

PBA Bounty[®]

Small Red Lentil

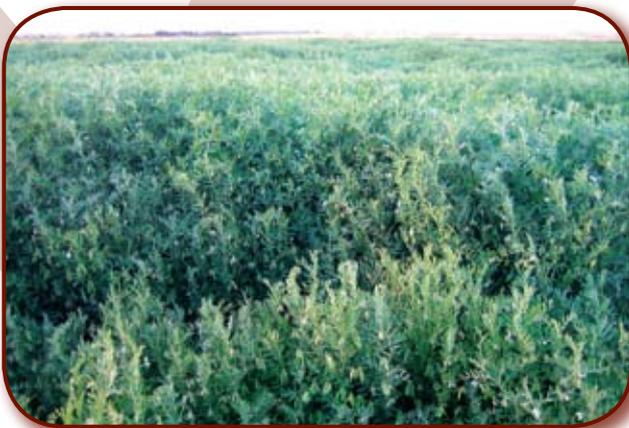


PBA

PULSE BREEDING AUSTRALIA

Better pulse varieties faster

High yielding lentil



KEY FEATURES

- Highest yielding small seeded red lentil variety (average yield 2 to 6% higher than Nugget and 6 to 15% higher than Nipper[®] across all lentil growing regions of Australia)
- Mid maturity similar to Nugget
- Prostrate growth habit early in season
- Moderately resistant to seed and foliar ascochyta blight (AB)
- Moderately susceptible to botrytis grey mould (BGM)
- Improved tolerance to salinity compared to Nugget
- Small, round red lentil with a grey seed coat

MAIN ADVANTAGES

PBA Bounty[®] is the highest yielding small round seeded red lentil variety. PBA Bounty[®] is suited to all current lentil areas where it has consistently yielded around 5% higher than Nugget. It can be grown in higher rainfall areas provided BGM is managed. PBA Bounty[®] is particularly suited to growers who can benefit from the higher prices that can exist for small seeded red lentil without compromising yield compared to medium red lentils. Seed of PBA Bounty[®] is 10% larger than Nipper[®] and Northfield but is likely to be exported to similar small red lentil markets.

SEED PROTECTION & ROYALTIES

PBA Bounty[®] is protected under Plant Breeder's Rights (PBR) legislation. Authorised growers can retain seed from production of PBA Bounty[®] for their own seed use. An End Point Royalty of \$5.50/t (including GST) applies to this variety when delivered to authorised traders. PBA Bounty[®] is also protected by a security system that can identify the lentil variety delivered to a receival site using genetic markers. Seed is commercialised through PBSeeds and available from 2010.

AREA OF ADAPTATION



Also adapted to current lentil growing areas in NSW and WA.



pbseeds
where every seed counts

another lentil upgrade

YIELD & ADAPTATION

PBA Bounty[®] has been the highest yielding small round red lentil variety in all regions of southern Australia, with a 6-15% yield advantage over Nipper[®]. It is also the highest yielding lentil variety in the southern Mallee region of Victoria but PBA Flash[®] has been the highest yielding variety in all other regions of southern Australia. Disease must be controlled in higher rainfall, longer growing season areas to realise the yield benefit of PBA Bounty[®]

as it does not have the high level of disease resistance as Nipper[®].

PBA Bounty[®] is best suited to the following regions:

- Yorke Peninsula (SA)
- lower mid north (SA)
- lower Eyre Peninsula (SA)
- southern Mallee (Victoria & SA)
- northern Wimmera (Victoria)

2003-2008 LONG-TERM YIELD OF LENTIL VARIETIES

Varieties in low and higher yielding trials across southern Australia. Yields expressed as a % of Nugget's yield

Variety	Victoria				South Australia						NSW		WA	
	Wimmera		Mallee		Yorke P		Mid North		Lower EP		SE	SE	SW	Ag zone 4
Site mean yield (t/ha)	1	2	0.5	1.5	1	2.5	1	2.5	0.5	1.5	2	1	1	1
Medium red														
PBA Flash [®]	104	104	105	104	111	106	111	106	122	109	107	105	107	105
Cassab	91	91	99	93	91	91	93	92	102	94		92	95	93
Digger	92	93	97	95	94	94	97	95	101	96	95	95	95	95
Nugget	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Small red														
PBA Bounty [®]	102	103	109	105	107	105	105	104	108	105	102	99	104	105
Nipper [®]	93	94	91	93	94	94	101	97	101	96	95	94	96	91
Northfield	90	90	88	90	93	91	89	90	91	90	91	87	91	88
Large red														
Aldinga	92	93	98	95	98	96	95	94	92	93	95	95	96	97
Large green														
Boomer [®]	101	103	102	104	107	106	104	105	110	106	107	104	106	103

