Nura$^{\Phi}$

Faba Bean

KEY FEATURES of Nura$^{\Phi}$

- **Nura$^{\Phi}$ has improved resistance to ascochyta, chocolate spot and rust over Fiesta VF.**
- **It provides a low disease risk alternative to other varieties in southern Australia.**
- **Plant height is shorter than Fiesta VF and Farah$^{\Phi}$, with improved stem strength and lodging resistance.**
- **Nura$^{\Phi}$ needs to be sown early to optimise its yield.**
- **It has broad adaptation, provided early sowing is achieved in low rainfall areas.**
- **Nura$^{\Phi}$ is a mid flowering variety. Its long term yields are similar to Fiesta VF and Farah$^{\Phi}$ in most areas.**
- **Its tolerance to soil boron is better than other current bean varieties.**
- **Seed is slightly smaller than Farah$^{\Phi}$, and light buff in colour with minimal ascochyta seed staining.**
- **Continued access to human-consumption markets is expected.**

Where Nura$^{\Phi}$ fits into the farming system

Nura$^{\Phi}$ fits as a faba bean variety for southern and western region farming systems as an alternative to or replacement for Farah$^{\Phi}$, Fiesta VF or Fiord, especially where ascochyta and/or chocolate spot are major risks. It may be the preferred variety over Farah$^{\Phi}$ where chocolate spot risk is high, sowing is early or in higher rainfall, better growing areas where beans are expected to grow very tall. It may not be the preferred variety over Farah$^{\Phi}$ where chocolate spot risk is low to medium, sowing is late or where beans are expected to be short in height.

It is not the recommended variety for central and northern NSW because of frost and seed quality risks compared with Cairo$^{\Phi}$ and Doza$^{\Phi}$.

Variety Characteristics

Breeding: Nura$^{\Phi}$ (tested as Ic*As/7/3) was released by Dr Jeff Paull, University of Adelaide as part of the National Faba Bean Breeding Program now part of Pulse Breeding Australia. It was produced from a cross between Icarus and Ascot VF and selected for its buff seed and improved resistance to both chocolate spot and ascochyta.

Agronomic characteristics: Nura$^{\Phi}$ is a small - medium sized faba bean that has achieved similar yields to Fiesta VF and Farah$^{\Phi}$. It has improved resistance to ascochyta and chocolate spot over Fiesta VF and Fiord. It also has moderate resistance to rust. Its combination of disease resistances is better than other current Australian varieties. Nura$^{\Phi}$ is shorter in height than Fiesta VF and Farah$^{\Phi}$, more similar to Fiord, and is less likely to lodge, but its bottom pods may be closer to the ground.
Nura$^{\Phi}$ flowers about 7 days later than Fiesta VF, but their maturities are similar. It is the most tolerant of Australian faba bean varieties to high concentrations of soil boron.

Agronomic and Disease Features of Faba Bean Varieties*

Variety	Plant height	Flowering time	Lodging	Seed colour	Seed size	Ascochyta	Chocolate spot	Rust	Cercospora
Ascot	Very Short	Early	MR	Light brown -brown	Small	R	VS	S	S
Cairo$^{\Phi}$	Medium-tall	Early	MR	Light brown -brown	Medium	VS	VS	MS-MR	S
Doza$^{\Phi}$	Medium	Early	MR	Buff	Small	VS	MS	R	S
Farah$^{\Phi}$	**Medium**	**Early-Mid**	**MS**	**Light brown – brown**	**Medium**	**MR-R**	**S**	**S**	**S**
Fiesta VF	Medium	Early-Mid	MS	Light brown -brown	Medium	MS-MR	S	S	S
Fiord	Short	Early	MR	Light brown -brown	Small	MS	VS	S	S
Manafest	Medium	Mid	MR-MS	Light brown	Medium-large	VS	MS	MS	S
Nura$^{\Phi}$	Short	Mid	R	Light buff	Medium-small	MR-R	MS	MR	S
PBA Kareema$^{\Phi}$	Tall	Late	MR	Light brown	Large	MR-R	MS	MR	S
Aquadulce	Tall	Late	MR	Light buff	Largel	MR-R	MS	MS	S

Key: **VS** = very susceptible, **S** = susceptible, **MS** = moderately susceptible, **MR** = moderately resistant, **R** = resistant.
* Pulse Breeding Australia national disease ratings

Quality Characteristics: Seed size of Nura$^{\Phi}$ is 5-10% smaller than Fiesta VF and Farah$^{\Phi}$, but 30-40% larger than Fiord. The grain is light buff in colour and is suitable for all existing human consumption and livestock feed markets. It is considered ideal for the Egyptian market.

