

PULSE VARIETY TRIALS

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Key Points:

- Five new pulse varieties were released for southern Australia in 2013. It is important to carefully assess the agronomic, disease and marketing strengths and weakness of each variety, and their overall role in the farming system.
- The warm, wet winter favoured biomass production and early botrytis grey mould onset in lentil and faba beans in 2013. Timely canopy closure fungicide application was critical for reducing yield loss in varieties with intermediate resistance.
- Weed competition was a major constraint to pulse production in 2013. A GRDC funded project has successfully developed alternative herbicide tolerances in lentil and faba bean and field validation is expected in 2014.
- Clethodim resistant ryegrass is becoming a major issue in pulse production and alternative weed control strategies require investigation.

Sites:

Wolseley (NVT)
Kongal (NVT)
Glenroy
Millicent (NVT)
Conmurra

Farmer Co-operator:

Kennett family
The Smart Group
B McLean
B Gilbertson
Sears family

Replicated (3 reps) Plot Trials
8m x 1.6m plots, 15cm row spacing's

2013 season in review

- Pulse grain yields were variable in 2013, generally ranging from average to well above average, depending on rainfall distribution and the impact of frost during October. Grain quality was generally good despite high disease and moderate insect (Heliothis and Etiella) pressure in many areas.
- Close to long term average rainfall was achieved in many regions of the state in 2013. Summer and late spring rainfall in 2013 was generally low, however winter rainfall was higher than average, and associated with periods of waterlogging in a

number of regions of the state. Low rainfall in late spring resulted in a rapid dry down, however the mild temperatures still enabled later varieties to finish.

- Winter temperatures were generally warmer than average in 2013, with minimal extreme events (heat or cold), and this combined with good winter rainfall resulted in high biomass production and large canopies.

- Weed control, both broadleaf and grass proved challenging for pulse crops in 2013 due to the warm and wet winter and early spring conditions. This meant that there were many 'weedy' looking pulse crops in late spring and at maturity. In particular Clethodim resistant ryegrass, medic, vetch and tares were significant issues.
- Plant disease levels varied widely across crops and regions in the state. The most prevalent diseases in 2013 were ascochyta blight and botrytis grey mould in lentils, downy mildew and black spot in field peas, and ascochyta blight and chocolate spot in faba beans.

There were numerous reports of poor lower-canopy pod set in faba bean crops throughout the state, and yields varied widely as a result. This is thought to be due to a combination of heavy canopies and the large number of overcast days and low temperatures during the early flowering period in 2013 as a consequence of the wet conditions.

BEANS

Table 1: 2013 SE NVT Bean Variety Results:

	Bool Lagoon			Bordertown			Keith		
	Yield	Yield		Yield	Yield	Quality	Yield	Yield	Quality
Variety Name	t/ha	% site mean		t/ha	% site mean	g/100 seeds	t/ha	% site mean	g/100 seeds
Aquadulce	5.42	112	-	-	-	-	-	-	-
Doza	3.75	78	-	-	-	-	-	-	-
Farah	4.15	86	-	2.27	96	75.25	2.15	96	72.41
Fiesta VF	5.32	110	-	2.31	97	76.44	2.15	96	70.08
Fiord	1.48	31	-	-	-	-	-	-	-
Nura	3.2	66	-	2.82	119	67.67	2.2	98	61.37
PBA Kareema	5.76	119	-	-	-	-	-	-	-
PBA Rana	4.4	91	-	2.1	89	93.26	2.05	92	88.98
PBA Warda	4.13	86	-	-	-	-	-	-	-
Site Mean (t/ha)	4.82			2.37			2.24		
CV (%)	7.04			12.62			7.91		
Probability	<0.001			0.003			<0.001		
LSD (t/ha)	0.54	11		0.51	22		0.29	13	

**Sowing date:
20th June 2013**

**Sowing date:
21st May 2013**

**Sowing date: 21st
May 2013**

* This is a breeding trial added to the NVT dataset to expand the available trial results. Some data may be incomplete.

