



# primefacts

FOR PROFITABLE, ADAPTIVE AND SUSTAINABLE PRIMARY INDUSTRIES

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## Rice variety guide – 2011

### John Smith

District Agronomist, Barham

### Russell Reinke

Research Agronomist, Yanco

### Peter Snell

Research Agronomist, Yanco

### John Lacy

Formerly Industry Leader,  
Rice Farming Systems, Yanco

Before you choose a rice variety it is important to know its characteristics and potential yield. Table 1 summarises the characteristics for each of the varieties that are currently available for commercial production.

Each year NSW DPI reviews variety performance, taking into account commercial and research experience. This Primefact summarises this experience.

### Key Checks for variety performance

- Sow on time – within the recommended window for each variety
- Apply sufficient pre-flood N to achieve the target N uptake range at PI
- Use NIR analysis to determine topdressing N fertiliser requirements (consider imagery to assist sampling)
- Deep water at microspore is recommended for ALL varieties
- Consider climatic conditions and the grain development stage to determine the appropriate time for draining

### Variety Performance 2010/11

The following table (Table 2) provides a summary of the grain yields achieved in the 2010/11 rice season compared with the 10 year grain yield average.

**Table 2: Summary of rice yields across all areas from the 2010/11 rice season**

Variety	REGION									
	MIA		CIA		EMV		WMV		ALL REGIONS	
	10 yr Ave	2010/11	10 yr Ave	2010/11	10 yr Ave	2010/11	10 yr Ave	2010/11	10 yr Ave	2010/11
Amaroo	10.2	10.6	9.6	9.9	8.0	9.0	8.5	9.2	9.5	9.9
Jarra	7.8	6.8	6.1	6.5	6.6	5.5	7.3	6.2	6.9	6.2
Opus	n/a	n/a	n/a	n/a	9.0	5.5	8.0	8.2	8.5	7.2
Quest	9.5	8.8	8.8	9.4	8.7	8.7	8.0	8.5	8.6	8.8
Reiziq	10.2	11.1	9.8	10.9	9.1	10.0	8.7	8.6	10.0	10.5
Sherpa	n/a	10.8	n/a	10.5	n/a	10.1	n/a	9.0	n/a	10.2
Illabong	n/a	n/a	n/a	n/a	9.8	9.8	7.9	8.0	9.7	9.6
Koshihikari	n/a	n/a	n/a	n/a	7.2	6.6	6.5	5.5	7.1	5.7
Doongara	10.4	11.8	8.5	11.9	n/a	n/a	n/a	n/a	9.5	11.7
Kyeema	8.3	10.0	7.2	8.3	n/a	n/a	n/a	n/a	7.7	9.2
Langi	9.0	9.4	8.3	9.6	7.9	8.8	7.2	7.9	8.6	9.4
All Vars	9.8	10.3	9.1	9.9	8.6	9.1	7.7	8.5	9.1	9.6

