



# PBA

PULSE BREEDING AUSTRALIA

*Better pulse varieties faster*

# PBA Ace<sup>®</sup> Medium red lentil

## High yielding, disease resistant red lentil



### KEY FEATURES

- Highest yielding red lentil available
- Very good vigour
- Excellent ascochyta blight resistance
- Moderately resistant to botrytis grey mould
- Mid maturing variety suited to all lentil growing regions
- Adaptation best in higher yielding lentil growing regions such as the Wimmera, Yorke Peninsula and Mid North, SA
- Good replacement for Nugget and PBA Jumbo<sup>®</sup> in all regions
- Higher yielding than Nipper<sup>®</sup> but less tolerant to salt
- Plant type and flowering most similar to Nugget
- Medium sized red lentil (similar to Nugget and PBA Bolt<sup>®</sup>) with a grey seed coat and high milling quality

### MAIN ADVANTAGES

PBA Ace<sup>®</sup> is a vigorous, high yielding, disease resistant, mid maturing red lentil with medium sized grey seed. PBA Ace<sup>®</sup> has been the highest yielding lentil and is suited to all lentil growing areas, especially longer season areas where Nugget has traditionally been grown.

Better disease resistance makes PBA Ace<sup>®</sup> a better option than the mid maturing varieties Nugget, PBA Jumbo<sup>®</sup>, PBA Bounty<sup>®</sup>, Aldinga and Northfield in these areas.

PBA Ace<sup>®</sup> has also yielded well in drier areas but may be lower yielding than earlier maturing varieties such as PBA Blitz<sup>®</sup>, PBA Bolt<sup>®</sup> and PBA Flash<sup>®</sup> in dry years or when high temperatures cause premature maturity.

PBA Ace<sup>®</sup> is higher yielding than Nipper<sup>®</sup> and PBA Herald XT<sup>®</sup> but these varieties may be better options where small seed size is preferred for marketing or when the better salt tolerance of Nipper<sup>®</sup>, salt and boron tolerance of PBA Bolt<sup>®</sup> or imazethapyr tolerance of PBA Herald XT<sup>®</sup> are major priorities.

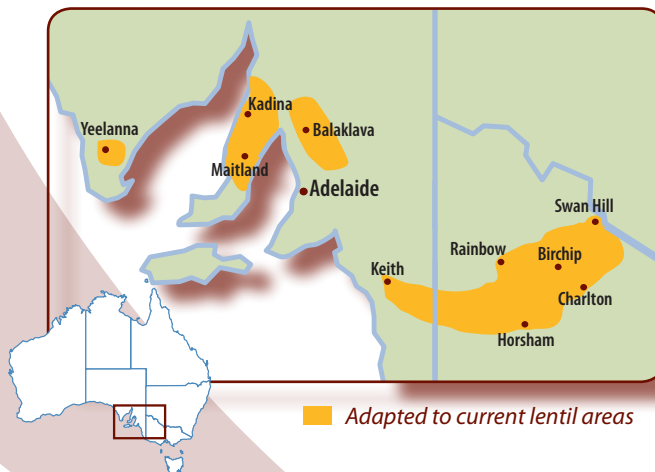
### SEED PROTECTION & ROYALTIES

PBA Ace<sup>®</sup> is protected under Plant Breeder's Rights (PBR) legislation. A PBR bag licence applies to the seed.

Authorised growers can retain seed from their own production of PBA Ace<sup>®</sup> for their own seed use.

An End Point Royalty (EPR) of \$5.50/t (including GST) applies to this variety when delivered to authorised EPR collectors. Seed is commercialised by PBSeeds and available from 2013.

### AREA OF ADAPTATION



where every seed counts

another lentil upgrade

### YIELD & ADAPTATION

PBA Ace<sup>®</sup> has been the highest yielding lentil variety in all regions. Good vigour and disease resistance combine to produce a healthy crop to support high yields.

PBA Ace<sup>®</sup> may be lower yielding than early maturing varieties in dry years or when high temperatures cause premature maturity.

