

PBA Marne[®]

Faba Bean



PBA

PULSE BREEDING AUSTRALIA

Better pulse varieties faster

Low Rainfall Faba Bean



MAIN ADVANTAGES

PBA Marne[®] is an early flowering, high yielding faba bean that has shown adaptation to the lower rainfall and short season areas throughout southern Australia where yield is generally greater than current varieties. PBA Marne[®] offers the potential to expand faba bean production into areas that are currently considered marginal and to improve reliability in established areas during below average rainfall seasons. Seed is light brown and medium in size and suitable for co-mingling with the current faba bean varieties for export to the major food markets in the Middle East.

SEED PROTECTION & ROYALTIES

PBA Marne[®] is protected by Plant Breeder's Rights (PBR) legislation. Growers can only retain seed from production of PBA Marne[®] for their own seed use.

An End Point Royalty (EPR) of \$3.85 per tonne (GST inclusive), which includes breeder royalty, applies upon delivery of this variety.

Seed is available from the commercial partner Seednet.

KEY FEATURES

- Highest yielding faba bean available for short season areas in the Southern Region
- Early flowering particularly when sown early
- Medium height plant with good standing ability
- Resistant to pathotype 1 of Ascochyta blight, but moderately susceptible to the new pathotype 2 of Ascochyta blight
- Improved resistance to rust compared to other Southern Region varieties
- Medium size seed, similar to PBA Samira[®] and suited to the Middle East markets

AREA OF ADAPTATION



YIELD & ADAPTATION

PBA Marne[®] is an early flowering faba bean variety that is very well suited to lower rainfall or short season environments of southern Australia. PBA Marne[®] has had limited evaluation in Western Australia in the medium rainfall area of Agzone 5, where it has outyielded all current varieties. It has produced its highest yields, relative to other varieties, in trials where the yield has been less than 3.0 t/ha. It has also produced similar yields to PBA Samira[®] in some higher yielding environments of southern Australia, however, it is not suited to the South East of SA

and Western Districts of Vic where it has yielded less than other varieties. The overall disease resistance profile of PBA Marne[®] is improved compared to Fiesta VF and Farah[®] but it is still at risk in environments that are highly conducive to development of foliar fungal diseases.

PBA Marne[®] is not recommended for growing in Northern NSW or Southern Qld as it is lower yielding than varieties that have been released for the Northern Region.

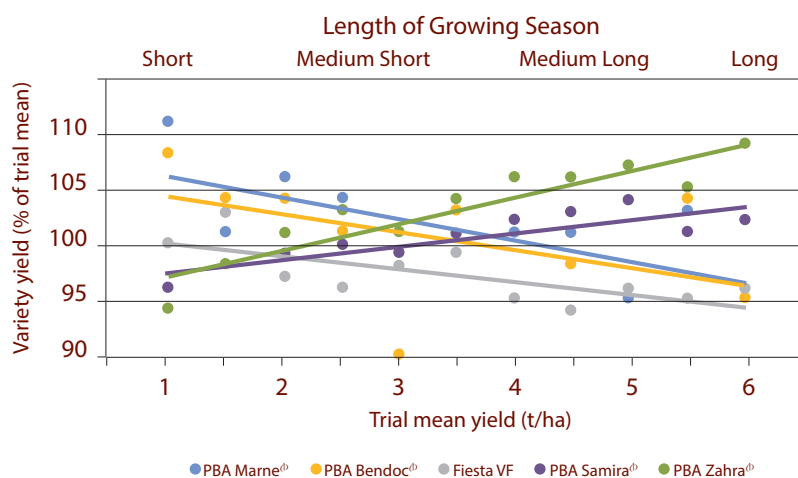


Figure 1: Average relative yield of PBA Marne[®] and other faba bean varieties, compared to the average trial yield, in breeding trials across a range of yield scenarios.

Source: Trial results from Pulse Breeding Australia (PBA) and National Variety Trials (NVT) programs. Data sourced from the ACAS Long Term Yield Reporter.

Agronomic and disease resistance ratings of faba bean varieties in southern Australia

Variety	Plant height	Flower time	Maturity	Lodging resistance	Ascochyta blight*		Chocolate spot	Cercospora	Rust	PSbMV seed staining
					Pathotype 1	Pathotype 2				
PBA Marne [®]	Medium/Short	Early	Early/Mid	MR	MR/R	MS/MR	S	S	MR	MR
PBA Bendoc [®]	Medium	Mid	Early/Mid	MS	MR/R	MR/R	S	S	S	S
Fiesta VF	Medium	Early/Mid	Early/Mid	MS	MR	S	S	S	S	S
Farah [®]	Medium	Early/Mid	Early/Mid	MS	MR/R	S	S	S	S	S
Nura [®]	Short	Mid	Early/Mid	MR	MR/R	MR/R	MS	S	MS	VS
PBA Rana [®]	Med/Tall	Mid	Mid	MR	R	MS/MR	MS	S	MS	MR
PBA Samira [®]	Medium	Mid	Early/Mid	MR	R	R	MS	S	MS	S
PBA Zahra [®]	Med/Tall	Mid	Mid	MR	R	MS/MR	MS	S	MS	S

* Ascochyta blight ratings are for pathotype 1 which is widely distributed throughout the Southern Region, and pathotype 2 which has been recently identified in the mid-north of South Australia.

