

MOONBI

Fast maturing variety for NSW

QUICK GUIDE

WHERE

Suited to what regions?

- North Coast NSW (Manning to Tweed River Valleys) & Liverpool Plains, inland irrigated NSW (Namoi & Gwydir valleys and south to the Macquarie valley).
- Generally not suited to Queensland. May be considered for early planting in south-east Queensland.
- Remember: Right Place, Right Time! For optimum yield & performance varieties must be planted in their region of adaptation and in the right planting window.

WHEN

Planting window

- *North Coast NSW:* Early planting window (20 Nov–10 Dec).
- *Inland irrigated NSW:* Early planting window (end Nov).

WHAT'S NEW

Key traits

- *Crop:* quick maturing (12 days earlier to harvest than Soya 791), compact plant shape, open canopy, better weathering tolerance than Cowrie & Soya 791, withstands water-logging at the seedling stage better than Soya 791.
- Moonbi is powdery mildew resistant
- *Grain:* Clear hilum, high protein, attractive round shiny seed suited to higher value culinary markets (soymilk, tofu, flour) as well as crushing markets.

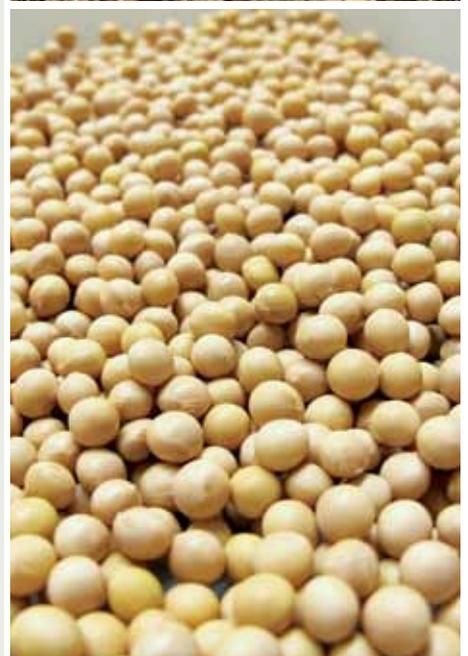
Characteristics

Crop: Moonbi finishes quickly, around 12 days faster than Soya 791 at the same planting date. This is an advantage in coastal production areas to minimise the risk of encountering heavy rain and weathering damage at harvest. It also allows for timely planting of winter crops or pastures in double-cropping systems. In inland irrigated systems it may also reduce the need for additional irrigation water to finish the crop. Moonbi has a compact plant shape with a more open canopy than Soya 791 and Cowrie and less prone to lodging. It has good levels of tolerance to manganese toxicity, which is common in acidic coastal soils. Field evaluations of Moonbi have shown that it has greater tolerance of water-logging at the seedling stage than Soya 791.

Grain: Moonbi has high protein grain (comparable to Cowrie and better than Soya 791), an important requirement in human consumption and high value markets. It has better tolerance to weathering than Cowrie and Soya 791. Its weather tolerance is not quite as high as that of Zeus, a dark hilum type.

- Attractive round seed shape, shiny seed coat, clear hilum and good potential for large seed size, which is advantageous for soybean processing
- Good genetic potential for high protein levels - similar to Cowrie and consistently higher than Soya 791 over several seasons of analysed data. Protein level over 40% dry matter is required for growers to access the human consumption market and price premiums
- Improved weathering tolerance to Cowrie & Soya 791 (assessed in a controlled environment at the same stage of maturity). Not yet as high as Zeus (the dark hilum benchmark) but this is an improvement for early sown clear hilum types for the NSW coast. Weathering tolerance is an essential trait to improve crop security in coastal production areas
- Yield better than Cowrie at the same planting time (first week Dec) but not quite as high as Soya 791 (see data below).
- Very quick to finish (about 12 days earlier than Soya 791 at the same planting date). This is an advantage in coastal production areas to minimise the risk of encountering heavy rain at harvest. This trait is advantageous for double cropping systems allowing for early planting of winter crops & pastures. It is also advantageous to inland irrigated systems as it can reduce the need for additional irrigation water to finish the crop.
- Field observations in 2007-08 suggest that Moonbi was advantaged over later finishing varieties when a soybean leaf rust epidemic developed. Moonbi is not immune to leaf rust but as it was more advanced in pod-filling when the rust developed, it was able to maintain better seed size and yield than other rust-susceptible varieties in the trial
- Much better tolerance to waterlogging than Soya 791 as observed in field situations over several seasons. This is an important trait for coastal production where waterlogging often occurs after planting. Soya 791 seedlings are affected by waterlogging and can take a long time to recover
- Improved tolerance to manganese toxicity than Soya 791 and A6785. This trait is important in coastal soils with acidic pH and high rainfall
- Moonbi has an erect habit, is not prone to lodging and does not have a twining habit like Soya 791. This is an advantage in humid environments as it allows aeration in the crop, which reduces the development of fungal diseases such as sclerotinia (white mould) and soybean leaf rust. It also has a quick and clean defoliation, which improves ease of harvest.

Photos: N Moore NSW DPI



Regional adaptation

Moonbi is adapted to production on the North Coast of NSW and the inland irrigated regions of NSW eg. Narrabri, Breeza & Liverpool Plains and south to the Macquarie valley (see map below). Moonbi is generally not suited to Queensland as it matures too quickly to reach its full yield potential. However, Moonbi may be considered for early planting in south-east Queensland.