** This trial has a high CV of 12.62% indicating high variability across the trial.

Interpret results with caution

Table 2: Bean Varieties; Long Term SE NVT Variety Trials

2007-2013 Long Term SE Trials		
Predicted Avg		
Variety	Yield (t/ha)	No. Trials
Fiesta VF	3.091	33
Farah	3.065	33
PBA Warda	2.995	7
Nura	2.961	33
Aquadulce	2.929	12
PBA Rana	2.923	30
PBA Kareema	2.894	12
Cairo	2.848	6
Manafest	2.821	17
Doza	2.779	22
Fiord	2.718	20

Table 3: 2013 Conmurra Bean Variety Trial Results:

Variety	Column1	Yield	Yield	100swt (g)
		(kg/ha)	(% site mean)	
Aquadulce	Broad	4731	88	113.9
Gilb/37/6AR	Broad	4387	82	123.2
PBA_Kareema	Broad	5487	102	109.4
AF05069-2	Faba	5810	108	71.4
AF05095-1	Faba	4847	90	75.4
AF06125	Faba	6363	119	74.6
Doza	Faba	5715	107	59.8
Farah	Faba	5863	109	68.3
Fiesta	Faba	5037	94	70.5
Nura	Faba	5047	94	63.8
PBA Rana	Faba	5606	105	81.9
PBA Warda	Faba	5426	101	61.0

Isd	822
Site mean	5360
Probability	0.07

The overall yield of faba beans was quite varied throughout South Australia, largely due to the dry conditions at the end of the growing season. Good winter rains set the trials up for high yield potential and NVT sites in favourable areas (Tarlee, Maitland and Minlaton) achieved in excess of 3t/ha. Overcast conditions and low temperatures during late winter and early spring impacted on podding and there were numerous reports of poor pod set in the lower canopy. The high humidity and vigorous winter growth also increased chocolate spot intensity, and multiple fungicide sprays were required to control this disease. Ascochyta blight pressure was higher in 2013 than in previous

seasons, and a change in resistance of one isolate resulted in increased ascochyta blight infection in Farah and PBA Rana. Symptoms indicative of Pea Seedborne Mosaic Virus (PSbMV) appeared on seed from a number of faba bean crops and in severe cases resulted in downgrading of quality. For further information on pulse diseases in 2013 refer to article by Jenny Davidson, SARDI, in these proceedings.

There was little variation in yield among current faba bean varieties across trials in South Australia, and in particular Fiesta VF and Farah were very similar. The average yield of Nura was slightly less than Fiesta VF and Farah, while PBA Rana averaged 3-4% less than other varieties across all trials. In view of the small variation in yield, factors such as disease resistance, herbicide tolerance, seed quality and access to particular markets should be considered when selecting varieties

Potential New Release - AF05069-2^{1b}

This breeding line has very good yield (generally 8-10% greater than current varieties), wide adaptation and very good ascochyta resistance. Resistance to other diseases is equal to or better than current varieties. It is a moderately late flowering type, similar to Nura and PBA Rana, and has improved standing ability compared to Farah. Seed is comparable in size and colour to Fiesta and Farah. A release in 2014 for cultivation in 2015 is likely.

Improving weed management in faba beans – Dili Mao, SARDI

A five year GRDC funded project led by SARDI in conjunction with the University of Adelaide commenced in July 2013. It follows on from the project DAS00107, which successfully developed a number of faba bean and lentil lines with improved tolerance to novel herbicides, and aims to continue this work along with expanding it into chickpea.

Most recently, controlled environment growth room dose response studies have confirmed high levels of imazapyr tolerance in three mutated faba bean lines compared with the Nura control (Figure 3). The three lines were confirmed as having different mutation events which all confer the ALS (Group B) herbicide tolerance. All lines incurred no visible damage to Imazapyr at rates of 3L/ha and lower while the Nura control showed high levels of damage, and eventually died at the lowest rate (0.75L/ha).

