

# PBA Nanu<sup>®</sup>

## Faba Bean



# PBA

PULSE BREEDING AUSTRALIA

*Better pulse varieties faster*

## Better Rust Resistant Northern Variety



### MAIN ADVANTAGES

PBA Nanu<sup>®</sup> has more uniform and larger seed than PBA Warda<sup>®</sup> and slightly smaller than PBA Nasma<sup>®</sup>. Its larger and uniform seed will make it superior to PBA Warda<sup>®</sup> for marketing while smaller seed than PBA Nasma<sup>®</sup> will improve handling at seeding.

PBA Nanu<sup>®</sup> is well adapted to northern NSW where it has out-yielded PBA Nasma<sup>®</sup> by 2–4% in both low and high yielding trial sites including the NVT trials. It has better resistance to rust than any other released varieties and Bean leaf roll virus (BLRV) resistance is the same as that of PBA Nasma<sup>®</sup>.

### SEED PROTECTION & ROYALTIES

PBA Nanu<sup>®</sup> is protected under Plant Breeder's Rights (PBR) legislation. Growers can retain seed from production of PBA Nanu<sup>®</sup> for their own seed use, but must not sell seed to others.

An End Point Royalty (EPR) of \$3.85 (TBA) (GST inclusive) per tonne which includes breeder's royalty will be applicable to this variety upon grain being sold or used on farm for feed.

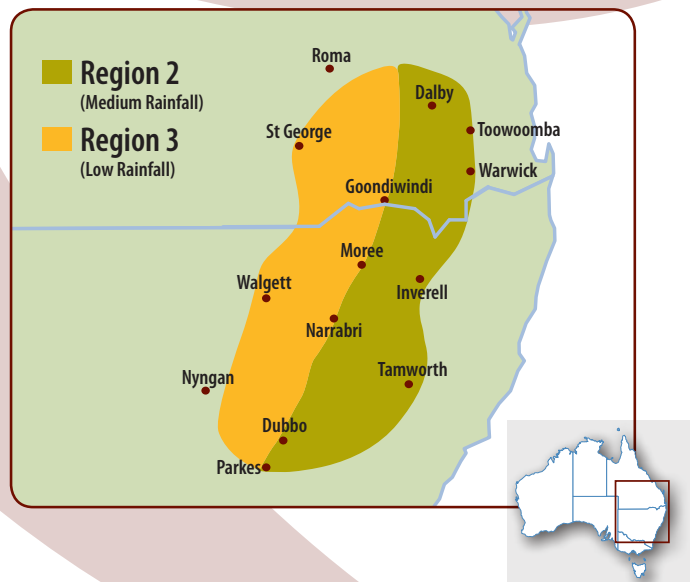
Seed is available from the commercial partner Seednet.

**Seednet**  
Planting Productivity

### KEY FEATURES

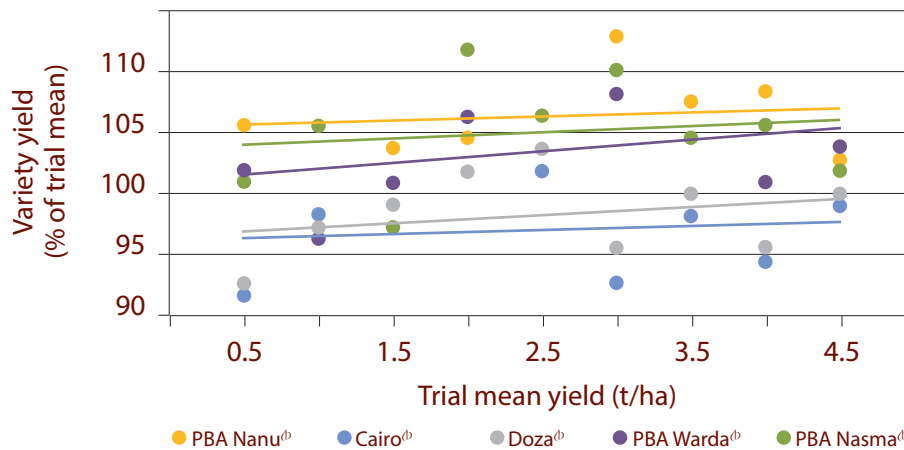
- High yielding across all faba bean growing areas of northern NSW and southern Qld
- Yield is superior to all faba bean varieties currently grown in northern NSW
- Superior rust resistant to other faba bean varieties
- Similar level of resistance to BLRV as that of PBA Nasma<sup>®</sup>
- Similar flowering and maturity time to PBA Warda<sup>®</sup> and PBA Nasma<sup>®</sup>
- Larger and more uniform seed than PBA Warda<sup>®</sup>, but slightly smaller than PBA Nasma<sup>®</sup>
- Suggested as an alternative to PBA Warda<sup>®</sup> and PBA Nasma<sup>®</sup>

