

KEY FEATURES OF Boomer^ϕ

- The first green lentil (yellow cotyledon) bred specifically for Australian conditions.
- Boomer^ϕ has improved resistance to ascochyta blight and botrytis grey mould compared with Matilda and similar to Nugget.
- It has good early vigour, tall plant height and is mid to late flowering.
- Boomer^ϕ can be susceptible to lodging in areas where strong winter growth is experienced.
- Boomer^ϕ is more susceptible to shattering than other varieties.
- Early harvest is important to avoid shattering losses and produce desirable seed that is green in colour.
- Good management strategies will ensure the production of seed suitable for green lentil human-consumption markets.

Where Boomer^ϕ fits in the farming system

- Boomer^ϕ provides a green lentil option for growers in all traditional red lentil areas of south-eastern Australia.
- Grain yield and disease resistance characteristics are similar to Nugget.
- Boomer^ϕ and Nugget are taller and earlier flowering than Nipper^ϕ and Northfield, and are more suited to low rainfall areas, or drought years and late sowing in more favourable areas.
- Relative prices and market availability for red and green lentils are important considerations in the decision to grow Boomer^ϕ.

Variety Characteristics:

Breeding: Boomer^ϕ (tested as CIPAL402) was bred by the Coordinated Improvement Program for Australian Lentils (CIPAL) led by Dr Michael Materne, DPI Victoria. It was produced from a cross between Digger and Palouse (USA variety), and was selected for its high yield, large seed size, vigour, height and improved resistance to both grey mould and ascochyta blight over the current green lentil variety Matilda.



Agronomic characteristics:

- Boomer^ϕ is a medium to large-sized green lentil (green seed coat with yellow cotyledons (kernel) compared with red cotyledons in Nugget, Nipper^ϕ or Digger). It has improved resistance to grey mould and ascochyta blight compared to Matilda, similar to Nugget but not as good as Nipper^ϕ.
- It grows taller and more vigourously than current varieties and can be more prone to lodging, grain shattering and potentially botrytis grey mould when sown early in seasons that are favourable for growth.
- Boomer^ϕ usually flowers at a similar time and matures slightly later than Nugget, but can flower and mature earlier than Nugget when sown early, especially under conditions of warmer temperatures.
- It is more susceptible to shattering at maturity than other varieties, particularly when sown early, therefore harvest timing is critical. Note that grain yields presented include data from some sites where shattering has occurred.
- Preliminary research indicates early harvest is beneficial for quality by ensuring a brighter green colour.
- Boomer^ϕ has similar intolerance to high soil salinity (NaCl), soil boron concentrations and sodicity compared to Nugget.
- Indications are that Boomer^ϕ may be more sensitive to diflufenican (Brodal Options®) than Nugget but has similar levels of tolerance to other commonly used herbicides.

Agronomic and Disease Features of Lentil Varieties

Name	Ascochyta Blight	Ascochyta Blight	Botrytis Grey Mould	Vigour	Plant height	Lodging Resistance	Pod Drop	Shattering	Flowering Time	Boron	Salt	Maturity
	Foliage	Seed										
Aldinga	MR	MS	MS	Moderate	Medium	S	MR	MR	Mid	I	I	Mid
Boomer^ϕ	MR	MS	MR	Good	Tall	MS	MR	MS	Mid	I	I	Late
Digger	MR	MS	MR	Moderate	Medium	MS	MR	MR	Mid	I	I	Mid/Late
Nipper ^ϕ	R	R	R	Poor/Mod	Short	MR	MR	MR	Mid/Late	I	MT	Mid
Northfield	R	R	S	Poor/Mod	Short	MS	MR	MR	Mid/Late	I	I	Mid
Nugget	MR	MS	MR*	Moderate	Medium	MS/MR	MR	MR	Mid	I	I	Mid/Late

Key: **S** = susceptible, **MS** = moderately susceptible, **MR** = moderately resistant, **R** = resistant, **I** = Intolerant, **MT** = moderately tolerant

Yield and adaptation:

- The adaptation of Boomer^ϕ is similar to Nugget and it can be successfully grown in current lentil growing areas.
- Boomer^ϕ is well suited to medium rainfall lentil growing areas of SA, Victoria and southern NSW.
- Boomer^ϕ yields similarly but generally higher than Nugget in all regions of Australia, but higher than Nipper^ϕ.