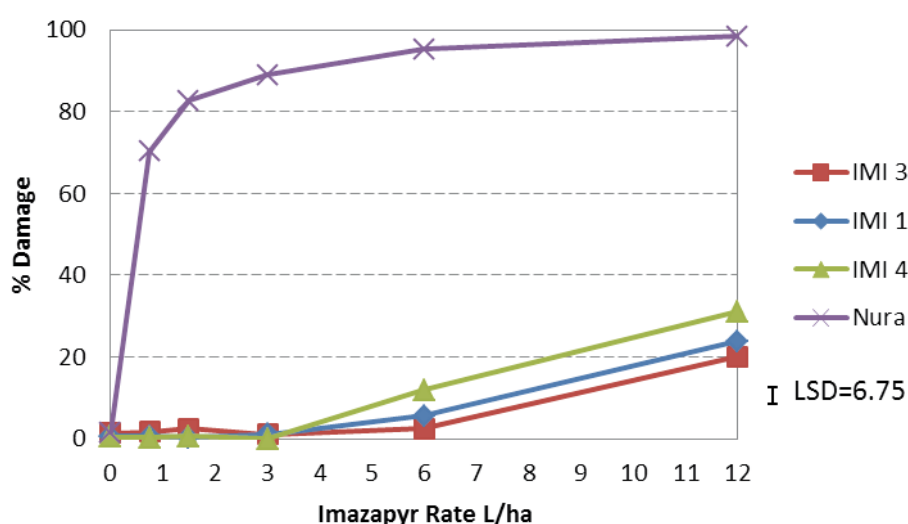


Figure 3: Effect of post-emergent Imazapyr herbicide on plant damage level (% plant area necrotic) of three induced mutant faba bean lines and the control cultivar Nura grown in controlled environment conditions. Source: Improving weed management in pulses (DAS00131)

These lines have been incorporated into the PBA faba bean breeding program and the herbicide tolerance has been confirmed in cross and backcross populations with elite breeding material. Crossing for tolerances to multiple herbicide groups (Group B and Group C) has also been initiated in both lentils and faba bean. This year the project will begin field validation of the most promising herbicide tolerant faba bean (Imazapyr) and lentil (metribuzin) lines as well as investigating methods for rapidly developing lines with tolerance to multiple herbicide groups. It will also begin the process of developing desi and kabuli chickpeas lines with novel herbicide tolerance through conventional mutagenesis techniques.

For more information contact Dili Mao, SARDI at dili.mao.sa.gov.au

LENTILS

Table 4: 2013 SE NVT Lentil Variety Results:

Variety	Yield t/ha	Yield % site mean	Quality g/100seeds
Aldinga	-	-	-
Boomer	-	-	-
Nipper	1.01	54	3.27
Northfield	-	-	-
Nugget	1.86	99	4.06
PBA Ace	2.24	120	4.67
PBA Blitz	1.59	85	5.33
PBA Bolt	1.83	98	4.43
PBA Bounty	-	-	-
PBA Flash	1.92	103	4.89
PBA Herald XT	1.31	70	3.15
PBA Hurricane XT	2.34	125	3.45
PBA Jumbo	1.36	73	5.17

Site Mean	
(t/ha)	1.87
CV (%)	10.86
Probability	<0.001
LSD (t/ha)	0.35

Sowing Date: 26th June

2013

* This trial has a high CV of 10.86% indicating high variability across the trial. Interpret results with caution and make variety selection decisions using information from multiple trials.

**Table 5: Long-term NVT Trial data
(2009-2013)**

Variety	Predicted Avg Yield (t/ha)	No trials
PBA Bolt	1.762	5
PBA Ace	1.746	6
PBA Flash	1.677	7
PBA Hurricane XT	1.666	3
Boomer	1.513	5
PBA Jumbo	1.511	7
Nugget	1.467	7
PBA Blitz	1.456	7
PBA Herald XT	1.432	5
Nipper	1.411	7
Northfield	1.399	3
PBA Bounty	1.354	5

The amount of disease seen in 2013 was higher than in previous seasons due to the warm winter conditions promoting humidity and growth of large canopies. Ascochyta blight was common early in the season, particularly in PBA Flash, and higher levels of this disease are now being reported on the

varieties Nipper and Nugget than seen previously, providing evidence that the pathogen population is evolving to overcome some resistance genes. Despite this, however, the resistance of new varieties PBA Ace, PBA Bolt and PBA Herald XT is holding up well.

Botrytis grey mould was widespread in 2013, and the timing of protective fungicides just prior to canopy closure was critical to avoid or minimise yield loss. New varieties PBA Bolt, PBA Hurricane, and to a lesser extent PBA Ace due to its large canopy, may require additional protection after this critical stage in favourable environments for disease.

