

# PBA Herald XT<sup>®</sup>

## Small red lentil



# PBA

PULSE BREEDING AUSTRALIA

*Better pulse varieties faster*

## Herbicide tolerant and disease resistant red lentil



*PBA Herald XT<sup>®</sup> (left) compared to Nipper<sup>®</sup> (right)*

### MAIN ADVANTAGES

PBA Herald XT<sup>®</sup> is the first lentil variety with improved tolerance to the herbicide flumetsulam (e.g. Broadstrike<sup>®</sup>, Multitude<sup>®</sup>), plus reduced sensitivity to some sulfonylurea and imidazolinone herbicide residues.

**However it is important to note that growers must adhere to product label rates, plant-back periods and all label directions for use.**

PBA Herald XT<sup>®</sup> has a good combination of Ascochyta blight and BGM resistance and is a direct replacement for Nipper<sup>®</sup> in medium to higher rainfall areas and early sowing situations where improved herbicide tolerance is beneficial.

PBA Herald XT<sup>®</sup> is lower yielding than PBA Flash<sup>®</sup>, PBA Blitz<sup>®</sup>, PBA Jumbo<sup>®</sup>, particularly in drier shorter season areas, but may be preferred where disease and weed control are major issues.

### SEED PROTECTION & ROYALTIES

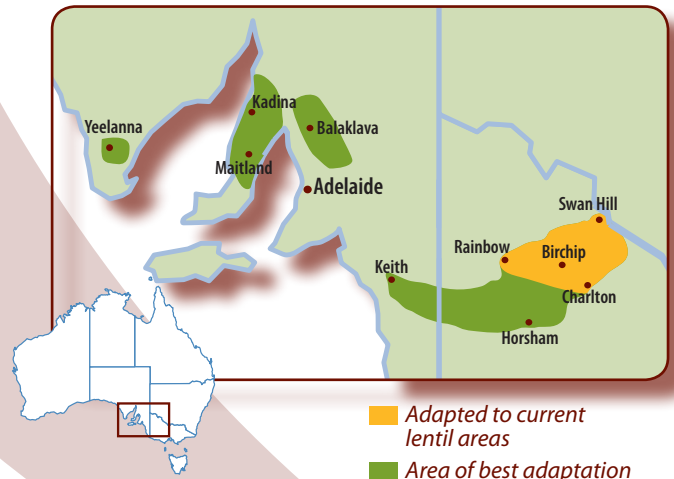
PBA Herald XT<sup>®</sup> is protected under Plant Breeder's Rights (PBR) legislation. A PBR bag licence applies to the seed and a Seed Technology Royalty applies to the seed price. Authorised growers can retain seed from production of PBA Herald XT<sup>®</sup> for their own seed use.

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 2012.

### KEY FEATURES

- First lentil variety featuring extra herbicide tolerance;
  - improved tolerance to flumetsulam.
  - improved tolerance to some residual sulfonylurea and imidazolinone herbicides.
- Sensitivity to metribuzin similar to Nipper<sup>®</sup> and poorer than other varieties.
- Good combination of Ascochyta blight and Botrytis grey mould resistance.
- Suitable for early sowing to maximise yield.
- Average yield similar to Nipper<sup>®</sup> but lower than other varieties, particularly in low rainfall shorter season areas.
- Adaptation is best in longer growing seasons and medium to higher rainfall areas.
- Poor early vigour and mid to late flowering similar to Nipper<sup>®</sup>.
- Small sized red lentil with a grey seed coat but flatter than Nipper<sup>®</sup> and PBA Bounty<sup>®</sup>.

### AREA OF ADAPTATION



another lentil upgrade

### YIELD & ADAPTATION

Where the herbicide tolerance of PBA Herald XT<sup>®</sup> is not an advantage, its average yield is similar to Nipper<sup>®</sup>, but less than PBA Jumbo<sup>®</sup>, PBA Blitz<sup>®</sup>, PBA Flash<sup>®</sup> and PBA Bounty<sup>®</sup> in all lentil growing regions of Southern Australia particularly in drier shorter season areas.

PBA Herald XT<sup>®</sup> is similar to Nipper<sup>®</sup> in terms of plant type, vigour and flowering time.

Its time to maturity is later than Nipper<sup>®</sup> but similar to Nugget and therefore performs best in longer growing seasons.