### AREA OF ADAPTATION



### YIELD & ADAPTATION

- PBA Nanu<sup>®</sup> is an early maturing variety, similar to PBA Warda<sup>®</sup> and PBA Nasma<sup>®</sup>, well adapted to the growing season in northern NSW and southern Queensland.
- Extensive yield evaluation of PBA Nanu<sup>®</sup> in northern NSW, both within PBA trial sites and the National Variety Trials (NVT) sites, shows that its yield is 2–4% more than PBA Nasma<sup>®</sup> in high as well as low yielding environments.
- It is suggested as an alternative to PBA Nasma<sup>®</sup> where growers are facing difficulties in sowing PBA Nasma<sup>®</sup> because of its bigger seed.
- Its seed is bigger than PBA Warda<sup>®</sup> and smaller than PBA Nasma<sup>®</sup>, but still maintaining the premium seed quality grade required for human consumption market.
- It has better rust resistance than any other currently grown faba bean varieties.
- It is moderately susceptible to chocolate spot, but has similar level of resistance to BLRV as that of PBA Nasma<sup>®</sup> which will benefit growers in areas prone to virus infection.
- PBA Nanu<sup>®</sup> is susceptible to Ascochyta blight, but this is not considered to be a major disease in northern NSW.
- PBA Nanu<sup>®</sup> is not recommended for southern NSW where Ascochyta blight and chocolate spot can cause significant yield loss.



**Figure 1:** Long term (2013–2017) yield of faba bean varieties in northern NSW in comparison to trial mean.

**Source:** Trial results from NVT and Pulse Breeding Australia (PBA), 2013–2017.

#### Agronomic and disease resistance ratings of faba bean varieties in northern Australia

Variety	Plant height	Flower time	Maturity	Lodging resistance	Rust	Chocolate spot	Bean Leaf Roll Virus
PBA Nanu <sup>®</sup>	Medium	Early	Early	MR	MR–R	MS	MR
PBA Nasma <sup>®</sup>	Medium	Early	Early	MR	MR–R	MS	MR
PBA Warda <sup>®</sup>	Medium	Early	Early	MR	MR–R	MS	MR–MS
Doza <sup>®</sup>	Medium	Early	Early	MR	MR–R	MS	MS
Fiesta VF	Medium	Mid/Late	Mid/Late	MS	S	S	S
Cairo <sup>®</sup>	Tall	Mid/Late	Mid/Late	MS	MS	VS	S
Fiord	Medium	Mid	Mid	MR/MS	S	S	S

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

**Source:** Pulse Breeding Australia trials program 2013–2017

## DISEASE MANAGEMENT

### Rust

- Although PBA Nanu<sup>®</sup> has superior rust resistance to all other varieties, its classification is still moderately resistant because no complete resistance has been detected to faba bean rust.
- For northern NSW and southern Qld, this level of resistance will provide sufficient protection against rust and there will be no or minimal yield loss in most seasons.
- However, foliar fungicide application may be required if the rust appears early in the season followed by warm and frequent rain events.
- In disease favourable seasons, a prophylactic Mancozeb spray prior to the canopy closure is recommended. This will be effective for both rust and chocolate spot.

### Chocolate spot

- PBA Nanu<sup>®</sup> is moderately susceptible to chocolate spot. Growers are advised to apply prophylactic fungicide applications in seasons with above average rainfall, particularly when rain events happen during flowering.
- Mancozeb prevents infection to both chocolate spot and rust and is recommended to be used prior to canopy closure. Carbendazim and procimidone are reported to be more effective in preventing chocolate spot infection, but have restrictions on the number of applications per season. None of these fungicides have a curative action.

### Ascochyta blight

- PBA Nanu<sup>®</sup> is susceptible to Ascochyta blight, similar to PBA Nasma<sup>®</sup>, PBA Warda<sup>®</sup> and Cairo<sup>®</sup>. However, this disease is not prevalent in northern NSW and southern Qld where PBA Nanu<sup>®</sup> is recommended.

### Bean Leaf Roll Virus (BLRV)

- PBA Nanu<sup>®</sup> shares one parent with PBA Nasma<sup>®</sup> and has inherited a similar level of resistance to BLRV. Good yield has been obtained in the presence of severe BLRV pressure in the target areas.
- PBA Nanu<sup>®</sup> has a higher level of resistance to BLRV than Cairo<sup>®</sup>.

