

## KEY FEATURES

- Almaz<sup>Ⓟ</sup> is the “benchmark” larger seeded kabuli chickpea in southern Australia.
- A large seeded (8-9mm) kabuli chickpea with moderate resistance to ascochyta blight.
- Requires strategic foliar fungicide applications to manage ascochyta blight.
- Suited to regions with 400-700 mm annual rainfall.
- Yields similar to Kaniva but higher than Nafice<sup>Ⓟ</sup>.
- Lower yielding and more susceptible to ascochyta blight than Genesis™ 090.
- Flowering and maturity time similar to Kaniva, but later than Genesis™ 090.
- Medium plant height with slightly better resistance to lodging than Kaniva.
- Produces cream coloured seed, larger than Kaniva, but smaller than Nafice<sup>Ⓟ</sup> (predominately 8-9mm).

### Where Almaz<sup>Ⓟ</sup> fits into the farming system:

Almaz<sup>Ⓟ</sup> is a large seeded kabuli chickpea that is a good replacement for Kaniva. It has greater ascochyta blight resistance than Kaniva and offers a much lower disease risk option, but strategic fungicides for ascochyta blight control are required. Almaz<sup>Ⓟ</sup> has proved to be adapted to chickpea growing areas with sufficient growing season to adequately produce large sized grain. It does however have to be considered against alternative varieties and marketing types in these areas. It is less suited to northern Australia where phytophthora resistance is important in variety selection.

### Variety Characteristics:

**Breeding:** Almaz<sup>Ⓟ</sup> (tested as FLIP97-530-CLIMAS) is from single plants selected from segregating material introduced from the International Centre for Agricultural Research in the Dry Areas (ICARDA), Syria by the Centre for Legumes in Mediterranean Agriculture (CLIMA) and the University of Western Australia and was released in 2005.

**Agronomic Characteristics:** Almaz<sup>Ⓟ</sup> is a large seeded kabuli chickpea with similar yields to Kaniva and lower yields than the smaller seeded kabuli Genesis™ 090. Almaz<sup>Ⓟ</sup> has moderate resistance to ascochyta blight which will require strategic fungicide management to protect yield and ensure high quality seed is produced. Flowering and maturity time are similar to Kaniva. Almaz<sup>Ⓟ</sup> has medium plant height with a semi-erect habit that is moderately susceptible to lodging when plant growth is good. Almaz<sup>Ⓟ</sup> is susceptible to phytophthora.

Seed size is greater than Kaniva and Genesis™ 090 but smaller than Nafice<sup>Ⓟ</sup>. Colour and cooking qualities are similar to Kaniva.

### Agronomic features & disease resistance:

Variety	Type	Seed Weight (g/100)	Main seed sizes (mm)	Seed colour	Flowering time	Maturity time	Plant height	Lodging	Ascochyta blight	Botrytis grey mould	Phytophthora
Almaz <sup>Ⓟ</sup>	Kabuli	41	8-9	cream	mid-late	late	medium	MR	MS-MR	S	S
Genesis™ 079	Kabuli	25	6-7	cream	early	early	short	MR	R	MS	S
Genesis™ 090	Kabuli	30	7-8	cream	mid	mid-late	medium	MR	R	S	S
Genesis™ 425	Kabuli	32	7-8	Cream	mid	mid-late	medium	MR	R	S	MS
Kaniva	Kabuli	38	7-9	cream	late	late	medium	MS	VS	VS	VS
Nafice <sup>Ⓟ</sup>	Kabuli	43	8-9	cream	late	late	medium	MR	MS-MR	S	S

S = susceptible, MS = moderately susceptible, MR = moderately resistant, R = resistant.

### Yield and adaptation:

Almaz<sup>Ⓟ</sup> has produced comparable grain yields and seed quality (size and colour) to Kaniva where disease has been controlled in trials across southern Australia. Almaz<sup>Ⓟ</sup> is well adapted to medium to high rainfall areas (400-700mm annual rainfall) where a longer growing season ensures more reliable yields and seed quality. Almaz<sup>Ⓟ</sup> is susceptible to phytophthora which makes it less suited to parts of northern NSW and southern Queensland.

The seed size of Almaz<sup>Ⓛ</sup> is smaller than Nafice<sup>Ⓛ</sup>, but grain yields have been higher. Gross margin return differences between the kabuli varieties will be determined by their relative yields, price based on grain size, and fungicide needs.

