

- Consistently high yielding variety in all regions.
- Excellent height and vigour in low-medium rainfall environments.
- Early maturity – suitable for crop-topping (although some yield loss is likely).
- Good anthracnose resistance.
- Good resistance to aphid colonisation and feeding damage (not usually a problem in eastern states).
- Tolerance to broadleaf herbicide metribuzin (not registered on lupins in some eastern states).

BREEDING

Mandelup[®] (tested as WALAN2141) was bred by WA Department of Agriculture in co-operation with the National Lupin Breeding Programme.

VARIETY CHARACTERISTICS

Mandelup[®] is an early flowering and maturing variety with low alkaloid content. It has shown excellent vigour and harvest height in low rainfall regions. It was selected for its high yield, anthracnose resistance and tolerance to metribuzin in WA. Mandelup has improved anthracnose resistance over Quilinoch[®] and Jindalee[®], but less than Wonga[®]. It has also shown to be consistently high yielding across the southern states in the short season, low rainfall environments.

AGRONOMIC TRAITS AND DISEASE RESISTANCE OF NARROW-LEAFED LUPIN VARIETIES*

Variety	Flowering time	Lodging resistance	Seed size (g/100 seeds)	Brown leaf spot	Pleiochaeta root rot	Phomopsis stem infection	CMV seed transmission	Anthracnose resistance
Mandelup[®]	Very Early	MP	14	I	R	MR	MR	MR
Quilinoch [®]	Early	MP	16	I	R	MR	MR	VS
Moonah [®]	Early	MG	15	S	R	MR	MS	MR
Wonga [®]	Early	MG	13	I	R	MR	R	R
Jindalee [®]	Mid-Late	G	13	I	R	R	MS	S
Belara	Very Early	MG	15	S	R	R	MS	S

* NSW DPI ratings: VS = very susceptible, S = susceptible, MS = moderately susceptible, I = Intermediate (MR-MS), MR = moderately resistant, R = resistant. MP = moderately poor, MG = moderately good, G = good

YIELD AND ADAPTATION

Mandelup[®] has consistently out-yielded current lupin varieties in low-medium rainfall zones (<450mm annual rainfall). It has also yielded well in trials in high rainfall areas, but is prone to lodging in very high production situations, (long season, wetter, cooler sites).

LONG-TERM RELATIVE GRAIN YIELD

Variety	Eyre Peninsula SA %Merrit	Mid-Upper North SA %Merrit	Upper South-East SA %Merrit	Lower South-East SA %Merrit	Murray Mallee SA %Merrit	Predicted State Mean SA %Merrit	Mallee Vic %Merrit	North Central Vic %Merrit	North East Vic %Merrit	NSW Short season %Quilinoch	NSW Long Season %Jindalee
Mandelup[®]	108	106	107	108	113	107	109	110	106	99	101
Quilinoch [®]	104	106	107	107	111	106	107	108	105	100	101
Moonah [®]	101	103	102	103	103	102	103	103	102	95	98
Wonga [®]	99	99	103	102	103	101	102	102	101	96	98
Jindalee [®]	103	102	103	103	105	104	98	98	99	97	100
Belara	101	104	105	107	104	104	101	102	101	95	99
<i>t/ha (of standard)</i>	<i>2.28</i>	<i>2.11</i>	<i>2.42</i>	<i>2.65</i>	<i>1.10</i>	<i>2.19</i>	<i>1.41</i>	<i>1.22</i>	<i>1.99</i>	<i>1.93</i>	<i>2.58</i>

Data courtesy SARDI (1998-2004), DPI Victoria (2001-2004) and DPI NSW (1997-2003).

GRAIN QUALITY

Alkaloid levels of Mandelup[®] are low. The protein level of Mandelup[®] is higher than that of Belara, but less than that of Merrit, Jindalee[®], Quilinoch[®] or Wonga[®].

AGRONOMIC ENQUIRIES: David Luckett, NSW DPI, (02) 6938 1835; Trevor Bray, Pulse Australia; S-NSW & N-Vic, (02) 6963 6926; and Wayne Hawthorne, Pulse Australia, SA & S-Vic, (08) 8764 7455.

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Disclaimer: The information contained in this brochure is based on knowledge and understanding at the time of writing (14/11/2005). Growers should be aware of the need to regularly consult with their advisors on local conditions and currency of information.