Despite high disease pressure, yields were generally above average in 2013, and recent releases PBA Flash, PBA Blitz and PBA Jumbo all performed well. PBA Ace, which has performed exceptionally well in recent seasons, had only slightly higher yields than Nugget in 2013. This was likely due to its high biomass production, which was not suited to the dry finish to the season in 2013 but has favoured this variety in previous seasons with colder winters and smaller canopies. PBA Herald XT performed below expectations in 2013 compared to all other varieties. It had the lowest level of foliar disease of all commercial varieties during winter and spring but appeared poorly suited to the dry finishing conditions. New varieties PBA Hurricane XT and PBA Bolt had variable yields across sites but were generally similar or slightly above Nugget and superior to Nipper and PBA Herald XT.

PBA Hurricane (CIPAL1101)

PBA Hurricane XT is the second herbicide tolerant lentil variety, building on the success of the pioneer herbicide tolerant variety PBA Herald XT. It provides growers with a lentil variety which incorporates improved tolerance to some Group B herbicides, improved agronomic characteristics and higher grain yields than Nugget, Nipper and PBA Herald XT. PBA Hurricane XT has an APVMA permit for imazethapyr use (**product label rates, plant-back periods and all label directions for use must be adhered to**).

PBA Hurricane XT produces small-medium size seed, slightly larger than PBA Herald XT and Nipper, with a grey seed coat, and shows a 5-12% long term yield advantage over these varieties. It is lower yielding than PBA Ace, PBA Flash and PBA Bolt, but may be preferred where more flexible weed control is desired. It is a mid-maturity, broadly adapted variety with earlier flowering, improved vigour and increased plant height over PBA Herald XT and Nipper. Like Nipper and PBA Herald XT, it is resistant to ascochyta blight (AB), but will require protection for botrytis grey mould (BGM) in disease prone areas, particularly where sown early. PBA Hurricane XT is free of the black seed-coat seeds which are present in low levels in PBA Herald XT. Herbicide tolerance testing indicates PBA Hurricane XT, like Nipper and PBA Herald XT, is more sensitive to Group C herbicides such as metribuzin than Nugget and PBA Flash, and caution is urged with the application of these products particularly on variable soil types. Seed is available through PB Seeds.

Inter-row sowing lentil into retained cereal stubble

Agronomic trial work conducted by the Southern Pulse Agronomy project in 2010-2012 has shown that substantial yield benefits can be achieved through inter-row sowing of lentil into retained cereal stubble in lower rainfall environments. A further trial was set up at Pinery in 2013 to investigate whether additional benefits can be achieved by sowing inter-row into stubble reaped with a stripper front (wheat stubble measuring 70cm height and 5.6t/ha in biomass). Stubble treatments were executed pre-sowing, and PBA Blitz was chosen, having shown the greatest response to stubble management in previous trials. The trial was sown with a knife-point cone seeder on 10 inch (25 cm) row spacings, and rolled immediately post sowing. Significant early grub (mandalotus weevil) damage was noted, particularly in the standing stubble treatments where more than 50% of plants had been defoliated (Table 1). However damage levels were similar in the removed and slashed treatments. This finding highlights the importance of pest protection and vigilant monitoring in

retained stubble systems which provide a favourable habitat for a wide range of insects and pests. Final grain yield showed a 58% yield advantage from sowing into slashed stubble compared to removed stubble (Table 1). No benefit was generated by sowing into standing stubble compared to removed stubble, most likely due to the increased levels of damage caused by insect pests in this treatment. As in previous seasons, standing stubble generated a significant improvement in lodging resistance, representing potential harvestability benefits in lentil.

Table 1: Grain yield (t/ha) and lodging score (1-9*) of lentils sown in four stubble management practices at Pinery, South Australia in 2013.

Stubble Treatment	Burnt	Slashed	Standing 30cm	Standing 60cm	LSD (P<0.05)
Plant defoliation (%) ^	23 ^a	29 ^a	46 ^b	57 ^b	16
Grain yield (t/ha)	1.80 ^a	2.85 ^b	1.96 ^a	1.92 ^a	0.69
Lodging score *	5 ^a	4.7 ^a	7.3 ^b	7.3 ^b	1.5

* Lodging score: 1= prostrate, 9 = erect, ^% of plants with leaves defoliated due to mandalotus weevil damage

