

# Jindalee<sup>®</sup>

## NARROW LEAF LUPIN

### VARIETY SUMMARY

- High yield potential
- Mid-flowering for early sowing flexibility
- Adapted to the higher rainfall, longer season growing regions of NSW, SA and Victoria
- Greater harvest height than Merrit
- Superior resistance to Phomopsis Stem Blight

### BREEDING

Jindalee was the result of a cross between Gungurru and an unknown male parent.

The line was initially derived from a single plant selection in South Australia, and was subsequently trialed by NSW Agriculture's Lupin Breeding Program at Wagga Wagga for release in 2000.

### SOIL TYPE

In general, lupins are best adapted to sands and loamy textured soils that range in pH between 4 and 7.0.

Lupins are susceptible to waterlogging and grow poorly on hard setting or shallow soils.

### AREA OF ADAPTATION

Jindalee is best adapted to the medium to high rainfall, longer season regions of NSW, South Australia and Victoria.

### DISEASE AND PEST RESISTANCE

Jindalee has a greater resistance to Phomopsis stem infection than all other currently available lupin varieties. Jindalee is moderately susceptible to Cucumber Mosaic Virus (CMV), and is susceptible to Bean Yellow Mosaic Virus (BYMV).

**Table 1.** Jindalee characteristics and disease resistance traits as compared to other varieties.

Variety	Flowering	Height	Lodging Resistance	Anthracnose	CMV in seed	Phomopsis Stem Blight	Brown Leaf Spot	Pod Shatter Loss
Jindalee	M	Med-Tall	MR	MS	MS	R	MS/MR	R
Merrit	E	Short	R	MS	MS	MR	MS/MR	R
Gungurru	E	Short	MR	MS	MS	MR	MS	R
Tanjil	E	Medium	MR	MS/MR	MR	MR	MS/MR	MR
Wonga	E	Medium	MS/MR	MR	MR	MR	MS/MR	MS

Plant and Disease Terms: R - Resistant, S - Susceptible, MR - Moderately Resistant, MS - Moderately Susceptible, M - Medium, L - Late, E - Early,

Data Source: NSW Ag, SAFCEP, PIRSA

### MATURITY

Jindalee is a mid-flowering variety that if sown in late May, will typically flower 8 days later than Merrit and Gungurru, but earlier than Geebung. Jindalee's vernalisation requirement (hence it's mid-flowering characteristic) reduces the risk of frost injury when compared to earlier flowering cultivars and allows for greater flexibility for an early sowing.

### PLANT CHARACTERISTICS

Jindalee is a moderately tall variety that matures to a greater harvest height than Merrit. Jindalee has vigorous early growth and pods prolifically on the main stem, which contributes to its ability to produce high yields, particularly when sown early. Jindalee has similar lodging resistance to Merrit, however, the risk of lodging increases with longer, wetter seasons where later flowering crops grow taller and produce more vegetative growth.

### GRAIN QUALITY

In trials undertaken at long season sites in the high rainfall cropping zones, seed alkaloid levels of Jindalee were below that of Danja and comparable with those of Wonga, and Tanjil. Stressful growing conditions in unsuitable areas may cause Jindalee to produce grain with higher seed alkaloid concentrations.

Jindalee produces similarly sized seed to Danja, Wonga and Tanjil, and with comparable protein levels. Jindalee produces characteristically marked seeds that have brown marbling on a cream background and which are similar in appearance to Gungurru.

 **YIELD**

Jindalee has demonstrated a high yield potential within the higher rainfall cropping zones of South Australia, Victoria and Southern NSW. Jindalee has the highest long yield average of the commercially available cultivars in the long season areas of NSW (105% of Merrit) and has the second highest long term average yield in South Australian trials (104% of Merrit).

**Table 2.** Long term NSW, Victorian and South Australian grain yields expressed as a percentage of Merrit (Number of experiments in brackets).