## AGRONOMY

PBA Nanu<sup>®</sup> has smaller seed than PBA Nasma<sup>®</sup> and we expect there will be less issues with blockages while planting. However, growers are advised to check compatibility with their seeder and make adjustments as necessary. There is no other requirement for adjusting agronomic practices for growing PBA Nanu<sup>®</sup>. Paddock selection and agronomic management is similar as for current varieties.

### Plant characteristics

- Flowering and maturity time is similar to PBA Warda<sup>®</sup> and PBA Nasma<sup>®</sup>, 5–6 days earlier than Cairo<sup>®</sup>.
- Medium plant height and shorter than Cairo<sup>®</sup>.
- Lodging resistance is better than Cairo<sup>®</sup>.
- PBA Nanu<sup>®</sup> can withstand mild frost at the vegetative stage similar to PBA Nasma<sup>®</sup> and PBA Warda<sup>®</sup> and better than Doza. Severe frost at flowering/early pod set may cause yield loss.
- Higher yield with the combination of rust resistance and BLRV tolerance will make PBA Nanu<sup>®</sup> a reliable faba bean variety for northern NSW and southern Qld.

### Sowing

- Early sowing is recommended to achieve maximum yield potential.
- Sowing later than mid May in northern NSW is likely to cause a reduction in yield.
- Seed crops of PBA Nanu<sup>®</sup> should be isolated from other faba bean varieties by at least 200 m to prevent cross-pollination.
- Seeding rate similar to other faba bean varieties should be maintained. Aim to achieve 20 plants/m<sup>2</sup> for northern NSW and southern Qld.
- Note that its seed rate will be higher than that of PBA Warda<sup>®</sup> and lower than of PBA Nasma<sup>®</sup> because of seed size differences.
- Inoculation with the commercial faba bean Rhizobium Group F is essential for proper nodulation.

### Herbicide tolerance

- PBA Nanu<sup>®</sup> has been extensively tested in plant breeding and the NVT trials with the application of recommended herbicides and no specific adverse reactions have been observed in these trials.
- Limited herbicide testing has shown that PBA Nanu<sup>®</sup> has no increased sensitivity to any of the recommended herbicides over commonly grown faba bean varieties.

# PBA Nanu<sup>Ⓛ</sup>

## Faba Bean



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 Nanu<sup>Ⓛ</sup> has bigger seed than PBA Warda<sup>Ⓛ</sup>, but slightly smaller than PBA Nasma<sup>Ⓛ</sup>. The seed is uniform and maintains the premium seed size required for the Middle Eastern market. Its seed is beige to brown in colour, uniform in size in the range of 57–61 g/100 seed, which is slightly smaller than PBA Nasma<sup>Ⓛ</sup>. PBA Nanu<sup>Ⓛ</sup> is more uniform than PBA Nasma<sup>Ⓛ</sup>, which has big variation in seed size. Seed darkening of PBA Nanu<sup>Ⓛ</sup> under storage is similar to other faba bean varieties.

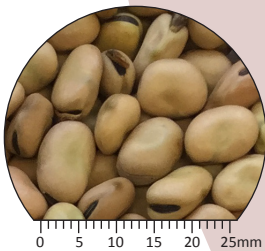
Seed weight (g/100 seeds) of faba bean varieties

Variety	Rainfed NVT data, 2017	Irrigated Narrabri data, 2017
PBA Nanu <sup>Ⓛ</sup>	41–46	57–61
PBA Nasma <sup>Ⓛ</sup>	40–55	58–64
PBA Warda <sup>Ⓛ</sup>	39–47	52–57
Cairo <sup>Ⓛ</sup>	41–45	54–56
Doza <sup>Ⓛ</sup>	40–45	52–54

Source: NVT. Data derived from 4 rainfed trials in NSW in 2017.

### MARKETING

PBA Nanu<sup>Ⓛ</sup> will be suitable in the medium seed size market for human consumption. Its large seed with uniform size and colour will be attractive to the Middle Eastern market. It provides an alternative to growers who wish to grow a large seeded variety without compromising yield and other quality aspects.



PBA Nanu<sup>Ⓛ</sup>



PBA Nasma<sup>Ⓛ</sup>



PBA Warda<sup>Ⓛ</sup>



Doza<sup>Ⓛ</sup>

### BREEDING

PBA Nanu<sup>Ⓛ</sup> (evaluated as IX486/7-6) was selected from a cross between PBA Nasma<sup>Ⓛ</sup> and IX338c/2-1, and jointly developed by The University of Sydney and NSW Department of Primary Industries through the northern node of the PBA faba bean breeding program. 'Nanu' means 'cute, beautiful or pretty' in Egyptian; the name was chosen as familiar and easy to remember for customers in the Middle Eastern market.

### FOR MORE INFORMATION

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### SEED ENQUIRIES

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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.

### AGRONOMIC ENQUIRIES

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Version September/2018