R = resistant, MR = moderately resistant, MS = moderately susceptible, S = susceptible, VS = very susceptible

Source: Pulse Breeding Australia trials program 2012–2017

DISEASE MANAGEMENT

Ascochyta blight

- PBA Marne[®] is Moderately Resistant to Resistant (MR/R) to pathotype 1 of Ascochyta blight, however it is MS/MR to the recently identified pathotype 2.
- The strategy for management of Ascochyta blight will depend on the prevailing pathotype.
- Foliar fungicides that target Ascochyta blight control should be applied at 6–8 weeks post-sowing. Crops should be monitored and managed if significant disease occurs.
- Ascochyta blight protection during podding should be applied if significant disease occurs on foliage earlier in the season.

Chocolate spot

- PBA Marne[®] is rated as Susceptible (S) to chocolate spot, similar to Fiesta VF and Farah[®].
- PBA Marne[®] is recommended for lower rainfall districts where the risk of chocolate spot is generally low.
- Crops should be monitored regularly and managed accordingly with strategic fungicide applications, particularly in higher rainfall districts or seasons with above average rainfall.
- Foliar fungicides that target chocolate spot may need to be applied before flowering in very early sown crops.
- In high risk situations applications of fungicides that target chocolate spot are recommended prior to canopy closure and during late flowering and pod fill.

Cercospora leaf spot

- PBA Marne[®] is Susceptible (S) to Cercospora leaf spot, similar to all other Australian faba bean varieties.
- The risk of Cercospora leaf spot is greatest in paddocks with a long history of faba/broad bean production and when bean crops are grown in tight rotations.
- A foliar fungicide that targets Cercospora leaf spot is recommended to be applied at 5–8 weeks post-sowing.

Rust

- PBA Marne[®] is Moderately Resistant (MR) to rust.
- As the risk of severe rust is generally low in southern Australia, fungicide application to control rust should not be required in most circumstances.

Pea seed borne mosaic virus

- Preliminary results indicate that PBA Marne[®] develops a lower level of seed staining caused by Pea Seed Borne Mosaic Virus (PSbMV) than most other faba bean varieties.
- Seed staining of susceptible varieties can have an impact on grain quality.
- No management practices are available, however as the virus originates from PSbMV infected peas, it is advisable to keep a distance from crops of pea varieties that are highly susceptible to PSbMV.

AGRONOMY

Plant characteristics

Paddock selection and basic requirements for production are similar to other faba bean varieties.

PBA Marne[®] has the following characteristics:

- Early flowering when sown in late April or early May, but Early/Mid flowering, similar to Fiesta VF and Farah[®], when sown from mid-May onwards.
- Early/Mid maturity, similar to Fiesta VF and Farah[®].
- Medium/Short plant, generally slightly shorter than most other varieties.
- Lodging resistance better than other faba bean varieties but can lodge in very high biomass conditions. Generally, a low level of necking.

Sowing

- PBA Marne[®] is similar to other faba bean varieties and benefits from early sowing. Delaying sowing until late May or early June can result in significant reduction in yield.
- Very early sowing can increase the risk of foliar fungal disease and excessive canopy growth for all faba bean varieties.
- Seed of PBA Marne[®] is similar in size to PBA Samira[®] and seeding equipment must be able to handle the larger seed to reduce the risk of blockages.
- Inoculation with the commercial faba bean Group F Rhizobium is essential for proper nodulation.
- Seed crops of PBA Marne[®] should be isolated from other faba bean varieties by at least 200 m to prevent cross-pollination.

Herbicide tolerance

- PBA Marne[®] has been extensively tested in breeding yield trials in which a range of herbicides registered for use in faba beans has been applied at recommended rates. No specific adverse reactions have been observed in these trials.

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PBA is an unincorporated joint venture between the GRDC, University of Adelaide, University of Sydney, SARDI, DEDJTR Victoria, NSW DPI, DAF (QLD), DPIRD WA and Pulse Australia.

SEED QUALITY

PBA Marne[®] produces medium size seeds that are comparable in size to PBA Samira[®]. The seed size varies between locations and seasons and larger seed is produced under more favourable conditions.

The overall colour of seeds is similar to other major faba bean varieties. PBA Marne[®] has a moderate proportion of seeds with a white hilum whereas seed of most other varieties is uniform with a black hilum.

Seed weight (g/100 seeds) of faba bean varieties

Variety	Average	Range
PBA Marne [®]	74	61–87
PBA Bendoc [®]	64	50–72
Fiesta VF	69	57–78
Farah [®]	69	59–76
Nura [®]	68	55–79
PBA Samira [®]	74	58–87

Source: NVT. Data derived from 18 rainfed trials in SA, Vic and tht NSW in 2016–2017

MARKETING

The seed of PBA Marne[®] should be suitable to co-mingle with similar varieties for export to the major food markets in the Middle East.



PBA Marne[®]



Farah[®]



PBA Samira[®]

BREEDING

PBA Marne[®], evaluated as AF09169, was developed by the PBA Faba bean breeding program led by University of Adelaide. It is the result of a complex cross between four parents of diverse origins. It was selected for response to Ascochyta blight, chocolate spot and rust, yield, adaptation and seed quality.

PULSE AGRONOMY

Agromony and disease management information has been developed with the assistance of the 'Southern region pulse agronomy project' co-funded by GRDC, SARDI, DEDJTR Victoria and NSW DPI.

FOR MORE INFORMATION

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Seednet's mission is:

"To deliver high performance seed based genetics to Australian grain growers and end user customers via superior product and service delivery channels".

Seednet is proud to partner with Pulse Breeding Australia and invest in the improvement of Australian faba bean varieties.

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