PBA Pearl peas shine brightly in 2015

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PBA Pearl (released in 2012) out performed most varieties across the state in both the Pulse Breeding Australia (PBA) and the National Variety Trials (NVT) in 2015. Its early vigour, flowering and maturity attributes favoured the early finish to the season.

PBA Pearl is a semi-leafless white pea variety with consistent high yield and superior agronomic traits compared to other commercial varieties.

It yielded 20% higher than Kaspa and 6% higher than PBA Wharton, a recently released Kaspa type dun pea, across all SA trials in 2015. It was the highest yielding variety in nine out of thirteen sites harvested.

An early start to the season combined with good sub-soil moisture levels at many sites set the 2015 season up for high yield potential.

However, both disease progress and optimum yield potential were halted by an exceptionally hot and dry spring.

The districts affected the most by these conditions were the South East (53% below five year site average), Mid North (30% below) and the Yorke Peninsula (28% below).

The extreme heat event in early October ended flowering in the majority of pea crops and the earlier maturing varieties, such as PBA Wharton and PBA Pearl were least disadvantaged by this event.

Due to the relatively short growing season grain size of field peas was smaller than in previous years, with a drop in average grain weight per 100 seeds of 19% for PBA Pearl, 18% for PBA Wharton and 11% for Kaspa compared with 2014 grain weight data.

While there were a few reports of high yields, field pea tonnages were generally below their respective district five year averages (2011-2015).

The Riverton NVT site in the Mid North was the only exception. Being a later district it was able to take advantage of an early November rainfall event resulting in the highest site mean for the state of 2.37t/ha, 13% higher than the district long term (2011-2015) average of 2.06t/ha.

PBA Wharton performed well again across most sites and was the best 'Kaspa' type pea across all sites, out yielding PBA Pearl at Balaklava and Riverton.

Overall it averaged 14% higher than Kaspa at all sites with the highest response at Snowtown and Lameroo where it was 27% and 31% higher, respectively.

Other 'Kaspa' and 'dun' type varieties PBA Gunyah, PBA Oura, PBA Percy and PBA Twilight all yielded similarly to each other and 5-8% less than PBA Wharton, but 5-8% above Kaspa in 2015.

All of these varieties are well accepted by the markets now, with each having their own particular agronomic attributes including early vigour, flowering and maturity timing.

A variable and relatively high level of rhizoctonia was observed at the Rudall trial, while both the Kadina and Minnipa trials were infected with blackspot.

The Blackspot manager disease prediction system (www.agri.wa.gov.au/cropdiseases) is an effective tool for predicting spore release.

It is important to sow field peas when there is a low level of spore release predicted for the district to reduce the risk of disease establishing on the emerging crop.

In the 2015 season spore release was delayed and often the safe sowing time in many districts was beyond the optimum agronomic sowing time for field peas.

In these situations an alternative pulse crop should be considered, or if yield potential is over 1.5 t/ha, treatment with P-Pickle T seed dressing combined with two foliar fungicide applications of Mancozeb at vegetative and early flowering can be applied to assist with disease management. Consult local disease management guides for full details.

Field pea area sown in SA in 2015 was lower than in previous years, most likely due to the increase plantings of lentils and the inability to sow at an agronomically suitable time due to the high

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black spot risk in many areas.

Despite high demand and price driving lentil expansion in SA, it is important to note that field peas are also experiencing high relative prices and remain the best suited and most reliable pulse option in many South Australian environments, particularly in some of the low yielding regions where paddock soil type is highly variable.

PBA Pearl is a white pea and is likely to be well suited to the major global "yellow" pea markets preferred by the Indian sub-continent and China.

These international markets are over 100 times larger than the 'dun' and 'Kaspa' type markets and are largely supplied by the Canadian "yellow" pea.

The high yield potential of PBA Pearl is becoming increasingly attractive to growers in recent seasons, however they should be aware that white types like PBA Pearl cannot be mixed with 'dun' or 'Kaspa' types for export markets.

Therefore growers are advised to secure markets for these types prior to planting them.

Also to note is that often the 'Kaspa' type seed sells at a premium over the international "yellow" pea (US$70-80 premium for 2015/16).

The high yielding ability of PBA Pearl combined with the potential for a much larger white pea market is promising for Australian pea growers but market development will take time. If PBA Pearl continues to perform consistently well in the field, it will provide a viable alternative to growers once markets are secured.