Variety	NSW Agriculture long term data (1996-2002)		South Australian predicted cultivar yields (1996-2002)					Victorian Long term yield data (1995-2000)			
	Long Season	Short Season	South Sth East	South Sth East	Mid Upper North	Eyre Penin	Murray Mallee	Mallee	Central East	Wimmera East	North
<b>Jindalee</b>	<b>105 (34)</b>	<b>104 (75)</b>	<b>103 (19)</b>	<b>105 (29)</b>	<b>105 (28)</b>	<b>104 (29)</b>	<b>109 (16)</b>	<b>84</b>	<b>96</b>	<b>93</b>	<b>103</b>
Merrit	100 (34)	100 (76)	100 (19)	100 (29)	100 (28)	100 (29)	100 (16)	100	100	100	100
Gungurru	99 (34)	99 (74)	98 (11)	97 (18)	96 (16)	97 (17)	93 (13)	96	96	98	110
Tanjil	103 (34)	104 (76)	102 (15)	102 (26)	101 (22)	100 (23)	105 (16)	100	102	100	102
Wonga	102 (34)	102 (76)	102 (19)	103 (29)	101 (28)	100 (29)	104 (16)	98	103	99	111

Data Source: NSW Agriculture

Data Source: SAFCEP & PIRSA

Data Source: DNRE

 **AGRONOMIC GUIDELINES****Sowing**

- In general, sowing depth is recommended at approximately 25mm for moist soils. Avoid sowing at depths >50mm, as seedling vigour will be severely affected. Sowing should be timed to maximise seed exposure to warmer soils as seedling establishment, growth and nodulation are more rapid in warmer soils.
- Lupins generally perform better when drilled into chopped cereal stubble. This practice minimises the risk of Brown Leaf Spot whilst the additional ground cover encourages soil moisture retention.
- Aim for densities of 35 plants/m<sup>2</sup> for early sowing and up to 45 plants/m<sup>2</sup> for later sowings. Higher seeding rates may be required if sowing is delayed or if the crop is weakened by low fertility soils.
- The Rhizobia strain necessary for effective nodulation of lupins does not occur naturally in Australian soils. Therefore growers should ensure the appropriate G type rhizobium inoculum is applied to the lupin prior to sowing.
- Due to the variety's seed size we recommend using the formula to correctly determine seeding rate. Seed counts are supplied with newly purchased seed.

1000 Seed Weight (grams)	x	Target Plant Population	÷	100	÷	Establishment % x Germination %
.....		.....				.....

= Your Seeding Rate.....kg/ha

**Nutrition**

- Lupins are highly responsive to phosphorus applications. Approximately 10kg/ha of P is required to produce a 2t/ha lupin crop, but much of this is bound by the soil. Thus the best results are obtained with rates of 15kg/ha actual P in most environments. Fertiliser is best placed in a band close to the root zone at sowing.
- Lupin establishment on sandy soils may be enhanced by the application of 5-10kg of Nitrogen, and up to 20kg/ha N for clay based soils.

**Weed Control**

- Weed control is critical for success, and a wide range of pre and post-emergent herbicides are available. Jindalee has shown increased sensitivity to the herbicide Kerb® (propyzamide). Simazine + Atrazine applied post sowing/ pre-emergence, have also caused damage to Jindalee at the 2x rate in trials.

 **PLANT BREEDER RIGHTS AND ROYALTIES**

Jindalee is protected by Plant Breeder Rights, any unauthorised commercial propagation or any sale, conditioning, export, import or stocking of propagating material of this variety is an infringement under the Plant Breeder's Rights Act, 1994.

Growers are allowed to retain seed from production of this variety for their own use as seed only.

An End Point Royalty of \$1.38 per tonne (GST inclusive), which includes breeder royalties, applies to this variety.

**ACKNOWLEDGEMENTS**

Jindalee was selected and further developed by NSW Agriculture in collaboration with its partners in the Australian Coordinated Lupin Improvement Program, with support from growers through the GRDC National Lupin Breeding Project.



For more information call **Seednet** on **1300 799 246** or visit **www.seednet.com.au**

DISCLAIMER: The material contained in this Fact Sheet is from official sources and is considered reliable. It is provided in good faith and every care has been taken to ensure its accuracy. Seednet does not accept any responsibility for the consequences, which may arise from the acceptance of recommendations or suggestions made.