

PBA Flash[®]

Medium Red Lentil



PBA

PULSE BREEDING AUSTRALIA

Better pulse varieties faster

High yielding early maturing lentil



PBA Flash[®] (left) showing its earlier maturity compared to Nugget (right).

MAIN ADVANTAGES

PBA Flash[®] is suited to all current lentil areas but particularly shorter-season areas where its high yield and earlier maturity improves reliability of yield, especially in lower yielding situations. It is also a better option than Nugget for early sowing dates and higher rainfall areas provided botrytis grey mould is controlled. Earlier maturity makes PBA Flash[®] the best variety for timely crop topping and it's well suited to no-till, inter-row sowing into standing residue. PBA Flash[®] is likely to be exported to medium red lentil markets, similar to Nugget.

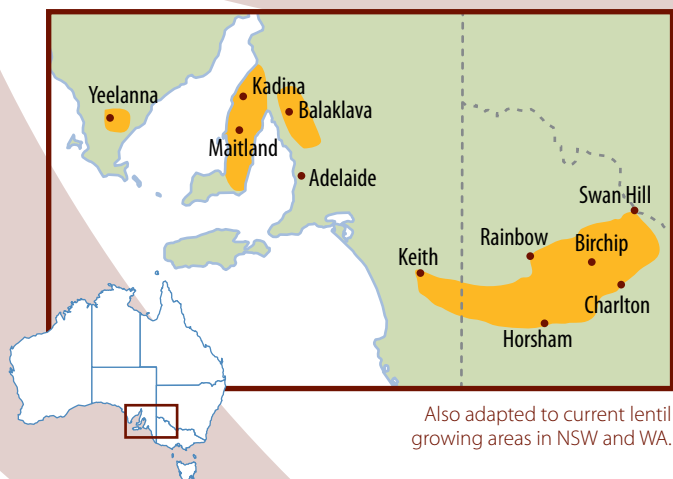
SEED PROTECTION & ROYALTIES

PBA Flash[®] is protected under Plant Breeder's Rights (PBR) legislation. Authorised growers can retain seed from production of PBA Flash[®] 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 Flash[®] 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.

KEY FEATURES

- Highest yielding lentil variety (average yield 4-10% higher than Nugget across all lentil growing regions)
- Excellent yield in short season and low yielding environments
- Early to mid maturity and better suited to crop topping than other varieties
- Erect growth habit and suited to no-till, inter-row sowing
- Moderately resistant to seed and foliar ascochyta blight (AB)
- Susceptible to botrytis grey mould (BGM)
- Improved tolerance to soil salinity and boron compared to Nugget
- Medium-sized red lentil with a green seed coat
- Improved milling quality

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 Flash[®] has been the highest yielding variety in all regions of southern Australia, except in the Mallee where PBA Bounty[®] was higher yielding.

PBA Flash[®] is best adapted to shorter season lentil growing environments. It has also out-yielded all other varieties in higher rainfall, longer season areas, particularly in drier, lower yielding trials where yields have been excellent, but BGM must be controlled.

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

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

PBA Flash[®] has also been the highest yielding variety in regions where lentils could potentially be grown in south western NSW and WA.

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	Shatt-ering	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 Flash[®] is rated susceptible to BGM and is targeted towards drier, shorter season areas where BGM is generally a lower risk. The control of BGM should be a priority in all areas when growing PBA Flash[®], but particularly in longer season, higher rainfall areas that are prone to the disease. Management should be as for Northfield:

- **BGM prone areas** - apply a preventative fungicide at canopy closure and additional sprays in wetter years, particularly if the crop is lodged and wet weather is forecast
- **other areas** - monitor crop growth and apply a preventative fungicide at canopy closure in wetter years when crop growth is good and subsoil moisture is high, further monitoring and sprays may be required

Ascochyta blight (AB)

PBA Flash[®] 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 Flash[®] is similar to Nugget. Monitor crops and apply fungicides from the start of podding in front of rainfall events to prevent seed infection.

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 Flash[®] are similar to other lentil varieties. PBA Flash[®] has the following characteristics:

- mid flowering, flowering 3 to 5 days earlier than Nugget
- earlier maturing than all other varieties
- medium plant height and height of pods, similar to Nugget
- improved lodging resistance compared to all varieties except Nipper[®]
- tolerance to salinity (NaCl) similar to PBA Bounty[®], lower than Nipper[®] but higher than all other varieties
- small improvement in soil boron tolerance compared to all varieties thus reducing some production risk

Sowing

Preliminary agronomic trial data suggest that PBA Flash[®] is better suited to earlier sowing dates than Nugget, Boomer[®] and Northfield due to a combination of erect plant type and earlier maturity BUT avoid early sowing

in BGM prone areas due to increased risk of lodging and BGM infection.

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

Herbicide tolerance

The tolerance of PBA Flash[®] to label recommended rates of registered herbicides is similar to Nugget based on three years of trials conducted in SA (calcareous alkaline soils).

Crop topping and harvest

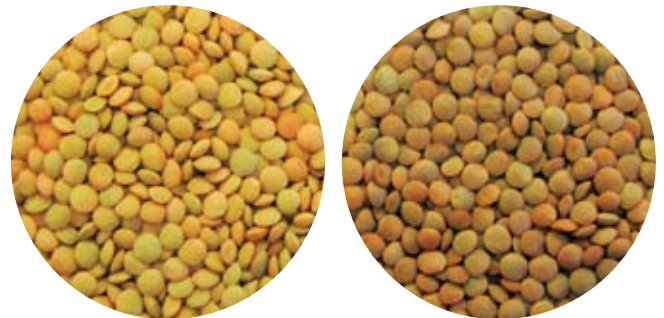
PBA Flash[®] matures earlier than all current varieties and is therefore more suited to crop-topping to control weeds. However maturity can vary between years and locations. Yield loss or poor seed quality may result from the incorrect timing of crop topping, especially when the maturity of the crop is delayed relative to weeds such as can occur with late sowing.

Timely harvest is critical in all lentil varieties to prevent yield loss from pod drop and to maximise quality. PBA Flash[®] may be more prone to pod drop in windy environments than other varieties due to its improved standing ability at maturity.

QUALITY

Seed characteristics

PBA Flash[®] is a medium-sized red lentil that will be segregated and sold into similar market types as Nugget. It has a lens-shaped seed, similar but slightly rounder and larger than Nugget, with a green seed coat similar to Aldinga. In laboratory testing, PBA Flash[®] demonstrated improved seed milling characteristics compared to Nugget with a higher dehulling efficiency and split yield.



Seed of PBA Flash[®] (left) and Nugget (right)

REFER TO DETAILED INFORMATION AT www.pulseaus.com.au
 Lentil ute guide, disease management guide and desiccation guide

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 Flash[®] with green lentils such as Boomer[®] 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 Flash[®] has a seed size larger than Nipper[®] and Northfield, smaller than Aldinga and Boomer[®] and similar to Nugget and Digger.

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 Flash[®] fits into the medium sized red lentil class for human food markets
- Seed of PBA Flash[®] will be segregated from other lentil varieties due to a unique combination of seed size and coat colour
- Open marketing to authorised grain traders with an end-point royalty of \$5.50/t (including GST) on deliveries

BREEDING

PBA Flash[®] (evaluated as CIPAL411) was developed by the PBA lentil program, led by DPI Victoria. It was produced from a cross between two lines from ICARDA, Syria (ILL7685 and ILL7180 (Nugget)). PBA Flash[®] 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

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