

“Pulse Variety Trials”

Various authors have contributed; refer to individual comments sections for each crop



BEANS

Table 1: SA Faba Bean Variety Trial Yield Performance (2011 and predicted regional performance, expressed as % of site average yield)

Variety	SOUTH EAST						
	2011				Long term average across sites		
	Keith	Border-town	Bool Lagoon	Millicent	t/ha	% of Site Mean	No. Trials
Doza				Not released variable results	2.69	96	18
Farah	111	101	101		2.79	100	32
Fiesta	98	107	108		2.82	101	32
Fiord			74		2.61	93	22
Nura	101	86	80		2.72	97	32
PBA Rana	85	95	95		2.68	96	22
Site av yield (t/ha)	2.59	3.44	3.62		2.80		
LSD (%)	15	19	11				

Date sown	3-June	12-May	28-May	6-Jun
Soil type	CL	C	C	P
pH (water)	8.1	7.9	6.8	7.7
Rainfall J-M/A-O	205/ 289	192/ 269	254/ 374	181/ 484
Previous Crop	Wheat	Wheat	Wheat	Canola
Site stress factors	dl			hd

Soil type:

C=clay, L=loam, P=Peat, Site

Stress factors:

cs= chocolate spot , wa = waterlogging, as = ascochyta, f= frost, r= rust, dl = dry post flowering stress

Data source: SARDI/GRDC, NVT and PBA - Australian Faba Bean Breeding Program. 2005-2011 MET data analysis by National Statistics Program.

Table 2: Long term Predicted yield of Faba Bean varieties as a %Farah

Variety	SOUTH EAST*	
	% of Farah	No. Trials
Farah ^A	100	32
Fiesta VF	101	32
Fiord	95	24
Manafest	90	27
Nura ^A	98	32
PBA Rana ^A	95	17
Farah's yield (t/ha)	2.61	

Data source: SARDI/GRDC, NVT and PBA - Australian Faba Bean Breeding Program.

2004-2010 MET data analysis by National Statistics Program.

* At high rainfall sites within the Mid North and South East Zones 974/15-1 produces yields equal to or greater than Farah

Table 3: Long term predicted yield of broad bean varieties as a %Fiesta VF

Variety	LOWER SOUTH EAST	
	% of Fiesta VF	No. Trials
Aquadulce	107	6
Fiesta VF	100	19
PBA Kareema ^A	102	4
Fiesta VF's yield (t/ha)	2.95	

Data source: SARDI/GRDC, NVT and PBA - Australian Faba Bean Breeding Program.

2004-2010 MET data analysis by National Statistics Program.

Comments:

By Andrew Ware, and Rohan Kimber SARDI, Jeff Paull University of Adelaide and Wayne Hawthorne Pulse Australia

Variety selection in faba beans for the major SA bean production regions continues to be between Nura and Farah. A new variety, PBA Rana^A (tested as 974*(611*974)/15-1) is coming into contention in the higher rainfall districts. PBA Rana was developed by the PBA faba bean breeding program, led by the University of Adelaide, and was named and released in spring 2011. It will represent a different grain category for faba bean production and marketing in Australia. Its seed is larger than current faba varieties, and is considered to be of high quality by the major Egyptian market.

Varieties and disease management

In growing regions or seasonal conditions that favour chocolate spot development all varieties require a protective spray before canopy closure when the beans are at the early flowering stage. Additional applications will be required if wet conditions continue, particularly when disease symptoms are evident and dense crop growth retains moisture levels within the canopy. Chocolate spot typically develops during spring as temperatures warm, however it can infect crops earlier and faba beans should be monitored for chocolate spot from late winter.

Rust presented itself as a significant early disease on faba beans in 2011. Early sowing and then slightly warmer conditions during August favoured the development of rust, with susceptible varieties Farah and Fiesta VF showing worst symptoms. Paddocks adjacent to last years' bean stubbles were also more severely infected. Control with the correct fungicides may need to commence before flowering in early sown crops, or crops sown close to the previous year's bean stubble. Given good conditions for crop production and disease development, fungicide applications to control rust may be necessary at the same time as chocolate spot is being targeted.

Disease resistance levels of Nura and Farah allow growers to be more reactive to ascochyta blight than in other varieties and ascochyta disease management strategies can be based on monitoring levels in high risk situations. With Fiesta, growers must maintain ascochyta blight disease control until after flowering is finished to ensure seed staining is minimised.