PBA Ace<sup>®</sup> has a good combination of ascochyta blight and Botrytis grey mould resistance that is beneficial in all areas,

particularly those with higher rainfall.

PBA Ace<sup>®</sup> is intolerant of salinity and more tolerant varieties such as Nipper<sup>®</sup>, PBA Flash<sup>®</sup>, PBA Bounty<sup>®</sup> or PBA Bolt<sup>®</sup> may perform better in prone areas.

For weed control PBA Ace<sup>®</sup> has better tolerance to metribuzin and simazine compared to PBA Herald XT<sup>®</sup>. PBA Herald XT<sup>®</sup> is the only current variety tolerant to imazethapyr.

#### 2004-2011 LONG-TERM YIELD OF LENTIL VARIETIES (\* Yields expressed as a % of Nugget's yield)

	South Australia				Victoria		New South Wales		Western Australia	
	Yorke P	Mid North	Lower EP	South East	Wimmera	Mallee	South East	South West	Zone 1	Zone 4
<b>Small red</b>										
PBA Bounty <sup>®</sup>	103	103	104	99	101	102	98	104	102	102
PBA Herald XT <sup>®</sup>	98	99	97	98	99	98	94	99	92	91
Nipper <sup>®</sup>	100	102	101	102	96	94	93	98	94	89
Northfield	94	93	89	92	90	88	86	91	-	85
<b>Medium red</b>										
<b>PBA Ace<sup>®</sup></b>	<b>110</b>	<b>112</b>	<b>114</b>	<b>117</b>	<b>112</b>	<b>114</b>	<b>118</b>	<b>113</b>	<b>112</b>	<b>114</b>
PBA Blitz <sup>®</sup>	105	107	109	106	102	102	105	103	104	104
PBA Bolt <sup>®</sup>	105	107	109	113	111	111	112	107	106	109
PBA Flash <sup>®</sup>	106	109	110	114	101	100	99	104	101	103
Nugget	100	100	100	100	100	100	100	100	100	100
<b>Large red</b>										
PBA Jumbo <sup>®</sup>	108	107	108	108	102	102	104	104	103	102
Aldinga	98	98	93	97	92	92	95	96	-	95
<b>Large green</b>										
Boomer <sup>®</sup>	104	104	105	108	99	99	103	105	100	98

Data courtesy of NVT, PBA, SARDI, DPI Victoria, NSW-DPI

#### AGRONOMIC AND DISEASE TRAITS OF LENTIL VARIETIES

	Vigour	Flower time	Maturity	Lodging resistance	Pod drop	Shattering	Ascochyta blight		Botrytis grey mould	Boron	Salt
							Foliage	Seed			
Small red											
PBA Bounty <sup>®</sup>	Mod	Mid/Late	Mid	S	R	R	MR	MR	MS	I	MI
PBA Herald XT <sup>®</sup>	Mod	Mid/Late	Mid/Late	MR	MR	R	R	R	MR	I	I
Nipper <sup>®</sup>	Poor/Mod	Mid/Late	Mid	MR	MR	MR	MR	R	R	I	MT
Northfield	Poor/Mod	Mid	Mid	MR	MR	MR	MR	R	S	I	I
Medium red											
PBA Ace <sup>®</sup>	Good	Mid	Mid	MS/MR	R	MS/MR	R	R	MR	I	I
PBA Blitz <sup>®</sup>	Mod/Good	Early	Early	MS	MR	MR	MR	MR	R	I	I
PBA Bolt <sup>®</sup>	Mod/Good	Early/Mid	Early/Mid	R	R	R	MR	R	MS	MI	MI
PBA Flash <sup>®</sup>	Mod	Early/Mid	Early/Mid	MR	MR	MR	MS	MR	MS	MI	MI
Nugget	Mod	Mid	Mid/Late	MS	MR	R	MS/MR	MS	MS/MR	I	I
Large red											
PBA Jumbo <sup>®</sup>	Mod	Mid	Mid	S	MR	MR	MR	R	MS	MI	I
Aldinga	Mod	Mid	Mid	S	R	MR	MR	MS	MS	I	MI
Large green											
Boomer <sup>®</sup>	Good	Mid	Mid/Late	S	MR	MS	MR	MS	MR	I	I

Key: Mod=moderate, Med=medium, S=susceptible, MS=moderately susceptible, MR=moderately resistant, R=resistant, I=intolerant, MI=moderately intolerant, MT=moderately tolerant.

