema[®] has a plant type similar to Aquadulce, with very vigorous growth and it produces very large pods. Time of flowering and maturity are similar to Aquadulce and are significantly later than other faba bean varieties. It has exhibited a similar tendency as Aquadulce to lodge in situations with very high biomass production. However this is not considered a significant problem.

Sowing

- Target the optimum planting window for your area.
- In yield trials, PBA Kareema[®] has been tested at the same target plant population as Aquadulce.
- Sow high quality seed at rates calculated to achieve 8-12 plants/m² established. The amount sown in kg/ha might be higher than for Aquadulce due to the larger seed of PBA Kareema[®].
- Inoculate with Group F Rhizobium.

Tolerance of physical stresses

- PBA Kareema[®] is similar to Aquadulce and tolerant to soil conditions that can result in chlorosis due to iron and/or manganese deficiency in sensitive varieties.
- PBA Kareema[®] appears to be similar to Aquadulce in tolerance to water-logging.
- Herbicide tolerance has not been specifically tested, but field evaluation of PBA Kareema[®] has not indicated increased sensitivity over other commonly grown varieties to registered herbicides provided label directions are complied with.



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Broad Bean

SEED QUALITY

PBA Kareema[®] is a standard broad bean with a large flat seed. General shape and colour is similar to Aquadulce, but there are no "evergreen" seed contaminants as found in Aquadulce. Seed size is greater than Aquadulce, but the actual size varies between sites and seasons depending on growing conditions. PBA Kareema[®] was selected for lighter and more uniform seed colour than Aquadulce

Seed weight (g/100 seeds) of broad bean varieties			
Year	Location	Seed weight (g/100)	
		PBA Kareema [®]	Aquadulce
2008	Millicent	153	141
2008	Bool Lagoon	142	112
2007	Millicent	146	131
2007	Bool Lagoon	140	115
2005	Millicent	157	134
2005	Bool Lagoon	167	138

Source: PBA (Pulse Breeding Australia)



PBA Kareema[®]



Aquadulce

MARKETING

PBA Kareema[®] will be open marketed with an End Point Royalty, including breeders royalties, of \$4.40 per tonne (GST inclusive) applied upon delivery. It is likely to be cleaned and graded to size by processors to facilitate marketing overseas.

BREEDING

PBA Kareema[®] (evaluated as Gilb/57/6-1) was developed by the PBA faba bean program, led by the University of Adelaide, from selections of the variety Aquadulce. It was selected for yield, uniformity of seed characteristics and resistance to ascochyta blight.

PATHOLOGY

Disease management information has been compiled from experiments conducted by SARDI and I&I NSW through the GRDC projects UA00097 'Australian Faba Bean Breeding Program' and UA00079 'Faba Bean Breeding – Southern and Western Regions'.



Better pulse varieties faster

PBA is an unincorporated joint venture between the GRDC, University of Adelaide, SARDI, DPI Victoria, I&I NSW, QPIF, DAFWA and Pulse Australia. It aims to deliver better pulse varieties faster.

FOR MORE INFORMATION

PBA

Brondwen MacLean
GRDC
PO Box 5367
Kingston ACT 2604
Ph: 02 6166 4500
b.maclea@grdc.com.au

PBA Faba bean

Jeff Paull
University of Adelaide
School of Agriculture, Food & Wine
Waite Campus
Glen Osmond SA 5064
Ph: 08 8303 6564
jeffrey.paull@adelaide.edu.au

SEED ENQUIRIES

Keith Seeds Pty Ltd

4 Bunker Rd
Keith SA 5267
Ph: 08 8755 1777
Fax: 08 8755 1815
admin@keithseeds.com
www.keithseeds.com

Managing Director

Tim Cadzow
Ph: 0408 838 362
tim@keithseeds.com



Marketing Manager

Travis Munday
Ph: 0408 838 687
travis@keithseeds.com

Production Manager

Anthony Taylor
Ph: 0408 838 465
anthony@keithseeds.com

Keith Seeds mission is:

"To expand output levels and be the major Australian breeder, producer and marketer of seed and grain products".

Keith Seeds is proud to partner with Pulse Breeding Australia for this new broad bean variety, having contributed grain quality feedback during the evaluation and selection phase of the breeding program.

AGRONOMIC ENQUIRIES

South Australia and Victoria

Jeff Paull, University of Adelaide, Ph: 08 8303 6564
Rohan Kimber, SARDI, Ph: 08 8303 9380
Wayne Hawthorne, Pulse Australia, Ph: 0429 647 455

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