Data courtesy PBA, SARDI, DPI Victoria, I&I NSW, DAFWA, NVT

AGRONOMIC AND DISEASE TRAITS OF LENTIL VARIETIES

Variety	Vigour	Plant height	Flower time	Maturity	Lodging resistance	Pod drop	Shattering	Ascochyta blight		Botrytis grey mould	Boron	Salt
								foliage	seed			
Medium red												
PBA Flash [®]	Mod	Med	M	E/M	MR	MR*	MR	MR	MR/MS	S	MI	MI
Digger	Mod	Med	M	M/L	MS	MR	MR	MR	MS	MR	I	I
Nugget	Mod	Med	M	M/L	MS/MR	MR	MR	MR	MR/MS	MR	I	I
Small red												
PBA Bounty [®]	Mod	Med/Sht	M/L	M	MS	MR	MR	MR	MR	MS	I	MI
Nipper [®]	Poor/Mod	Sht	M/L	M	MR	MR	MR	R	R	R	I	MT
Northfield	Poor/Mod	Sht	M/L	M	MS	MR	MR	R	R	S	I	I
Large red												
Aldinga	Mod	Med	M	M	S	MR	MR	MR	MS	MS	I	I
Large green												
Boomer [®]	Good	Tall	M	M/L	MS	MR	MS	MR	MS	MR	I	I

Key: Mod=moderate, Med=medium, Sht=short, E=early, M=mid, L=late, S=susceptible, MS=moderately susceptible, MR=moderately resistant, R=resistant, I=intolerant, MI=moderately intolerant, MT=moderately tolerant. * more prone to pod drop in windy environments due to improved resistance to lodging

DISEASE MANAGEMENT

Botrytis grey mould (BGM)

PBA Bounty[®] is rated moderately susceptible to BGM and requires a higher level of fungicide use than for Nugget in wet years. Management should be as for Aldinga:

- apply a preventative fungicide at canopy closure in BGM prone areas
- additional sprays will be required in wet spring conditions in BGM prone environments

Ascochyta blight (AB)

PBA Bounty[®] has moderate resistance to foliar and seed infection by AB, similar to Nugget but not as good as Nipper[®] or Northfield. AB management for PBA Bounty[®] is similar to Nugget.

- monitor crops and apply fungicides from the start of podding in front of rainfall events to prevent seed infection and potentially yield loss

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

AGRONOMY

Agronomic characteristics

Paddock selection and basic requirements for growing PBA Bounty[®] are similar to other lentil varieties. PBA Bounty[®] has the following characteristics:

- mid flowering and maturing, similar to Nugget
- prostrate growth habit early in the season compared to other varieties
- plant height is shorter than Nugget and PBA Flash[®] but taller than Northfield and Nipper[®]
- lodging resistance is lower than Nipper[®], PBA Flash[®] and Nugget but similar to Northfield
- tolerance to salinity (NaCl) similar to PBA Flash[®], lower than Nipper[®] but higher than all other varieties

Sowing

Preliminary agronomic trial data suggest that PBA Bounty[®] responds similarly to Nugget to varying sowing times. If sowing early in BGM prone areas there is increased risk of lodging and BGM infection and timely management of this disease is essential. Due to its more prostrate early growth habit PBA Bounty[®] may not be suited to late sowings in environments with a short growing season.

- target 120 plants/m² as for Nugget
- target similar sowing dates to Nugget

Herbicide tolerance

In three years of visual observation trials conducted in SA (calcareous alkaline soils) PBA Bounty[®] has exhibited higher levels of susceptibility to Brodal Options[®] than Nugget particularly at high rates potentially indicating a narrow safety margin to this herbicide. Further research is occurring to validate these preliminary findings but care should be taken when using this herbicides in PBA Bounty[®] and growers should strictly adhere to label recommendations for rates, timing and conditions to minimise potential crop damage. The tolerance of PBA Bounty[®] to label recommended rates of other registered herbicides is similar to Nugget based on observation trials.

Crop topping and harvest

PBA Bounty[®] matures at a similar time to Nugget but later than PBA Flash[®]. Yield loss or poor seed quality may result from the incorrect timing of crop topping, especially when the maturity of the crop is delayed relative to weeds such as can occur with late sowings.

