

# Rice variety guide 2017-18

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David Troidahl, Research & Development  
Agronomist, Yanco  
Peter Snell, Rice Breeder, Yanco

Brian Dunn, Research Agronomist, Yanco  
Ben Ovenden, Rice Breeder, Yanco  
Rice Extension, RIRDC funded

**Changes have been made this year to all varietal agronomic characteristics including sowing dates as a result of ongoing research experiments on all varieties.**

## Getting the most from your variety

- This factsheet is reviewed yearly by NSW DPI researchers to incorporate all current research and commercial experience on the performance of each variety for production in south eastern Australia.

- Sow on time - sowing within the recommended window ensures the best chance of avoiding floret sterility due to cold temperatures at microspore and heat damage at maturity. It also ensures maturity occurs during cooler temperatures maximising grain quality.

- Plant a mix of varieties over a range of sowing dates to minimise the risk of a cold event reducing grain yield across all your crops.

- Do not use higher than the recommended sowing rates for each variety. High plant populations can increase crop lodging potential and high sowing rates don't overcome plant establishment problems.

- Use the NIR Tissue Testing service at panicle initiation (PI) to determine nitrogen topdressing requirements. Consider using **red edge imagery**, yield maps or cut/fill maps to target sampling in different zones. NDVI is of limited value as it can only detect difference where PI nitrogen uptake levels are low (below 80 kg N/ha).

- Start increasing water depth after PI so by microspore at least 25 to 30 cm is achieved on the high side of the bay for ALL varieties.

- For maximum whole grain millout consider forecast weather conditions, field layouts and grain development stage to determine the appropriate time for draining.

**Table 1. Summary of rice yields (t/ha) 2016–17 season compared with 5 year averages by region**

Variety	REGION									
	MIA		CIA		EMV		WMV		All Regions	
	5 yr Av	2016-17	5 yr Av	2016-17	5 yr Av	2016-17	5 yr Av	2016-17	5 yr Av	2016-17
Reiziq <sup>Ⓛ</sup>	11.8	11.2	10.3	9.7	9.6	9.6	10.4	10.0	11.0	10.6
Sherpa <sup>Ⓛ</sup>	11.0	10.2	10.6	9.6	10.7	10.1	10.3	10.0	10.6	10.0
Koshihikari	n/a	n/a	n/a	n/a	8.0	7.1	7.0	7.3	7.6	7.2
Opus <sup>Ⓛ</sup>	n/a	n/a	n/a	n/a	9.4	9.4	9.8	10.0	9.7	9.9
Illabong	n/a	n/a	n/a	n/a	10.4	11.1	n/a	n/a	10.5	10.5
Langi	9.5	8.7	9.1	8.7	9.1	8.2	n/a	n/a	9.4	8.6
Doongara	9.6	9.8	9.5	n/a	n/a	n/a	n/a	n/a	9.3	9.8
Topaz <sup>Ⓛ</sup>	9.3*	9.1	8.6*	8.2	n/a	n/a	n/a	n/a	9.0*	8.8
YRM 70	n/a	10.0	n/a	9.3	n/a	9.6	n/a	5.6	n/a	9.7
YRK 5	n/a	n/a	n/a	n/a	n/a	6.9	n/a	7.4	n/a	7.1
All Varieties	11.0	10.6	9.8	9.3	10.0	9.6	9.9	9.8	10.4	9.9

\*Less than five years of commercial data. <sup>Ⓛ</sup> Plant Breeder's Right granted by IP Australia. Yield data provided by SunRice Grower Services

Table 2. Rice variety agronomic characteristics 2017-18

VARIETY	YIELD POTENTIAL % Reiziq	ESTABLISHMENT VIGOUR 1 = weak 5 = strong	TOLERANCE TO COLD STRESS 1 = susceptible 5 = most tolerant	LODGING SUSCEPTIBILITY
REIZIQ <sup>Ⓛ</sup>	100	5	2	Resistant
SHERPA <sup>Ⓛ</sup>	105	3	5	Resistant
OPUS <sup>Ⓛ</sup>	100	2	4	Moderately resistant
LANGI	95	3	3	Moderately resistant
TOPAZ <sup>Ⓛ</sup>	90	1	1	Resistant
ILLLABONG	105	3	3	Moderately resistant
DOONGARA	90	4	1	Resistant
KOSHIHIKARI	80	3	4	Susceptible
YRM70 <sup>Ⓛ</sup>	95	4	4	Moderately susceptible
YRK5 <sup>Ⓛ</sup>	85	5	4	Susceptible

**Yield Potential** – is based on experimental results compared with Reiziq at recommended sowing times and average growing conditions.

**Establishment Vigour** – Topaz has weak establishment vigour and extra care at sowing is required to ensure good establishment.