Cercospora leaf spot continues to be widely reported in faba beans. This disease is soil borne and typically occurs in paddocks with a history of faba bean cropping, particularly in close rotation (less than 4-6 years), or when in close proximity to these paddocks.

Correct identification is essential to distinguish it from ascochyta blight, chocolate spot or herbicide damage, all of which can show similar plant symptoms.



Early control (at 5-8 weeks) with carbendazim or tebuconazole is most effective in preventing disease establishment and consequent yield loss from *Cercospora*. All current faba bean varieties are susceptible, thus early preventative control measures are best practice.

Notes on faba bean varieties

New Variety

PBA Rana^A

PBA Rana (tested as 974*(611*974)/15-1) is a vigorous plant with good stem strength, mid to late flowering (similar to Nura) and mid maturity (late than Farah and Nura). It is well adapted to high rainfall, long growing seasons. Highest yields have been achieved in the Lower South East, Central Hills/ Fleurieu Peninsula and the high rainfall sites in the lower and mid-North where long term yields are equal to or greater than Fiesta VF and Farah. PBA Rana has good resistance to ascochyta blight and comparable resistance to chocolate spot to Nura (MS). PBA Rana produces large, plump and light brown seed suited to Egyptian market requirements for that grade. It represents a unique and different category for faba bean marketing. PBA Rana is three quarters Manafest in its breeding, and should establish itself into areas where Manafest was grown before ascochyta blight became its demise. PBA Rana is licensed to Viterra and an end point royalty applies.

Current Varieties

Nura^A

Nura is a medium-sized faba bean with moderate resistance to ascochyta blight and rust, and intermediate resistance (MS) to chocolate spot. It is susceptible to *Cercospora* leaf spot, similar to Farah and Fiesta. Nura is generally shorter than Fiesta and Farah, making it less likely to lodge but more difficult to harvest in lower rainfall districts or with late sowing.

Nura's long-term yields are slightly lower than Farah in most areas, however highest relative yields are achieved when sown early. It has good seed appearance, light buff in colour, with minimal seed staining and discolouration. Nura flowers about 7 days later than Farah, but matures about the same time.

Its major advantage to growers is a likely reduction in fungicide sprays, with ascochyta blight and rust protection only required in high risk situations. Nura is more sensitive to high rates of imazethapyr (eg Spinnaker®) than Farah but more tolerant of simazine and metribuzin. Seed is available from SeedNet and an end point royalty applies.

Farah^A

Farah is a direct selection from Fiesta, and it is identical in most respects to Fiesta, except for its moderate resistance to ascochyta seed staining and more uniform seed size and colour. Although the risk of suffering ascochyta blight seed staining is reduced with Farah, the risk is still present if ascochyta blight is not properly managed.

Farah's yields are slightly higher than Fiesta and Nura in most areas of southern Australia. Its major advantage over Fiesta is the increased likelihood of achieving market standards for freedom from seed staining and a likely reduction in fungicide sprays for ascochyta blight. Farah is licensed to Seedmark and an end point royalty applies.

Fiesta VF

Fiesta VF is early to mid flowering. It has buff coloured seed, larger than Fiord. Fiesta has good seedling vigour and is of medium height. It is classed as susceptible to chocolate spot, but is less susceptible than Fiord.

Fiesta VF is more susceptible to ascochyta blight than Farah and Nura and a proactive disease management strategy is recommended to ensure market standards for clean seed are met. Fiesta VF is no longer protected by PBR, and no end point royalty applies.

Broad bean varieties

PBA Kareema^A

PBA Kareema was selected from Aquadulce with similar plant type and adaptation to this variety but with larger and more uniform seed, and no “evergreens”. It is well adapted to the very high rainfall, broad bean districts in the lower south-east of SA. It has significantly improved resistance to ascochyta blight (MR-R) and better rust resistance (MR) than Aquadulce and is slightly less susceptible to chocolate spot than other faba beans.

Like Aquadulce, PBA Kareema is more tolerant of waterlogging than most faba bean varieties, and is more tolerant of iron and manganese deficiencies.

The yield of PBA Kareema has been similar to, or slightly less than, Aquadulce in trials in the south-east of SA. It is licensed to PGG Wrightson and an end point royalty applies.

Aquadulce

Aquadulce is a tall, late flowering and maturing broad bean variety, suited to areas with at least 500 mm average annual rainfall, such as the lower south-east of SA. It is rated as MS to chocolate spot, but can succumb to the disease under high disease pressure and rainfall situations.

It is more tolerant of waterlogging than most faba bean varieties, is more tolerant of iron and manganese deficiencies.

