VARIETY MANAGEMENT PACKAGE

BROLGA

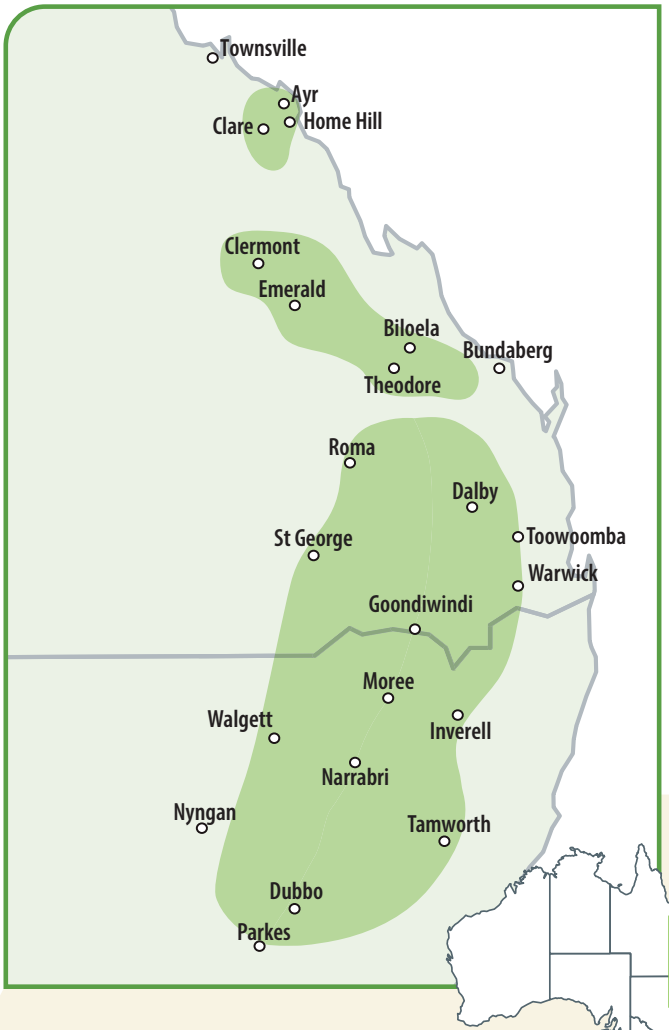
KEY FEATURES

- **Broad adaptation:** Well suited to diverse growing conditions
- **High yield performance:** Outyields Jade-AU across the Northern growing region
- **Disease resistance:** Halo Blight resistance better than Jade-AU
- **Plant structure:** Tall erect plant type
- **Durability:** Lodging and shattering resistant
- **Seed size:** 8% larger than Jade-AU

MAIN ADVANTAGES

- Equal yield to Opal-AU under natural Halo Blight disease pressure
- Improved Tan Spot resistance over Opal-AU
- Tan Spot and Powdery Mildew resistance equal to Jade-AU
- Grain quality superior to Jade-AU
- Good harvestability

REGIONS OF ADAPTATION



Queensland Government

GRDC GRAINS RESEARCH & DEVELOPMENT CORPORATION

AUSTRALIAN MUNGBEAN ASSOCIATION

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APRIL 2025

DISEASE MANAGEMENT

Brolga offers an improved disease resistance profile compared to Jade-AU and better Tan Spot resistance over Opal-AU. This strong disease profile contributes to good yield stability.

DISEASE RESISTANCE RATINGS

Variety	*Halo Blight*	*Tan Spot*	*Powdery Mildew*
Brolga	**4.6**	**3.6**	**5.5**
Jade-AU	5.2	3.6	5.7
Kookaburra	3.4	3.3	4.4
Opal-AU	3.0	6.9	4.4
Crystal	5.7	3.1	6.0
Satin II (dull seeded)	6.4	3.7	5.4

Source: DPI National Mungbean Improvement Program (Analysed data 2020-2024) | Rating scale for all three diseases: 1=Resistant, 9=Susceptible | Halo Blight and Powdery Mildew data from field inoculated nurseries (2020-2024) | Tan Spot data from glasshouse inoculated trials (2023-2024) | For yield loss data under two cases of natural Halo Blight infection in breeding trials, refer to the yield table | Brolga has no improved resistance to Fusarium Wilt and only Onyx-AU and Celera II-AU should be considered for infected paddocks.

AGRONOMIC MANAGEMENT

Brolga is comparable agronomically to all current varieties and holds its flowers and pods high in the canopy. Agronomic management of Brolga aligns with standard practice.