The high level of disease resistance offered by this variety will be beneficial in medium to higher rainfall lentil growing regions and when sowing early similar to Nipper<sup>®</sup>.

#### 2004-2010 LONG-TERM YIELD OF LENTIL VARIETIES (\* Yields expressed as a % of Nugget's yield)

	South Australia					Victoria		New South Wales	
	Yorke P	Mid North	Lower EP	South East	Murray Mallee	Wimmera	Mallee	South East	South West
<b>Small red</b>									
PBA Herald XT <sup>®</sup>	97	98	99	97	99	98	98	98	-
PBA Bounty <sup>®</sup>	103	103	103	101	103	102	103	102	104
Nipper <sup>®</sup>	98	100	99	98	98	96	96	97	98
Northfield	91	91	90	91	89	89	89	88	89
<b>Medium red</b>									
PBA Blitz <sup>®</sup>	105	106	106	104	106	104	104	105	-
PBA Flash <sup>®</sup>	106	108	108	107	109	104	104	105	106
Nugget	100	100	100	100	100	100	100	100	100
<b>Large red</b>									
PBA Jumbo <sup>®</sup>	111	110	108	109	109	106	108	108	109
<b>Large green</b>									
Boomer <sup>®</sup>	104	103	104	104	102	100	102	103	104

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

#### AGRONOMIC AND DISEASE TRAITS OF LENTIL VARIETIES

	Vigour	Plant height	Flower time	Maturity	Lodging resistance	Pod drop	Shattering	Ascochyta blight		Botrytis grey mould	Boron	Salt
								Foliage	Seed			
<b>Small red</b>												
PBA Herald XT <sup>®</sup>	Poor/Mod	Short/Med	Mid/Late	Mid/Late	MS/MR	MR	MR	R	R	MR	I	I
PBA Bounty <sup>®</sup>	Mod	Short/Med	Mid/Late	Mid	MS	MR	MR	MS/MR	MR	MS	I	MI
Nipper <sup>®</sup>	Poor/Mod	Short	Mid/Late	Mid	MR	MR	MR	MR	MR	R	I	MT
Northfield	Poor/Mod	Short	Mid/Late	Mid	MS	MR	MR	R	R	S	I	MI
<b>Medium red</b>												
PBA Blitz <sup>®</sup>	Mod/Good	Med/Tall	Early/Mid	Early	MR	MR	MR	R	MR	MR	I	I
PBA Flash <sup>®</sup>	Mod	Med	Mid	Early/Mid	MR	MR	MR	MS	MS	S	MI	MI
Nugget	Mod	Med	Mid	Mid/Late	MS/MR	MR	MR	MS/MR	MS/MR	MR	I	I
<b>Large red</b>												
PBA Jumbo <sup>®</sup>	Mod	Med	Mid	Mid	MS	MR	MR	R	R	MS	MI	MI
<b>Large green</b>												
Boomer <sup>®</sup>	Good	Tall	Early/Mid	Mid/Late	MS	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 Herald XT<sup>®</sup> is targeted towards medium to higher rainfall areas where it is important to consider foliar disease as part of lentil crop management. Its high level of disease resistance may mean that no foliar fungicides are necessary in many seasons, reducing production costs.

However seasonal crop monitoring may still be required.

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

#### Botrytis grey mould (BGM)

- PBA Herald XT<sup>®</sup> is rated Moderately Resistant (MR) 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 either prolonged wet spring conditions occur or in areas with long growing seasons.

#### Ascochyta blight (AB)

- PBA Herald XT<sup>®</sup> is rated as Resistant (R) to foliar and seed infection. Foliar resistance is better than Nipper<sup>®</sup> and similar to Northfield, PBA Blitz<sup>®</sup> and PBA Jumbo<sup>®</sup>.
- In severe disease risk environments; if symptoms are detected after the commencement of podding a fungicide application is required prior to subsequent rainfall events.

### AGRONOMY

#### Agronomic characteristics

Paddock selection and basic requirements for production are similar to other lentil varieties.