**Tolerance to cold during the reproductive period** – this tolerance rating is based on both the varieties inherent cold tolerance and plant height. Taller varieties gain less protection from deep water (25 to 30 cm) at microspore. Excess nitrogen increases the susceptibility of all varieties to cold-induced sterility.

**Lodging** – lodging varies between seasons. In some seasons most varieties will lodge to some extent – even resistant ones. The semi-dwarf varieties are most resistant to lodging, whilst tall-strawed varieties like Koshihikari are susceptible to lodging and should only be drill sown. Aerial

sowing increases lodging potential of all varieties compared to drill-sowing. Lodging due to 'haying-off' is a result of draining rice too early prior to harvest and reduces yield and wholegrain millout. Correct timing of draining will avoid 'haying-off' in all rice varieties.

**Ideal Sowing Time** – planting within the recommended sowing windows allows fast, uniform crop establishment, limited cold stress and floret sterility at microspore, and results in the best grain quality at harvest. Researchers calculate and review the sowing windows based on the performance of each variety in previous seasons and the long-term average temperatures across the season. Sowing within the window will ensure the best chance of warmer soil temperatures for germination of seeds, highest probability of warm temperatures at microspore and milder temperatures during grain ripening.

Table 3. Rice variety maturity and recommended sowing/first flush dates 2017-18

VARIETY	MATURITY Days different to flower than Reiziq	IDEAL SOWING TIME for aerial and dry broadcast sowing		IDEAL FIRST FLUSH TIME for Drill sowing (DPW* bring forward 10 days)	
		MIA/CIA	Murray Valley	MIA/CIA	Murray Valley
REIZIQ <sup>Ⓛ</sup>	Standard	20 Oct-5 Nov	15-31 Oct	15-31 Oct	10-25 Oct
SHERPA <sup>Ⓛ</sup>	-3	20 Oct-10 Nov	15 Oct-5 Nov	15 Oct-5 Nov	10-31 Oct
OPUS <sup>Ⓛ</sup>	2	-	15 Oct-5 Nov	-	10-31 Oct
LANGI	1	20 Oct-5 Nov	15-31 Oct	15 Oct-5 Nov	10-31 Oct
TOPAZ <sup>Ⓛ</sup>	1	15-31 Oct	15-31 Oct	10-31 Oct	10-31 Oct
ILLLABONG	4	-	10-25 Oct	-	5-25 Oct
DOONGARA	1	15-31 Oct	15-31 Oct	10-25 Oct	10-31 Oct
KOSHIHIKARI	4	-	Don't aerial sow	-	5-25 Oct
YRM70 <sup>Ⓛ</sup>	-9	10-30 Nov	5-25 Nov	5-25 Nov	1-20 Nov
YRK5 <sup>Ⓛ</sup>	-9	Don't aerial sow	Don't aerial sow	5-25 Nov	1-20 Nov

\*Delayed Permanent Water - Sow 10 days earlier if permanent water fill up is planned to be delayed until end of December

## Variety characteristics

**Reiziq**<sup>(b)</sup> – a semi-dwarf medium grain variety that has long grain length and high yield potential. It has strong establishment vigour and is resistant to lodging but is moderately susceptible to cold temperatures during the reproductive period. Early harvest is recommended as it is a loose threshing variety with potential for shedding if left to stand in the field. Wholegrain yields are relatively high.

**Sherpa**<sup>(b)</sup> – a semi-dwarf medium grain variety that has high cold stress tolerance and moderate establishment vigour. It has high yield potential and maintains grain yield levels in cooler seasons, particularly in the Murray Valley. Sherpa is a hard threshing variety with good straw strength and is resistant to lodging.

**Opus**<sup>(b)</sup> – a semi-dwarf short grain sushi variety that is only grown in the Murray Valley. Murray Valley experience generally indicates good yields but it can occasionally be unpredictable. It has moderate establishment vigour and is resistant to lodging but is moderately resistant to cold temperatures during the reproductive period. It is a pubescent variety and is susceptible to straighthead with symptoms present as floret sterility.

**Langi** – a semi-dwarf long grain soft cooking (low amylose) variety that is only grown in the MIA and CIA. It has moderate establishment vigour and cold stress tolerance and is moderately resistant to lodging. Early harvest is recommended, as it is a loose threshing variety with potential for shedding if allowed to stand in the field.

**Topaz**<sup>(b)</sup> – a semi-dwarf fragrant long grain variety that is only grown in the MIA and CIA. It has weak establishment vigour and care should be taken to ensure good establishment. Topaz is resistant to lodging but is susceptible to cold temperatures during the reproductive period which can significantly reduce grain yield. It must be sown at the correct time and deep water applied during the microspore period. It is also susceptible to straighthead.