Aquadulce’s large seed size makes it a specialty bean with different marketing opportunities to faba beans. It commands a price premium over faba beans, depending on grading and seed size.

For further information: Variety Management Packages (VMP) for all varieties, except Aquadulce, are available on the Pulse Australia website –

http://www.pulseaus.com.au/Search_Result_Publication.aspx

LENTILS



Table 4: 2011 Lentil Variety Yield Performance (as a % of site mean) and Long term (2005-2011) Average Across Sites (as a % of site mean).

Variety	SOUTH EAST		
	2011	2005-11	
	Mundulla	% site mean	Trial #
Aldinga		91	3
Boomer	94	101	6
Nipper	98	96	6
Northfield		86	4
Nugget	90	94	6
PBA Blitz	94	100	5
PBA Bounty	86	93	6
PBA Flash	109	107	6
PBA Herald XT	89	92	3
PBA Jumbo	91	101	5
Site mean yield (t/ha)	2.35	1.54	
% LSD (0.05)	6		

Date sown	23/6
Soil type	CL
Rainfall (mm) J-M/A-O	199/228
pH (H ₂ O)	7.1
Previous crop	Wheat
Site stress factors	wl,dl

Soil Type:

C= clay, L = loam

Site stress factors:

wl = temporary waterlogging
dl = post-flowering moisture stress

Data source: SARDI/GRDC, PBA & NVT (long term data based on weighted analysis of sites and courtesy National Statistics Program)

Comments

By Matt Dare and Larn McMurray, SARDI, and Michael Materne, PBA Lentil Breeder, DPI Vic

Medium Red Lentils

PBA Blitz^A

PBA Blitz is suited to all current lentil areas. It is particularly suited to shorter-season areas where its combination of mid to early flowering, early maturity, high yield, good disease resistance and medium to large seed size will improve lentil reliability and economics of production. PBA Blitz is the earliest maturing lentil variety and the best option where croptopping and/or delayed sowing are practised. PBA Blitz has improved early vigour over all other red lentils varieties and an erect plant type.

It is rated as resistant to foliar and moderately resistant to seed ascochyta blight (AB) and moderately resistant to botrytis Grey mould (BGM), similar to Nugget and improved compared to PBA Flash.

It is well suited to no-till and interrow sowing into standing residue. PBA Blitz is a medium sized red lentil (larger than PBA Flash and Nugget) with a grey coloured seed coat and commercialised by PB Seeds.

PBA Flash^A

PBA Flash is a high yielding red lentil with a green seed coat and medium seed size. It is well suited to shorter season and lower yielding lentil growing areas where its higher yield and earlier maturity improves reliability of yield. Earlier maturity also makes PBA Flash better suited to crop topping than Nugget although caution is still required with this practice due to seasonal variation in weed and crop maturity.

It is moderately susceptible to AB and may require foliar fungicide sprays prior to flowering along with at podding to control this disease under high intensity situations or in disease prone environments. PBA Flash is susceptible to BGM but has improved tolerance to boron and salinity compared to Nugget. PBA Flash has improved standing ability at maturity relative to other lentil varieties which may make it more prone to pod drop in windy environments, timely harvest is required.

PBA Flash has improved seed splitting characteristics over Nugget and is likely to be well suited to medium red lentil grain markets.

Small Red Lentils

PBA Herald XT^A

PBA Herald XT was evaluated as CIPAL 702 and released in 2011. It is a mid to late flowering and maturing red lentil, similar to Nipper in many characteristics with short plant height, round seed shape and grey seed coat colour.

It is resistant to ascochyta blight and moderately resistant to BGM. PBA Herald XT has improved tolerance to some group B herbicides, including flumetsulam (Broadstrike®, Multitude®) at the registered rate for lentils. Post emergent applications of flumetsulam have resulted in yield losses of up to 20 percent in lentil varieties at label rates on alkaline soils. The availability of PBA Herald XT will provide growers with a variety that is less prone to yield loss when application of flumetsulam is required to control certain broadleaf weeds. Preliminary herbicide screening experiments on alkaline soils indicates that PBA Herald XT has increased sensitivity to metribuzin when compared to Nugget, PBA Flash, PBA Jumbo and PBA Blitz but similar to that observed in Nipper. Seed will be available from PB Seeds for 2012 sowings.

PBA Bounty^A

PBA Bounty is a high-yielding small seeded red lentil that is broadly adapted and suited to most lentil growing environments with high relative yields in the southern mallee region of Victoria. PBA Bounty is moderately resistant to AB, moderately susceptible to BGM and has improved tolerance to salinity compared to Nugget.

