PBA Pistol[Φ]

Desi Chickpea (Central Qld ONLY)

PBA
PULSE BREEDING AUSTRALIA

Better pulse varieties faster

High yielding, early flowering chickpea

KEY FEATURES

- **Consistently high yielding across Central Queensland regions.**
- **Early flowering improves performance in drier seasons.**
- **Tall, erect plant type**
  (taller, more erect than Moti[Φ]).
- **Very Susceptible (VS) to Ascochyta blight.**
- **Medium sized desi seed suited to the direct human consumption market.**
- **Excellent milling quality.**

MAIN ADVANTAGES

PBA Pistol[Φ] offers Central Queensland chickpea growers the best available varietal package combining high yields, excellent agronomy and grain quality.

PBA Pistol[Φ] is well adapted to the shorter growing season of Central Queensland. It has consistently produced higher yields than the current commercial varieties in a diverse range of seasonal conditions. Under dry seasonal conditions during 2009, PBA Pistol[Φ] out yielded the existing commercial varieties by a minimum of 19 %.

PBA Pistol[Φ] is taller, more resistant to lodging and offers improved harvestability compared to all other current commercially available varieties.

SEED PROTECTION & ROYALTIES

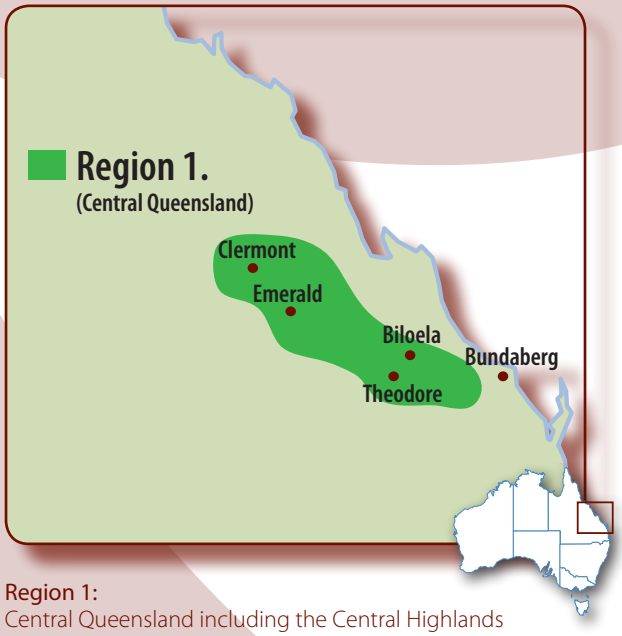
PBA Pistol[Φ] is protected under Plant Breeder's Rights (PBR) legislation. Growers can only retain seed from their production of PBA Pistol[Φ] for their own seed use.

An End Point Royalty (EPR) of $4.40 per tonne (GST inclusive), which includes breeder royalties, applies upon delivery of this variety.

Seed is available from the commercial partner Seednet.

Seednet
Planting Productivity

AREA OF ADAPTATION



Region 1:
Central Queensland including the Central Highlands and the Callide / Dawson Valleys.

PBA PULSE BREEDING AUSTRALIA

PBA Pistol$^{\phi}$
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YIELD & ADAPTATION

PBA Pistol$^{\phi}$ is well adapted to all areas of Central Queensland where chickpeas are currently grown.

The early flowering habit of PBA Pistol$^{\phi}$ combined with its improved plant height and increased lodging resistance provides optimal productivity and harvestability in all Central Queensland districts.

PBA Pistol$^{\phi}$ has consistently produced higher yields than the current commercial varieties in a broad diversity of seasonal conditions.

Extensive yield testing within Pulse Breeding Australia and the National Variety Testing programs has shown that long term yields are 3-6 % higher than Kyabra$^{\phi}$ and Moti$^{\phi}$ under favourable conditions.
Under dry seasonal conditions during 2009, PBA Pistol$^{\phi}$ out yielded the existing commercial varieties by a minimum of 19 %.

PBA Pistol's$^{\phi}$ susceptibility to Ascochyta blight precludes this variety from all other growing regions, such as Southern Queensland and Northern New South Wales.