Timely harvest is critical in all lentil varieties to prevent yield loss from pod drop and to maximise quality. PBA Bounty[®] is less prone to pod drop in windy environments than other varieties that are more erect at harvest.

QUALITY

Seed characteristics

PBA Bounty[®] is a small red lentil with a grey seed coat that has a round seed that is larger than Nipper[®] but smaller than Nugget and PBA Flash[®]. It is approximately 10% larger than Northfield and Nipper[®] but likely to be sold into similar markets for splitting or the production of "footballs" (whole seed with the seed coat removed).



Seed of Nipper[®] (left), PBA Bounty[®] (middle) and Nugget (right)

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. Ensure volunteer lentils are controlled prior to sowing and implement good seed handling hygiene practices. Be particularly careful to avoid contamination of PBA Bounty[®] with green lentils such as Boomer[®] as when split the yellow seeds will contaminate and reduce the value of the red lentil split product if not graded out before splitting. For the purpose of seed cleaning PBA Bounty[®] has a seed size larger than Nipper[®] and Northfield, but smaller than all other varieties.

Variety	Market category	Seed shape	Seed coat colour	Cotyledon colour	Seed size relative to Nugget
PBA Flash [®]	MRS	Lens	Green	Red	0–10%>
Cassab	MRS	Lens	Grey	Red	Similar
Digger	MRS	Lens	Grey	Red	Similar
Nugget	MRS	Lens	Grey	Red	–
PBA Bounty [®]	SRP	Round	Grey	Red	10%<
Nipper [®]	SRP	Round	Grey	Red	20%<
Northfield	SRP	Round	Tan	Red	20%<
Aldinga	LRS	Lens	Green	Red	20%>
Boomer [®]	LG	Lens	Green	Yellow	50%>

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

MARKETING

- PBA Bounty[®] fits into the small sized red lentil class for human food markets
- Seed of PBA Bounty[®] will be segregated from other lentil varieties due to a unique combination of seed size and coat colour
- Due to larger seed than Nipper[®] and Northfield it may be less preferred in very small “football” markets (eg Bangladesh) but more preferred for larger “footballs” (eg Turkish red markets)
- Open marketing to authorised grain traders with an end-point royalty of \$5.50/t (including GST) on deliveries

BREEDING

PBA Bounty[®] (evaluated as CIPAL415) was developed by the PBA lentil program, led by DPI Victoria. It was produced from a cross between two lines from ICARDA, Syria (ILL6788 and ILL7180 (Nugget)). PBA Bounty[®] is part of a pipeline of varieties that will be released by PBA in the next 5 years. 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 project has been integral to the process.

PBA is an unincorporated joint venture between the GRDC, the 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
b.maclea@grdc.com.au
(02) 6166 4500

PBA LENTILS

Dr Michael Materne
DPI Victoria
Private Bag 260
Horsham VIC 3401
michael.materne@dpi.vic.gov.au
(03) 5362 2312

SEED ENQUIRIES

VIC / NSW / WA:

PBSEEDS – HEAD OFFICE

1324 Blue Ribbon Road
Kalkee VIC 3401
Ph (03) 5383 2213
Fax (03) 5383 2208
info@pbseeds.com.au
www.pbseeds.com.au

SA:

NORTHERN YORKE PROCESSING

Ph (08) 8825 7286
Fax (08) 8825 7287
admin@nyprocessing.com.au



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.

FOR MORE INFORMATION

Janine Sounness, PBSeeds (03) 5382 7292

AGRONOMIC ENQUIRIES

VICTORIA

Jason Brand, DPI Victoria, (03) 5362 2341
Wayne Hawthorne, Pulse Australia, 0429 647 455

SOUTH AUSTRALIA

Larn McMurray, SARDI, (08) 8842 6265
Wayne Hawthorne, Pulse Australia, 0429 647 455

NEW SOUTH WALES

Peter Matthews, I&I NSW, (02) 6977 3333
Trevor Bray, Pulse Australia, 0428 606 886

WESTERN AUSTRALIA

Ian Pritchard, DAFWA, (08) 9368 3515
Alan Meldrum, Pulse Australia, 0427 384 760

Disclaimer: Recommendations have been made from information available to date and considered reliable, and will be updated as further information comes to hand. Readers who act on this information do so at their own risk. No liability or responsibility is accepted for any actions or outcomes arising from use of the material contained in this publication. Reproduction of this brochure in any edited form must be approved by Pulse Breeding Australia © 2009