Yield and adaptation:

Nura can be grown in similar areas to Farah$^{\Phi}$ and Fiesta VF, but the overall risk of disease is lower.

- It is suited to medium and high rainfall areas of SA, Vic and southern NSW. It is also suited to low rainfall areas provided it is sown early. Its adaptation in WA is to the southern areas rather than the north.
- Nura$^{\Phi}$ is particularly suitable for all areas where there is a high risk of ascochyta and chocolate spot.
- Being a slightly shorter variety, the lower pods of Nura$^{\Phi}$ could be more difficult to harvest in low rainfall districts or seasons or with late sowings.
- Nura must be sown early in most areas,, particularly in lower and medium rainfall areas
- In central and northern NSW, Nura$^{\Phi}$ is more susceptible to frost risk than Doza$^{\Phi}$ and Cairo$^{\Phi}$, is later flowering and maturing, and has increased seed quality risks.

Long–term Relative Grain Yield (as percentage of Fiesta VF) South Australia 2004-2010*

	Lower EP		Mid North		Murray Mallee		South East		Upper EP		Yorke P	
Cairo$^{\Phi}$	**96**	*5*	**95**	*22*	**-**	*-*	**98**	*16*	**100**	*4*	**99**	*6*
Doza$^{\Phi}$	**91**	*7*	**89**	*18*	**87**	*3*	**92**	*17*	**-**	*-*	**92**	*8*
Farah$^{\Phi}$	**98**	*10*	**100**	*33*	**100**	*5*	**99**	*32*	**101**	*4*	**101**	*12*
Fiesta VF	**100**	*10*	**100**	*34*	**100**	*5*	**100**	*32*	**100**	*4*	**100**	*12*
Fiord	**98**	*9*	**94**	*32*	**94**	*4*	**94**	*24*	**94**	*4*	**97**	*10*
Manafest	**85**	*6*	**85**	*23*	**90**	*4*	**89**	*27*	**-**	*-*	**88**	*6*
Nura$^{\Phi}$	**98**	*10*	**97**	*34*	**98**	*5*	**97**	*32*	**98**	*4*	**100**	*12*
yield of Fiesta (t/ha)	*2.00*		*2.33*		*1.49*		*2.64*		*0.99*		*3.03*	

* = BLUP figure; data courtesy NVT data base, with Adelaide University and SARDI data.

Long–term Relative Grain Yield (as percentage of Fiesta VF) Victoria 2004-2010*

	Mallee$^{\#}$		North Central		North East		South West$^{\#}$		Wimmera	
Cairo$^{\Phi}$	**-**	*-*	**97**	*3*	**97**	*5*	**-**	*-*	**96**	*12*
Doza$^{\Phi}$	**-**	*-*	**-**	*-*	**90**	*4*	**-**	*-*	**91**	*14*
Farah$^{\Phi}$	**-**	*-*	**98**	*6*	**100**	*7*	**-**	*-*	**101**	*14*
Fiesta VF	**100**	*3*	**100**	*6*	**100**	*7*	**100**	*3*	**100**	*22*
Fiord	**99**	*3*	**98**	*6*	**95**	*6*	**-**	*-*	**96**	*20*
Manafest	**85**	*3*	**85**	*4*	**86**	*4*	**90**	*3*	**86**	*14*
Nura$^{\Phi}$	**-**	*-*	**94**	*6*	**96**	*7*	**-**	*-*	**94**	*22*
yield of Fiesta (t/ha)	*1.88*		*4.10*		*1.90*		*3.59*		*2.54*	

* = BLUP figure; data courtesy NVT data base, with Adelaide University and DPI Vic data. $^{\#}$ = 2000-2009

Long–term Relative Grain Yield (as percentage of Fiesta VF) New South Wales 2004-2010*