FIELD PEAS

Table 7: Kongal 2013 NVT Pea Variety Results

Variety	Yield t/ha	Yield % site mean	Quality g/100seeds
Kaspa	4.26	99.1	21.1
Parafield	4.04	94.0	21.9
PBA Gunyah	4.32	100.5	24.4
PBA Oura	4.07	94.7	25.2
PBA Pearl	4.18	97.2	24.8
PBA Percy	3.96	92.1	25.7
PBA Twilight	3.94	91.6	21.8
PBA Wharton	4.39	102.1	23.6
Sturt	-	-	-

Site Mean (t/ha)	4.3
CV (%)	5.57
Probability	<0.001
LSD (t/ha)	0.41

Sowing Date: 26th June 2013

Table 8: Long Term NVT Results (2007-2013)

Variety	Predicted Avg Yield	No. trials
Yarrum	2.873	14
PBA Pearl	2.859	10
PBA Wharton	2.808	13
PBA Percy	2.745	7
PBA Oura	2.609	16
PBA Gunyah	2.55	16
PBA Twilight	2.53	16
SW Celine	2.507	6
Kaspa	2.423	16
Bundi	2.334	9
Sturt	2.33	7
Parafield	2.11	16

PBA Wharton (OZP0805)

PBA Wharton is a new high yielding “Kaspa type” field pea. PBA Wharton combines disease resistance to the viruses PSbMV and BLRV and powdery mildew with the same agronomic benefits as Kaspa (eg lodging and shattering resistance). PBA Wharton is early to mid season flowering and early maturing (e.g. similar PBA Gunyah). It is widely adapted across southern cropping regions of

Australia and best suited to districts with a short to medium growing season or those that are prone to powdery mildew and virus diseases (e.g. south east SA). Its grain colour and size is similar to Kaspera but more spherical and smoother. PBA Wharton can be marketed as “Kaspera type” grain. Seed is available through SeedNet.

PBA Coogee (OZP1103)

PBA Coogee is a high yielding conventional (trailing) type dun pea that provides the flexibility of a forage option if frost or drought limit grain yield potential. PBA Coogee has a conventional plant type similar to the variety Parafield but with increased early season growth, more basal branching, longer vines and higher yield. It is a long season variety that flowers mid to late season but pods rapidly and combines resistance to powdery mildew with high tolerance to soil boron and salinity. This variety has moderate resistance to bacterial blight. PBA Coogee produces grain that can be marketed as “Australian dun type”. Seed is available through SeedNet.

Forage Peas - a potential new break crop option

In the last 2 years, two varieties (PBA Hayman and PBA Coogee) have been released for suitability to “forage” (hay/silage) or green/brown manuring. PBA Hayman was released as the first Australian forage field pea, while PBA Coogee has been released as a “dual purpose” (grain or forage) field pea variety. These new pea types provide an alternative to vetch and other break crop options due to the perceived advantages from increased winter dry matter production, improved post-emergent weed control options and opportunistic grain production in low rainfall areas. Work funded by SAGIT (Project S0213) is currently assessing the biomass accumulation and grain yields in comparison with current standards, Kaspera (the predominant grain yield variety in south eastern Australia) and Morgan (a dual purpose field pea variety). Results to date have shown:

- The ideal timing of hay cutting for both maximum biomass production and ease of drying (i.e. before pod set) is likely to be approximately 7-14 days after commencement of flowering (i.e. early pod development prior to grain fill).
- Varieties with later flowering and pod set (eg PBA Hayman) are likely to be better suited to hay production as this allows maximum vegetative growth prior to cutting, and extends hay cut timing into better (warmer and quicker) drying conditions.
- Kaspera, Morgan and PBA Coogee have similar biomass prior to the early pod stage.
- PBA Hayman generally produces greater biomass by the flowering stage than all other varieties (due to its later flowering) and accumulates more biomass during early spring than other varieties (Figure 1).
- Kaspera and PBA Coogee produce significantly higher grain yield than Morgan or PBA Hayman.
- PBA Hayman has shown the lowest yield and lowest harvest index, indicating that grain retrieval may be difficult in low rainfall areas. However, due to its lower seed weight (averages 14g/100 seeds compared with 20-25g/100 seeds in other varieties) seed requirements for sowing will be significantly lower.

