BEAN VARIETY TRIALS

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Table 1: SA Faba Bean Variety Trial Yield Performance (2012 and predicted regional performance, expressed as % of site average yield)

Variety	SOUTH EAST						
	2012				Long term average across sites		
	Keith	Border-town	Bool Lagoon	Millicent	t/ha	% of Site Mean	No. Trials
Doza			101		2.76	96	*20*
Farah	99	102	97	91	2.85	99	*36*
Fiesta	98	100	86	111	2.88	100	*36*
Fiord			67		2.59	90	*24*
Nura	96	92	79	101	2.74	96	*36*
PBA Rana	78	76	84	112	2.71	94	*26*
PBA Warda			119		3.02	105	*5*
Site av yield (t/ha)	3.22	2.99	3.56	3.36	2.87		
LSD (%)	9	10	12	17			
Date sown	30-May	31-May	23-May	19-Jun			
Soil type	CL	CL	CL	P			
pH (water)	7.5	8.0	7.6	7.9			
Apr-Oct rain (mm)	306	340	448	556			
Previous Year	Barley	Wheat	Wheat	Carrot			
Site stress factors							

Soil type: S=sand, C=clay, L=loam, P=Peat, F=fine, K=coarse, M=medium, Li=light, H=heavy, Z=silt, /=divides topsoil from subsoil.
Site stress factors: w = weeds, h = heliothis

Data source: SARDI/GRDC, NVT and PBA - Australian Faba Bean Breeding Program. 2005-2012 MET data analysis by National Statistics Program.

Table 2: Conmurra Bean Variety Trial

Variety	Yield kg/ha
AF05069-2	4018
AF06125	3510
Aquadulce	2995
Farah	3342
Fiesta	3332
Gilb/37/6AR	2308
Manafest	3338
Nura	3265
PBA_Kareema	2845
PBA_Rana	3451
LSD 5%	**385**
Site mean	**3240**

Comments on Bean Varieties, Provided by: Andrew Ware, and Rohan Kimber, SARDI, Jeff Paull, University of Adelaide and Wayne Hawthorne, Pulse Australia

The choice of faba bean variety for the major SA bean production regions continues to be between Nura and Farah, with no new faba bean varieties releases in southern Australia expected until 2014.

PBA Rana was released in spring 2011 and is in its first year of commercial plantings in 2012. PBA Rana was developed by the PBA faba bean breeding program, led by the University of Adelaide, and is suited to the high rainfall areas of the South East and Central cropping zones. It represents 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.

Future releases from the PBA bean breeding program will continue to target medium sized faba beans, but will also aim to release new varieties with larger grain size like PBA Rana, aimed at attracting a premium price.

Farah has slightly higher yields than Nura in SA, but Nura has better rust resistance. Both varieties are MR-R to ascochyta blight. In some situations Nura will display better resistance to chocolate spot than Farah; however disease management strategies for chocolate spot control should essentially be the same for both Nura and Farah.

Nura is about a week later flowering than Farah. Nura is generally more responsive to early sowing dates than other varieties due to its later flowering time, and will suffer when sown later. Nura is shorter in height which can cause harvest difficulties and grain loss in low rainfall districts and seasons. Both varieties produce highly marketable seed.

Varieties and market preferences

The Middle East human consumption market prefers Australian faba beans, but competition from France and the UK for market share occurs.

To access the export human food markets, the Australian product must be of high quality, including freedom from mechanical damage, weathering, disease staining and storage problems. Faba beans darken over time in storage and seed can become unsuitable for the export market after about 9 months.

Our varieties Farah, Nura and Fiesta, are well accepted, and the market signals are that the small seeded faba beans like the old Fiord and Ascot varieties are no longer wanted in the Middle East.

Co-mingling of these smaller seeded varieties into the now accepted larger "Fiesta grade" will downgrade the overall quality.

Product that does not meet export standard or is surplus to demand is consumed domestically in stockfeed rations, often at lower prices. Sound beans are also finding a place in many integrated cropping and grazing enterprises as a means of finishing lambs on farm. There can often be strong grazier demand for feed beans in dry conditions.

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 disease on faba beans in 2011; the disease then survived over summer on volunteer bean plants and has again been found in southern faba bean crops in 2012. Faba bean crops will continue the need to be monitored for rust in the future. Susceptible varieties, Farah and Fiesta VF, have been found to show worse 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.

Pulse Australia has a released a new Southern Pulse Bulletin in 2012: Faba bean disease management strategy. It contains the latest information on disease management in faba beans and can be found at:
http://www.pulseaus.com.au/pdf/Faba%20bean%20disease%20management%20strategy%20Southern%20region.pdf

Harvest

In years when bean crops are of a better height, harvest height becomes less of an

issue, but lodging can. Physical damage of bean grain has been the reason for marketing downgrades in recent years, and needs to be better managed. Bud worm will need early monitoring and early control, even if a drier year. Harvest at the higher moisture contents (12-14%) to avoid breakage, and handle the beans carefully when shifting them.

We have seen that crop topping of faba beans can make them more vulnerable to seed staining, particularly when rain falls soon after its application. Going in too early or using product or rates that dry beans down quickly can exasperate the issue. Maturity of current faba bean varieties is not as well suited to crop topping as we would like, particularly in better seasons, hence all grains may not be mature when the ryegrass is ready to top.

Notes on faba bean varieties
New Variety

PBA Rana
PBA Rana (tested as AF10060/15-1 or 974*(611*974)/15-1) is a vigorous plant with good stem strength, mid to late flowering (similar to Nura) and mid maturity (later 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 is moderately susceptible to chocolate spot. It has shown in the field to have very useful resistance (MS-MR) to rust, better than other commercial varieties. 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
Nura is a medium-sized faba bean with moderate resistance to ascochyta blight and moderate susceptibility to rust. It is susceptible to chocolate spot, especially under early sown and high disease pressure situations. Nura is susceptible to Cercospora leaf spot, similar to Farah and Fiesta. It 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
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 Heritage Seeds (formerly 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
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 (MS-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