	North East		North West		South East		South West	
Cairo$^{\Phi}$	**99**	*26*	**99**	*46*	**98**	*19*	**97**	*6*
Doza$^{\Phi}$	**103**	*23*	**103**	*22*	**92**	*16*	**91**	*5*
Farah$^{\Phi}$	**-**	*-*	**-**	*-*	**100**	*27*	**100**	*8*
Fiesta VF	**100**	*25*	**100**	*45*	**100**	*27*	**100**	*8*
Fiord	**94**	*26*	**99**	*45*	**95**	*24*	**95**	*7*
Manafest	**-**	*-*	**-**	*-*	**87**	*16*	**87**	*5*
Nura$^{\Phi}$	**79**	*19*	**77**	*27*	**95**	*27*	**97**	*8*
yield of Fiesta (t/ha)	*2.70*		*2.12*		*2.60*		*3.82*	

* = BLUP figure; data courtesy NVT data base, with Adelaide University and NSW DPI data.

Long–term Relative Grain Yield (as percentage of Fiesta VF) Western Australia*

	Esperance-Scadden area		Kataning-Kojonup area		Moora-Dongara-Mingenew area	
Cairo$^{\Phi}$	**108**	7	**108**	9	**99**	7
Doza$^{\Phi}$	**93**	3	**96**	5	**-**	-
Farah$^{\Phi}$	**107**	**7**	**102**	**9**	**98**	**7**
Fiesta VF	**100**	7	**100**	9	**100**	7
Fiord	**93**	7	**103**	9	**101**	7
Manafest	**-**	-	**-**	-	**-**	-
Nura$^{\Phi}$	**109**	5	**109**	6	**87**	4
yield of Fiesta (t/ha)	*1.98*		*1.71*		*2.39*	

* = average figure from individual trial BLUP figures to 2008; data courtesy DAFWA and Adelaide University.

Management Package

(Consult local grower guides for more detailed information)

Maintain purity of seed crops:

Do not let Nura$^{\Phi}$ seed crops out-cross with other varieties. A minimum 400m isolation from other bean varieties is needed. Ensure that there are no self-sown beans in the Nura$^{\Phi}$ seed crop. Avoid physical contamination with other beans.

Sowing date and seeding rate:

Faba bean yield declines with delays in time of sowing. Nura$^{\Phi}$ yields on some occasions decline more markedly with delayed sowing than Fiesta VF or Farah$^{\Phi}$. With Nura$^{\Phi}$, target an earlier or comparable sowing date than with Fiesta VF and Farah$^{\Phi}$, but avoid late sowing.

- Nura$^{\Phi}$ achieves maximum yield potential when sown early.
- Nura$^{\Phi}$ does not suffer the same lodging problems as Fiesta VF or Farah$^{\Phi}$ when sown early.
- The increased risk of chocolate spot with earlier sowing must still be considered with Nura$^{\Phi}$, despite its improved chocolate spot resistance.
- Avoid sowing Nura$^{\Phi}$ late, particularly in lower rainfall areas. Its relative short height, reduced vigour, later flowering and lower pod height can mean reduced yield potential and higher harvesting losses.

Improving pod set:

Nura$^{\Phi}$, like other faba beans, tolerates dry sowing as a means of early sowing and fitting into the farming system. However, in higher rainfall areas or on fertile, well drained soils, sowing beans too early may result in excessive vegetative bulk, leading to poor early pod set and increasing the risk of foliar disease. Nura$^{\Phi}$ is slightly less sensitive to poor early pod set than Farah$^{\Phi}$ or Fiesta VF, partly because of its shorter height, less bulky growth and it commences flowering later.

Bee hives placed through the bean crop along with correct hive management can ensure that bees act as pollinators to help improve early pod set in beans. Wider row spacings (greater than 25cm) are being commercially used now by some bean growers, especially with early sowing. Limited trial work indicates that using wider row spacing can assist early pod set in situations of high vegetative bulk.

Herbicide Sensitivity:

In herbicide testing by SARDI on SA alkaline soils, Nura$^{\Phi}$ has performed similar to Fiesta VF and Farah$^{\Phi}$ at label recommended rates of most PSPE herbicides recommended in beans. Results at twice label rates indicate that compared with Fiesta VF and Farah$^{\Phi}$:

- Nura$^{\Phi}$ may be less tolerant to Spinnaker®, particularly in low biomass situations.
- Nura$^{\Phi}$ may show fewer visual symptoms of damage and less yield loss to simazine.