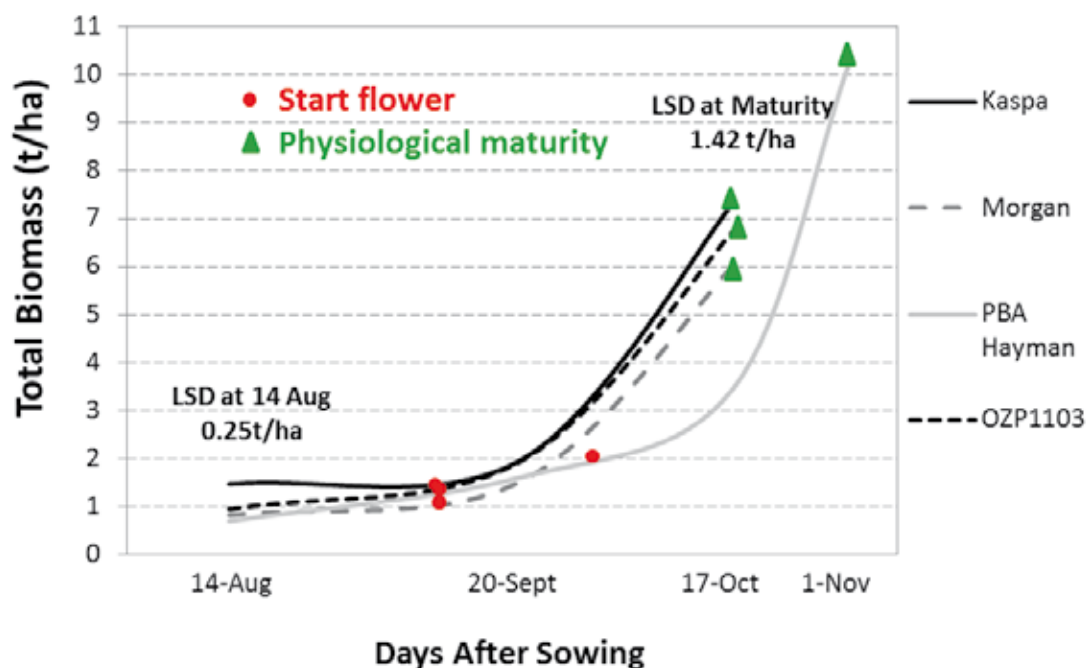


Figure 1: Biomass accumulation of four field pea varieties, showing start of flowering and physiological maturity checkpoints, at Pinery 2012. LSD's are shown for measurements at 14 August and at physiological maturity. Source: Southern Region Pulse Agronomy project (DAV00113).

Co-mingling of “Kaspa type” varieties

A number of “Kaspa type” field pea varieties are now available (Kaspa, PBA Gunyah, PBA Twilight, PBA Wharton) offering the same agronomic advantages as Kaspa but varying in their flowering and maturing timings and disease resistance profile. Since these can all be marketed together as “Kaspa type” grain, growers have the opportunity to blend varieties to create a population that potentially provides an extended flowering period compared to a single variety. This strategy may provide risk mitigation against frost and heat events during the vulnerable flowering period, and may also produce a continuously adapting population that may convey a production advantage in the target production area over time. The Southern Pulse Agronomy project has been comparing various blends of Kaspa, PBA Gunyah and PBA Twilight at five sites in South Australia; Balaklava, Snowtown, Minnipa, Kadina and Turretfield. Trials in 2012 and 2013 have so far shown that Kaspa has a yield advantage over earlier maturing varieties and blends in regions with high yield potential (eg Turretfield) due to its later maturity and subsequent higher yield potential. At Snowtown in 2013, where PBA Twilight did not perform well comparable to Kaspa and PBA Gunyah due to the favourable season and high yield at this site, a blend containing 50% Kaspa was able to achieve higher yield than PBA Twilight alone. In all other trials there was generally no advantage or disadvantage of the variety blends compared to their individual parents.

CHICKPEA

Kabuli Chickpeas

	Yield	Yield	Quality
Variety	t/ha	% site mean	g/100 seeds
Almaz	1.94	104.86	31.1
Genesis 079	1.86	100.54	18.6
Genesis 090	1.85	100.00	25.5
Genesis 114	1.5	81.08	34
Genesis 425	-	-	-
Genesis Kalkee	1.7	91.89	37.5
PBA Monarch	1.94	104.86	31.6

Site Mean (t/ha)	1.85
CV (%)	10.53
	0.562
Probability	8
	0.310
LSD (t/ha)	0

Sowing Date: 26th June 2013

This trial has a Probability value of 0.563 indicating there's no variety effect at the 95% confidence interval. The variety effect is at a 43.7% confidence interval but all other aspects of the trial were satisfactory so it has been released. Make variety comparisons using multiple trials.