**Table 1. Rice variety characteristics 2011**

VARIETY Plant Type and Grain Type	MATURITY <sup>1</sup> Days later or earlier to flower than Amaroo	IDEAL <sup>2</sup> SOWING TIME for Aerial Sowing		SEEDLING VIGOUR <sup>3</sup>	NITROGEN <sup>4</sup> FERTILISER Compared to Amaroo kg N/ha	RELATIVE <sup>5</sup> TOLERANCE TO COLD STRESS	LODGING <sup>6</sup>	YIELD POTENTIAL <sup>7</sup> % Amaroo		COMMENTS
		MIA/CIA	Murray Valley					North	South	
AMAROO Semi-dwarf medium grain	Standard	1–20 Oct	1–15 Oct	3	Standard	4	Resistant	100	100	A full season semi-dwarf variety with high yield potential. Recommended for all areas. It performs best when sown early and at adequate nitrogen rates. Avoid late sowings, particularly in the Murray Valley.
REIZIQ Semi-dwarf medium grain	5–8 days less	1–20 Oct	1–15 Oct	3	Same as Amaroo	2	Resistant	100	100	A semi-dwarf variety, with a larger, longer grain than Amaroo but similar yield. The grain is of a more acceptable length in some Middle Eastern countries and Japan. Variety is easy threshing and therefore more inclined to shed than Amaroo. Wholegrain yields are similar to Amaroo.
QUEST Semi-dwarf medium grain	5 to 10 days less	15 Oct–31 Oct	15–25 Oct	3	Same as Amaroo	4	Resistant	100	100	A short season semi-dwarf variety with similar yield to Amaroo. Later sowing dates may incur a yield penalty. Slightly longer grains but no change to seeding rate recommended. Cold tolerance similar to Amaroo with equivalent yields in the Murray Valley in the cold 2004 season. Easier threshing than Amaroo but less so than Langi. Wholegrain milling yields are better than Millin but 1–3 % lower than Amaroo. Maximise wholegrain yields by not planting before the recommended sowing time and harvesting at 20–22% moisture.
SHERPA Semi-dwarf medium grain	10–14 days less	20 Oct–5 Nov	20–31 Oct		Same as Amaroo	5	Resistant	105	105	A significantly shorter season semi-dwarf variety with similar yield to Illabong. It has Amaroo seed size hence no change to seeding rate. Has significantly better cold tolerance than Amaroo with 2–4 t/ha greater yield in cold seasons. Similar threshing to Amaroo. Sowing earlier than the recommended dates may lead to low wholegrain yields. Plant at the recommended sowing time and harvest at 20–22% moisture to maximise wholegrain yields.
JARRAH Semi-dwarf medium grain	21 to 28 days less	1–15 Nov	1–10 Nov	4	Same as Amaroo	4	Moderately susceptible	70–95	70–95	A short season semi-dwarf variety with 3 to 4 weeks shorter growing season than Amaroo. Seedling vigour is good, but it is more susceptible to lodging than other semi-dwarf varieties. Yields are more variable than Amaroo and will yield less when cool conditions restrict early growth. A suitable option where late water allocations or seasonal weather force late sowings (mid November onwards). Harvest should occur as soon as possible as delays may lead to lodging.
KOSHIHIKARI Tall strawed 'Japanese quality' short grain	5 to 8 days less	10–31 Oct	5–25 Oct	3	Up to 60 kg less for MIA/CIA 60–90 kg less for Murray Valley	4	Susceptible	70–85	70–85	A premium quality Japanese variety grown for the Japanese market. Tall strawed and susceptible to lodging, particularly if over fertilised. Slightly earlier than Amaroo, but lower yielding, similar to Kyeema. Reduce pre-flood nitrogen and fertilise as for Kyeema or 30 kg N less, with no more than 66% of total nitrogen pre-flood to minimise lodging. Susceptible to straighthead.
OPUS Semi-dwarf 'Japanese quality' short grain	5 to 8 days less	10–31 Oct	10–25 Oct	3	Same as Amaroo	4	Moderately susceptible	90–100	90–100	A semi-dwarf short grain variety with grain quality similar to the Japanese variety Koshihikari. Murray Valley experience generally indicates good yields but it can occasionally be unpredictable. Susceptible to straighthead. More likely to lodge than Amaroo. Threshing similar to Amaroo. Very pubescent variety. Fertilise as for Amaroo.
ILLABONG Semi-dwarf 'arborio' medium grain	7–10 days less	15 Oct–5 Nov	15–31 Oct	2	Same as Amaroo	3	Resistant	105	105	An earlier maturing semi-dwarf 'Arborio type' medium grain. It has very high yield potential, around 5% higher than Amaroo. Seedling vigour inferior to Amaroo. Sowing rates should be increased by 20% as it has larger seeds and germination is slightly lower. Milling quality can be poor if sown too early, nitrogen rates are inadequate and/or harvest is delayed.
LANGI Semi-dwarf long grain	10–18 days less	5–31 Oct	5–25 Oct	2	Same as Amaroo	3	Resistant	90–95	90–95	A semi-dwarf, soft cooking long grain variety. It is lower yielding than Amaroo. It is earlier maturing than Amaroo if sown at recommended times. Langi has lower seedling vigour than medium grain varieties, particularly under cool conditions. It needs similar nitrogen rates to Amaroo to achieve full yield potential. Early harvest is recommended as it is a loose threshing variety with potential for shedding if allowed to stand in the field.
DOONGARA Semi-dwarf long grain	10 to 18 days less	5–25 Oct	Not recommended	2	Up to 20 kg less	1	Very Resistant	85–95	Not recommended	Hard cooking semi-dwarf long grain for specialty markets. This variety is the most sensitive to microspore cold stress so it is important to sow on time and protect with deep water. Has good lodging resistance. Recommended for lighter soils in the north. Performs best when managed well on high fertility fields.
KYEEMA Tall strawed 'fragrant' long grain	14–21 days less	5–31 Oct	5–25 Oct	2	Up to 60 kg less than Amaroo	2	Slightly susceptible	80–85	80–85	A tall strawed fragrant long grain variety of similar maturity to Langi, but with lower yield potential. In cool seasons and/or with late sowings maturity can be similar or later than Langi. Poor seedling vigour, particularly in a cool spring.