Agronomic Management



AREAS OF ADAPTATION

- Mandelup[®] is suitable for low and medium rainfall areas of NSW, SA and Victoria.
- Its yields have been consistently higher than current varieties in districts with annual rainfall < 400mm.
- Being slightly taller, Mandelup[®] should be easier to harvest in late sown or drier years.
- Its susceptibility to lodging in high rainfall areas may result in harvesting difficulties.

SOWING (*Consult local grower guides for more detailed information*)

- If CMV symptoms were seen in the previous seed crop, a CMV seed test is advised.
- Ideally sow from mid-April to mid-May in low rainfall areas.
- Sowing in high-rainfall areas may need to be delayed until late April through to mid June.
- Establish a minimum 35 plants/m² for early sowing and 45 plants/m² for later sowings.
- Always request a germination test report on purchased sowing seed, and test retained seed. Use 90% as the maximum establishment rate when calculating seeding rates.

HERBICIDE TOLERANCE

Most registered herbicides can be used on Mandelup[®] at label rates. It has a low margin of safety to Eclipse[®] (similar to Jindalee[®] and Quilinoch[®]). Mandelup[®] has shown good triazine tolerance in trials. Plants weakened by herbicides are more susceptible to root and foliar diseases. Use similar guidelines and strategies as for other lupin varieties. The early flowering of Mandelup[®] and its ability to fill pods rapidly make it suitable for crop topping. Timing of chemical application or swathing/windrowing is very important – serious yield loss and/or reduction of seed viability can occur – see Other Reading. Mandelup[®] has shown good tolerance to metribuzin, making it a suitable variety where difficult broad-leaved weeds are present. Metribuzin is not registered on lupins in all states – check labels for details.

DISEASE MANAGEMENT

- Mandelup[®] has improved resistance to anthracnose over Merrit, Jindalee[®] and Quilinoch[®], but less than Wonga[®].
- Observe all anthracnose quarantine restrictions and import regulations. Anthracnose is not present in NSW or Victorian lupin crops, and is only very isolated in SA, so keep it that way.
- Mandelup[®] has moderate resistance to Phomopsis stem infection, which is less than Jindalee[®] and Belara[®].
- It has intermediate resistance to brown leaf spot, similar to Jindalee[®] and Wonga[®]. Manage brown leaf spot in all varieties by rotation, cereal stubble retention, and possibly fungicide seed treatment.
- CMV seed transmission rates in Mandelup[®] are higher than in Wonga[®], but lower than in Jindalee[®].

INSECTS

Mandelup[®] has resistance to aphid colonisation and feeding damage similar to Kalya[®] and Wonga[®]. For other insect pests (particularly mites, lucerne flea, thrips, and budworm), follow the same monitoring and control guidelines as for other varieties. Monitoring and control are essential for quality markets, and retained seed.

HARVESTING

Mandelup[®] fills its pods rapidly, making it suitable for swathing/windrowing to control weeds or advance harvest time, but timing is very important. Mandelup[®] has good pod and seed shedding resistance, but timely harvest is important to maximise grain quality. If harvest is delayed or under extreme dry conditions, harvest at the coolest times such as early morning or at night to avoid shattering or pod drop.

SEED LICENSING AND AVAILABILITY

Mandelup[®] is produced and marketed under licence to Graintrust Pty Ltd in SA, Victoria and NSW and is marketed and distributed by PlantTech (ph 1800 112 400). Mandelup[®] is protected under Plant Breeders' Rights and has an End-Point Royalty (including management fee) of \$2.30/t excluding GST on all grain produced, except seed retained for sowing.

Seed Supply Enquiries: 1800 112 400



Telephone (02) 9925 0570

Other reading: For lupin management guidelines, see:

- NSW DPI publications (www.agric.nsw.gov.au): "Winter Crop Variety Sowing Guide 2005"; Pulse Point 20 "Germination testing and seed rate calculation"; "Weed Control in Winter Crops 2005"; "Insect and Mite Control in Winter Crops"; Pulse Point 10 "Windrowing Lupins"
- Vic DPI "Winter Crop Summary 2005" (www.dpi.vic.gov.au).
- SARDI "Lupin variety sowing guide 2006" (www.sardi.gov.au)
- Pulse Australia (www.pulseaus.com.au)



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