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NSW GOVERNMENT

DPI Primefact

V071^{Φ} growing guide

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V071^{Φ} is a semi-dwarf bold, medium-grain rice variety with high grain yield potential, outperforming Reiziq^{Φ} in all our district experiments. V071^{Φ} has superior cold tolerance and reduced shattering compared with Reiziq^{Φ}. V071^{Φ} has a similar growth duration to Reiziq^{Φ}, but has the advantage of not delaying its development during periods of low temperature.

Yield potential: V071^{Φ} has a high grain yield potential. In 4 seasons of experiments conducted in commercial fields, V071^{Φ} always yielded higher than Reiziq^{Φ} (Table 1).

Table 1. Average grain yield of Reiziq^{Φ} and V071^{Φ} from experiments and commercial fields over 4 seasons.

4 year average yield (t/ha)	Reiziq^{Φ}	V071^{Φ}
Experiment average	12.1	13.5
Grower average	10.6	12.0

Sowing method and date: all sowing methods, i.e. aerial, dry broadcast, drill and delayed permanent water (DPW), are suitable for growing V071^{Φ} and have the same grain yield potential when managed appropriately. The recommended sowing and first flush dates for V071^{Φ} are shown in Table 2.

Table 2. Target sowing and first flush dates for V071^{Φ} for different sowing methods and regions.

MIA/CIA			Murray Valley		
Aerial/dry broadcast	Drill	Delayed permanent water	Aerial/dry broadcast	Drill	Delayed permanent water
20 October–5 November	15–31 October	5–20 October	15–31 October	10–25 October	1–15 October

MIA: Murrumbidgee Irrigation Area. CIA: Coleambally Irrigation Area.

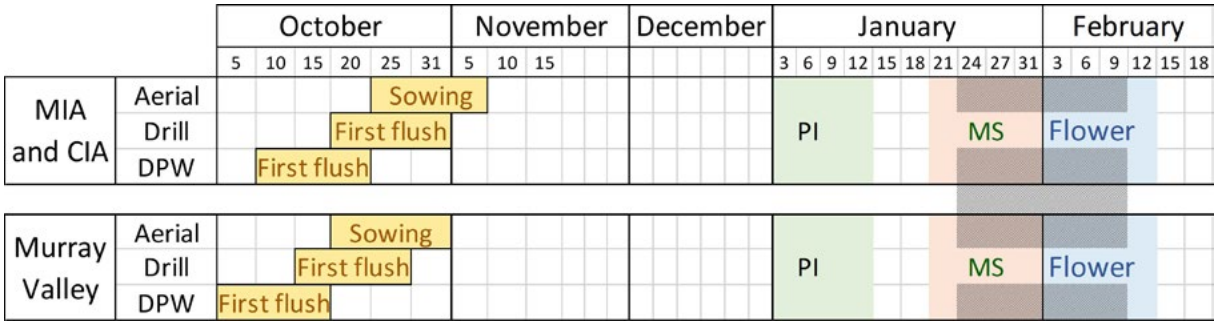
Sowing date recommendations for V071^{Φ} aim to ensure the critical microspore (MS) and flowering periods align with the period of least risk of low temperatures (Table 3).

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

V071^{Φ} development does not slow during periods of low temperatures like Reiziq^{Φ}, which is beneficial in cool seasons.

Establishment vigour: experiments have shown V071^{Φ} to have strong emergence and establishment vigour.

Table 3. Recommended sowing and first flush dates for V071$^{\Phi}$ 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: V071$^{\Phi}$ 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: V071$^{\Phi}$ has a higher tolerance to cold stress during the early pollen MS and flowering periods than Reiziq$^{\Phi}$. V071$^{\Phi}$ has a similar cold tolerance to Sherpa$^{\Phi}$.

Plant height: V071$^{\Phi}$ has a similar height to Reiziq$^{\Phi}$, which is, on average, 810 mm.

Lodging potential: V071$^{\Phi}$ has moderate resistance to lodging, which can be induced by applying excessive N pre-permanent water (PW).

Grain shattering: V071$^{\Phi}$ has improved grain shattering compared with Reiziq$^{\Phi}$. Ranked as moderate, V071$^{\Phi}$ is similar in grain shattering to Sherpa$^{\Phi}$ and Viand$^{\Phi}$.

Nitrogen management: apply between 200 kg/ha and 340 kg/ha urea to V071$^{\Phi}$ pre-PW (Figure 1). Fields with a history of legumes might require less pre-PW N, and some continuously cropped fields with heavy clay soils could require more pre-PW N.

V071$^{\Phi}$ is a durable variety with a long yield plateau before grain yield declines due to sterility or lodging becomes a problem from excess N application (Figure 1).

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.

Aim to apply 80–90% of the total required N before PW and then top up at PI if required. Adequate N must be applied pre-PW to achieve maximum grain yield as PI-applied N is limited in how much it can increase yield (Figure 2).

In warm seasons, maximum grain yield can be achieved by applying all the required N pre-PW. However, in seasons with low temperatures during MS or flowering, excess pre-PW N can increase sterility and reduce grain yield.

Panicle initiation nitrogen (PI N): for maximum grain yield with reduced lodging, use red edge imagery and the PI tissue test at PI to determine N top-dressing rates. Higher than required N rates applied at PI can increase lodging and reduce profitability.

Extra N applied at PI does not increase a rice crop's susceptibility to cold stress as much as applying higher than required rates of N before PW.

Harvest: V071$^{\Phi}$ leaves remain greener than Reiziq$^{\Phi}$ as it matures, which can provide some visual confusion when determining drainage timing. Use grain maturity (i.e. the number of milky grains) and grain moisture when making the drainage decision (Figure 3).