PBA Herald XT<sup>®</sup> has the following characteristics;

- Mid-late flowering similar to Nipper<sup>®</sup> and PBA Bounty<sup>®</sup>. Plant height and height of pods is generally higher than Nipper<sup>®</sup> but it can be short compared to varieties such as PBA Flash<sup>®</sup> in dry environments.
- Moderately susceptible to lodging in areas of best adaptation but is mostly resistant to lodging in dry years.
- Intolerant to salinity (NaCl) and more sensitive than PBA Bounty<sup>®</sup>, PBA Flash<sup>®</sup>, PBA Jumbo<sup>®</sup> and Nipper<sup>®</sup>.
- Intolerant of soil boron, similar to Nipper<sup>®</sup> whereas PBA Flash<sup>®</sup> and PBA Jumbo<sup>®</sup> are slightly improved over all other varieties.

#### Sowing

- PBA Herald XT<sup>®</sup> is suitable for early sowing to maximise grain yield with lower risk of disease development similar to Nipper<sup>®</sup>.
- Target plant densities of 120 plants/m<sup>2</sup> adjusting sowing rates to the small seed size of this variety and germination % of the seed used each year.

#### Herbicide tolerance

- PBA Herald XT<sup>®</sup> has improved tolerance to flumetsulam applied in crop.
  - In currently grown lentil varieties flumetsulam applied according to label directions may cause height reduction, crop discolouration, delayed flowering and yield loss.
  - Post emergent application of flumetsulam at recommended rates have resulted in yield losses up to 20% in all current lentil varieties on alkaline soils
- Where flumetsulam is applied to PBA Herald XT<sup>®</sup> according to label directions the risk of crop damage and yield loss is minimised.
- PBA Herald XT<sup>®</sup> also shows less sensitivity to sulfonylurea and imidazolinone herbicide residues from previous crop applications.
- **However it is important to note that growers must adhere to product label rates, plant-back periods and all label directions for use.**
- Similar to Nipper<sup>®</sup>, PBA Herald XT<sup>®</sup> is more sensitive to metribuzin than other varieties. Label rates of metribuzin have been used on most of the long term lentil yield trials.

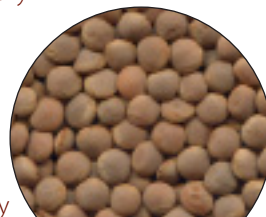
#### Crop topping and harvest

- PBA Herald XT<sup>®</sup> matures at a similar time to Nugget and later than PBA Flash<sup>®</sup>, PBA Blitz<sup>®</sup> and Nipper<sup>®</sup>.
- 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 Herald XT<sup>®</sup> is a small-sized lens-shaped red lentil with a grey seed coat. Seed size, as measured by 100 seed weight, is similar to Nipper<sup>®</sup> but flatter and slightly larger in diameter.



PBA Herald XT<sup>®</sup>



Nugget



Nipper<sup>®</sup>

# PBA Herald XT<sup>®</sup>

## Small 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 Herald XT<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 Herald XT<sup>®</sup> has a seed size similar to Nipper<sup>®</sup>.

Variety	Market category	Seed shape	Seed coat colour	Cotyledon colour	Seed size relative to Nugget
<b>Small red</b>					
PBA Herald XT <sup>®</sup>	SRS	Lens	Grey	Red	20% <
PBA Bounty <sup>®</sup>	SRP	Round	Grey	Red	10% <
Nipper <sup>®</sup>	SRP	Round	Grey	Red	20% <
Northfield	SRP	Round	Tan	Red	20% <
<b>Medium red</b>					
PBA Blitz <sup>®</sup>	MRS	Lens	Grey	Red	15-20% >
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% >
<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 Herald XT<sup>®</sup> fits into the human food market for small sized red lentil, particularly to be consumed whole or split. The disease resistance of this variety will assist it achieve high grain quality from receipt point to market.
- PBA Herald XT<sup>®</sup> should be segregated from all other varieties for marketing, unless otherwise stated.
- PBA Herald XT<sup>®</sup> will be open marketed with an End Point Royalty (EPR) of \$5.50/t (including GST), applied upon delivery.

### BREEDING

PBA Herald XT<sup>®</sup> (evaluated as CIPAL0702) was developed by conventional mutation plant breeding techniques using the PBA breeding line 96-047L\*99R060.

It was developed by Agriculture Victoria Services Pty Ltd (AVS) through the work of PBA staff.

PBA Herald XT<sup>®</sup> is part of a pipeline of varieties that will be released by PBA. Pulse Breeding Australia 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, SARDI, DPI Victoria, NSW-DPI, DEEDI, DAFWA and Pulse Australia. It aims to deliver better pulse varieties faster.

### FOR MORE INFORMATION

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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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