Jenabillup$^{\Phi}$

Narrow leaf lupin

VMP 2011 #09

KEY FEATURES

- **Highest yielding narrow leaf lupin variety for the high and medium rainfall areas of Western Australia, South Australia and New South Wales**
- **Best resistance to Black Pod Syndrome and Brown-Leaf Spot of any lupin variety**
- **Mid-maturing variety, similar to Quilinock**
- **Moderately resistant to seed transfer of Cucumber Mosaic Virus, similar to Tanjil**

Where Jenabillup$^{\Phi}$ fits into the farming system

Jenabillup$^{\Phi}$ is suited for growers wanting a consistently high yielding variety suitable for stock feed and some niche food markets. It has shown good adaption to a range of rainfall zones but its performance has been best in high and medium rainfall areas where its tolerance of Black Pod Syndrome (BPS) will maintain yield potential in its presence. BPS is believed to occur as a result of Bean yellow mosaic virus (BYMV) and/or a 'physiological disorder' under conditions of bulky vegetative growth in higher rainfall environments.

Breeding and Development

Jenabillup$^{\Phi}$ (WALAN2224) was bred by Senior Plant Breeder Dr Bevan Buirchell and former Plant Breeder Dr Wallace Cowling, released by the Department of Agriculture and Food WA in 2007. Jenabillup$^{\Phi}$ is commercialised by the Seed Group Alliance in WA and Viterra in eastern states.

Variety Characteristics

Jenabillup$^{\Phi}$ is a mid-maturity narrow leaf lupin of similar height to Mandelup$^{\Phi}$. It has strong resistance to Black Pod Syndrome and Brown leaf Spot. It has good resistance to seed transmission of CMV. Jenabillup$^{\Phi}$ has good lodging resistance.
It is moderately susceptible to Anthracnose and has poor tolerance to the herbicide metribuzin.
It produces large grain similar to Coromup$^{\Phi}$ but with protein levels similar to Mandelup$^{\Phi}$.

Jenabillup$^{\Phi}$ appears similar to Mandelup$^{\Phi}$ for pod shatter in short season environments, such as Agzones 1, 2 & 3 in WA. In cooler environments pod shatter is less of a problem.

Agronomic and Disease Features of Narrow-leafed Lupin Varieties

Variety	Flowering time	Height	Lodging	Pod Shatter	Drought Tolerance	Aphid Resistance	Brown leaf spot	BYMV-Black Pod Syndrome	CMV seed transmission	Anthracnose	Phomopsis Stem	Phomopsis Pod
Jenabillup$^{\Phi}$	**Mid**	**Tall**	**MR**	**MS**	**MR**	**MR**	**MR**	**MR**	**MR**	**MS**	**I**	**R**
Mandelup$^{\Phi}$	Very early	Tall	MS	MS	MR	R	I	S	MR	MR	R	R
Quilinock$^{\Phi}$	Early	Short	MS	MR	MR	MS	I	MR	MR	VS	MR	MS
Western Australian releases												
Belara$^{\Phi}$	Early	Medium	MS	MR	MR	MS	MS	MS	MS	MS	R	MR
Coromup$^{\Phi}$	Early	Tall	MS	R	MR	MR	I	MS	MR	MR	R	R
Tanjil$^{\Phi}$	Mid	Medium	MR	R	MS	MR	I	S	R	R	MR	R
Eastern State releases												
Wonga$^{\Phi}$	Early-mid	Medium	MR	R	MS	MR	I	S	R	R	R	S
Moonah$^{\Phi}$	Early	Tall	MR	R	MR	MR-S	S	S	MS	MR	MR	MS
Jindalee$^{\Phi}$	Mid-late	Medium	R	MR	MS	-	I	S	MS#	S	R	-

VS = very susceptible, **S** = susceptible, **MS** = moderately susceptible, **I**= Intermediate, **MR** = moderately resistant, **R** = resistant.
= may be more vulnerable to late infection due because of its late maturity.

Yield and Adaption

Jenabillup$^{\phi}$ has consistently out-yielded current commercial varieties in medium and high rainfall zones (<400mm annual rainfall). It has also yielded well in low rainfall areas.