Long-term relative grain yield for Boomer[®] compared to other commercial lentil varieties (as % of Nugget)

Variety	Yield for individual years in SA			Long-term yield (% Nugget) 2000-2007							
	2005	2006	2007	SA		Vic		Sthn NSW		WA	
	High rainfall with disease*	Drought	Dry growing season with late finish	Yield	Sites	Yield	Sites	Yield	Sites	Yield	Sites
Boomer[®]	117	104	115	104	32	101	21	103	9	99	3
Aldinga				94	75	93	47	94	25	97	3
Digger				96	64	94	65	97	30	94	3
Nipper [®]	118	93	92	98	57	95	34	96	16	90	3
Northfield	95	73	85	90	76	90	65	90	30	88	3
Nugget	100	100	100	100	76	100	58	100	30	100	3
<i>Nugget (yield t/ha)</i>	2.32	1.01	1.23	1.93		1.37		1.02		0.73	

* = BLUP figure; data courtesy SARDI, DPI Vic, DPI NSW, DAFWA, NVT.

Quality characteristics:

- Grain size is 30% greater than Matilda (5.5mm – 8.0mm), making it suitable for the medium or large seeded human consumption green lentil markets depending on size.
- Seed size may be smaller and or variable in size in low rainfall areas or when the season terminates quickly and the large grain cannot fully fill. Smaller seed size often occurs with sowing earlier than normal as more seeds are formed and then have to fill.

Boomer[®] Management Package

(consult local grower guides for more detailed information)



Maintain Purity of Seed Crops:

Do not let Boomer[®] seed crops be contaminated with other lentil varieties that have different sizes and/or coloured seed coats or red cotyledons. Ensure that there are no self-sown lentils in the crop, and avoid physical contamination through machinery, storage or handling facilities.

Sowing Date:

Target the same sowing date as Nugget and Northfield.

- Sowing Boomer[®] earlier than normal in areas with good winter and spring growth can lead to an increased risk of lodging, possibly high botrytis grey mould infections and more grain shattering at maturity from the lowest pods.

Seeding rate:

Boomer[®] has the largest seed of current varieties. Target seeding rates to achieve standard plant densities of 120 plants/m² with adjustments for seed size and germination percentage.

Herbicide Sensitivity:

Herbicide screening at Kalkee Vic (black cracking clay) and Minlaton SA (calcareous alkaline soils) shows that Boomer[®] performs similar to Nugget and Nipper[®] at label recommended rates of PSPE herbicides recommended in lentils. Broadstrike[®] POST is the most damaging herbicide treatment used on lentils in SA, but yield loss in Boomer[®] appears similar to that in Nugget and Nipper[®] when damage has occurred. Results in SA showed that Boomer[®] incurred a yield loss of 7% in one year with label recommended rates of Brodal Options[®] POST when compared with an untreated control. In the same experiment no yield loss occurred in Nugget and Nipper[®], potentially indicating Boomer[®] may be less tolerant to this herbicide, evaluation is continuing.

Virus Management:

- For viral diseases a threshold of <0.1% seed infection is recommended for sowing in high risk areas, and <0.5% seed infection for sowing in low risk areas. Use virus free seed where possible.
- The spread of virus can be managed by controlling summer weed hosts for virus, ensuring the crop covers the ground quickly (sow early and avoid low sowing rates), the early application of insecticide to control aphids, and monitoring and control of aphids during the season.
- Harvest parts of the crop that have no plants with virus symptoms for use as sowing seed in the following year.

Disease Management:

The management of disease in Boomer[®] is similar to Nugget, but control of ascochyta blight on the seed is more critical as seed is sold whole to consumers and needs to be free of disease blemish.

