Department of Primary Industries
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DPI Primefact

Doongara growing guide

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Doongara is a semi-dwarf, long grain, hard cooking (high amylose) variety with a low glycaemic index (GI) and is resistant to lodging.

Yield potential: the yield potential of Doongara is similar to Reiziq$^{\phi}$ (Table 1), although it is highly susceptible to low temperatures during the reproductive period.

Table 1. Average grain yield of Doongara and Reiziq$^{\phi}$ from experiments and commercial fields over 5 seasons.

5 year average yield (t/ha)	Doongara	Reiziq$^{\phi}$
Experiment average	12.2	12.1
Grower average	11.2	10.6

Establishment vigour: experiments have shown Doongara to have moderate establishment vigour.

Sowing method and date: all sowing methods, i.e. aerial, dry broadcast, drill and delayed permanent water (DPW), are suitable for growing Doongara and have the same grain yield potential when managed appropriately.

The recommended sowing and first flush windows for Doongara are listed in Table 2.

Table 2. Target sowing and first flush dates for Doongara using different sowing methods.

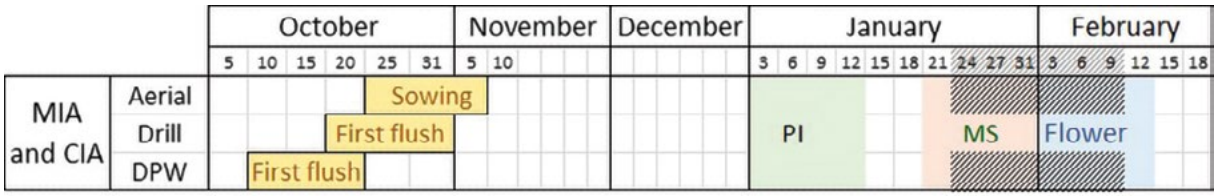
MIA/CIA		
Aerial/dry broadcast	Drill	Delayed permanent water
20 October–5 November	15–31 October	5–20 October

MIA=Murrumbidgee Irrigation Area. CIA=Coleambally Irrigation Area.

Sowing date recommendations for Doongara aim to ensure the critical microspore (MS) and flowering periods align with the period of least risk of low temperatures (Table 3).

Sowing earlier or later than recommended increases the risk of exposure to low temperatures during MS and flowering, which can reduce grain yield.

Table 3. Recommended sowing and first flush dates for Doongara and the subsequent panicle initiation (PI), microspore (MS) and flowering timing when sown in the recommended period for each district and sowing method. The hatched area shows the time of least risk of low temperatures.



MIA – Murrumbidgee Irrigation Area, CIA – Coleambally Irrigation Area, DPW – delayed permanent water.

Sowing rate: Doongara should be sown at 130 kg/ha for all sowing methods, aiming to establish between 100 plants/m² and 200 plants/m². Sowing rates can be reduced by 10–20% when drill sowing if the seed is placed at a consistent depth and in good establishment conditions.

Sow a compound fertiliser containing phosphorus and zinc with the seed when drill sowing.

Cold tolerance: Doongara **has a low tolerance to cold stress** during the reproductive periods. It must be sown in the recommended window with particular attention paid to water management.

Water levels should be kept low during tillering to encourage shorter plants and then increased to a depth of at least 250 mm after panicle initiation (PI) until mid-flowering.

Plant height: Doongara has a similar height to Reiziq$^{\Phi}$, which is, on average, 810 mm.

Lodging potential: Doongara is resistant to lodging due to its short height and strong stem strength.

Grain shattering: Doongara has moderate susceptibility to shedding grain once the crop is mature.

Straighthead susceptibility: Doongara is susceptible to straighthead, which reduces grain yield. Symptoms present as floret sterility, particularly in low nitrogen (N) areas. Severe straighthead has the characteristic parrot-beaking symptoms and missing florets. See Primefact 1346: Straighthead in Australian rice crops.

Nitrogen management: Doongara N applications should be split 70:30 between pre-PW (permanent water) and PI to reduce cold susceptibility risks.

It is recommended to apply between 180 kg/ha and 260 kg/ha urea at pre-PW to Doongara (Figure 1). Fields with a history of legumes could require less N pre-PW, and some continuously cropped fields with heavy clay soils might require more N.

Applying higher than required rates of N pre-PW increases a rice crop's susceptibility to cold stress more than extra N applied at PI.

Any major field variability in N should be amended pre-PW. Red edge imagery of previous rice crops grown in the field is a good resource for identifying soil N variability.

Doongara has similar N requirements to Reiziq$^{\Phi}$ to reach its maximum yield potential (Figure 2). However, the N input timing differs due to its high susceptibility to low-temperature-induced sterility.

Panicle initiation nitrogen (PI N): Doongara produces a consistently high grain yield with lower susceptibility to cold when N is split between pre-PW and PI.

For maximum grain yield with reduced lodging, use red edge imagery and the PI tissue test to determine PI N top-dressing rates. Higher than required N rates applied at PI can reduce profitability.

Harvest: be prepared to start harvesting Doongara as soon as the grain moisture drops to 22%. Delaying harvest after the crop matures will increase the risk of grain shedding and lodging, reducing grain quality.