	Predicted Avg	No. Trials
Variety	Yield (t/ha)	
Genesis 79	1.786	12
Genesis 90	1.786	12
PBA Monarch	1.757	6
Almaz	1.723	6
Genesis Kalkee	1.605	6
Genesis 114	1.587	6

Table 9: 2013 Kongal Desi Chickpea Variety Yields

Desi Chickpeas			
	Yield	Yield	Quality
Variety	t/ha	% site mean	g/100seeds
Ambar	1.9	90	12.2
Genesis 079	2.22	105	20.1
Genesis 090	2.02	96	26
Genesis 509	-	-	-
Genesis 836	-	-	-
Howzat	-	-	-
Neelam	1.86	88	14.6
PBA Boundary	-	-	-
PBA HatTrick	-	-	-
PBA Maiden	2.15	102	18.5
PBA Slasher	2.06	98	15.2
PBA Striker	2.04	97	16.6

Site Mean (t/ha)	2.11
CV (%)	9.14
Probability	0.5737
LSD (t/ha)	0.3

Sowing Date: 26th June 2013

	Predicted Avg	No. Trials
Variety	Yield (t/ha)	
PBA Slasher	1.834	6
PBA Maiden	1.822	6
Neelam	1.807	4
PBA Striker	1.807	6
Genesis 79	1.786	12
Genesis 90	1.786	12
Ambar	1.691	5
PBA HatTrick	1.607	3
Genesis 509	1.472	3

This trial has a Probability value of 0.574 indicating there's no variety effect at the 95% confidence interval. The variety effect is at a 42.6% confidence interval but all other aspects of the trial were satisfactory so it has been released. Make variety comparisons using multiple trials.

The chickpea market was suppressed significantly in 2013 due to a combination of over-extended buyers (as a result of high prices in 2012) and favourable seasonal conditions for chickpea production in the subcontinent. However chickpea generally performed well in 2013 due to the wet winter and mild (although dry) finish to the season enabling them achieve close to their yield potential. Chickpea provide significant farming systems benefits, either as a complementary or an alternative break crop to lentils or field pea. Chickpea have the benefit of utilising a different group of pre-emergent herbicide (isoxaflutole, or Balance®, used simultaneously with simazine) than the standard group C chemistry used on lentils, facilitating control of a different spectrum of broadleaf weeds. However, growers should note that chickpea does not compete well with weeds, and are not well suited to crop-topping for weed control, so paddock selection is critical.

PBA Monarch (CICA0857)

PBA Monarch is a high yielding medium sized kabuli chickpea. It is particularly well adapted to the shorter season medium rainfall environments of south eastern Australia, due to improved adaptation through earlier maturity compared to Genesis™090, Almaz and Genesis™Kalkee. PBA Monarch has a semi spreading plant type and is early flowering and maturing (similar to Genesis™079). It is moderately susceptible (MS) to ascochyta blight (similar to Almaz and Genesis™Kalkee but more susceptible than Genesis™090). PBA Monarch has shown a consistent yield advantage of 7-13% over current medium and large seeded kabuli varieties. It has also shown similar yields but larger seed size than the smaller sized Genesis™090. Seed size is predominantly 8-9 mm (larger than Genesis™090 and similar to Almaz). Seed is available through SeedNet.

PBA Maiden (CICA0717) is a large seeded desi chickpea suitable for the medium to low rainfall environments of South Australia, with similar yields to PBA Slasher. It is larger seeded than current southern desi varieties (28% larger than PBA Slasher) with a yellow-tan seed coat, and is well suited to whole seed desi markets such as those in Bangladesh. PBA Maiden is moderately resistant (MR) to foliar infection by ascochyta blight (equal to PBA Striker). It has a semi-spreading plant type and height similar to PBA Slasher, with early to mid flowering and maturity (earlier than PBA Slasher but later than PBA Striker). Growers are advised to investigate delivery and marketing options prior to growing this variety due to its unique seed characteristics and marketing potential. Seed is available through SeedNet.