**Illabong** – a semi-dwarf arborio style medium grain variety that has a high grain yield potential. It has moderate establishment vigour and sowing rates should be increased if germination percentage is reduced due to post-flowering conditions experienced by the seed crop. It has moderate cold stress tolerance and is moderately resistant to lodging.

**Doongara** – a semi-dwarf long grain hard cooking (high amylose) variety that has a low glycaemic index (GI) and is resistant to lodging. It is susceptible to cold temperatures during the reproductive period and must be sown at the correct time and have deep water applied during the microspore period. It is also susceptible to straighthead.

**Koshihikari** – a tall-strawed short grain premium Japanese variety. It is susceptible to lodging if high rates of nitrogen are applied pre-permanent water and should not be aerial sown. It is lower yielding, but a premium is paid to compensate. Reduce total applied nitrogen by 40% compared to Reiziq and apply no more than 60% of total nitrogen pre-permanent water to minimise lodging. It is a very pubescent variety and is susceptible to straighthead with symptoms present as floret sterility.

**YRM70**<sup>(b)</sup> – a short-season semi-dwarf medium grain variety which has a similar yield potential to Reiziq and provides a rice cropping option when late water allocations are announced or after canola harvest. It has strong establishment vigour and is moderately resistant to cold temperatures during the reproductive period but is moderately susceptible to lodging. YRM70 is better suited to drill sowing and nitrogen application split between pre-permanent water and PI to reduce lodging in high yielding crops.

**YRK5**<sup>(b)</sup> – a short-season, short grain sushi variety that is only grown in the Murray Valley. It is susceptible to lodging if high rates of nitrogen are applied pre-permanent water and should not be aerial sown. Reduce total applied nitrogen by 40% compared to Reiziq and apply no more than 60% of total nitrogen pre-permanent water to minimise crop lodging. It has strong establishment vigour and moderate resistance to cold temperatures during the reproductive period.

## Recommended sowing rates

Rice growers should aim to achieve a plant population in the range of 100 to 200 plants/m<sup>2</sup>. Results from research show that plant populations of between 40 to 400 plants/m<sup>2</sup> achieve similar grain yields. Rice plants increase tillering and the number of grains in each panicle to compensate for low plant density.

To establish 200 plants/m<sup>2</sup> requires a maximum sowing rate of 150 kg/ha at the average seed establishment percentage of 40 to 60%.

**Rice should not be sown at rates higher than 150 kg/ha for any variety or sowing method.**

If as little as 20% of the seed sown becomes plants there will still be 100 plants/m<sup>2</sup> established, which is sufficient to achieve maximum grain yield.

Recommended sowing rates for rice varieties based on seed size and average varietal establishment percentages from field experiments are presented in Table 4.

**Table 4. Sowing rates (kg/ha) required to meet plant population recommendations based on seed size and establishment vigour.**

Variety	Sowing rate (kg/ha)
Reiziq, Illabong & Topaz	150
Sherpa, Langi, YRM70 & YRK5	130
Opus, Koshihikari & Doongara	120

The varieties with smaller seed size, such as Opus, have lower 1000 grain weights (Table 5). This means they have many more seeds per kg, so using a lower sowing rate will achieve the same plant population.

**Table 5. 1000 grain weight and number of seeds per kg for rice varieties at rice seed moisture. Weights can vary across seasons and with nitrogen management but the order will be similar.**

Variety	1000 grain weight (g)	number of seeds per kg
Illabong	33	30500
Reiziq	30	33200
YRK5	29	34300
YRM70	28	35700
Sherpa	26	38600
Langi	25	39600
Doongara	25	40700
Koshihikari	24	41300
Opus	23	43500
Topaz	22	45700

**Increasing sowing rates to compensate for poor field layout, unsatisfactory seedbed preparation or unreliable sowing method is rarely successful and not recommended. Sowing rates should only be increased if you have been notified that the seed germination percentage is low.**

Research has shown that lodging is increased by high plant populations in varieties with a high lodging potential.

Therefore it is recommended to aim for a lower plant population, 100 to 150 plants/m<sup>2</sup>, for varieties with a high lodging potential.

## District variety experiment results

All new varieties are tested across a range of years and locations within southern NSW before they are released. The performances of new varieties are compared with those of standard commercial varieties over a number of years and each variety's response to different agronomic and commercial growing conditions is measured.

The agronomic recommendations for each variety at release are based on the results of these district experiments.

Before release, each variety must also be assessed in the cereal chemistry laboratory and in taste testing trials to meet the strict quality characteristic and taste requirements of our customers in the marketplace. On the basis of their yield performance and the grain quality assessments from these experiments, a very small number of varieties 'pass the grade' to be new releases for growers.

Each year all the recommendations for all the varieties are reviewed to incorporate commercial experience and responses to different climatic and growing conditions.

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