PBA Bounty has a prostrate plant growth habit early in the season compared with all other varieties. PBA Bounty produces a small round seed that is slightly larger (10%) than Nipper but still likely to be sold into similar markets for splitting or the production of “footballs” (whole seed with the seed coat removed).

Nipper^A

Nipper has moderate resistance to AB and resistance to BGM providing a low cost, low disease risk option in disease prone areas. Nipper has a seed size similar to Northfield but grey in colour. Nipper, like Northfield, flowers later than Nugget but often matures earlier than Nugget. Long term yields in southern Australia show that Nipper generally yields greater than Northfield and similarly to Nugget. However, it has been lower yielding than Nugget in short season environments or situations where it produces less growth.

Due to its disease resistance only one fungicide application (at canopy closure) will be required to effectively control BGM in most situations. Nipper is also favoured for the practice of early sowing due to the combination of lower biomass production and high

level of disease resistance. Nipper is more sensitive to metribuzin than most other varieties and caution is required to avoid application when conditions are conducive to damage. Nipper is licensed to Seed Net.



Large Red Lentils

PBA Jumbo^A

PBA Jumbo is the highest yielding large seeded red lentil and a direct replacement for Aldinga. It is suited to most current lentil growing areas where it has consistently yielded around 15% higher than Aldinga although attaining larger seed size is more likely in medium to high rainfall zones. PBA Jumbo is moderately susceptible to BGM and this disease will need to be managed in disease prone areas. It has resistance to foliar and seed AB, which are both improved over Aldinga. Plant type and lodging susceptibility is similar to Aldinga and like this variety PBA Jumbo is well suited to no-till, interrow sowing into standing residue.

PBA Jumbo has improved tolerance to soil boron and salinity over Aldinga and Nugget. It has a seed size and shape similar to Aldinga (20% larger than Nugget) and a grey seed coat and like Aldinga is well suited to the post-harvest removal of small broadleaf weeds seeds. Milling quality is better than Nugget and it is well suited to premium large red split markets such as those in Sri Lanka. PBA Jumbo is commercialised by PB Seeds.

Large Green Lentils

Boomer^A

Boomer is a large seeded high yielding green lentil released as Australia's first adapted green variety for all lentil growing areas. It has superior seed size to Matilda (approximately 30% larger) making it more competitive than this variety with overseas varieties in world export markets. Boomer has a large plant type and can produce prolific amounts of growth making it prone to lodging under favourable growing conditions. In less favourable growing conditions its improved vigour and plant height can be an advantage. It has improved resistance to AB and BGM compared to Matilda. Boomer will be best adapted to medium rainfall areas of southern Australia with mild finishing conditions to ensure that the large seeds can fully form.

Ascochyta blight must be managed during podding to avoid disease blemish on the seed coat. Boomer is moderately susceptible to shattering at maturity (more susceptible than current varieties). Delayed harvest under some conditions can result in shattering and/or loss of green seed colour resulting in downgrading in this variety.

Boomer is licensed to Seed Net.

CHICKPEAS

Table 5: 2011 Chickpea Variety Yield Performance t/ha and (as a % of site mean)

KABULI Trials	Mundulla	
Variety Name	Yield (t/ha)	% site mean
Almaz	2.29	99
Genesis 079#	2.15	93
Genesis 090#	2.6	113
Genesis 114	2.16	94
Genesis 115	2.1	91
CICA0857	2.53	110

Site Mean (t/ha)	2.3	
CV (%)	7.03	
Probability	0.029	
LSD (t/ha)	0.26	11
Sowing Date	23-Jun-2011	

DESI Trials	Mundulla	
Variety Name	Yield (t/ha)	% site mean
Genesis 079#	2.47	98
Genesis 090#	2.67	106
PBA Slasher	2.5	99

Site Mean (t/ha)	2.53	
CV (%)	5.17	
Probability	0.038	
LSD (t/ha)	0.21	8
Sowing Date	23-Jun-2011	

Small Kabuli type

Comments

By Larn McMurray, Research Scientist, SARDI & Kristy Hobson PBA Chickpea Breeder, NSW DPI

DESI Chickpea Varieties

Larger seeds are preferred for desi types, regardless of whether they are used for splitting or whole seed end use. There has been an increasing use of large whole seeded desi types in a range of food preparations in the sub continent and a small premium has been available for types fitting this use.

