

GenesisTM 090

Kabuli Chickpea



Version 2: February 2008

KEY FEATURES

- First ascochyta blight resistant kabuli chickpea commercially available in Australia
- No yield loss recorded under high ascochyta blight disease pressure in research trials
- Highest or equal highest yield of all kabuli and desi varieties across south eastern Australia
- Broadly adapted with mid flowering, with medium plant height and good harvestability
- A predominately small seeded kabuli
- Provides a low disease risk and higher yielding chickpea option

Varietal Description

Breeding and Development

GenesisTM 090 (tested as FLIP94-090c) is an introduction from the International Centre for Agricultural Research in the Dry Areas (ICARDA), Syria, selected and released by the Victorian Department of Primary Industries as part of the National Chickpea Breeding Program.

Characteristics

Genesis 090 is a high yielding and widely adapted small seeded kabuli chickpea with resistance to ascochyta blight. It's flowering time is similar to Howzat and earlier than Kaniva, maturity time is approximately 10 days later than Howzat. Genesis 090 has medium plant height, and moderate resistance to lodging. Seed will predominately be in the 7 and 8mm range. Other grain quality characteristics are equivalent to other kabuli chickpeas.



Genesis 090 (background) and Howzat (front) with no fungicide protection.

Agronomic Features and Disease Resistance

Variety	Type	Seed Weight (g/100)	Seed size (mm)	Seed colour	Flowering time	Maturity time	Plant height	Lodging	Ascochyta blight	Botrytis grey mould	Phyophthora
Genesis 090	Kabuli	27	6-8	cream	mid	mid-late	medium	MR	R	S	S
Kaniva	Kabuli	38	7-10	cream	late	late	medium	MS	VS	VS	VS
Genesis 508	Desi	16	5-6	dark brown	mid-late	mid-late	medium	MR	R	MS-S	S
Howzat	Desi	21	6-7	light brown	mid	mid	medium	MS	MS-S	MS	MS

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

Yield and adaptation

Genesis 090 has highest or equal highest long-term experimental yield of all kabuli and desi varieties across south eastern Australia and is agronomically well adapted to these areas.

Grain yield as a percentage (%) of Howzat's

Variety	Vic Wimmera ¹	Vic Mallee ¹	SA <400mm ²	SA 400-450mm ²	SA 450-500mm ²	SA >500mm ²	NSW (southern) ³
Howzat Yield (t/ha)	1.25	0.86	0.93	1.62	1.85	2.14	1.61
Genesis 090	106	108	100	100	100	100	103
Kaniva	69	88	74*	82*	88*	90*	90
Genesis 508	92	89	86	92	93	94	n/a
Howzat	100	100	100	100	100	100	100

Yield data is from trials managed to minimise ascochyta blight, with grain yields greater than 0.4 t/ha and coefficient of variation less than 20%. No data was available for northern NSW, Qld and WA at the time of publication. 1. Data from combined desi and kabuli trials 1999-2001 and 2003-04. 2. 1998-2004 predicted yield data for SA desi chickpea trials sites grouped according to actual annual site rainfall, * Kaniva data compared to Howzat in Kabuli trials only. 3. 1999-2004 predicted yield data for southern NSW kabuli chickpea trials

In fungicide management research trials under high disease pressure there has been no yield loss in untreated plots of Genesis 090 when compared with plots sprayed fortnightly with fungicide.

Yield loss due to Ascochyta Blight

Variety	Horsham (VIC) 2001 Yield (t/ha)			Turretfield (SA) 2004 Yield (t/ha)			
	Nil	Strategic	Fortnight	Nil	Strategic	Fortnight	Podding
Genesis 090	2.02	2.03	1.80	1.77	1.82	1.88	1.87
Kaniva	0.10	0.54	1.24	-	-	-	-
Genesis 508	1.81	1.80	1.72	1.64	1.69	1.65	1.65
Howzat	1.19	1.35	2.11	0.87	1.96	2.21	1.23

Nil = no fungicide applied; Strategic = Vic: 4 fungicide applications (6-8 weeks after emergence, mid-late vegetative stage, early podding and mid podding); SA: 3 fungicide applications 8 weeks after sowing, early flowering and early podding; Fortnight = fortnightly fungicide spray from 8 weeks after sowing; Podding = 1 application at early podding. All applications were 2L/ha of Chlorothaloniol (720g/L).

Sowing Date and Seeding Rate

- Target the sowing date used for desi chickpeas in your region before ascochyta became a problem. Gains in yield and grain quality can be made from timely sowing.
- Sow at 35-40 plants/sqm (95-150kg/ha, subject to seed size & germination test).

Diseases

- Resistance to ascochyta blight means fungicide sprays are unlikely to be required prior to podding but crops should be monitored.
- A foliar fungicide at early podding is recommended to ensure high quality, disease free grain is produced. Despite good foliage resistance to ascochyta blight, the pods of Genesis 090 are susceptible to the disease. Infection of pods could result in poor quality, discoloured grain. In high rainfall/high ascochyta risk situations where there is an extended pod filling period further fungicide applications may be required.
- Fungicide applications during podding will also assist in controlling botrytis grey mould.
- A seed dressing (containing Thiram and Thiabendazole) for ascochyta blight and common root rots is suggested.
- To minimise yield losses to botrytis grey mould and phytophthora follow best management guidelines for your region.

Herbicide Sensitivity

- Herbicide tolerance trials in Victoria and South Australia (alkaline sandy loams and Wimmera clays) over the past two years show herbicides commonly used in Howzat chickpeas were used on Genesis 090 with the same degree of safety. Further work is ongoing to validate findings over different seasonal conditions, due to strong seasonal effect on herbicide activity.

Harvest

- Harvester settings will need to be similar to that for kabuli chickpeas.
- Early harvest is recommended to maximise yield and reduce seed staining through weather, disease and pests.

Grain Marketing

- Genesis™ 090 has an End Point Royalty (EPR) of \$5.00 per tonne marketed which includes management, administration costs and a plant breeder's return.
- Genesis™ 090 grain will be able to be freely marketed to Authorised Trading Companies (ATCs) established through agreements with AACT.
- ATCs include the majority of pulse trading companies within Australia and are listed on the AACT website. The ATC will deduct EPR from grower payments automatically. Any commercial pulse trading company is welcome to apply to be an ATC.
- Whilst Genesis™ 090 markets are being developed, farmers should consider budgeting at least at desi values.

Seed Commercialisation

Genesis 090 is widely available, and is being commercialised through Australian Agricultural Crop Technologies (AACT). Seed will be covered by a license and growers will be required to sign a Seed Variety Licence Agreement. Genesis™ 090 seed is available through registered seed re-sellers listed on the AACT website.



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CROP TECHNOLOGIES

For details on registered seed re-sellers or
Authorised Trading Companies contact:
Australian Agricultural Crop Technologies national office:
Ph (02 6795 3050) or visit the website www.aacrotech.com



Agronomic enquiries

For more detailed information check local management guidelines or contact:

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