SEED SIZE & AGRONOMIC TRAITS

Variety	*Seed Weight* per 100 seeds	*Days to Flowering*	*Days to Maturity*	*Plant Height*	*Lodging* [1] *Resistance* (Lodging score)	*Shattering* [2] *Resistance* (Shattering score)
Brolga	**8.0 g**	**43 days**	**75 days**	**62 cm**	**1.7**	**1.7**
Jade-AU	7.4 g	41 days	75 days	60 cm	2.0	1.8
Kookaburra	7.4 g	41 days	74 days	54 cm	1.6	1.6
Opal-AU	7.0 g	42 days	72 days	62 cm	2.2	1.2
Crystal	7.4 g	43 days	76 days	62 cm	1.5	1.5
Satin II (dull seeded)	7.2 g	43 days	73 days	59 cm	1.5	1.3

Source: DPI National Mungbean Improvement Program (raw data averages 2020-2024) | [1] Lodging Score: 1 = Fully erect, 9 = flat on ground. | [2] Shattering Score: 1 = no seed expelled from mature pods, 9 = all seed expelled from mature pods. | Seed Weight (23 trials) DTF, DTM and Plant Height (18 trials), Lodging and Shattering (32 trials)

GRAIN YIELD

Brolga's yield has been evaluated in 31 trials conducted between 2020 and 2024. In Central and Southern Queensland, these trials span five seasons, with 13 and 11 trials, respectively. In NSW, seven trials cover three distinct seasonal conditions—2021, 2022 and 2024.

Central NSW: Brolga has demonstrated yield gains of 6–11% over Jade-AU and 10–11% over Opal-AU in non-diseased trials. Under Halo Blight disease pressure, Brolga significantly outyielded Jade-AU by 30% and Opal-AU by 5%.

Northern NSW, Southern Queensland and Central Queensland: Across 29 non-diseased trials, Brolga has consistently matched or exceeded the yield of Jade-AU. These trials represent a wide range of yield potential, from 0.88 t/ha to 2 t/ha.

In 2021, under Halo Blight disease pressure in Warwick, Brolga outyielded Jade-AU by 28%.

YIELD TRIAL DATA

THREE SOUTHERN QUEENSLAND LOCATIONS 2020-2024 (YIELD AS A % OF JADE-AU)

Yield grouping	*Warra* *< 1 t/ha*	*Warra* *1-1.5 t/ha*	*Pampas* *1-1.5 t/ha*	*Warwick* *< 1 t/ha (Halo Blight)*[1]	*Warwick* *1-1.5 t/ha*	*Warwick* *> 1.5 t/ha*	*Warwick Irr* [2] *> 2 t/ha*
Mean yield of Jade-AU (t/ha)	**0.97**	**1.26**	**1.44**	**0.84**	**1.29**	**1.67**	**2.02**
*Number of trials**	2 *(S3, S2)*	1 *(S3)*	1 *(S1)*	1 *(S2)*	1 *(S2)*	4 *(S3s, S2, S1)*	*1 (S3)*
Years	2023	2022	2020	2021	2023	2023, 2024	2024
Brolga	**98**	**123**	**100**	**128**	**125**	**97**	**95**
Jade-AU	100	100	100	100	100	100	100
Kookaburra	113	97	98	148	125	97	110
Opal-AU	101	96	88	153	113	97	105
Crystal	103	92	84	93	106	97	99
Satin II (dull seeded)	107	103	86	110	113	97	99

*Source: DPI National Mungbean Improvement Program (Analysed MET (multi-environment trial) data from 11 trials and averaged within a yield grouping for each site) | * Breeding trial type in brackets: S3 = Stage 3 advanced yield trial, S2 = Stage 2 preliminary yield trial, S1 = Stage 1 initial yield trial | [1] = Natural disease infection at yield trial site | [2] = Irrigation trial*

TWO NEW SOUTH WALES LOCATIONS 2021, 2022 & 2024 (YIELD AS A % OF JADE-AU)

Yield grouping	*Northern NSW* *1-1.5 t/ha*	*Northern NSW* *> 1.5 t/ha*	*Liverpool Plains* *< 1 t/ha (Halo Blight)*[1]	*Liverpool Plains* *1-1.5 t/ha*	*Liverpool Plains* *> 1.5 t/ha*
Mean yield of Jade-AU (t/ha)	**1.19**	**1.56**	**0.81**	**1.27**	**1.56**
*Number of trials**	2 *(S3, S2)*	1 *(S3)*	1 *(S2)*	2 *(S3, S2)*	1 *(S3)*
Years	2024	2022	2021	2024	2022
Brolga	**90**	**102**	**130**	**111**	**106**
Jade-AU	100	100	100	100	100
Kookaburra	97	96	172	112	118
Opal-AU	100	93	125	100	96
Crystal	99	86	96	90	81
Satin II (dull seeded)	99	94	81	94	85