Genesis 509 has quality of older desi chickpea types like Tyson and is suited to splitting markets and hence is unlikely to achieve the prices of larger more attractive seed types such as the northern region varieties Jimbour and Kyabra. PBA Slasher has improved quality characteristics over Genesis 509 and is suited for both the whole and split markets.

PBA Slasher^A

PBA Slasher is a new desi-type chickpea with foliar AB resistance and high yields in all chickpea growing areas of SA. It has a semi-spreading plant type with mid flowering and mid maturity similar to Howzat.

PBA Slasher has improved seed quality compared to Genesis 509, with larger seed size and superior seed colour. PBA Slasher is suitable for both the split and whole seed markets as it has improved seed size and colour over varieties like Genesis™ 509 which are only likely to be suited for split seed markets.

Fungicide management trials have indicated that foliar sprays only during podding are required to successfully grow this variety (as for Genesis 090 and 509). Seed is licensed to Seed Net.

Genesis™ 509

Genesis 509 is a widely adapted desi chickpea with foliar resistance to AB. Its flowering and maturity timing are earlier than Genesis 508 and Howzat.

Genesis 509 has medium plant height, and moderate resistance to lodging. Seed size will predominately be in the 5-6mm range, smaller and darker than Howzat and PBA Slasher. Genesis 509 has generally yielded similarly to Genesis 090 but less than PBA Slasher in SA. Fungicide management trials have indicated that foliar sprays only during podding are required to successfully grow this variety. Seed is available through Australian Agricultural Crop Technologies.

KABULI Chickpea Varieties

Almaz^A

Almaz is a medium to large seeded kabuli type commercialised by AWB Seeds. Seed size is generally larger than Kaniva, with superior foliar AB resistance but inferior to that of Genesis 090. It has been 15-35% lower yielding than Genesis 090 in southern Australia and will generally require two to four foliar fungicide sprays, including a first application six to eight weeks after sowing, to successfully grow it in this region.

Genesis™ 079

Genesis 079 is a high yielding small seeded kabuli type with foliar resistance to AB and is likely to only require fungicide sprays during podding. Genesis 079 has small seed (6-7mm) and very high relative grain yields in short season environments. Genesis 079 has produced high and consistent yields in medium and low rainfall districts of SA and may have a greater potential to be crop topped and/or wick-wiped to control resistant rye grass than other varieties in these environments. Some seed of Genesis 079 is available through Australian Agricultural Crop Technologies.

Genesis™ 114

Genesis 114 is a medium to large seeded (8-9 mm) kabuli type chickpea with yields higher than Almaz and Kaniva but less than the smaller seeded Genesis 090. Genesis 114 has moderate foliar resistance to AB which will require strategic fungicide management to protect yield and ensure high quality seed is produced. Its flowering time is similar to Almaz and later than Genesis 090 and its plant height is medium to tall with an erect plant type. Harvestability of Genesis 114 is excellent with greater height to lowest pod than Genesis 090 and Almaz. Seed size will predominately be in the 8 and 9 mm range and other grain quality characteristics are generally consistent with other kabuli chickpea varieties. Genesis 114 will be available in 2011 through Australian Agricultural Crop Technologies.



Genesis™ 090

Genesis 090 was the first kabuli type released in Australia with foliar resistance to AB. It is a small to medium seeded kabuli and is therefore unlikely to attract the higher prices of larger seeded types eg Almaz and Genesis 114.

Genesis 090 has medium height with semi-erect branches. Under high AB disease pressure Genesis 090 will require fungicide protection during podding to prevent seed blemish and yield loss. Due to its similar (Genesis 509) or slightly lower (PBA Slasher) yields but current higher price than desi varieties in southern Australia, this variety offers chickpea growers a high yielding AB resistant alternative to desi chickpeas with potential for higher returns in some years and environments. Seed is available through Australian Agricultural Crop Technologies.

Genesis™ 115

Genesis 115 is a large seeded kabuli type similar to Genesis 114 but with later flowering and larger seed size. It is commercialised by Australian Agricultural Crop Technologies and limited quantities of seed may be available for 2012. Genesis 115 has the largest seed size of all commercial kabuli types hence more able to meet the size requirements of premium high valued markets, however yield and disease resistance are inferior to the small kabuli types and equivalent to Almaz and Genesis 114.

PEAS

Table 6: 2011 Field Pea Variety Trial Yield Performance (as % of site mean) and Long term (2005-2011) Average (as % of site mean).

