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Langi growing guide

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Langi is a semi-dwarf, long grain variety with soft cooking (low amylose) properties. It is grown in the Murrumbidgee Irrigation Area (MIA) and the Coleambally Irrigation Area (CIA) and is susceptible to shedding grain when mature.

Yield potential: the yield potential of Langi is 94% of Reiziq$^{\Phi}$ (Table 1), with similar cold stress tolerance.

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

5 year average yield (t/ha)	Langi	**Reiziq$^{\Phi}$**
Experiment average	11.5	12.3
Grower average	9.4	10.6

Establishment vigour: experiments have shown Langi 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 Langi and have the same grain yield potential when managed appropriately.

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

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

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

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

Sowing date recommendations for Langi 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 Langi 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: Langi 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: Langi has a moderate tolerance to cold stress during the early pollen MS and flowering periods, similar to Reiziq$^{\Phi}$.

Plant height: Langi is, on average, 870 mm tall, 60 mm taller than Reiziq$^{\Phi}$.

Lodging potential: Langi has intermediate resistance to lodging, which can be induced by applying excessive nitrogen (N) pre-permanent water (PW). The effects of pre-PW N application on lodging in Langi are shown in Figure 1.

Langi will also lodge if left in the field once mature for an extended period before harvest.

Grain shattering: Langi is the second-most prone of all current commercial varieties for shattering. Early harvest is recommended as Langi is susceptible to shedding grain once the crop is mature.

Nitrogen management: Langi N applications should be **split 70:30 between pre-PW and PI** to reduce lodging and cold susceptibility risks.

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

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.

Langi has similar N requirements to Reiziq$^{\Phi}$ to reach its maximum yield potential (Figure 2), however, it requires different timing for the N inputs. 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.

Panicle initiation nitrogen (PI N): Langi produces a high grain yield with less lodging and reduced cold susceptibility 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 increase lodging and reduce profitability.

Harvest: be prepared to start harvesting Langi as soon as the grain moisture drops to 22%. Delaying harvest after the crop is mature will increase the risk of grain shedding and lodging and reduce grain quality.

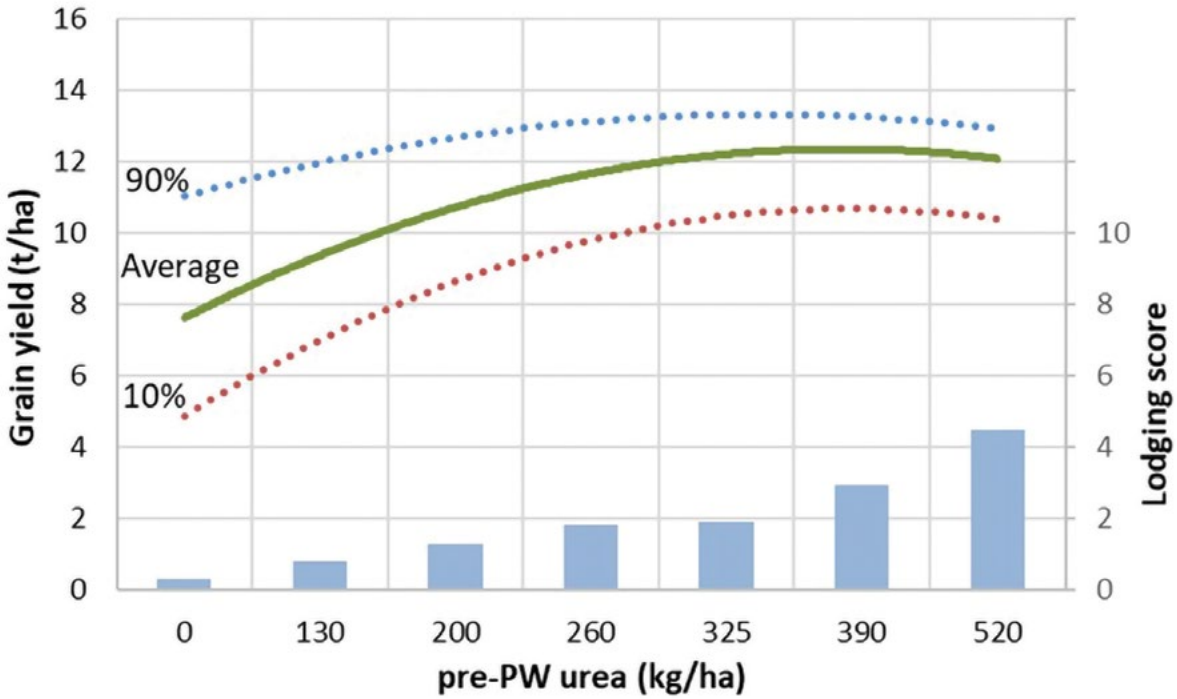

Figure 1. Langi grain yield (average, 10 and 90 percentile) and average lodging score (0=standing, 10=flat) results for pre-PW N application rates (no PI-applied nitrogen). Results are from 207 plots in 16 experiments conducted over 7 seasons with various soil types, fertility levels and sowing methods.

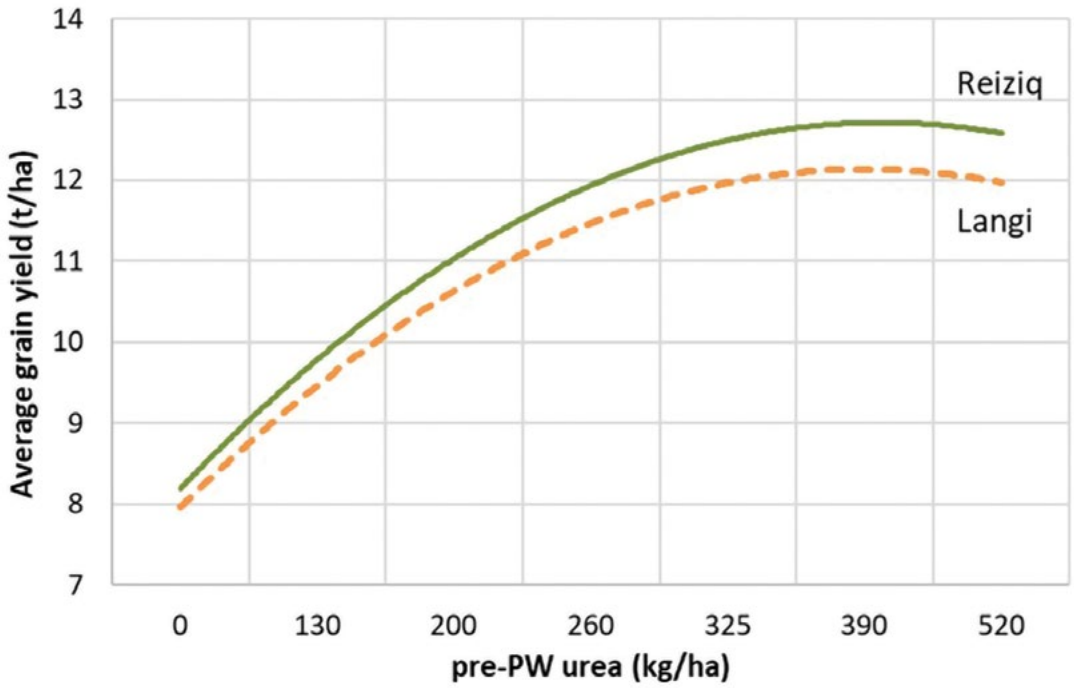

Figure 2. Average grain yields for Langi compared with Reiziq[Φ] for a range of pre-permanent water (PW) nitrogen (N) applications.

Acknowledgements

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