Genesis™ 836

Desi chickpea

VMP 2009 #21

KEY FEATURES

- **A desi chickpea with moderately resistance to ascochyta blight released for Western Australia only.**
- **It is a tall, erect and high yielding variety in WA under moderate ascochyta blight conditions.**
- **Requires two fungicide applications to control ascochyta blight.**
- **Broadly adapted, mid to late flowering variety with good plant height and harvestability.**
- **Provides a reduced ascochyta blight risk, low input and high yielding desi chickpea option in low disease pressure areas.**
- **Broadly adapted, mid to early flowering variety with medium plant height and good harvestability**
- **Small sized desi grain is produced.**
- **Like most chickpeas, it cannot be crop topped to prevent seed set of escape weeds like herbicide resistant ryegrass, and its height makes it unsuitable for weed wiping those weed escapes.**
- **It suits many farming systems including inter-row sowing into standing stubbles and wider (>30cm) row spacings**

Where Genesis™ 836 fits into the farming system:

Genesis™ 836 provides a desi chickpea option with moderate ascochyta blight risk to growers in Western Australia. It provides a similar yielding, taller, slightly better quality alternative to Genesis ™ 510, but requires more fungicide applications.

Variety Characteristics:

Breeding: Genesis ™ 836 (tested as ICCV96836 in Crop Variety Trials since 2004) is an introduction from the International Center for Agricultural Research in the Dry Areas (ICARDA), Syria. It was selected and released by the Victorian Department of Primary Industries as part of the National Chickpea Breeding Program.

Agronomic Characteristics: Genesis™ 836 is a high yielding and widely adapted desi chickpea with moderate susceptibility to ascochyta blight. It is mid to late-flowering time with tall plant height and moderate resistance to lodging. Seed size will predominately be in the 5- 6mm (14-17g/100 seeds) range and is smaller and slightly darker than Howzat(ϕ) or Sonali, but not as dark as Genesis™ 509.

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	Phytoph-thora
Genesis™ 510	Desi	16	5-6	brown	Mid	early-mid	medium	MR	R	MS	S
Genesis™ 836	**Desi**	**17**	**5-6**	**Medium brown**	**Mid-late**	**Mid-late**	**tall**	**MR**	**MS**	**MS**	**MS**
Howzat(ϕ)	Desi	21	6-7	light brown	Mid	mid	medium	MS	MS-S	MS	MS
Sonali	Desi	17	5-6	Dark brown	early	Early	medium	MS	MS	MS	MS
Almaz(ϕ)	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
Kaniva	Kabuli	38	7-9	cream	late	late	medium	MS	VS	VS	VS
Nafice(ϕ)	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:

Genesis™ 836 is released for Western Australia only where it has near the highest long-term experimental yield among desi varieties, including situations where ascochyta blight is well managed. It compliments Genesis™ 510, a shorter, earlier flowering desi variety with better ascochyta resistance that was also released only for Western Australia.

Genesis™ 836 is susceptible to phytophthora and has inferior grain quality to other varieties more suited to northern NSW and southern Queensland

National Variety Trials – desi trials Long Term Yields as % of Howzat: 2000-2008.

	Southern & Western Australia		Northern Australia	
Variety Name	High rainfall southern	Low rainfall southern and western	High rainfall northern	Low rainfall northern
Amethyst	92 (5)	-	90 (27)	92 (31)
Flipper(Ф)	90 (32)	90 (34)	91 (42)	90 (43)
Genesis™ 079	104 (21)	101 (18)	-	-
Genesis™ 090	99 (66)	92 (59)	-	96 (5)
Genesis™ 425	-	88 (6)	-	89 (5)
Genesis™ 509	100 (75	98 (53)	96 (6)	-
Genesis™ 510	100 (53)	99 (54)	98 (6)	-
Genesis™ 836	**96 (44)**	**97 (63)**	**92 (6)**	**93 (4)**
Howzat(Ф)	100 (79)	100 (68)	100 (43)	100 (41)
Jimbour(Ф)	99 (7)	-	97 (49)	99 (56)
Kyabra(Ф)	97 (4)	98 (6)	98 (31)	99 (41)
Sonali	95 (69)	97 (66)	94 (8)	94 (4)
Yorker(Ф)	94 (35)	91 (43)	92 (45)	91 (47)
Howzat(Ф) yield (kg/ha)	*1467 (79)*	*1142 (66)*	*1824 (43)*	*1590 (41)*

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

Grain yield*as a percentage (%) of Sonali in Western Australia trials

Variety	2004	2005	2006	2007*	2008
Genesis™ 510	95	99	106	136	?
Genesis™ 836	**92**	**95**	**99**	**145**	**?**
Sonali	100	100	100	100	?
Howzat(Ф)	96	101	90	-	
Sonali yield (kg/ha)	*2248*	*1762*	*662*	*1005*	*?*

* Yield data is from DAFWA trials managed to minimise ascochyta blight, with grain yields greater than 0.4 t/ha. 2007 only result is Bolgart trial site.

Quality Characteristics:

Seed size will predominately be in the 5-6mm (14-17g/100 seeds) range, smaller and darker than Sonali or Howzat(Ф), but lighter than Genesis™ 510. It is therefore less preferred for whole seed markets, and segregation from better quality desis may occur. It is however suited to splitting markets.