Variety/line	SOUTH EAST				
	2011			2005-2011	
	Bool Lagoon	Keith	Mundulla	% Site mean	Trial #
Kaspa	89	99	94	96	17
Parafield	63	73	77	90	17
PBA Gonyah	87	99	100	99	14
PBA Twilight	88	91	101	99	14
PBA Oura	68	103	99	104	14
PBA Percy	92	100	100	99	5
Sturt	-	-	-	101	10
Yarrum	134	104	104	107	17

Site mean yield (t/ha)	2.97	3.16	3.38	2.42
% LSD (0.05)	15	7	5	
Date sown	14/6	3/6	23/6	
Soil type	C / LST	CL	CL	
Previous crop	Hay	Wheat	Wheat	
Rainfall (mm) J-M/A-O	254/374	205/289	199/228	
pH (H2O)	7.6	8.1	7.1	
Site stress factors	wl, pm	dl	wl, dl	

Soil Type:

S = sand, C = clay, L = loam, H = heavy, M = medium, Li = light, F = fine, LST = limestone, / = over

Site Stress factors:

dl = post flowering moisture stress,
wl = waterlogging

Data source: SARDI/GRDC, PBA & NVT (long term data based on weighted analysis of sites)

**Comments:**

By Michael Lines, Research Officer- SARDI, Larn McMurray, Research Scientist- SARDI & Tony Leonforte, Field Pea Breeder- DPI Victoria

Dun types

Dun peas are segregated from white and blue peas due to the different quality markets they are aimed at. Some pea markets in India and Sri Lanka prefer Australian dun peas due to their distinct 'nutty' taste. 'Kaspa type' grain is also preferred over dimpled grains (such as Parafield) in these markets due to its round shape and lack of dimples allowing easier seed coat removal and greater split returns.

PBA Oura^A (OZP0703)

PBA Oura is an erect growing, semileafless pea variety offering improved resistance to bacterial blight, high yields and broad adaptation across all the major field pea production regions. It is early to mid flowering and early maturing, making it more suitable to the practice of crop topping than Kaspa. Agronomic trials have shown it is earlier (5-10 days) and longer flowering than Kaspa. It has fair to good lodging and pod shatter resistance at maturity, although it does not have the sugar- pod characteristic like Kaspa. PBA Oura is moderately resistant to bacterial blight, a similar response to that found in Parfield but improved over Kaspar, PBA Gunya and PBA Twilight. In agronomic disease yield loss experiments PBA Oura incurred less yield loss from bacterial blight than all variteies (including Parafield) except for PBA Percy. PBA Oura is the highest yielding variety with improved tolerance to this disease in all districts of SA. Seed is licensed to Seednet.

PBA Percy^A (OZP0901)

PBA Percy is a conventional type pea variety, with an improved bacterial blight disease rating compared to PBA Oura (R vs. MR). It is early flowering and early maturing, making it well suited to the practice of crop topping and delayed sowing for blackspot management. Agronomic trials have shown PBA Percy is very much earlier (10-25 days) and longer flowering than Kaspa, and even earlier flowering than recent releases PBA Gunyah and PBA Twilight. PBA Percy is susceptible to lodging at maturity, but has moderate pod shatter resistance although it does not have the non shattering pod characteristic like Kaspa. Its earlier maturity may also offer some level of powdery mildew avoidance compared to other preferred bacterial blight resistant varieties. PBA Percy has had limited evaluation in SA but appears to yield similarly to PBA Oura. Seed is licensed to Seednet.

PBA Gunyah^A

PBA Gunyah is a 'Kaspa type' field pea with earlier and longer flowering than Kaspa and higher yield in shorter season environments and dryer seasons than Kaspa. It is early to mid flowering and early maturing, making it more suitable to the practice of crop topping than Kaspa. It is well suited to delayed sowing for disease management in response to a late season break. Its disease resistance profile is similar to Kaspa and therefore not well suited to bacterial blight prone environments. Despite being susceptible to powdery mildew it is likely that PBA Gunyah will incur less yield loss from this disease than Kaspa due to its earlier maturity. Widespread evaluation over a number of years shows that it is higher yielding than Kaspa when yield potential is below 2.25t/ha. PBA Gunyah has "Kaspa" seed type and is licensed to Seednet.

PBA Twilight^A

PBA Twilight is a 'Kaspa type' with similar attributes to PBA Gunyah. It has a shorter flowering period and is earlier in maturity than PBA Gunyah making it well suited to the low rainfall and very short season field pea growing environments. Widespread evaluation over a number of years shows that it is higher yielding than Kaspa when yield potential is below 1.75t/ha, and higher than PBA Gunyah when yield potential is below 1.25t/ha. Its disease resistance profile is similar to Kaspa and therefore not well suited to bacterial blight prone environments. Despite being susceptible to powdery mildew it is likely that PBA Twilight will incur less yield loss from this disease than Kaspa due to its earlier maturity. PBA Twilight has "Kaspa" seed type and is licensed to Seednet.

