

Lupin – notes and NVT entries 2018

November 2018

Notes on main varieties and lines

Lupinus angustifolius (narrow-leaf lupin)

PBA Bateman - Released spring 2017. PBA Bateman offers yield improvements over current varieties particularly in the eastern cropping zones of NSW where virus infection from *Cucumber mosaic virus* and *Bean yellow mosaic virus* can cause significant yield loss in susceptible varieties when conditions are conducive. Commercialised by Seednet, protected by PBR. An EPR of \$2.86/tonne applies.

Jindalee – Released in eastern Australia in 2000 from the Wagga Wagga breeding program. Jindalee is a late flowering variety. It provides an early-sowing option after good April rains. High yielding in high-rainfall or long-season areas, combined with very good Phomopsis resistance and excellent lodging resistance. However it is susceptible to brown leaf spot, and has poor CMV seed transmission resistance.

Wonga. Released in NSW in 1996 from the Wagga Wagga breeding program. The most anthracnose-resistant variety. Earlier flowering than Jindalee but later than Mandelup, Quilinock and Jenabillup. Wonga has Phomopsis resistance, brown leaf spot resistance, and CMV seed transmission resistance in good combination. Can be lower yielding than earlier maturing varieties in short seasons, and is intolerant of metribuzin herbicide.

Quilinock. High-yielding line. Early maturing, vigorous with moderate brown leaf spot resistance. Occasionally has high Phomopsis levels in the seed. Released in WA in 1999. Susceptible to anthracnose. Large seed size. Outclassed by Mandelup.

Mandelup. Released in 2004 for high yield, phomopsis resistance and grain size. Moderately resistant to anthracnose. Mandelup is the earliest maturing variety currently available and the most suitable for crop topping. Prone to frost damage if sown earlier than normal sowing window as it is a non-vernalising type. Tolerant of metribuzin herbicide. Prone to pod shattering if harvest is delayed after reaching maturity. Seed is available through Seednet.

Jenabillup. Released in 2007 in WA. Jenabillup has moderate resistance BYMV infection. BYMV can cause significant damage in eastern states when seasons are suitable, like 2014. It has performed very well in NSW. Moderate-resistance to anthracnose and is intolerant of metribuzin herbicide. It is also moderately susceptible to phomopsis stem infection. Seed is available through Seednet.

PBA Gunyidi. Released in WA in spring 2011 as a Mandelup replacement. It is a high yielding narrow-leafed lupin variety with good resistance to pod shatter. Commercialised by Seednet, protected by PBR. An EPR of \$2.75/tonne applies.



PBA Barlock. Developed by the National Lupin Breeding Program and released in WA in 2013. It is resistant to anthracnose and tolerant to metribuzin herbicide. Yielding similar to Mandelup, it has good lodging resistance and moderate phomopsis resistance. It is shorter in height than Mandelup, with slightly later flowering and maturity. It has improved resistance to pod shattering over Mandelup. Commercialised by Seednet, protected by PBR. An EPR of \$2.75/tonne applies.

PBA Jurien. Released in WA in spring 2015. A high yielding, early flowering variety, with both phomopsis and anthracnose resistance. It also is tolerant to metribuzin herbicide. NSW trials have shown it to be more susceptible to plant lodging than other current varieties in high rainfall areas. Commercialised by Seednet, protected by PBR. An EPR of \$2.75/tonne applies.

Other WALAN lines of WA-bred material undergoing final stage testing have varied characteristics for flowering time, yield, and seed weight. All have good resistance to anthracnose, phomopsis and virus resistance.

Lupinus albus (Broad-leaf or white lupin)

Murringo. Released in 2018. Murringo is a mid-flowering albus lupin. It has moderate resistance to Pleiochaeta root rot and Phomopsis. Like Luxor and Rosetta, Murringo is susceptible to anthracnose. It has grain quality characteristics that make it well-suited to the existing albus markets for human food and animal feed. The seed size is large (larger than Kiev-mutant and Ultra but not as large as Rosetta, similar to Amira and Luxor). Commercialised by Seednet, protected by PBR. An EPR of \$3.52/tonne applies.

Luxor. Released in 2005, Luxor is classed as resistant to Pleiochaeta root rot, compared to Kiev-mutant (very-susceptible) and Ultra (moderately-susceptible). Luxor is higher-yielding than Kiev-mutant (88–90%) and Ultra, flowers four days later (on a mid-May sowing), and is slightly taller. Luxor is especially suited to all low-rainfall and medium-rainfall areas. It is the variety of choice where Pleiochaeta disease pressure is expected to be high (although it is not immune to the disease and good agronomy and suitable rotations should still be practised). Luxor is susceptible to anthracnose (as are Kiev-mutant and Ultra). Luxor is 100% 'sweet' (low-alkaloid) and has protein content and seed size similar to Kiev-mutant and Ultra. It is suited to all existing albus lupin markets. Seed is available through Seednet. Protected by Plant Breeders' Rights (PBR) and subject to an end-point royalty (EPR).