Long–term Relative Grain Yield t/ha 2004-2010 as a percentage % of Mandelup$^{\phi}$

Eastern States

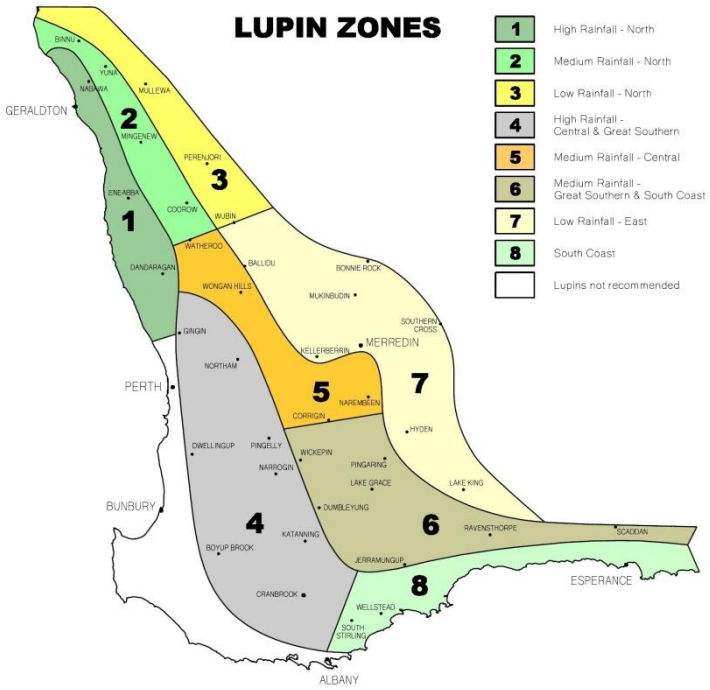
Variety	SA Mid North	SA Murray Mallee	SA South East	SA Lower E P	VIC Mallee	VIC Nth Central	NSW Long Season	NSW Short Season
Coromup$^{\phi}$	97(6)	92 (6)	95 (18)	96 (11)	95 (11)	94 (4)	96 (32)	95 (14)
Jenabillup$^{\phi}$	**102 (5)**	**98 (5)**	**101 (14)**	**102 (9)**	**97 (9)**	**100 (4)**	**102 (39)**	**100 (23)**
Jindalee$^{\phi}$	90 (6)	89 (6)	87 (19)	84 (12)	87 (9)	86 (3)	88 (41)	88 (24)
Mandelup$^{\phi}$	100 (6)	100 (6)	100 (19)	100 (12)	100 (11)	100 (4)	100 (41)	100 (24)
Moonah$^{\phi}$	**94 (5)**	**89 (5)**	**90 (14)**	**92 (9)**	**92 (9)**	-	**93 (19)**	**92 (7)**
Wonga$^{\phi}$	88 (6)	90 (6)	88 (18)	91 (11)	91 (10)	89 (4)	88 (41)	91 (24)
Mandelup$^{\phi}$ t/ha	***1.81***	***1.35***	***1.99***	***1.99***	***1.08***	***1.40***	***2.08***	***1.93***

Western Australia (note: the 8 lupin agzones in WA are different to the 6 Agzones for other grains)

Variety	WA Lupin Agzone 1	WA Lupin Agzone 2	WA Lupin Agzone 3	WA Lupin Agzone 4	WA Lupin Agzone 5	WA Lupin Agzone 6	WA Lupin Agzone 7	WA Lupin Agzone 8
Jenabillup$^{\phi}$	**102 (9)**	**100 (14)**	**100 (10)**	**103 (12)**	**101 (13)**	**102(5)**	**100 (8)**	**105 (5)**
Mandelup$^{\phi}$	100 (9)	100 (14)	100 (10)	100 (12)	100 (13)	100 (5)	100 (8)	100 (5)
Belara$^{\phi}$	94 (8)	94 (11)	94 (7)	92 (10)	94 (10)	95 (5)	93 (8)	95 (4)
Coromup$^{\phi}$	96 (9)	97 (14)	97 (10)	92 (12)	96 (13)	95 (5)	97 (8)	93 (5)
Quilinock$^{\phi}$	95 (5)	95 (7)	96 (7)	96 (9)	98 (7)	98 (3)	97 (5)	97 (4)
Tanjil$^{\phi}$	93 (9)	92 (14)	92 (10)	90 (12)	92 (13)	95 (5)	91 (8)	90 (5)
Mandelup$^{\phi}$ t/ha	***2.69***	***2.33***	***1.25***	***2.06***	***1.50***	***1.36***	***1.44***	***2.48***

Data courtesy NVT data base, SARDI, DPI Vic, I&I NSW and DAFWA

Western Australia



Grain Quality

Alkaloid levels of Jenabillup$^{\phi}$ seeds are lower than other current varieties. The protein content is similar to Mandelup$^{\phi}$, but less than other varieties Coromup$^{\phi}$, Quilinock$^{\phi}$, and Wonga$^{\phi}$. Jenabillup$^{\phi}$ produces large grain size similar to Coromup$^{\phi}$ and larger than Mandelup$^{\phi}$

Seed quality of lupin varieties (as a percentage of Mandelup$^{\phi}$).

Variety	Seed weight	Seed protein	Seed Oil	Seed Alkaloid
Belara$^{\phi}$	100	100	100	100
Coromup$^{\phi}$	104	106	101	125
Jenabillup$^{\phi}$	**104**	**99**	**100**	**87**
Mandelup$^{\phi}$	100	100	100	100
Quilinock$^{\phi}$	103	102	94	100
Tanjil$^{\phi}$	91	101	105	133
Mandelup$^{\phi}$ *actual figures*	*154 mg*	*35.6%*	*6.6%db*	*0.010%*

Data is from advanced variety trials in WA from 2000 to 2005. Results are % dry based (%db) (Courtesy DAFWA).