Yield of desi chickpea varieties in Central Queensland

Variety	Averaged yields for Region 1 (R1) expressed as a % of Moti$^{\phi}$ yield						
	Callide & Dawson Valleys*	Central Highlands*	2009	2008	2007	2006	2005
PBA Pistol$^{\phi}$ (t/ha)	3.05	2.38	1.90	2.69	2.69	2.65	2.89
PBA Pistol$^{\phi}$	110	106	121	101	108	107	104
Jimbour$^{\phi}$	96	98	102	99	99	95	92
Kyabra$^{\phi}$	99	105	102	107	97	103	104
Moti$^{\phi}$	100	100	100	100	100	100	100
PBA HatTrick$^{\phi}$	89	93	96	98	90	89	85
No. of experiments	6	11	3	4	2	4	2

Source: Trial results from Pulse Breeding Australia (PBA) and National Variety Trials (NVT) programs.
Region 1 (R1): Central Queensland including the Central Highlands and the Callide & Dawson Valleys.
* Averaged across all seasons and all trial sites 2005 to 2009

Agronomic traits of desi chickpea in Central Queensland

Variety	Days to flowering	Plant height (cm)	Lowest pod height (cm)	Lodging score#	Disease resistance rating	
					Ascochyta blight	Phytophthora root rot
PBA Pistol$^{\phi}$	58	81	39	2.8	VS	MS
Jimbour$^{\phi}$	65	71	37	4.3	S	MS/MR
Kyabra$^{\phi}$	65	73	37	3.4	S	MS
Moti$^{\phi}$	59	74	37	4.3	VS	MS
PBA HatTrick$^{\phi}$	-	-	-	-	MR/R	MR

Source: Pulse Breeding Australia trials program 2005 to 2009.
1 = fully erect, 9 = flat on ground

Seednet
Planting Productivity

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DISEASE MANAGEMENT
Ascochyta blight (AB)

Follow the general guidelines for reducing the risk of Ascochyta in 'Central & Coastal Queensland Ascochyta Blight Management' available from Pulse Australia.

- PBA Pistol^{Φ} is Very Susceptible (VS) to Ascochyta blight, its disease reaction is equivalent to Moti^{Φ}.
- Extra care needs to be taken with paddock selection in localities where Ascochyta has been detected in any of the previous 3 years.
- All planting seed should be treated with a registered thiram-based fungicide.
- NEVER use seed from an Ascochyta infected crop or seed from a source whose Ascochyta status is unknown.
- High risk situations are those where chickpea crops are planted in or adjacent to paddocks where Ascochyta has been found in any of the previous 3 years.
- In these situations, a prophylactic fungicide spray should be applied before the first likely rain event after emergence, or 3 weeks after emergence, or at the three leaf stage, whichever occurs first.
- All other situations are considered to be low risk and a prophylactic fungicide spray is not required.
- Carefully inspect all crops (low and high risk), 10-14 days after each rain event.
- If Ascochyta is detected in a crop, apply a registered fungicide prior to all subsequent likely rain events.
- Thorough and effective crop monitoring is critical for these strategies to work.

Phytophthora root rot (PRR)

- PBA Pistol^{Φ} is Moderately Susceptible (MS) to PRR.
- Disease risk is low in Central Queensland but appropriate paddock selection of free draining soils should be taken for areas with a prior history of PRR.

Botrytis grey mould (BGM)

- Limited controlled environment testing suggests that, PBA Pistol^{Φ} is Susceptible (S) to BGM.
- PBA Pistol's^{Φ} BGM reaction is comparable to other varieties available in Central Queensland.
- Monitor for BGM in spring as temperatures and humidity rise. Apply a registered fungicide containing either carbendazim or mancozeb if BGM has been identified within the crop.

Virus

- PBA Pistol^{Φ} is rated as Susceptible (S) to viruses based on limited evaluation.
- Field screening against a range of aphid-borne viruses at Breeza (NSW) in 2007 indicates that it is slightly more susceptible than Jimbour^{Φ} and Kyabra^{Φ}.

AGRONOMY
Plant characteristics

PBA Pistol^{Φ} has;

- Early flowering to maximise pod set and grain fill.

  "Growers in frost prone areas should avoid early sowing".

- A taller, more erect plant type than Moti^{Φ}, Kyabra^{Φ} and Jimbour^{Φ}.
- Greater lodging resistance, particularly in high yielding situations.
- Increased harvestability, plant height and lowest pod height.