Be prepared to start harvesting as soon as the grain moisture drops to 22%. Delaying harvest after the crop matures increases the risk of grain shedding and lodging.

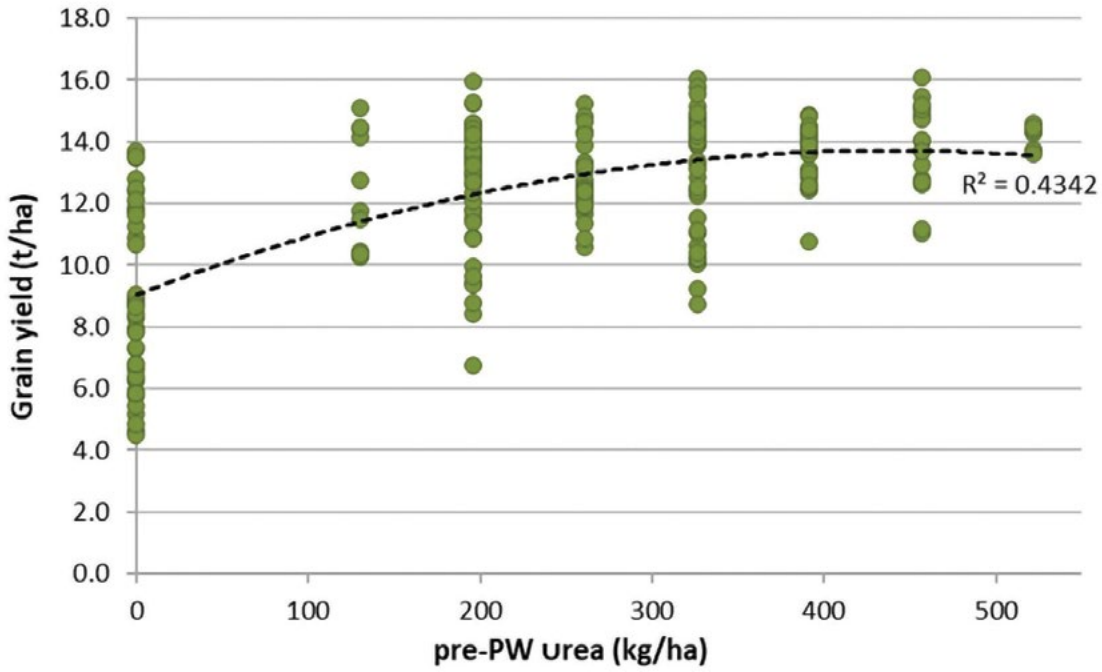


Figure 1. V071$^{\phi}$ grain yield results for pre-permanent water (PW) nitrogen (N) rates (no panicle initiation (PI) applied N). Results are from 301 plots in 19 experiments conducted over 4 seasons with various soil types, fertility levels and sowing methods.

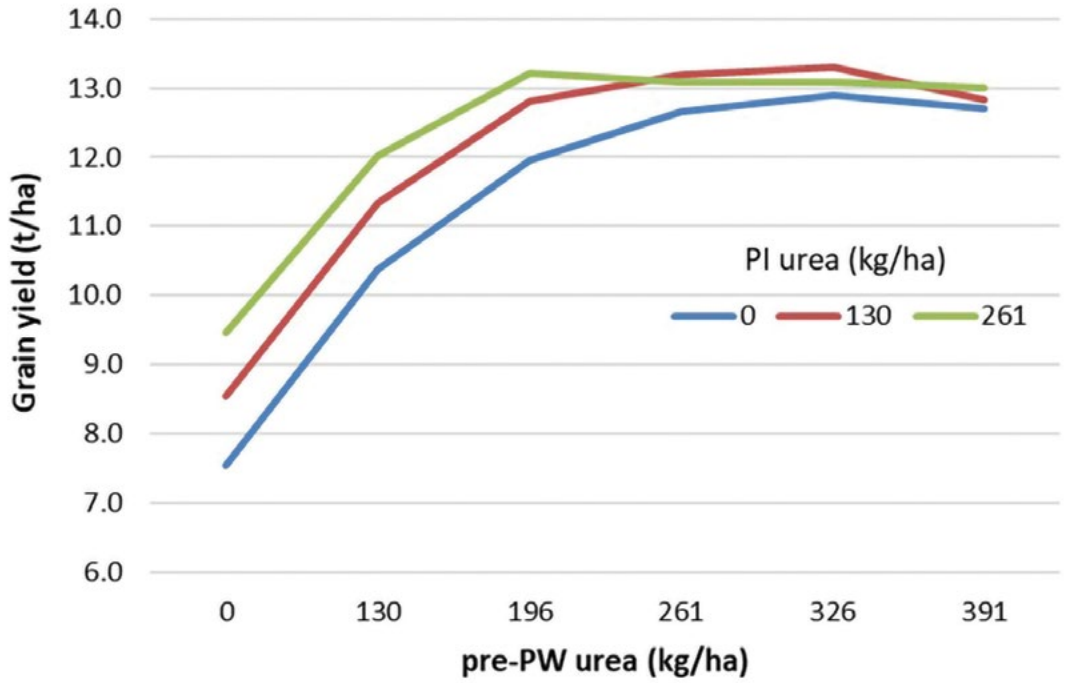


Figure 2. Grain yield of drill sown V071$^{\phi}$ for a range of pre-permanent water (PW) and panicle initiation (PI) urea rates in 2022–23.

Figure 3. V071$^{\phi}$ (left) has more green leaf than Reiziq$^{\phi}$ (right) as it nears maturity with both varieties close to 26% grain moisture.

Acknowledgements

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