### National Variety Trials – kabuli trials Long Term Yields as % of Genesis<sup>™</sup> 090: 2000-2008.

Variety Name	Southern & Western Australia		Northern Australia	
	High rainfall southern	Low rainfall southern and western	High rainfall northern	Low rainfall northern
<b>Almaz<sup>Ⓛ</sup></b>	<b>74 (49)</b>	<b>74 (18)</b>	<b>85 (11)</b>	<b>82 (9)</b>
Genesis <sup>™</sup> 079	102 (60)	102 (23)	99 (11)	97 (10)
Genesis <sup>™</sup> 090	100 (66)	100 (23)	100 (18)	100 (10)
Genesis <sup>™</sup> 114	83 (48)	83 (16)	89 (10)	86 (8)
Genesis <sup>™</sup> 425	92 (50)	92 (21)	92 (21)	90 (11)
Nafice <sup>Ⓛ</sup>	67 (49)	67 (18)	79 (10)	75 (7)
Genesis <sup>™</sup> 090 (yield (kg/ha))	1469 (66)	1067 (18)	1822 (18)	1659 (10)

\* Numbers in ( ) = site years. Yield data courtesy of Aust Crop Accreditation System – National Variety Trials. Data also courtesy of SARDI, DPI Vic, NSW DPI before 2005

### Quality Characteristics:

Almaz<sup>Ⓛ</sup> seeds are large (predominantly 8 to 9mm) and can attract the price premiums paid for larger seeded kabuli grains over smaller seeded types (7 to 8mm). It is likely to be graded to size for marketing.



## Management Package

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

This VMP updates and reinforces those management issues with Almaz<sup>Ⓛ</sup> chickpeas that may be different to other chickpea varieties. Refer to existing guides for other general chickpea management issues.

### Seeding:

- Use a seed dressing containing thiabendazole plus thiram or thiram for ascochyta blight and common root rots.
- Inoculate with Group N Chickpea rhizobial inoculum during or immediately prior to sowing.
- Gains in yield and grain quality are made from timely sowing. Target the sowing date used for kabuli chickpeas in your region before ascochyta became a problem.

Sow at 25-35 plants/m<sup>2</sup> (120-190 kg/ha, depending on seed size & germination test). The lower range is most suited to sites with high yield potential where high plant densities will result in a dense, humid canopy that is conducive to the development of the fungal diseases botrytis grey mould and sclerotinia.

For WA, suggested sowing dates are:

Region		Sowing window
WA	Northern	Low rainfall (<400mm) not recommended Medium rainfall (400-450 mm) 20 April to 25 May High rainfall (>450 mm) 25 April to 30 May
	Southern	Low rainfall (<400mm) not recommended Medium rainfall (400-450 mm) 25 May to 25 May High rainfall (>450 mm) 10 May to 30 May

### Row Spacing:

Trial work and commercial experience has shown that chickpea's can be grown successfully and harvested efficiently at a range of row spacing's. At the wider spacing's (>30 cm) stubble cover maintained may help avoid evaporation losses. Almaz<sup>Ⓛ</sup> is of medium height and moderately resistant to lodging, and can fit into systems of inter-row sowing in wider rows into standing stubble.

### Herbicide Sensitivity:

Limited herbicide tolerance trials have been conducted with Almaz<sup>Ⓛ</sup>. These and extensive genotype trials indicate that Almaz<sup>Ⓛ</sup> shows tolerance to herbicides commonly used in chickpea production including simazine, metribuzin and isoxaflutole (Balance<sup>®</sup>). Seasonal effects on herbicide activity can occur and work is continuing to confirm the herbicide tolerance of Almaz<sup>Ⓛ</sup>.

## Disease Management:

To minimise yield losses to ascochyta blight, botrytis grey mould and phytophthora, follow local best management guidelines for your region, eg see disease management guides on [www.pulseaus.com.au](http://www.pulseaus.com.au) or Departmental web sites. Use a seed dressing (containing thiram or thiabendazole plus thiram) for the control of ascochyta blight, botrytis grey mould and common root rots.

### Ascochyta Blight Management

- Almaz<sup>Ⓛ</sup> has moderate resistance to ascochyta blight and will suffer a yield penalty if the disease is not controlled. Up to 70% yield loss has been recorded under high disease pressure with no fungicide management.
- Apply a foliar fungicide 4-6 weeks after emergence to prevent initial development of ascochyta blight. Follow with 2 to 4 applications throughout flowering and podding to ensure yield is protected, and high quality, disease free grain is produced.
- Time fungicide applications ideally for the day prior to a coming rain event.
- Fewer applications will be required in shorter, dry seasons and more applications will be required in longer, wet seasons.

In fungicide management research trials under high disease pressure there has been yield loss in untreated plots and strategically treated plots of Almaz<sup>Ⓛ</sup> when compared with plots sprayed regularly with fungicide.