Management Package

(Consult local grower guides for more detailed information)

This VMP updates and reinforces those management issues with Genesis™ 836 chickpeas that may be different to other chickpea varieties. Refer to existing guides for other general chickpea management issues.

Seeding Date and Rate:

- Sow into wet soil after April 20th in low rainfall areas, and after May 5th in medium rainfall areas. Sowing is not recommended after May in all areas of WA.
- Sow at 35-50 plants/m^2 (75-100 kg/ha, subject to seed size & germination test).
- Group N rhizobia is required for all chickpea varieties to ensure successful nodulation. Be cautious when using fungicide seed treatment as the fungicide can be toxic to seed applied rhizobia. Read the rhizobia and fungicide label for details.

Row Spacing:

Sowing row widths up to 50cm can be used without sacrificing yield and providing greater harvest efficiencies. Stubble cover must however be present to avoid evaporation losses. Genesis™ 836 is tall and moderately resistant to lodging, and fits well into systems of inter-row sowing in wider rows into standing stubble.

Herbicide Sensitivity:

Observations in WA and eastern Australia have indicated that Genesis™ 836 shows tolerance to herbicides commonly used in chickpea production including diuron, simazine, metribuzin and isoxaflutole (Balance®). Seasonal effects on herbicide activity occur, so confirmation of herbicide tolerance in Genesis™ 836 is on-going.

Disease Management:

Follow local best management guidelines for your region, e.g. see disease management guides on www.pulseaus.com.au or www.agric.wa.gov.au .

- Close and regular monitoring for ascochyta blight and other diseases is essential to avoid yield losses.
- Use a seed dressing (containing thiram or thiabendazole plus thiram) for the control of seed-borne ascochyta blight and common root rots.
- Foliar fungicide applications should be immediately before rain.
- In WA, two fungicide sprays containing Chlorothalonil are recommended: 4-6 weeks after sowing to protect yield from ascochyta blight, and at podding to protect yield and grain quality. Two fungicide sprays are deemed inadequate protection for Genesis™ 836 in south-eastern Australia.
- In WA under extreme disease pressure, further fungicide applications during podding may only be required in Genesis™ 836 if ascochyta blight is present in the crop in a high risk situation where there is an extended pod filling period and a rainfall event is predicted.
- Ascochyta blight during podding can result in poor quality, discoloured grain or some yield loss.

If botrytis grey mould (BGM) is present or it is an area prone to BGM infection, fungicide applications from canopy closure stage will assist in controlling this disease.

Yield loss due to ascochyta blight in research trials where severe ascochyta blight was induced

Variety	Horsham (VIC) 2005 yield (t/ha) Difference of greater than 0.25 t/ha is required for significant differences				Mingenew (WA) 2005 yield (t/ha) Difference of greater than 0.52 t/ha is required for significant differences				
	Nil	Podding	Strategic	Fortnight	Nil	Early	Podding	Early & Podding	Fortnight
Genesis ™510	2.02	2.28	2.33	2.26	1.69	2.64	2.34	2.69	2.50
Genesis™ 836	**1.66**	**1.84**	**1.93**	**2.00**	**1.17**	**1.86**	**1.73**	**1.86**	**2.01**
Howzat◊	0.38	0.88	0.82	2.34	0.46	1.29	1.55	1.38	2.42

Nil = no fungicide applied; Vic: Strategic = 5 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 2L/ha of Chlorothalonil (720g/L). WA: Early = 4 weeks after emergence; Podding= single spray at podding; Fortnight = fortnightly fungicide spray from 4 weeks after emergence. All applications were 1.5L/ha of Chlorothalonil (720g/L).

Insect control:

Monitoring and early budworm control is critical with all chickpeas, particularly if they are later flowering and maturing.

Frost, cold and heat:

The flowering time of Genesis™ 836 and its flowering and podding duration is a disadvantage in shorter growing seasons. It has an advantage over kabulis like Almaz◊ in medium and shorter growing season areas which could be filling their grain under hot and dry conditions.

Desiccation and Harvest:

Genesis™ 836 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 may be beneficial to enable early harvest and ensure desi 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 desi chickpeas. Consult DAFWA bulletin 4656 “Producing Pulses in the Northern Agricultural Region” page 127, for more detail. Crop lifters should not be required. Wider rows (50-90cm) improve harvest efficiency.

Marketing:

- Because it is a small, slightly darker desi, Genesis™ 836 is likely to be segregated from other larger, lighter coloured desis like Howzat© or Sonali.
- Budget on desi values for Genesis™ 836 grain, although premiums may occur for larger, lighter coloured varieties.
- Genesis™ 836 does not attract an End Point Royalty (EPR).
- Genesis™ 836 grain will be able to be freely marketed to Authorised Trading Companies (ATCs) established through agreements with Australian Agricultural Crop Technologies (AACT).
- ATCs include the majority of pulse trading companies within Australia and are listed on the AACT website.

Seed Availability and PBR:

Genesis™ 836 is available for sowing in Western Australia only through Coorow Seed Works, on a sub-licence from Australian Agricultural Crop Technologies (AACT) who manage Genesis™ 836. Seed will be covered by a licence and growers will be required to sign a Seed Variety Licence Agreement.

Coorow Seeds

Seed Enquiries:

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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)
- SARDI fact sheet "Chickpea variety sowing guide" www.sardi.sa.gov.au/pdfserve/fieldcrops/research_info/sowing_guide/chickpeas.pdf)
- I&I NSW publications (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).

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