

KEY FEATURES

- **Anthraxnose resistant albus lupin variety for Western Australia**
- **Mid flowering, similar to Kiev Mutant and earlier than Andromeda**
- **Matures about a week later than Kiev Mutant**
- **Greater than 20% higher yielding than Andromeda**
- **Moderately Resistant (MR) to anthracnose, significantly better than Andromeda**
- **Similar grain size and quality to Andromeda and Kiev Mutant**
- **May require fungicide protection in high rainfall areas with high risk of anthracnose infection**

Name and synonyms

Amira[®] is an Arabic name meaning prosperity, princess or a rich lady. It is a very popular name in Middle Eastern Countries. Amira[®] replaces the variety Andromeda[®], released in 2005, which is also the name of a princess.

Amira[®] was tested as WALAB2014.

Yield and adaptation

Amira[®] is relatively early flowering and produces high yield in similar areas to where Kiev Mutant was popular before the outbreak of anthracnose.

It has consistently yielded higher than Andromeda[®] in Western Australia's northern agriculture region and is suggested as a replacement of Andromeda[®]. Amira[®] is best suited to medium rainfall areas of the northern wheat belt of WA where anthracnose pressure is not very high. Its level of anthracnose resistance (MR) is not high enough for the wetter coastal locations, such as the Chapman Valley in WA, without fungicide protection.



Breeding

Amira[®] (tested as WALAB2014) was bred by Dr Kedar Adhikari at the Department of Agriculture and Food, WA (DAFWA) in partnership with the Council of Grain Grower Organisations Limited (COGGO). It was derived from a cross between Kiev Mutant and a Western Australian bred anthracnose resistant line 98B001-5-6. It has the good agronomic and quality traits of Kiev Mutant and the anthracnose resistance of the other parent.

Agronomic features and disease resistance

Amira[®] is an early flowering and medium height variety with significantly higher yield and anthracnose resistance than Andromeda.

Phenology and anthracnose rating of albus lupin varieties in trials from 2007-2010 in Western Australia

Variety	Flowering time	Maturity time	Plant height	Lodging	Anthraxnose
Amira [®]	Early	Mid-early	Short- Med	MR	MR
Andromeda [®]	Mid-Late	Late	med-tall	MR	MS
Kiev Mutant	Early	Early	medium	MS	VS

MR = Moderately Resistant, MS = Moderately Susceptible, S= Susceptible

Grain yield of Amira in relation to other albus lupin varieties obtained from coordinated varietal trials (equivalent to NVT) in Western Australia

Variety Name	2007	2008	2009	2010	Overall mean
Amira [®]	117	147	114	124	126
Andromeda [®]	100	100	100	100	100
Kiev Mutant	106	137	133	113	122
No of trials	2	2	2	1	

Amira[Ⓢ] Management Package

(consult local grower guides for more detailed information)

This Variety Management Package updates and reinforces general management issues with growing albus lupins. Refer to Pulse Australia and Departmental websites for further information on albus lupin management issues.

Amira[Ⓢ] is a new variety of albus lupin with considerably better tolerance to anthracnose than Andromeda. It is rated as Moderately Resistant (MR). It allows albus lupin to be cultivated in the medium rainfall zone of Western Australia without the risk of serious loss from anthracnose.

Paddock Selection

Amira[Ⓢ] is well suited to the fertile loams or clay loams that occur in valleys throughout Western Australia and the red soils of the Mingenew/Mullewa/Morawa region. It will not grow well in infertile sands or duplex soils.

Amira[Ⓢ] is adapted to soils of slightly higher pH than Australian Sweet lupins (*L.angustifolius*), but will not grow well on loams and clays with a pH above 7.5 if these soils become saturated with water.

Avoid, where possible, blue lupin infestations (fencelines, paddock populations) which harbour anthracnose.

Seed treatments

Dress Amira[Ⓢ] seeds with a thiram based product to limit transmission of seed borne Anthracnose infection and with iprodione or procymidone based products to help control seedling brown spot. If the paddock has not been cropped to lupins (any lupin species because they all utilise the same rhizobium species) in the past three years, then also inoculate seed with Group G rhizobium.

Granular inoculum is recommended rather than peat inoculum because the fungicide seed dressing will kill the rhizobia that are spread on the seed if seeding is delayed to any degree after inoculation.

If using peat inoculum that is spread on the seed then minimise the time the inoculant is in contact with the fungicide. Apply the fungicide first, ensure that it is completely dry, and then apply the inoculant. The seed must be sown into moist soil within six hours. If more than six hours passes, apply a fresh batch of inoculum.

Sowing

- Target the sowing date used for albus lupins in your region. Gains in yield and grain quality can be made from timely sowing.
- Sowing depth: aim for a sowing depth of 3-5cm. Take care not to sow too deep because emergence of seedlings declines sharply with deeper sowing, particularly on soils that form a crust.
- Sowing rate: 40–45 plant/m² is the optimum plant density which corresponds approximately to a sowing rate of 150 kg/ha subject to seed size and germination test.
- Use coarse metering wheels on air seeders, if available to avoid cracking seed. An agitator in the seed box will also help seeds flow smoothly. Albus lupin seeds are flat and squarish and tend to pack down and flow poorly if not agitated.
- Albus lupin can be sown onto wide rows without risk of yield loss. This will reduce the quantity of seed required to establish the crop. Wide rows may assist in lowering humidity within the crop, thereby inhibiting disease development. Wide rows may also provide some inter-row soil water in low rainfall environments.