The compact plant shape of Moonbi is less prone to lodging than varieties like Soya 791 and A6785. Its open canopy allows better aeration, which reduces the development of fungal diseases such as sclerotinia (white mould) and leaf rust in wet conditions and assists in the penetration of sprays.

Market suitability

Moonbi has excellent grain quality with high protein content and a clear hilum, an important characteristic for higher value human consumption markets. It is also suitable for crushing markets.

Breeding

Moonbi (line 98053-3) was bred by Dr Andrew James, CSIRO, through the Australian Soybean Breeding Program (GRDC/CSIRO/I&I NSW). It is commercially licensed by Soy Australia. Coastal field evaluation and selection by Dr Natalie Moore, NSW DPI, Grafton. Parents: 95395-2 x LJBC Manta.

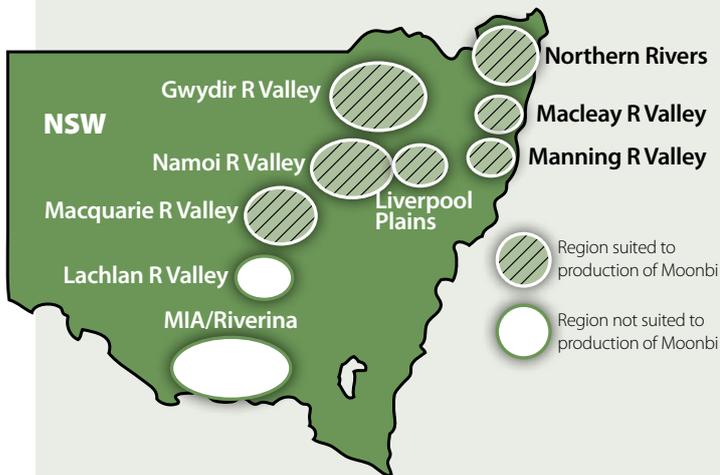
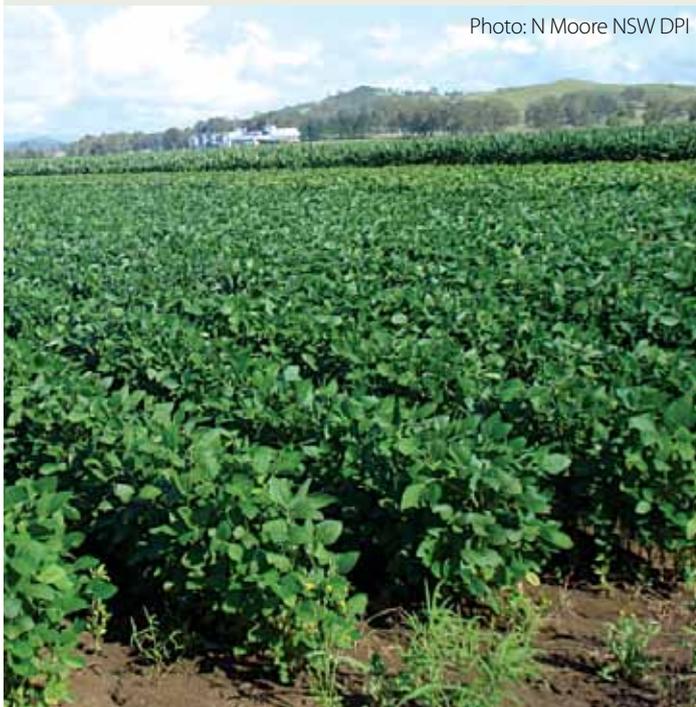


Photo: N Moore NSW DPI



On-Farm evaluation at Shannonbrook (Fred Faulkner):
Soya 791 3.45t/ha, Moonbi 4.33t/ha

Yield (t/ha) from On-Farm Trials 2008-09		
Variety	Sth Codrington	Shannonbrook (Image: Below Left)
Moonbi	3.6	4.3
Soya 791	3.0	3.5

Soybean variety evaluation data from the Australian Soybean Breeding Program (CSIRO, NSW DPI, GRDC). Long term replicated field evaluations at early sowing date (~5 Dec) with 4 field replicates per season. Data provided by Dr N. Moore, NSW DPI Grafton.

Average of analysed data from 9 seasons from 2004-05 to 2012-13

Yield (t/ha at 12% moisture)	
Moonbi	4.1
Soya 791	4.2
Cowrie	3.9
Seed Size (g/100 seed at 12% moisture)	
Moonbi	21.5
Soya 791	18.6
Cowrie	20.8
Protein (%dry matter)	
Moonbi	42.5
Soya 791	41.6
Cowrie	42.3
Weathering tolerance (% unweathered seed, 9 reps/season)	
Moonbi	72.1
Soya 791 (Low benchmark for weathering tolerance)	53.7
Cowrie	65.2
Zeus (High benchmark for weathering tolerance)	84.2
Maturity (Days to reach P95, physiological maturity)	
Moonbi	119
Soya 791	131
Cowrie	124
Lodging (1-5; 1=no lodging, 5=severe)	
Moonbi	1.6
Soya 791	2.5
Cowrie	1.4
Plant height (cm)	
Moonbi	96
Soya 791	100
Cowrie	88



Soy Australia is licenced to commercialise Moonbi.
Contact Dr Joe Kochman on 0408 736 356
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