### DISEASE MANAGEMENT

PBA Ace<sup>®</sup> is targeted towards medium to higher rainfall areas where it is important to consider foliar disease as part of lentil crop management. However, its good combination of resistance to ascochyta blight and botrytis grey mould means that minimal preventative fungicides will be needed in most seasons, particularly in drier areas.

A recommended fungicide seed dressing is beneficial for the early control of seedling root rots and BGM.

#### Botrytis grey mould (BGM)

- PBA Ace<sup>®</sup> is rated moderately resistant to BGM which will assist in the management of this disease.
- In BGM prone areas monitor crop growth and apply a preventative fungicide just prior to canopy closure. Further monitoring and sprays may be required when prolonged wet spring conditions occur and in areas with long growing seasons.

#### Ascochyta blight (AB)

- AB ratings have been updated in the last two years based on the higher levels of infection being observed on PBA Flash<sup>®</sup>, Nugget, Northfield and older varieties.
- PBA Ace<sup>®</sup> is rated as resistant to foliar and seed infection by AB.
- Crops should be monitored in severe disease risk environments and a fungicide applied at the start of podding in front of rainfall events if disease symptoms are detected.

### AGRONOMY

#### Agronomic characteristics

- Paddock selection and basic requirements for growing PBA Ace<sup>®</sup> are similar to other lentil varieties. PBA Ace<sup>®</sup> has the following characteristics:
- Mid flowering similar to Nugget and mid maturity similar to PBA Jumbo<sup>®</sup> and Nipper<sup>®</sup>.
- Large biomass and MS/MR to lodging.
- Moderately susceptible to shattering but unlikely to cause significant yield losses. Yield data includes all sites, including those where PBA Ace<sup>®</sup> may have some shattering.
- Intolerant to salinity similar to Nugget but lower than Nipper<sup>®</sup>, PBA Bounty<sup>®</sup>, PBA Flash<sup>®</sup> and PBA Bolt<sup>®</sup>.
- PBA Ace<sup>®</sup> is intolerant of soil boron similar to most varieties, whereas PBA Bolt<sup>®</sup>, PBA Flash<sup>®</sup> and PBA Jumbo<sup>®</sup> are improved slightly over all other varieties.

#### Sowing

- PBA Ace<sup>®</sup> is suitable for early sowing to maximise grain yield at low risk of disease.
- Target plant densities of 120 plants/m<sup>2</sup> adjusting sowing rates to the seed size of this variety and germination percentage of seed used each year.

#### Herbicide tolerance

- The tolerance of PBA Ace<sup>®</sup> to label recommended rates of registered herbicides is similar to Nugget.
- PBA Ace<sup>®</sup> is not an 'XT' variety, so will be sensitive to imazethapyr. PBA Herald XT<sup>®</sup> is the only current variety tolerant to applied imazethapyr at label rates and with improved tolerance to flumetsulam and residual levels of sulfonylurea and imidazoline herbicides.

#### Crop topping and harvest

- PBA Ace<sup>®</sup> matures earlier than Nugget but is not as early as PBA Blitz<sup>®</sup>, PBA Bolt<sup>®</sup> and PBA Flash<sup>®</sup> making the timely control of seed set in weeds more difficult than these earlier maturing varieties.
- As with all lentils correct timing for crop topping, timely harvest and optimum machine setup will optimise yield and seed quality.