<sup>1</sup> **Maturity** – at recommended sowing times, in normal seasons and at correct nitrogen rates. Quicker maturing varieties normally gain a couple of additional days from flowering to harvest against Amaroo.

<sup>2</sup> **Ideal Sowing Time** – based on aerial sowing. When drill sowing aim the first flush up to 5 days earlier than the aerial sowing date. Sowing more than 10 days after the latest date is not recommended.

<sup>3</sup> **Seedling Vigour** – on a scale of 1 to 5, 1 is weakest and 5 is strongest.

<sup>4</sup> **Nitrogen Fertiliser** – use the split nitrogen strategy and higher rates in northern areas where the risk of cold temperature induced sterility is lower.

<sup>5</sup> **Tolerance to Low Reproductive Temperatures** – on a scale of 1 to 5, 1 is most susceptible, 5 is most tolerant. NB tolerance is based on both the inherent variety tolerance and the ability to be protected with deep water at microspore. Semi-dwarf varieties are most easily protected by deep water.

<sup>6</sup> **Lodging** – lodging varies between seasons. In some seasons most varieties will lodge to some extent, even resistant ones.

<sup>7</sup> **Yield Potential** – based on trial results compared to Amaroo at recommended sowing times and normal seasons.

Overall the average district yields were higher in the 2010/11 season compared with the 10 year average. The main medium grain varieties (Amaroo, Quest and Reiziq) and the long grain varieties performed better than the average in most districts. The other varieties (Jarrah, Opus, Illaboong and Koshihikari) had mixed results across the districts. The new variety Sherpa performed well in the first year of commercial release.

### Variety management considerations

Some important general management considerations are listed below. However it is also important to consider the Ricecheck recommendations when planning a rice crop for best management practices or all aspects of field preparations and crop management.

**Maturity:** The relative maturity of rice varieties will vary between seasons and with growing conditions. In some situations maturity comparisons will be later or earlier than those indicated, which are the averages expected at recommended sowing times, in normal seasons and when properly fertilised.

**Ideal sowing time:** Sowing at the recommended times for each variety will help ensure good yields in warm and cool seasons. In cooler seasons later than recommended sowings usually results in major yield losses.

Early to late October is the ideal sowing time for consistent high yields, depending upon variety, geographic area, method of sowing, and soil type. The short season varieties Quest and Jarrah although sown later should still be sown at the recommended times which ensures grain ripening and maturity close to normal times.

**Nitrogen fertiliser:** Optimum nitrogen rates are essential to produce consistent high yields of all varieties and to achieve the full yield potential of the semi dwarf varieties.

The split nitrogen strategy is recommended. Sufficient nitrogen should be applied pre-flood to achieve the variety nitrogen uptake targets at panicle initiation (PI). See the Ricecheck recommendations for these guidelines. Additional nitrogen can then be topdressed if required. An NIR tissue test is indispensable for fine tuning requirements. Consider the use of aerial imagery or cut/fill maps to aid the sampling process. This will avoid the problems of over or under fertilisation.

**Tolerance to reproductive cold stress:** The relative tolerance of varieties to low temperatures during the reproductive phase (causing cold stress and increased sterility) is an important varietal feature. Excess nitrogen increases the susceptibility of all varieties to cold induced sterility.

Deep water at the microspore stage can significantly reduce the damage from cold stress. However tall-strawed varieties such as Kyeema

are more difficult to protect with deep water at the microspore stage, whilst semi-dwarf varieties like Doongara, which is more sensitive to low temperatures can be given useful protection.

Increasing water depth prematurely at PI will cause the shoot airspaces to elongate excessively and reduce the degree of protection afforded.

**Lodging:** The occurrence of lodging varies between varieties and between seasons. All varieties will lodge under some conditions.

The semi dwarf varieties are most resistant to lodging, whilst tall-strawed varieties like Kyeema and Koshihikari are more susceptible. However the semi dwarf variety Jarrah is more susceptible than the other semi dwarf varieties.

**Yield Potential:** All current rice varieties, except Kyeema and Koshihikari, have a high yield potential. Good management will give yields of 10 to 13 tonnes per hectare. The semi dwarfs have higher yield potential and will respond best to high fertility and deep water management at microspore.

**Herbicide tolerance:** Long grains, particularly Doongara and Kyeema may be more susceptible to damage from some of the sequences of herbicides currently being promoted to overcome herbicide resistance. This is particularly so for multiple applications of Saturn® and/or molinate. In addition, clomazone can be damaging to the variety Illabong. Care should be taken to read the labels of all herbicides used and pay attention to recommendations for herbicide application. If in doubt, consult an Agronomist.

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