

KEY FEATURES

- Rosetta[Ⓟ] is a new albus lupin variety with significantly higher long term yields than Kiev Mutant.
- Improved Pleiochaeta root rot resistance compared to Kiev Mutant, and slightly better than Ultra.
- Rosetta[Ⓟ] is later flowering than Kiev Mutant and Ultra and is particularly suited to higher rainfall environments with longer, cooler seasons.
- Rosetta[Ⓟ] has 100% sweet (low alkaloid) seed, with no bitter contamination present.
- Seed size and protein content are similar to Kiev Mutant and Ultra, enabling continued access to human consumption and livestock markets.

Breeding and Development:

Rosetta[Ⓟ] (tested as WK159) was bred by Dr David Luckett, Ms Kate Landers, and the Lupin Breeding Team from the NSW Department of Primary Industries at Wagga Wagga. It was produced from a cross made in WA by Dr Bevan Buirchell between a Russian variety, Start, and P23277 (a Ukrainian breeding line also known as M-5).

Variety Characteristics:

Rosetta[Ⓟ] is a sweet albus lupin that has consistently achieved higher yields than both Kiev Mutant and Ultra. It was selected for its high yield and improved resistance to Pleiochaeta root rot. Rosetta[Ⓟ] is taller than both Kiev Mutant and Ultra, and flowers eleven days later than Kiev Mutant after a mid-May sowing. Grain quality is similar to both Kiev Mutant and Ultra (seed colour, size and protein). The seed shape is flat and not too rounded, and is suitable for all existing human consumption and livestock markets. Rosetta[Ⓟ] has higher yield than Luxor[Ⓟ] but Luxor is preferred where Pleiochaeta root rot pressure is high.



Agronomic and Disease Features of Albus Lupin Varieties

| Variety | Plant height | Flowering time | Lodging | Seed colour | Seed size (g/100) | Brown leaf spot | Pleiochaeta Root Rot | CMV seed transmission | Anthraxnose | Phomopsis Stem & seed |
|----------------------------|--------------|----------------|----------|--------------|-------------------|-----------------|----------------------|-----------------------|-------------|-----------------------|
| Rosetta[Ⓟ] | Tall | Mid | R | White | 35 | R | MR | Immune | VS | R MR |
| Kiev Mutant | Medium | Very early | R | White | 35 | R | VS | Immune | VS | R S |
| Ultra | Short | Very early | R | White | 35 | R | S | Immune | VS | R S |
| Luxor [Ⓟ] | Med-Tall | Early | R | White | 35 | R | R | Immune | VS | R MS |

Key: **VS** = very susceptible, **S** = susceptible, **MS** = moderately susceptible, **MR** = moderately resistant, **R** = resistant.

Long-term Relative Grain Yield of Rosetta as a percentage % of other varieties

| Variety | NSW Long Season 2000-2008 | Number of Trials | NSW Short Season 2000-2008 | Number of Trials | SA 2001-2006** | Number of Trials | Vic 2001-2006** | Number of Trials |
|----------------------------|---------------------------|------------------|----------------------------|------------------|------------------|------------------|------------------|------------------|
| Rosetta[Ⓟ] | 101 | 47 | 102 | 52 | 104 | 9 | 107 | 7 |
| Kiev Mutant | 89 | 47 | 90 | 52 | 96 | 9 | 98 | 7 |
| Ultra | 90 | 47 | 91 | 52 | - | - | - | - |
| Luxor [Ⓟ] | 100 | 45 | 100 | 50 | 100 | 9 | 100 | 7 |
| Luxor [Ⓟ] yield | 2.05 t/ha | | 1.40 t/ha | | 2.12 t/ha | | 1.20 t/ha | |

NSW yield results are a combined across sites analysis using NSW DPI & NVT yield trials from 2000-2008. Key: * = BLUP figure; ** = simple average

Grain Quality:

Alkaloid levels of Rosetta[Ⓟ] are low and meet the food standards set for albus for human consumption. Contamination with bitter (high alkaloid seeds) threatens export and domestic markets in albus lupins. Contamination of current commercial varieties is widespread, and can raise the average alkaloid level of the seed lot so that it may exceed the Food Standard (0.02% alkaloid content). Export Standards define a limit of two bitter lupin seeds per 200g (about 0.35% on average). For seed sown in 2009 the threshold for bitterness contamination has been lowered to zero.