Ascochyta blight

- High risk situations are when infected seed is sown, there is a close lentil rotation or sowing is too early and cold wet conditions prevail.
- Unlike in Nipper[®], the risk of Ascochyta seed infection increases with sowing earlier than normal.
- Seed treatment and preventative fungicide treatments from the start of podding may be required in higher risk situations if ascochyta blight is identified in the crop at flowering.

Botrytis Grey Mould

- Botrytis grey mould is most severe in seasons when rainfall occurs in spring and crops are bulky and lodged.
- Boomer[®] can lodge more than Nugget and Nipper[®] when crop growth is good, thus effective early botrytis grey mould control is imperative in moderate or high risk situations, including early sowing.
- In high risk situations, delay sowing and consider an application of a recommended fungicide before canopy closure to protect against botrytis grey mould. Additional botrytis grey mould control or protection may be required in high rainfall and or long growing season environments, and further monitoring will be required.
- A recommended fungicide seed dressing is beneficial for controlling seedling root rots, ascochyta blight and BGM to ensure good plant establishment.

Harvest:

Harvesting as soon as the crop is ready is critical to avoid seed shattering and prevent grain quality deterioration. Pod drop is similar to Northfield and Nipper[®], but seed shattering can be higher. The relative harvest time of Boomer[®] can vary from earlier to later than Nugget depending on seasonal conditions, so monitor crops regularly at this time of the year. Producing bright green lentil grain that meets receival standards for minimal poor colour seed coat should more easily be achieved with Boomer[®] than it was with Matilda, however disease infections must still be controlled and harvest must be timely to avoid environmental factors from discolouring the grain. Desiccation of Boomer[®] may assist with evenness of crop maturity, aid harvesting and help produce higher quality, blemish free greener grain. Timing is however critical and harvest needs to be as soon as the crop is ready. Desiccating too early may result in immature, smaller or wrinkled grains in the harvested sample. Harvesting too early may produce grain with higher moisture which must then be managed in storage to prevent damage to the seed. See management guides, eg "Meeting lentil quality demanded by markets" www.pulseaus.com.au.

Marketing:

- Boomer[®] grain will be segregated from other lentil varieties for human food markets.
- Open marketing with an end-point royalty of \$5.50/t (including GST) Boomer[®] deliveries.

Seed Availability and PBR:

Boomer[®] is protected by PBR. Growers can retain seed from production of Boomer[®] for their own seed use. Seed is commercialised through AWB Seeds and available through local seed suppliers from 2008.

Boomer[®]
Seed Supply enquiries:



Phone 1800 054 433

Agronomic Enquiries: Contact:

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Other Reading: For lentil management guidelines, see:

- Grain Legume Handbook
- Pulse Australia publications: "Meeting lentil quality demanded by markets", "Lentil disease management strategy for southern region GRDC" and supplements, and "Pulse seed treatments and foliar fungicides" (www.pulseaus.com.au)
- SARDI fact sheet "Lentil variety sowing guide 2008" www.sardi.sa.gov.au/pdfserve/fieldcrops/research_info/sowing_guide/lentilfs.pdf)
- NSW DPI publications (www.agric.nsw.gov.au): "Winter Crop Variety Sowing Guide 2008" ; Pulse Point 20 "Germination testing and seed rate calculation"; "Weed Control in Winter Crops 2008"; "Insect and Mite Control in Winter Crops";
- Vic DPI "Winter Crop Summary 2008" and fact sheets (www.dpi.vic.gov.au).

Disclaimer: The information contained in this brochure is based on knowledge and understanding at the time of writing (30/06/2008). Growers should be aware of the need to regularly consult with their advisors on local conditions and currency of information.



This Boomer[®] VMP was prepared by Michael Materne, Jason Brand (Vic DPI), Larn McMurray (SARDI) and Wayne Hawthorne (Pulse Australia). Reproduction of this Pulse VMP in any edited form must be approved by Pulse Australia © 2005 and VicDPI.