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National Variety Trials
A GRDC INITIATIVE

SA Field Pea Variety Trial Yield Performance: 2015 (as % of site mean) and Long term (2011-2015) Average Across Sites (as % of site mean).

Variety	MID NORTH							YORKE PENINSULA					SOUTH EAST			MURRAY MALLEE			LOWER EYRE PEN.				UPPER EYRE PEN.		
	2015					2011-2015		2015			2011-2015		2015	2011-2015		2015	2011-2015		2015		2011-2015		2015	2011-2015	
	Balak-lava	Laura	River-ton	Snow-town	Turret-field	% Site mean	Trial #	Min-laton	Kad-ina	Willa-mulka	% Site mean	Trial #	Mun-dulla	% Site mean	Trial #	Lame-roo	% Site mean	Trial #	Rudall	Yee-lanna	% Site mean	Trial #	Minn-ipa	% Site mean	Trial #
Kaspa	84	82	103	80	87	97	32	101	91	94	101	18	93	100	7	77	90	5	88	87	95	10	99	105	7
Parafield		86	81			87	20	75		74	87	12	68	80	6	66	81	4	71	82	89	8		86	4
PBA Gunyah	90	86	101	90	93	100	29	98	111	99	101	17	98	101	7	102	99	5	88	90	93	10	99	108	6
PBA Oura	84	92	89	98	104	102	32	94	105	92	102	18	95	97	7	113	108	5	84	99	106	10	99	100	7
PBA Pearl	100	120	107	108	91	108	32	107	109	109	111	18	115	107	7	117	116	5	129	116	124	10	103	103	7
PBA Percy	95	101	84	104	90	100	25	96	110	90	100	15	99	92	7	97	109	5	106	102	103	10	101	99	5
PBA Twilight	91	90	98	85	91	99	29	95	103	93	98	17	105	100	7	102	98	5	87	100	89	10	100	107	6
PBA Wharton	104	106	116	107	102	105	32	100	86	106	100	18	100	109	7	108	100	5	99	110	101	10	97	102	7
Sturt	90			107	107	101	15		100		101	5											94	91	5
Yarrum						101	8				99	4		113	3										
Site mean yield (t/ha)	**1.20**	**1.65**	**2.37**	**0.87**	**1.14**	**2.06**		**2.16**	**0.82**	**1.89**	**2.27**		**1.19**	**2.55**		**1.18**	**1.42**		**1.30**	**1.53**	**1.86**		**1.67**	**1.59**	
% LSD (0.05)	0.2	0.2	0.2	0.1	0.3			0.1	0.1	0.1			0.2			0.2			0.2	0.1			0.2		
Date sown	23/05	27/5	29/05	22/05	28/5			22/05	21/5	18/05			12/06			22/05			18/05	20/05			1/5		
Soil type	CL	SL	SL	CL	SL			SCL	CL/ SCL	SL			L/SL			SL			S	SL			CL		
Previous crop	Wheat	Barley	Barley	Oaten hay	Pasture			Wheat	Wheat	Wheat			Wheat			Wheat			Wheat	Wheat			Wheat		
Rainfall (mm) J-M/A-O	71/236	49/330	61/342	47/214	64/262			50/267	19/185	45/202			40/211			71/166			25/229	36/302			14/258		
pH (H2O)	7.5	6.3	7.5	8	9.1			8	8	8.3			7.2			8.8			5.9	8.3			9.4		
Site stress factors	ht, dl	ht,dl	ht	de, dl, ht, fr	dl,ht, w			ht, dl	bs, fr, ht, de, dl	fr, ht, dl			fr, ht, dl			fr, ht, dl			ht, dl, rh	ht, w			bs, ht		

Soil type

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

Site Stress Factors

bs = ascochyta blight (black spot), bb = bacterial blight, de = pre flowering moisture stress, dl = post flowering moisture stress, dm = downy mildew (Kaspa strain), fr = reproductive frost damage, hdM = herbicide damage metribuzin
ha = hail damage during, id = insect damage, ho = hayed off due to excessive biomass, ht = high temperatures during flowering/pod fill, rh = rhizoctonia, wl = waterlogging
fv = vegetative frost damage, hd(met) = metribuzin herbicide damage, w = weed competition moderate, ur = variety perfomance different compared to other similar trials in region treat with caution

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