Crop Rotation:

Ascochyta is a major limitation in beans when grown in close rotation. Due to an increase in resistance, the interval between bean crops could be reduced using either Nura$^{\Phi}$ or Farah$^{\Phi}$. Risk of cercospora may increase in paddocks with a frequent history of beans in the rotation, and so early fungicide treatments may still be required. Risk of chocolate spot may also increase with closer stubble proximities from close bean rotations.

Lodging or “necking”:

Nura$^{\Phi}$ generally suffers less lodging than Fiesta VF or Farah$^{\Phi}$, because of its shorter height and stiffer stems, but will lodge if growth is excessively tall. Like other faba beans, Nura$^{\Phi}$ can suffer from “necking”, which is stem breakage or severe stem bending likely as a result of lack of turgor in stems under dry conditions, exacerbated by severe winds and dry soil conditions during flowering. Yield loss can be more severe if necking occurs below the podding nodes. Nura$^{\Phi}$ was observed to be no more severely affected by necking than Fiesta VF and Farah$^{\Phi}$ on average across a number of variety evaluation and agronomy trials in SA in 2008. Necking is however worse in earlier sown, taller crops.

Disease Management with Nura$^{\Phi}$:

Nura$^{\Phi}$ is moderately resistant to resistant (MR-R) to ascochyta, similar to Farah$^{\Phi}$ and slightly less than Ascot VF. It is moderately susceptible to moderately resistant (MS-MR) to chocolate spot, moderately resistant (MR) to rust and susceptible (S) to cercospora.

Place less emphasis on ascochyta with Nura$^{\Phi}$, without ignoring the risk, and concentrate on chocolate spot control.

- No fungicide seed dressing for ascochyta is needed.
- No foliar fungicide that targets ascochyta control at 6-8 weeks post-sowing unless there is a severe ascochyta risk.
- Early foliar fungicide control for cercospora using different products to those used for ascochyta may be required at 6-8 weeks.
- At early flowering, concentrate on foliar chocolate spot control if required.
- At late flowering – pod-fill, concentrate on chocolate spot control where required. Ascochyta and rust protection are only needed in high risk situations.

Harvest:

Harvest time is similar to Fiesta VF and Farah$^{\Phi}$. Delivering grain that meets the receival standard minimum for seed coat colour is more easily achieved with Nura$^{\Phi}$ because of its reduced ascochyta seed staining compared with Fiesta VF. This is provided the high risk ascochyta situations are controlled or avoided, and other environmental factors do not discolour the grain (eg chocolate spot, sunburn).

Marketing:

Nura$^{\Phi}$ grain can be co-mingled with Farah$^{\Phi}$ and Fiesta VF grain for human food markets.
Segregation may be desirable for the container trade or to achieve canning grades.
Open marketing provided an end-point royalty of $3.30/t (including GST) is paid on Nura$^{\Phi}$ deliveries.

Seed Availability and PBR:

Nura$^{\Phi}$ is protected by PBR. Growers can retain seed from production of Nura$^{\Phi}$ for their own seed use. Seed is commercialised through Seednet and available through local seed suppliers.

Nura$^{\Phi}$
Seed Supply enquiries:

Seednet

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admin@seednet.com.au
www.seednet.com.au

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Other Reading:

For Faba bean management guidelines, see:

- Grain Legume Handbook 2008
- Pulse Australia publications: "Meeting faba bean quality demanded by markets", "Faba bean disease management strategy for southern region GRDC" and supplements, and "Pulse seed treatments and foliar fungicides" (www.pulseaus.com.au)
- SARDI fact sheet "Faba bean variety sowing guide 2011" www.sardi.sa.gov.au/pdfserve/fieldcrops/research_info/sowing_guide/fababeans.pdf)
- NSW DPI publications (www.agric.nsw.gov.au): "Winter Crop Variety Sowing Guide 2011" ; Pulse Point 20 "Germination testing and seed rate calculation"; "Weed Control in Winter Crops 2011"; "Insect and Mite Control in Winter Crops";
- DPI Vic "Winter Crop Summary 2011" and fact sheets (www.dpi.vic.gov.au).

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