*Source: DPI National Mungbean Improvement Program (Analysed MET (multi-environment trial) data from 7 trials and averaged within a yield grouping for each site). Trials conducted by Kalyx | * Breeding trial type in brackets: S3 = Stage 3 advanced yield trial, S2 = Stage 2 preliminary yield trial, S1 = Stage 1 initial yield trial | [1] = Natural disease infection at yield trial site*

TWO CENTRAL QUEENSLAND LOCATIONS 2020-2024 (YIELD AS A % OF JADE-AU)

Yield grouping	*Emerald* *< 1 t/ha*	*Emerald* *1-1.5 t/ha*	*Emerald* *> 1.5 t/ha*	*Emerald Irr* [1] *1-1.5 t/ha*	*Dawson/Callide* *< 1 t/ha*	*Dawson/Callide* *1-1.5 t/ha*
Mean yield of Jade-AU (t/ha)	**0.95**	**1.28**	**1.87**	**1.46**	**0.88**	**1.36**
*Number of trials**	2 *(S3s)*	4 *(S2, S1)*	2 *(S2s)*	1 *(S3)*	2 *(S3,S2)*	2 *(S3, S2)*
Years	2022, 2023	2020, 2023, 2024	2021, 2024	2022	2023	2021, 2022
Brolga	**103**	**105**	**97**	**101**	**98**	**104**
Jade-AU	100	100	100	100	100	100
Kookaburra	94	98	90	92	99	91
Opal-AU	90	90	93	97	114	88
Crystal	87	88	86	92	89	88
Satin II (dull seeded)	99	97	90	88	103	100

*Source: DPI National Mungbean Improvement Program (Analysed MET (multi-environment trial) data from 13 trials and averaged within a yield grouping for each site) | * Breeding trial type in brackets: S3 = Stage 3 advanced yield trial, S2 = Stage 2 preliminary yield trial, S1 = Stage 1 initial yield trial | [1] = Irrigation trial*

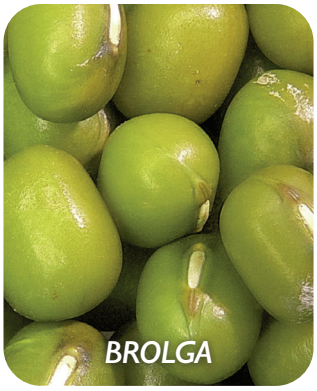
VARIETY MANAGEMENT PACKAGE

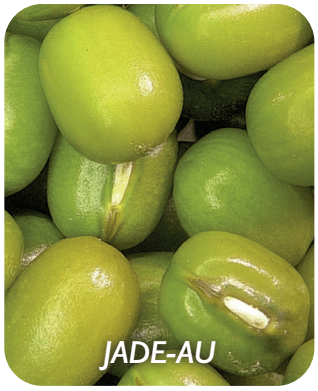
BROLGA

MARKETING

Brolga seed size is 8% larger than Jade-AU making it the largest variety commercially available. In a recent commercial seed production harvest of Brolga (Ayr, 2024), 83% of the tonnage graded above a 4mm slotted sieve in the gravity grading process.

Brolga has received positive feedback on seed quality from both domestic and international traders. Over three years of buyer evaluations, Brolga samples achieved a higher export grade than current check varieties in two of those years.





SEED QUALITY

To maintain genetic purity, high vigour, and minimise the risk of seed-borne diseases such as Tan Spot and Halo Blight, industry best practice recommends replacing planting seed every three seasons. These bacterial diseases can significantly impact yields.

AMA APPROVED SEED

Always purchase AMA Approved Seed, which is harvested from dedicated seed crops inspected to minimise the risk of seed-borne diseases. AMA Approved Seed is available from AMA Members or authorised seed resellers.

END POINT ROYALTIES

An $8/tonne end-point royalty (excluding retained seed) is payable to the Australian Mungbean Association, which distributes proceeds to QDPI and GRDC. These funds support the National Mungbean Improvement Program and AMA initiatives, including research, agronomy training, market access, quality standards, and industry promotion - driving ongoing industry growth.

BREEDING

Brolga (evaluated as M19100) was developed from a cross between two fixed breeding lines.

The National Mungbean Improvement Program is led by the Queensland Department of Primary Industries (DPI) in partnership with the Grains Research and Development Corporation (GRDC). The Australian Mungbean Association (AMA) is the commercial partner.

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