The protein level of Rosetta[Ⓟ] is greater than 35%, making it very suitable as a feed or ingredient for ruminants such as cattle, sheep, and horses. Albus can also be suitable for poultry and in pig diets at 10-15% of the ration.

Management Package

(Consult local grower guides for more detailed information)

Areas of adaptation:

Rosetta[®] is:

- Recommended for medium to high rainfall areas of NSW and some regions in SA and Victoria.
- Being a taller variety, Rosetta[®] should be easier to harvest in low rainfall seasons.
- More suited to high rainfall, cool season sites where maximum yields can be achieved.
- Ideally sow Rosetta[®] as the only albus variety on the farm.
- *NOT* recommended for Western Australia, as it is very susceptible to anthracnose.

Avoiding bitterness:

Rosetta[®] is 100% sweet, so keep it that way. Bitterness (high alkaloid seeds) threatens export and domestic markets.

- Avoid any physical contamination. Prevent outcrossing by keeping a 1 km isolation zone from other albus crops.
- Do not grow bitter Lupini Bean crops in sweet albus areas.
- Test albus seed annually at NSW DPI Wagga Wagga (this is a free test – phone 02 6938 1999 for details).

Seeding:

Sowing times and sowing rates for Rosetta[®] are:

- Early April until mid May in medium rainfall areas.
- Mid April until third week-May in high-rainfall areas.
- Establish 35 plants/m² for early sowing and 45 plants/m² for later sowings.
- Sowing rates can range from 150 to 200 kg/ha to achieve optimum plant population.

Weed control:

Use similar guidelines and strategies as used for other albus lupin varieties. New lupin cultivar screening conducted at Wagga has shown no significant difference between Rosetta[®], Kiev Mutant, Ultra and Luxor[®] in reaction to herbicides commonly used in albus lupins.

Disease management:

Rosetta[®] has moderate resistance to Pleiochaeta root rot that ensures a decreased risk of seedling death and subsequent yield loss. If Pleiochaeta disease incidence is likely to be high, consider sowing Luxor[®] which has higher resistance, and the additional protection of a seed dressing and avoid shortening rotations in this situation.

Manage Rosetta[®] for Phomopsis, and Bean Yellow Mosaic Virus (BYMV) similar to other albus varieties. Anthracnose is not present in NSW and Victorian lupin crops, so observe all quarantine restrictions and import regulations. Do not grow ornamental Russell Lupins in the farm garden, and report suspicious disease symptoms to your local District Agronomist or to Pulse Australia.

Insects:

Follow the same guidelines as for other albus varieties. Monitoring and control is essential for premium human consumption markets.

Harvesting:

Maximise grain quality by harvesting on time, and consider the use of windrowing or desiccation.

Ensure the header is adjusted correctly for the large-seeded lupins, and harvest at the coolest times to avoid shattering.

Seed Availability:

Rosetta[®] has been commercialised under licence to Viterra, it is protected under Plant Breeders' Rights and has an end-point royalty of \$2.80/t to be paid on delivery. Grain may be sold, kept for feed or as own seed, but under the PBR Act it is an offence to knowingly sell or give grain to others for seed purposes.

ph: 1800 018 205

email: seeds.aus@viterra.com



Other reading: For albus lupin management guidelines, see:

- I&I NSW publications (www.dpi.nsw.gov.au): [Winter Crop Variety Sowing Guide 2009](#) ; [Germination Testing & Seed Rate Calculation](#) ; [Weed Control in Winter Crops 2009](#) ; [Insect & Mite Control in Field Crops 2009](#) ; [Windrowing Lupins](#) ; [Albus Lupins](#) ; [Testing Albus Lupins for Bitter Seeds](#)
- Vic DPI (www.dpi.vic.gov.au): "Winter Crop Summary"
Pulse Australia (www.pulseaus.com.au): Bulletin "Test the Bitterness in Albus Lupin Seed"

Disclaimer: Recommendations have been made from information available to date and considered reliable, and will be updated as further information comes to hand. Readers who act on this information do so at their own risk. No liability or responsibility is accepted for any actions or outcomes arising from use of the material contained in this publication.

This VMP has been jointly prepared by: Trevor Bray Pulse Australia and David Lockett I&I NSW and the contribution of the following people to either the extensive field testing or the production of this publication is gratefully acknowledged:

David Lockett, Lupin breeder, I&I NSW; Jim Egan, Pulse research agronomist, SARDI; Ivan Mock, Research agronomist, DPI Vic.

Reproduction of this VMP in any edited form must be approved by Pulse Australia © 2005.