Herbicide Sensitivity

Mingenew 2010 and 2011

Herbicide	Simazine 2l	Diuron 2l	Terbyne® 1.4kg	Brodal® 200ml	Lexone® 150g
Amira [Ⓢ]	N (1/2)	S (2)	S (2)	S (2)	N (1/2)
Andromeda [Ⓢ]	S (2)	S (2)	12 (1/2)	S (2)	N (1/2)

Herbicide	Brodal® 100ml Lexone® 150g	Brodal® 100ml Simazine 500ml	Brodal® 100ml Eclipse® 7g	Eclipse® 7g
Amira [Ⓢ]	N (2/2)	N (1/2)	S (2)	S (2)
Andromeda [Ⓢ]	18-22 (2/2)	15 (1/2)	S (2)	S (2)

- **S = no significant yield reductions** at recommended rates or higher than recommended rates in 2+ trials (x) = trial number.
- **Narrow = narrow margin**, significant yield reductions at higher than recommended rate in 1+ trials (X/y), but not at recommended rate.
- **x% yield reduction** (warning) significant yield reduction at recommended rate in 1 trial only.
- **x-y% yield reductions** (warning) significant yield reductions at recommended rate in 2+ trials.
 - not tested or insufficient data

Herbicide tolerance trials in Western Australia (red clay loam and red sandy loam soils) show that Amira[®] has good tolerance to herbicides commonly used in albus lupin production. Its herbicide tolerance is similar to that of Andromeda[®] and Kiev Mutant. It has low tolerance to mixtures of lexone or simazine with Brodal, except where Lexone is used in conjunction with Brodal. Severe seasonal effects on herbicide activity can occur and work is ongoing to validate findings under differing seasonal conditions.

Disease Management

Despite its improved level of anthracnose resistance, Amira[®] growers will need to implement a clean seed strategy. To minimise yield losses to anthracnose, follow local best management guidelines for your region, e.g. see disease management guides on the [Pulse Australia](#) or [DAFWA](#) websites.

Although Amira[®] has significantly higher resistance to anthracnose than Andromeda[®], the anthracnose management practices should be similar to that of Andromeda[®]:

- Always use anthracnose free seed.
- Apply thiram based seed dressing to minimise transmission of seed-borne infection.
- Where possible, isolate crops from infected blue lupins.
- Where disease pressure is high and infection is present in crops, application of a registered foliar fungicide can limit yield loss.
- A foliar fungicide applied to infected crops at early podding, prior to rain, protects pods, reduces seed infection and improves production of high quality grain. Anthracnose infection on pods can result in pod abortion, yield loss and poor seed quality due to grain discolouration in severe situations.

Insect control

Pests such as red-legged earth mite and lucerne flea should be monitored from emergence and controlled as necessary. Amira[®] is tolerant to aphids in Western Australian conditions, but it will be affected by native budworm (*Helicoverpa sp.*). Native budworm is potentially the most serious insect pest of Amira[®].

Monitor for native budworm during podding. Spray thresholds have not yet been developed for Amira[®], but as a rule of thumb, apply insecticide if there is more than 1 budworm per 10 sweeps. The timing of insecticide sprays is critical for protecting yield. Do not wait for the caterpillars to grow.

Harvest

Commence harvest when pods turn yellow and seed moisture is about 14 %. Do not delay harvest even though pods are unlikely to shatter or shed. This will ensure seeds remain undamaged and are of high quality.

Use wide wire concaves, or remove alternate wires of a cereal concave, because the seeds are large. Start with the closest concave clearance and the slowest drum speed. Increase concave clearance if the seed is being cracked. Increase the drum speed if the seed is left in the pods. Remember also to handle seed carefully after harvest to avoid damage.

Suggested harvester settings are as follows:

- Reel speed 1.0 x ground speed.
- Table auger 10-20mm.
- Drum or rotor speed 300–500rpm.
- Concave clearance 15–20mm (start at 15mm clearance).
- Fan speed 75-100% (start at 100%).
- Top sieve: 25–32mm (start at 32mm).
- Bottom sieve: 12–16mm (start at 16mm).

Seed Quality

Amira[Ⓢ] has large white seed similar to Kiev Mutant and will be accepted in human consumption markets. Its seed alkaloid content is lower than Andromeda[Ⓢ] and protein content is similar to Kiev Mutant and Andromeda.

Seed weight of albus lupin varieties in Western Australia.

Variety	Seed Weight (g/100)
Amira [Ⓢ]	31.9
Andromeda [Ⓢ]	31.1
Kiev Mutant	33.6

Marketing

Amira[Ⓢ] grain is suited for human food markets.

Amira[Ⓢ] is protected by PBR rights and End Point Royalty (EPR) of \$2.20/tonne is applicable upon delivery. Growers will be permitted to retain seed from their farm only for their own seeding requirements.

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Amira[Ⓢ] Seed Supply enquiries

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