Kaspa^A

Kaspa is semi-leafless, late flowering, resistant to shattering and has good early season vigour and moderate resistance to lodging. Kaspa is susceptible to powdery mildew and black spot and the "Kaspa strain" of downy mildew. Kaspa seed should be treated with metal-axyl seed dressing, particularly in cropping regions prone to downy mildew. The seed of Kaspa is distinct from traditional dun types ie Parafield in that it is red brown in colour and almost spherical in shape. Kaspa is high yielding in many areas of southern Australia, however it needs to be considered carefully before use as an option in low rainfall areas or areas prone to early periods of high temperature and drought stress due to its late and condensed flowering characteristic. Kaspa also should be considered carefully in areas prone to frequent severe vegetative frosts due to potential for yield loss to bacterial blight. Kaspa is under contract to Seednet.

Yarrum^A

Yarrum is a high yielding, powdery mildew resistant dun type developed for the northern areas of Australia. AGT have the licence for seed sales. Yarrum is a semi leafless, short variety which flowers late in southern Australia (early in northern Australia) but matures quickly and similar to Kaspa. It is susceptible to downy mildew and black spot but is resistant to pea seed borne mosaic virus. Yarrum has had high trial yields in recent years but can be variable over seasons in southern Australia. It may have a role in higher rainfall regions where it is high yields, virus and powdery mildew resistance will be an advantage.

White types

White peas cannot be delivered to bulk export markets with dun peas. Some high quality specialised white peas may fit into specific premium value markets for split peas. Higher prices may be achieved if supplying specific niche markets, but these markets may be small. Small seeded white peas are likely to only suit domestic stock feed markets. Growers are advised to secure markets before deciding to grow these pea types.

Newer varieties include Bundi^A, Sturt^A and Celine^A.

Blue types (green cotyledons)

Some blue pea varieties are for specific premium value markets which are usually only small. Quality is paramount in these markets used predominantly for canning and snack food. Important parameters include damage by insects, bleaching of seed coat and consistency of seed colour.

The newer variety of blue type is Maki^A.

For more information on the white and blue types, see the SARDI 2012 Sowing Guide www.sardi.sa.gov.au

LUPINS



Table 7: 2011 Lupin Variety Trial Yield Performance , and long term averages (expressed as % of site average yield)

Variety	SOUTH EAST						
	2011				Long term average across sites		
	Keith	Mundulla	Frances	Field	t/ha	% of	No.
Column1	Column2	Column3	Column4	Column5		Site Mean	Trials
Coromup	90	95	Trial abandoned	94	1.85	100	21
Jenabillup	101	104		102	1.97	106	17
Jindalee	78	83		83	1.68	90	22
Mandelup	109	109		108	1.98	106	22
PBA Gunyidi	93	90		96	1.89	102	14
Wonga	81	89		91	1.72	93	21

Site Av. Yield (t/ha)	1.52	1.70	2.86
LSD (%)	16	15	10

Date sown	19-May	30-Jun	25-May	1-Jun
Soil type	L	S/C	L	S
pH (water)	6.7	6.9	7.4	6.7
Rainfall J-M/A-O	149/ 289	198/ 228	214/ 304	98/ 297
Previous Crop	hay (o+v)		pasture	
Site stress factors	w	de, ls	wa	

Data source: SARDI/GRDC & NVT. 2005-2011 MET data analysis by National Statistics Program.

Table 8: Predicted yield of lupin varieties in South East region, as a % Mandelup

Variety	SOUTH EAST	
	% of	No.
	Site Mean	Trials
Coromup	95	18
Jenabillup	101	14
Jindalee	87	19
Mandelup	100	19
PBA Gunyidi	99	11
Wonga	88	18
Manelup (t/ha)	1.99	

Data source: SARDI/GRDC & NVT. 2004-2010 MET data analysis by National Statistics Program.