Sowing time of chickpea

It is generally recommended that sowing of chickpeas is performed later than other pulses, particularly in favourable areas, due to poor pod set in cool weather (winter) conditions and excessive lodging in favourable regions and seasons where vegetative growth is high. However, in recent seasons with low disease pressure, mild conditions during flowering, and lower than average spring rainfall, earlier sowings (generally mid May) have achieved equal or higher yields to later sowings (early-mid June), provided disease has been managed (Figure 2). The late maturing kabuli variety Genesis Kalkee was the only variety not to show a sowing time response in 2013. Despite these findings the risks associated with early sowing chickpeas must be considered, and sowing at the end of the sowing program is still recommended, particularly in favourable areas.

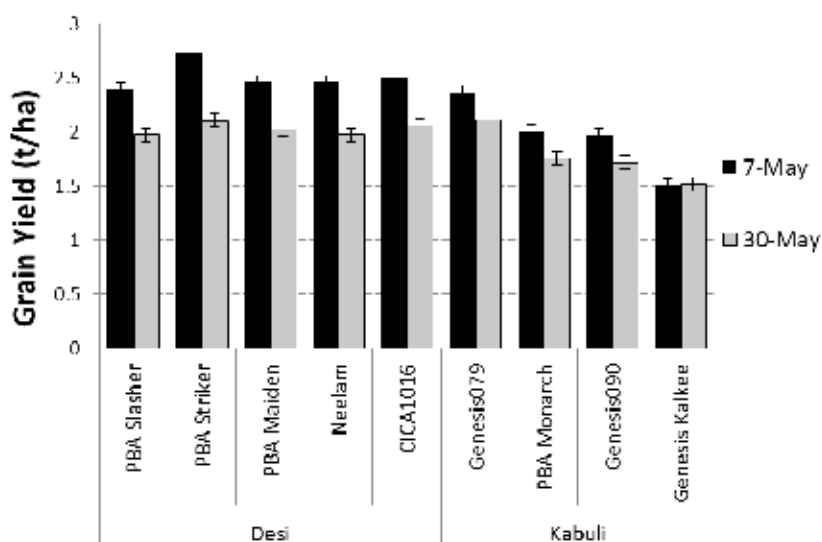


Figure 2: Effect of sowing time on grain yield (t/ha) of chickpea varieties at Pinery, 2013.
Source: Southern Region Pulse Agronomy project (DAV00113).

LUPIN

Variety	Yield t/ha	Yield % site mean	Quality g/100seeds
Danja	-	-	-
Jenabillup	3.63	105	14.6
Jindalee	3.01	87	11.83
Mandelup	3.42	99	14.67
PBA Barlock	3.55	102	13.33
PBA Gunyidi	3.77	109	13.78
Quilinock	-	-	-
Wonga	3.04	88	11.24

Site Mean (t/ha)	3.47
CV (%)	3.94
Probability	<0.001
LSD (t/ha)	0.23

Sowing Date: 13th June 2013

Variety	Predicted Yield t/ha	No Trials
Mandelup	2.271	18
Jenabillup	2.246	18
PBA Barlock	2.23	14
PBA Gunyidi	2.229	17
Coromup	2.068	10
Moonah	2.06	3
Wonga	1.978	17
Danja	1.899	4
Jindalee	1.845	18

The performance of lupins was variable in 2013, with some growers disappointed with yields despite well grown crops and others receiving above average returns. Newly released variety PBA Barlock performed well in NVT and breeding trials around SA in 2013, and was amongst the highest yielding at most sites. Spring conditions brought about good conditions for disease in lupins in 2013, with higher than normal levels of Bean Yellow Mosaic Virus (causing black pod syndrome) and Phomopsis (with potential to cause lupinosis) seen in trials and commercial crops. PBA Barlock showed good resistance to BYMV, which helps explain its higher yield at some sites (Wanilla).

PBA Barlock® (WALAN2325)

PBA Barlock is a high yielding Australian sweet lupin variety which provides a significant yield improvement in most regions of New South Wales, Victoria and South Australia. PBA Barlock is a considerable improvement in metribuzin tolerance over the varieties Tanjil and Wonga and will allow growers to use metribuzin as an option for controlling weeds within the lupin crop. PBA Barlock is early flowering and maturing, is moderately resistant to lodging in high rainfall regions, and shows improved pod shatter resistance compared to Tanjil and Coromup.



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