### Example of yield loss due to ascochyta blight under different fungicide regimes in research trials

Variety	Horsham (Vic) 2005 Yield (t/ha)			
	Nil	Podding	Strategic	Fortnight
Almaz <sup>Ⓛ</sup>	1.00	1.18	1.20	1.59
Nafice <sup>Ⓛ</sup>	1.05	1.14	1.22	1.48
Kaniva	0.00	0.00	0.07	1.49
Genesis™ 090	1.72	1.82	1.67	1.74
Genesis™ 425	1.58	1.76	1.83	1.75

\* Horsham: Nil = no fungicide applied; Strategic = 4 fungicide applications (6-8 weeks after emergence, mid-late vegetative stage, early podding and mid podding); Fortnight = fortnightly fungicide spray from 8 weeks after sowing; Podding = 1 application at early podding (all applications were 2 L/ha of Chlorothalonil (720 g/L)).

### Fungicide regime for Almaz<sup>Ⓛ</sup> in WA:

Sray	1 <sup>st</sup>	2 <sup>nd</sup>	Subsequent
Timing	4 weeks after emergence	Full flower	Late flowering or podding
Fungicide	Chlorothalonil 720 g/L applied at 1.5 L/ha	Chlorothalonil 720 g/L applied at 1.0 to 2.0 L/ha if ascochyta blight is evident	Chlorothalonil 720 g/L applied at 1.5 to 2.0 L/ha if ascochyta blight is evident

### Botrytis grey mould

- Almaz<sup>Ⓛ</sup> is moderately susceptible to botrytis grey mould. Fungicide applications from canopy closure stage will assist in controlling botrytis grey mould if disease is present or production is in an area prone to infection.

### Phytophthora root rot

- Almaz<sup>Ⓛ</sup> is susceptible to Phytophthora and should not be grown in regions where this is a major production constraint.

### Insect control:

Monitoring and early budworm control is critical with all chickpea crops, particularly if they are late maturing.

### Frost, cold and heat:

The flowering time of Almaz<sup>Ⓛ</sup> and its flowering and podding duration requires a long growing season to avoid grain filling under dry soil and hot weather conditions.

### Crop topping and Weed wiping:

Almaz<sup>Ⓛ</sup> is not suited to either crop topping or weed wiping to prevent weed seed set, particularly ryegrass. Grain yield loss and weed seed set will be severe if early ryegrass escapes proceed through to crop maturity.

### Desiccation and Harvest:

- Desiccation may be beneficial to enable early harvest and ensure kabuli quality is achieved.
- Early harvest is recommended to maximise yield and reduce seed staining through weathering, disease and pests.
- Harvester settings will need to be similar to that for other large kabuli chickpeas.
  - Refer to DAFWA bulletin 4645 page 127

## Marketing:

- Almaz<sup>Ⓢ</sup> is a larger kabuli, and is likely to be graded to size for marketing.
- It is likely to receive prices higher than smaller sized chickpea varieties like Genesis<sup>™</sup> 090.
- Almaz<sup>Ⓢ</sup> has an End Point Royalty (EPR) of \$7.25 (GST inclusive) per tonne marketed in eastern Australia and \$8.25 in WA.
- Grain can be freely marketed to registered marketers that have agreements with AWB Seeds or COGGO to deduct the EPR from grower payments.
- Decisions on segregation of Almaz<sup>Ⓢ</sup> grain in markets are yet to be made depending on market feedback.

## Seed Availability and PBR:

Almaz<sup>Ⓢ</sup> is protected by PBR. Growers can retain seed from production of Almaz<sup>Ⓢ</sup> for their own seed use. Seed is commercialised through COGGO in WA and AWB Seeds in the eastern states, and is available through local seed suppliers.

<b>Almaz<sup>Ⓢ</sup></b>	<b>East:</b>			<b>West:</b>
<b>Seed Supply enquiries:</b>		<b>Phone 1800 054 433</b>		<b>phone 1800 182279</b>

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## Other Reading: For field chickpea management guidelines, see:

- Grain Legume Handbook 2008
- Pulse Australia publications: “Chickpea disease management strategy for southern region GRDC” and supplements, and “Pulse seed treatments and foliar fungicides” ([www.pulseaus.com.au](http://www.pulseaus.com.au))
- SARDI fact sheet “Chickpea variety sowing guide”  
[www.sardi.sa.gov.au/pdfserve/fieldcrops/research\\_info/sowing\\_guide/chickpeas.pdf](http://www.sardi.sa.gov.au/pdfserve/fieldcrops/research_info/sowing_guide/chickpeas.pdf) )
- I&I NSW publications ([www.agric.nsw.gov.au](http://www.agric.nsw.gov.au)): “Winter Crop Variety Sowing Guide” ; Pulse Point 20 “Germination testing and seed rate calculation”; “Weed Control in Winter Crops”; “Insect and Mite Control in Winter Crops”;
- Vic DPI “Winter Crop Summary” and fact sheets ([www.dpi.vic.gov.au](http://www.dpi.vic.gov.au)).

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