### QUALITY

#### Seed characteristics

PBA Ace<sup>®</sup> is a medium-sized lens-shaped red lentil with a grey seed coat. Seed size, as measured by 100 seed weight, is generally similar to Nugget and PBA Bolt<sup>®</sup> but smaller than PBA Blitz<sup>®</sup>. In laboratory testing it has similar milling characteristics to other current medium size lentil varieties.



**PBA Ace<sup>®</sup>**



**Nugget**



**PBA Bolt<sup>®</sup>**

# PBA Ace<sup>®</sup>

## Medium red lentil

### Quality assurance

Seed purity is very important in lentils with a restriction of 1% for varieties not of the same type. Prevent seed contamination when changing varieties, particularly where cotyledon or seed coat colour differs. Be particularly careful to avoid contamination of PBA Ace<sup>®</sup> with green lentils such as Boomer<sup>®</sup> as when split the yellow seeds will contaminate and reduce the value of the red lentil split product.

For the purpose of seed cleaning PBA Ace<sup>®</sup> has a seed size similar to Nugget.

Variety	Market category	Seed shape	Seed coat colour	Cotyledon colour	Seed size relative to Nugget
<b>Small red</b>					
PBA Bounty <sup>®</sup>	SRP	Round	Grey	Red	10% <
PBA Herald XT <sup>®</sup>	SRS	Lens	Grey	Red	20% <
Nipper <sup>®</sup>	SRP	Round	Grey	Red	20% <
Northfield	SRP	Round	Tan	Red	20% <
<b>Medium red</b>					
<b>PBA Ace<sup>®</sup></b>	<b>MRS</b>	<b>Lens</b>	<b>Grey</b>	<b>Red</b>	<b>equal</b>
PBA Blitz <sup>®</sup>	MRS	Lens	Grey	Red	15-20% >
PBA Bolt <sup>®</sup>	MRS	Lens	Grey	Red	equal
PBA Flash <sup>®</sup>	MRS	Lens	Green	Red	0-10% >
Nugget	MRS	Lens	Grey	Red	-
<b>Large red</b>					
PBA Jumbo <sup>®</sup>	LRS	Lens	Grey	Red	20% >
Aldinga	LRS	Lens	Green	Red	20% >
<b>Large green</b>					
Boomer <sup>®</sup>	LG	Lens	Green	Yellow	50% >

Key: SRS=small red (split), SRP=small red (premium round), MRS=medium red (split), MRD=medium red (dual purpose), LRS=large red (split), LG=large green, < = seed size less than Nugget, > = seed size greater than Nugget

### MARKETING

- PBA Ace<sup>®</sup> fits into the human food market for medium sized red lentil, particularly to be consumed whole or split. The ascochyta blight resistance of this variety will assist in achieving high grain quality from receipt point to market.
- PBA Ace<sup>®</sup> should be segregated for marketing unless otherwise stated.
- PBA Ace<sup>®</sup> will be open marketed with an End Point Royalty, including breeders royalties, of \$5.50/t (including GST) applied upon delivery.

### BREEDING

PBA Ace<sup>®</sup> (evaluated as CIPAL0803) was developed by PBA Lentils, led by DPI Victoria. It was produced by conventional plant breeding techniques from a cross between CIPAL0501, a high yielding disease resistant PBA breeding line and 96-047L\*99R099, an erect disease resistant PBA breeding line. It is not a genetically modified organism (non-GMO).

PBA Ace<sup>®</sup> is part of a pipeline of varieties that will be released by PBA. PBA formed a commercial partnership with PBSeeds to multiply, manage and release PBA lentil varieties. PBSeeds and PBA are delivering varieties to growers 2-4 years earlier by fast tracking the identification, multiplication, generation of information and release of new varieties.

The Southern Pulse Agronomy program has been integral to the process.



*Better pulse varieties faster*

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

### FOR MORE INFORMATION

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### SEED ENQUIRIES

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At PBSeeds we are leaders in the production of fine quality seed and grains. We take great care and pride in ensuring we match our customer's requirements. PBSeeds is proud to partner with PBA and invests in the improvement of Australian lentil varieties.

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