Rosetta. Released in 2005, Rosetta flowers 11 days later than Kiev-mutant, and is the taller of the two most recent releases. Rosetta is moderately-resistant to Pleiochaeta root rot (less resistant than Luxor, much better than Kiev-mutant, slightly better than Ultra). Rosetta has a larger yield improvement over Kiev-mutant and Ultra than Luxor, and is suited to high-rainfall, cool-season sites where maximum yields can be obtained. Seed is available through Seednet. Rosetta is 100% 'sweet' (low-alkaloid), and has good protein content and seed size. It is suited to all existing albus lupin markets. Protected by PBR Rights and is subject to an EPR.

Kiev-mutant. Released in 1982, a public variety. Old standard albus variety for yield due to broad adaptation. Very susceptible to anthracnose and Pleiochaeta root rot. Early-flowering, similar to Ultra but with slightly larger seeds. Now outclassed. Existing seed stocks must be checked annually for bitter seed contamination.

Ultra. Released in 1976, a public variety. Early-flowering variety with slightly improved Pleiochaeta root rot resistance than Kiev-mutant, but is anthracnose susceptible. Can be too short at harvest, especially in low-rainfall environments. Still a popular variety in central and northern NSW. Now outclassed. Existing seed stocks must be checked annually for bitter seed contamination.

Amira. An anthracnose resistant albus variety released for Western Australia. Anthracnose has not been found in the main lupin growing regions in eastern Australia. Amira is being tested in NSW NVT trials for the first time in 2016. Marketed by Heritage Seeds.

Note: To maintain the seed quality standards for sweet albus (low seed alkaloid), growers are reminded to get their sowing seed tested for possible bitter seed contamination. Contaminated seed should not be used for sowing and must be delivered or used for feed. An ultraviolet lamp test is available which rapidly detects high-alkaloid ('bitter') seeds in a grain sample. Growers can get seed tested through Futari Grain Technology Services (Tel. 02 6792 4588).

Lupin Variety Performance 2013–2017

	Yield (trial number)	
	N/E % Mandelup 1.68 t/ha	N/W % Mandelup 2.18 t/ha
Narrow-leaf		
Jenabillup	90 (3)	91 (7)
Jindalee	77 (3)	78 (97)
Mandelup	100 (3)	100 (7)
PBA Barlock	98 (3)	98 (7)
PBA Bateman	n.d. (1)	102 (3)
PBA Gunyidi	107 (3)	99 (7)
PBA Jurien	99 (3)	102 (7)
Quilinock	75 (3)	92 (7)
Wonga	90 (3)	89 (7)
Albus	N/E % Luxor 1.90 t/ha	N/W % Luxor 1.96 t/ha
Luxor	100 (3)	100 (6)
Rosetta	99 (3)	99 (6)
Murringo	96 (3)	93 (6)

Narrow-leaf	Yield (trial number)	
	S/E % Mandelup 2.32 t/ha	S/W % Mandelup 1.00 t/ha
Jenabillup	99 (29)	93 (3)
Jindalee	89 (29)	85 (3)
Mandelup	100 (29)	100 (3)
PBA Bateman	102 (29)	100 (3)
PBA Barlock	110 (13)	n.d. (1)
PBA Gunyidi	105 (29)	100 (3)
PBA Jurien	104 (25)	104 (3)
Quilinock	94 (28)	90 (3)
Wonga	94 (29)	93 (2)
Albus	S/E % Luxor 2.44 t/ha	S/W % Luxor
Luxor	100 (33)	-
Rosetta	98 (33)	-
Murringo	98 (32)	-

Note: Yields are a combined across sites analysis using NVT and PBA data.

Lupin Anthracnose

This destructive disease was detected for the first time in commercial lupin crops in NSW in 2016 and was confined to a small number of properties in southern NSW with restrictions in place. Widespread surveys across NSW in 2017 did not detect any further outbreaks of the disease. Lupin production can continue for the remainder of NSW outside the restriction zones. Wonga, PBA Jurien and PBA Barlock are resistant (R) whilst PBA Gunyidi (MR–R) and Mandelup (MR) are slightly more susceptible. All other narrow-leaf and albus lupin varieties are susceptible to anthracnose.

Symptoms of the disease include a distinct bending and twisting of stems into a shepherds crook.

A five point management plan is recommended for all lupin producers in NSW to prevent establishment and spread of the disease.

1. Treat seed for sowing with a fungicide seed treatment containing thiram
2. Separate this year's lupin crop away from last year's lupin stubble
3. Control volunteer lupins on your property
4. Control machinery and people movement into and out of lupin crops.
5. Apply a foliar fungicide at 6–8 weeks post emergence (with a grass spray) using fungicides containing mancozeb, chlorothalonil (PER82209, expiry 30/11/21) or azoxystrobin (PER82226, expiry 30/10/19), and a follow up at pre-canopy closure.

Growers are encouraged to inspect lupin crops regularly, especially during flowering, and report any unusual disease symptoms.

Marketing Information

For all lupin marketing enquires view Pulse Australia at <http://www.pulseaus.com.au>

More information

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