Chickpea varieties

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Take home messages

- *Chickpea variety selection must be based on ascochyta blight pressure, yield and marketing opportunities*
- *If considering early sowing, it is essential to select a variety with excellent ascochyta blight resistance or ensure an excellent disease management strategy is implemented.*

Method

Yield experiments for chickpea were established across Victoria by Pulse Breeding Australia and the National Variety Testing program. All experiments were managed following recommended local practices. Yield data was statistically analyzed and is only presented for trials with acceptable experimental error.

Results

There are limited trials for variety comparisons in 2008 due to some sites being abandoned and others harvested, but recorded high experimental error associated with dry spring conditions. Despite the dry conditions, a natural infection of ascochyta blight occurred at the Beulah site, highlighting the importance of ascochyta blight resistance in variety selection even in dry years.

In desi trials (Table 1), Genesis™509 performed the most consistently across all Victorian sites out of all desi varieties currently available to growers. CICA0503, a new desi line expected to be available to growers in 2010, performed better than Genesis™509 at all three sites presented. A number of breeding lines showed good adaptation across a number of sites, in particular, CICA0603 and CICA0604.

Table 1. Data from desi S3 and NVT experiments in 2008.

Location Region	Horsham Wimmera	Minyip Wimmera	Tarranyurk Wimmera
Genesis 509 t/ha	**0.47**	**1.00**	**0.43**
Variety name	**% Genesis 509**	**% Genesis 509**	**% Genesis 509**
Genesis 079	91	114	95
Genesis 090	103	95	76
Genesis 509	100	100	100
Howzat	96	96	92
Sonali	95	101	103
CICA0503	105	109	114
CICA0512	104	102	135
CICA0603	104	107	124
CICA0604	109	103	124
CICA0717	102	100	116
CICA0718	105	106	103
CICA0819	101	117	
CV (%)	**10.14**	**7.55**	**13.56**
LSD (t/ha)	**19**	**14**	**27**

Table 2. Data from kabuli S3 experiments in 2008.

Location Region	Beulah Mallee	Horsham Wimmera	Minyip Wimmera
Genesis 090 t/ha	**1.06**	**0.53**	**1.09**
Variety Name	**% Genesis 090**	**% Genesis 090**	**% Genesis 090**
Almaz	47	61	63
Genesis 079	84	95	85
Genesis 090	100	100	100
Genesis 114	68	101	79
CICA0857	84	97	90
CV (%)	**10.52**	**11.42**	**7.25**
LSD (t/ha)	**18**	**16**	**12**

In kabuli trials (Table 2), Genesis™090 was the highest yielding entry across the three sites presented. Of the medium seeded types, Genesis 114 was consistently higher yielding than Almaz. The breeding line CICA0857 has seed size similar to Almaz and Genesis 114, but showed a yield advantage over both of these varieties, possible due to its earlier flowering and maturity.

New Varieties

Desi

Genesis™509 has good ascochyta blight resistance and is likely to require only one fungicide application at podding. Grain quality is similar to Genesis™508 and both are less preferred than Howzat. Genesis™509 is higher yielding than Genesis™508 with improved adaptation to both low and medium rainfall areas. Genesis™509 is from Australian Agricultural Crop Technologies (AACT).

The small-seeded, ascochyta blight-resistant kabuli variety, Genesis™090, is a good alternative to current desi varieties in traditional desi-growing areas. An earlier flowering and maturing small-seeded kabuli, Genesis™079, will be available in limited quantities to growers in 2009. It has shown excellent adaptation to short season environments in South Australia. The price of grain for small kabulis is expected to be higher or similar to that of desis.

The first desi release from the PBA chickpea program for southern Australia is likely to be CICA0503 and seed is expected to be available to growers in 2010. CICA0503 has good yields across a wide range of environments and good ascochyta blight resistance. Seed quality is larger and a more preferred colour than Genesis™509. AWB seeds are the commercial partner for PBA desi chickpeas.

Kabuli

Genesis™090 has good ascochyta blight resistance and has shown wide adaptation and excellent yield stability, including the drier environments. Genesis™090 has a smaller sized seed that is approximately 1mm smaller than that of Kaniva. Genesis™090 is widely available to farmers and has the potential to be grown as a good alternative to desi chickpeas or as a higher yielding but lower value alternative (smaller seed) to kabulis such as Almaz and Nafice. Another small seeded kabuli, Genesis™079, will be available in limited quantities in 2009 and it has shown better adaptation to short season environments than Genesis™090, especially in South Australia. Seed of Genesis™079 is approximately 2mm smaller than Kaniva and is available through AACT.

Almaz and Nafice are larger seeded kabulis with moderate ascochyta blight resistance. They have larger seed than Kaniva, with Nafice being slightly larger than Almaz. Both have yielded equal or better than Kaniva and offer a much lower disease risk option, however they will require two to four applications of fungicide to be grown successfully. There has been some reports of poor seed colour in Nafice which requires further evaluation if you are considering this variety. Seed is available through AWB seeds.

Genesis™114 will be available in limited quantities to growers in 2009. It has seed similar in size to Almaz and has yielded higher than Almaz, particularly at sites where the season finishes quickly. Genesis™114 has moderate ascochyta blight resistance and will need to be managed similarly to Almaz. It has an erect plant type with excellent lodging resistance and pods positioned high in the canopy. Seed will be available from AACT.

Commercial practice

With the continued run of drought-affected seasons, some growers have had success from early sowing. If considering early sowing, it is important that an ascochyta blight resistant variety is chosen, or an excellent disease management strategy is implemented for a variety with moderate resistance. Varieties with a resistant rating for ascochyta blight, such as Genesis™509 and Genesis™090, will reduce ascochyta blight risk to very low levels. One fungicide spray, however, will be required to protect pods and ensure high quality seed is produced. Varieties with a moderately resistant rating, such as Almaz and Genesis 114, will require two to four strategic fungicide sprays to be successfully grown.

A larger range of chickpea types will be available to farmers in the next five years that will give greater marketing opportunities than in the past. Therefore, understanding markets will become an important part of variety selection.