Sowing

- Target the optimum planting window for your area.
- Sow high quality seed at rates calculated to achieve a plant population of 25–30 plants/m^2.
  Typically this is 50 to 65 kg/ha depending upon germination percentage and planting conditions.
- Inoculate with Group N Chickpea Rhizobium.

Preferred sowing times for Central Queensland

Region	April				May			
	1	2	3	4	1	2	3	4
Central Highlands								
Callide & Dawson								

Preferred sowing window.
Marginal sowing time, lower yields likely.

Tolerance of physical stresses

- Follow the current Best Management Practices for desi chickpea production in your area.
- Widespread field evaluation of PBA Pistol^{Φ} has found no increased sensitivity compared with other commonly grown desi chickpea varieties to registered herbicides when applied according to label directions.
- There is no evidence of increased sensitivity to frost compared to other desi chickpea varieties.

REFER TO DETAILED INFORMATION AT www.pulseaus.com.au
Ute guides, crop and disease management bulletins

PULSE VMP Pulse Variety Management Package

PBA Pistol^{Ф}
Desi Chickpea (CQld ONLY)

SEED QUALITY

PBA Pistol^{Ф} is a standard 'Indian' type desi chickpea, it has a similar shape, seed coat texture and seed coat colour to Kyabra^{Ф}.

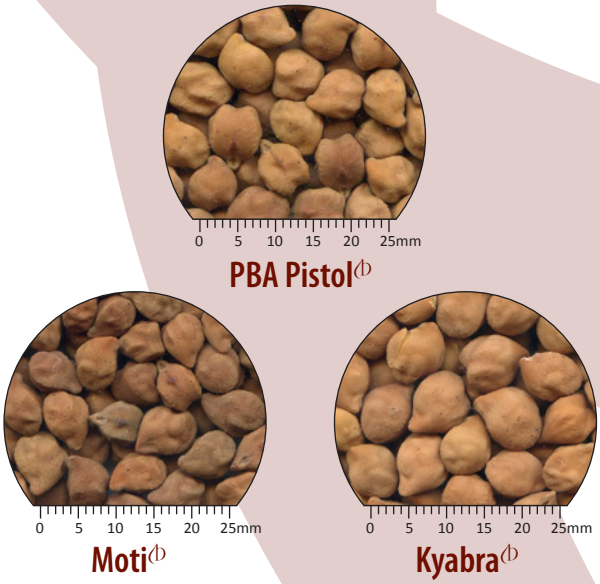
Seed size, as measured by 100 seed weight, is similar to Kyabra^{Ф}. PBA Pistol^{Ф} contains a higher percentage of 7 and 8 mm grains, providing higher dhal yields.

Seed quality, as measured by grain weight, colour, texture, size fraction, grain and dhal colour are equivalent to Kyabra^{Ф} and significantly better than Moti^{Ф}.

Milling quality of PBA Pistol^{Ф}, as measured by dehulling efficiency and dhal yield, is greater (3-4% higher) than other varieties commonly grown in Central Queensland.

Variety	Seed weight (g/100)	Dhal yield (%)
PBA Pistol^{Ф}	24.7	67.2
Jimbour^{Ф}	22.0	66.7
Kyabra^{Ф}	25.3	63.9
Moti^{Ф}	22.2	63.8
PBA HatTrick^{Ф}	19.5	66.9

Source: Pulse Breeding Australia.



MARKETING

PBA Pistol^{Ф} has been assessed by traders in India and is considered suitable for both direct consumption and splitting end uses.

BREEDING

PBA Pistol^{Ф} is a cross between Moti^{Ф} and 8511-14 and has been evaluated as D99234>F4BLLX402 and CICA0702.
PBA Pistol^{Ф} was developed by the PBA desi chickpea breeding program, led by NSW-DPI.

PBA
PULSE BREEDING AUSTRALIA

Better pulse varieties faster

PBA is an unincorporated joint venture between the GRDC, University of Adelaide, SARDI, DPI Victoria, NSW-DPI, DEEDI, DAFWA and Pulse Australia.
It aims to deliver better pulse varieties faster.

FOR MORE INFORMATION

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Seednet

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 desi chickpea varieties.

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