Management Package

(Consult local grower guides for more detailed information)

Areas of adaptation;

- Jenabillup$^{\phi}$ is suitable for high and medium rainfall areas across southern Australia. It shows competitive yield potential in low rainfall regions.
- Jenabillup$^{\phi}$ will maintain yield potential better than other varieties where black pod syndrome is prevalent
- Jenabillup$^{\phi}$ should not be grown in Western Australia Lupin zone 1 where anthracnose is a significant yield threat.
- Anthracnose risk compared to risk of black pod syndrome will need to be considered on Lower Eyre Peninsula in SA.

Seeding;

Sowing times and sowing rates for Jenabillup$^{\phi}$ are similar to Mandelup$^{\phi}$:

- Sow from mid-April until mid May in low rainfall areas. In high-rainfall regions, sowing may need to be delayed to avoid lodging.
- Sowing rates will vary according to seed size and germination percentage. Aim to establish 45 plants/m^2 (100kg/ha) to produce a dense crop with higher competitiveness with weeds.
- If CMV symptoms were seen in the previous seed crop, a seed test is advisable.
- Always request a germination test report when purchasing new seed, and always test farmer retained seed.

Weed control;

Jenabillup is tolerant of a wide range of herbicides registered for use in narrow-leafed lupins including Treflan®, Stomp®, Avadex®, simazine, diuron, atrazine, Brodal®, Sniper® and Eclipse®. Jenabillup is not tolerant of Metribuzin; it has the same tolerance as Tanjil.

Note: **Jenabillup**$^{\phi}$ has **poor tolerance** to **metribuzin**, similar to Tanjil$^{\phi}$ and Quilinock$^{\phi}$. Consider robust rates of diflufenican for in-crop broad-leaf weed control.

Jenabillup has shown good triazine tolerance in trials. Plants weakened by herbicides are more susceptible to viruses or root and foliar diseases. Use similar guidelines and strategies as for other lupin varieties. Similar to Tanjil$^{\phi}$ or Wonga$^{\phi}$, the mid maturity time of Jenabillup$^{\phi}$ requires caution when contemplating crop topping. Timing of chemical application or swathing/windrowing is very important – serious yield loss and/or reduction of seed viability can occur if too early – see 'Other Reading'.

Disease management

- Jenabillup$^{\phi}$ has moderate resistance to brown leaf spot, the best of all lupin varieties, but using a seed fungicide and retaining stubble remains important to minimise the impact of this disease.
- It has moderate resistance to Black Pod Syndrome (PBS) and will maintain yield potential where this disease is prevalent. Yield loss in other varieties that are susceptible to BPS can as high as 30%.
- Jenabillup$^{\phi}$ has moderate resistance to seed borne CMV transmission.
- It is moderately susceptible to Anthracnose and is not recommended for Western Australia lupin zone 1 where the disease is a significant yield threat.

Insects;

Jenabillup$^{\phi}$ is moderately resistant to aphids, slightly poorer than Mandelup but better than Quilinock. For other insect pests (particularly mites, lucerne flea, thrips, and native budworm), follow the same monitoring and control guidelines as for other lupin varieties.

Harvesting;

Jenabillup$^{\Phi}$ produces medium to large sized grain suitable for stockfeed and human consumption markets. Jenabillup$^{\Phi}$ has average pod and seed shedding resistance, and 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 Availability;

Jenabillup$^{\Phi}$ is licensed to the Seed Group Alliance in Western Australia.

For SA, Victoria and NSW Jenabillup$^{\Phi}$ is produced and marketed by Viterra. Seed can be ordered direct from retail outlets.

WA seed cannot be sold into the eastern states. Jenabillup is protected under Plant Breeders' Rights (PBR) and has an End-Point Royalty (including management fee) of $2.30/t (GST exc.) for all grain produced except farmer kept seed.

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Further reading: For lupin management guidelines see:

- DAFWA- Jenabillup- DAFWA Farmnote 313, June 2008
- DAFWA- "Producing Lupins" Bulletin # 4720 (www.agric.wa.gov.au)
- I&I NSW publications (www.dpi.nsw.gov.au): Winter Crop Variety Sowing Guide 2011 ; Weed Control in Winter Crops 2011 ;
  Insect & Mite Control in Field Crops 2009 ; Germination Testing & Seed Rate Calculation ; Windrowing Lupins
- Vic DPI "Winter Crop Summary 2011" (www.dpi.vic.gov.au).
- SARDI "Lupin variety sowing guide 2011" (www.sardi.gov.au)
- Pulse Australia (www.pulseaus.com.au)

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