Comments:

By Andrew Ware, SARDI, Port Lincoln, and Wayne Hawthorne, Pulse Australia, Naracoorte

New Varieties:**PBA Gunyidi^A**

PBA Gunyidi (tested as WALAN2289) was released in WA in September 2011. Seed is available to Western Australian growers in 2012 and to eastern states growers in 2013. PBA Gunyidi has been released as a potential Mandelup replacement that improves on Mandelup by having more shatter resistant pods. This will give growers the option of being able to harvest later without incurring significant losses. PBA Gunyidi is moderately resistant to anthracnose and resistant to phomopsis. It flowers and matures early and is resistant to Metribuzin herbicide, but more susceptible to damage from Eclipse®. In three years of evaluation in South Australia PBA Gunyidi has yielded 1% higher than Mandelup across the state, with the Upper Eyre Peninsula showing the highest yield advantage. Seed will be available through SeedNet.

Current Varieties**Coromup^A**

A decision on whether to release Coromup in the eastern states is still to be made, but at this stage is unlikely. Coromup was released in WA in 2006 for medium and low rainfall zones. It is a high quality narrow-leafed lupin, having large and uniform seeds with high protein, hence it has excellent attributes for de-hulling, and producing high protein kernel meal for developing premium feed markets. Coromup is early maturing and has a good disease resistance profile that includes anthracnose and phomopsis stem blight. Coromup has tolerance to metribuzin similar to Mandelup. In WA it is being promoted for its high quality (i.e. high protein) rather than its yields. In the absence of bonus payments for its higher protein, the main role for Coromup may be for on-farm feed use. Coromup averaged only 94% to 98% of Mandelup in NVT testing in SA.

Jenabillup^A

Jenabillup has been extensively trailed in SA for five years with a long term average 1% higher than Mandelup across all South Australian sites. It typically has an advantage over Mandelup at the longer growing season sites such as Wanilla on Lower EP and the South East sites. Jenabillup flowers slightly later and for a longer period than Mandelup, making it less suitable to crop topping. Jenabillup does have resistance to black pod syndrome, although rarely seen in South Australia. Jenabillup does not have tolerance to metribuzin herbicide. It has a low anthracnose rating (MS), similar to Merrit. Jenabillup was first available to South Australian growers in 2011 and seed is available through Viterra Seeds.

Jindalee^A

Jindalee is the latest flowering and maturing variety currently available. It particularly suits early sowing in higher rainfall districts where its vernalisation (cold requirement) prevents it from flowering too early. It is well suited to situations of bulky dense canopies that would otherwise lead to poor pod set in other varieties. Jindalee can also benefit from late spring rains. Its long-term yield performance is behind Mandelup across all districts in SA. Jindalee's anthracnose rating is MS, slightly less susceptible than Merrit. This level of anthracnose resistance is generally adequate though, if combined with seed testing, paddock monitoring and sound crop hygiene management. Jindalee is moderately tall and vigorous, is resistant to phomopsis and has improved brown leaf spot resistance over Merrit. In SA it appears to have improved resistance to

root rots and premature wilting that occurs on duplex soils with shallow underlying clay. Jindalee has speckled seed and medium seed alkaloid levels. Seed is available through SeedNet.



Mandelup^A

Mandelup has established itself as a leading variety in SA (table 3). It is a tall variety, with good early vigour and very early flowering and maturity, making it well-suited to low to medium rainfall districts in SA, but still yields well in higher rainfall areas. Its early maturity makes it suitable for crop topping, with careful attention to correct timing. Mandelup's wide adaptation has seen it perform well over a range of seasons. It consistently yields around 8% better than Wonga and Moonah across SA. In addition to its yield advantages, Mandelup has moderate anthracnose resistance, slightly less than Wonga. It is resistant to phomopsis stem blight and to aphids and moderately resistant to CMV seed transmission. It is moderately susceptible to brown leaf spot, similar to Merrit. It does however suffer from some pod loss with delayed harvest, and seed quality can suffer with a wet harvest. A possible weakness in higher rainfall districts is its poorer stem strength and potential lodging, although this has not been observed at well grown, wetter sites in recent years. Seed of Mandelup is available in SA through Seedmark.

Wonga^A

Wonga^A is an early flowering, high yielding lupin released from NSW. It is moderately tall and vigorous and stands erect. Wonga is resistant to anthracnose, the best of the commercially available varieties (along with Tanjil). It has moderate resistance to phomopsis and improved brown leaf spot resistance over Merrit. Wonga has speckled seed and medium seed alkaloid levels - slightly higher than Merrit. It appears to mature more slowly than Merrit. Wonga has moderate resistance to premature wilting on duplex soils with shallow underlying clay. Wonga is suited to most areas of SA, and remains the best option currently available to SA growers wanting high levels of anthracnose resistance.

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GRDC Grains Research & Development Corporation