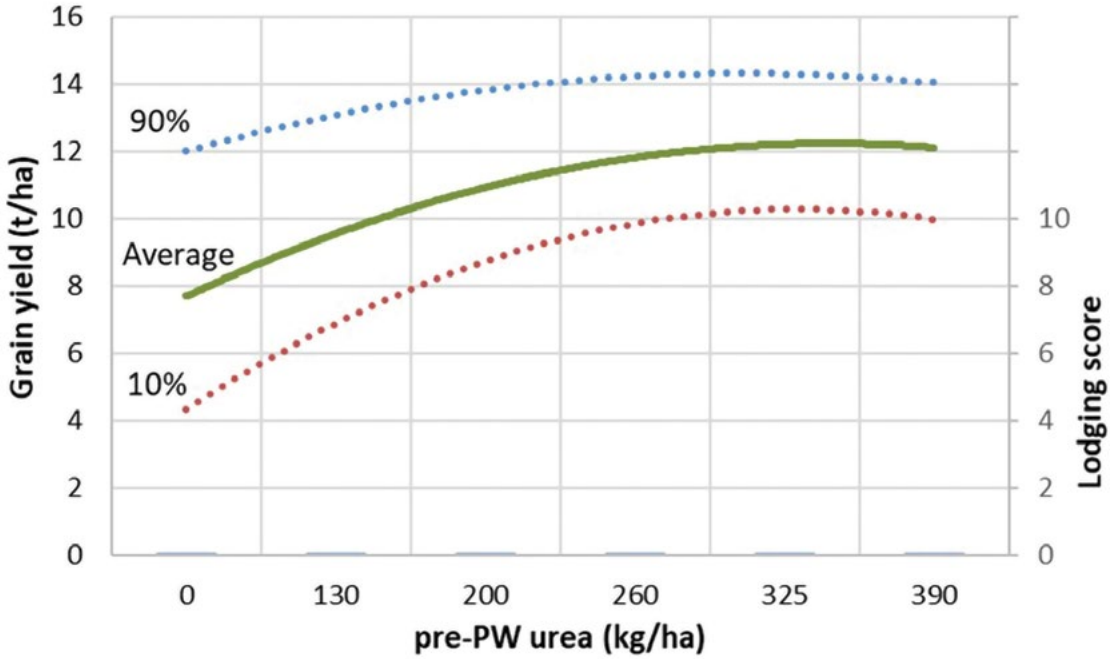


Figure 1. Doongara grain yield (average, 10 and 90 percentile) and average lodging score (0=standing, 10=flat) results for pre-permanent water (PW) nitrogen (N) rates (no panicle initiation (PI) applied nitrogen). Results are from 99 plots in 11 experiments conducted over 7 seasons with a range of soil types, fertility levels and sowing methods.

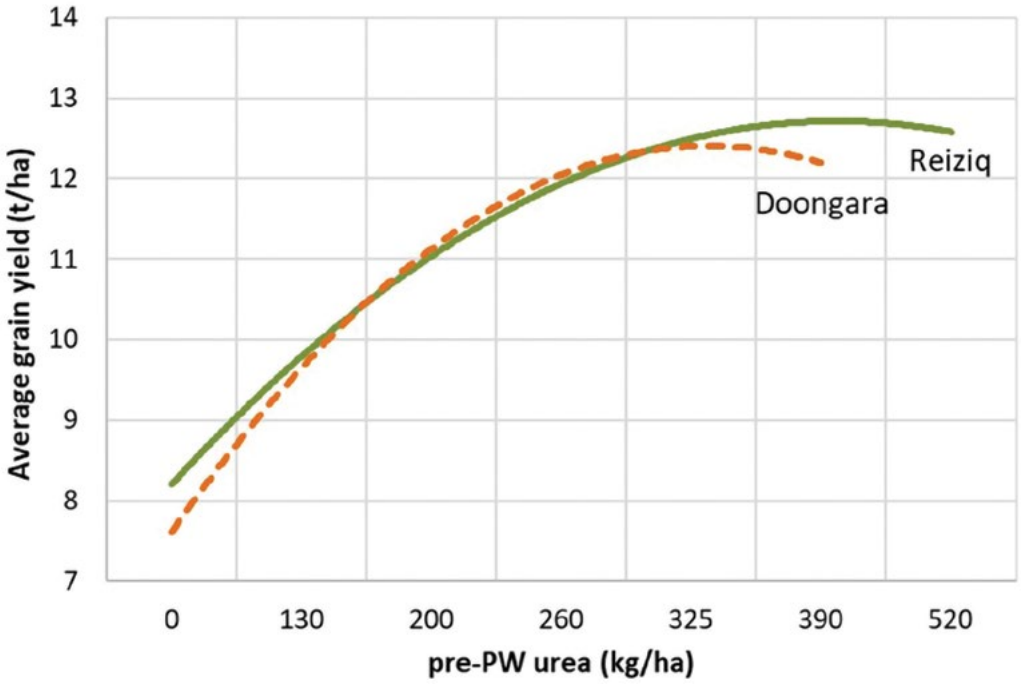


Figure 2. Average grain yields for Doongara compared with Reiziq$^{\phi}$ for a range of pre-permanent (PW) water nitrogen (N) applications.

Acknowledgements

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