

# TJILKURI<sup>Ⓛ</sup>

***A new durum with improved grain yield and semolina quality for Southern Australia***

## Summary

- Tjilkuri<sup>Ⓛ</sup> has a preliminary APDR classification (tested as WID801 and 53188).
- Tjilkuri<sup>Ⓛ</sup> has shown improved yields over Tamaroi across several seasons and similar to Hyperno and Saintly.
- Tjilkuri<sup>Ⓛ</sup> has good resistance against stem, stripe and leaf rust races currently found in SA and is moderately susceptible to yellow leaf spot and susceptible to black point.
- Tjilkuri<sup>Ⓛ</sup> is moderately susceptible to cereal eelworm.
- Tjilkuri<sup>Ⓛ</sup> is a mid season flowering, fully awned durum wheat with moderate height, and good straw strength.
- Tjilkuri<sup>Ⓛ</sup> has more tolerance to boron and bicarbonate toxic soils than Tamaroi.
- Tjilkuri<sup>Ⓛ</sup> has better marketability showing improved semolina and pasta colour than Tamaroi
- Tjilkuri<sup>Ⓛ</sup> has slightly lower grain weight, test weight and screenings loss than Tamaroi, being more similar to Kalka.

## Breeding

Developed by Dr Tony Rathjen, the Waite Institute Durum Wheat Breeding Team and breeding collaborators from SARDI and other institutions and released by the University of Adelaide, Tjilkuri<sup>Ⓛ</sup> was selected from complex crosses, ((BdY#DurAY2\*R8LYT)\*LY#Tm)/1. Tjilkuri<sup>Ⓛ</sup> was released in spring 2010.

## Plant Characteristics

Tjilkuri<sup>Ⓛ</sup> has moderate early vigour, similar to Tamaroi and Kalka and much shorter plant height than Tamaroi. Tjilkuri<sup>Ⓛ</sup> has good straw strength being much better than Tamaroi and has a mixed, white and black, fully awned head. Tjilkuri<sup>Ⓛ</sup> is mid season flowering, being slightly later than Tamaroi.

## Grain Yield

Within all districts trialled, Tjilkuri<sup>Ⓛ</sup> has shown average yields similar to Hyperno and significantly improved over Tamaroi and Kalka (see tables 1 and 2). Tjilkuri<sup>Ⓛ</sup> is widely adapted and suitable for all areas where durum is currently grown. Tjilkuri has performed consistently in both dry (2008) and wetter (2009) seasons (see Table 2)

**Table 1. Yields of Tjilkuri<sup>Ⓛ</sup>, Kalka, Hyperno, Saintly and Caparoi as a % of Tamaroi according to S.A. agricultural district. (NVT data, 200-2009 weighted averages, number of trials in italics)**

Variety	Agricultural district		
	Yorke Penin.	Mid North	Lower Eyre Pen.
Tjilkuri	107 <i>6</i>	105 <i>6</i>	106 <i>5</i>
Tamaroi	100 <i>15</i>	100 <i>18</i>	100 <i>14</i>
Kalka	98 <i>15</i>	99 <i>18</i>	100 <i>14</i>
Hyperno	106 <i>12</i>	110 <i>14</i>	106 <i>11</i>
Saintly	104 <i>12</i>	110 <i>14</i>	108 <i>11</i>
Caparoi	101 <i>12</i>	99 <i>14</i>	99 <i>11</i>
Tamaroi t/ha	2.71 <i>15</i>	2.76 <i>18</i>	2.20 <i>14</i>

**Table 2. Yields of Tjilkuri<sup>Ⓛ</sup>, Kalka, Hyperno, Saintly and Caparoi as a % of Tamaroi according to season and agricultural district. (2008 and 2009 NVT data, number of trials in italics)**

Variety	Agricultural district			
	Yorke Penin.		Mid North	
	2008	2009	2008	2009
Tjilkuri	108	110	105	109
Tamaroi	100	100	100	100
Kalka	101	97	115	100
Hyperno	106	105	118	119
Saintly	105	98	121	113
Caparoi	109	98	107	95
Tamaroi t/ha	2.15 <i>3</i>	4.38 <i>3</i>	2.06 <i>3</i>	2.90 <i>4</i>

## Disease Resistance

Within South Australia, Tjilkuri<sup>Ⓛ</sup> has effective resistance against stem, stripe and leaf rust races currently found but is moderately susceptible to yellow leaf spot and susceptible to black point. Tjilkuri<sup>Ⓛ</sup> is moderately susceptible to cereal eelworm.

Stem rust	Mod resist to mod susceptible	Slightly inferior to Tamaroi and Kalka
Stripe rust	Mod Resistant*	Equal to Tamaroi and Kalka
Leaf rust	Mod. Resistant	Slightly inferior to Tamaroi and Kalka
Septoria tritici blotch	Mod resist to mod susceptible	Much better than Tamaroi and Kalka
Black Point	Susceptible	Slightly inferior to Tamaroi but better than Kalka
Yellow leaf spot	Mod. Susceptible	Slightly inferior to Tamaroi and Kalka
Cereal cyst nematode	Mod. susceptible	Like Tamaroi and Kalka

\* rating for rust races currently common in SA

Tjilkuri<sup>ϕ</sup> is susceptible to the crown rot disease complex, although there is evidence of an improvement in resistance compared to Tamaroi and Kalka.

## Grain Quality

Tjilkuri<sup>ϕ</sup> has shown moderate grain weight similar to Kalka and lower average screenings than Tamaroi, Hyperno and Saintly. Test weight and grain protein has averaged similar to Kalka and lower than Tamaroi as shown in Table 3.

**Table 3. Summary of grain quality characteristics on samples from variety trials in S.A. (NVT data from 2008 to 2009 inclusive).**

	Protein %	Density kg/hl	Screenings %<2.0mm	1000 grain weight g.
Tjilkuri	13.2	78.1	2.7	37.3
Tamaroi	13.7	78.9	3.2	41.5
Kalka	13.4	79.8	2.3	37.2
Hyperno	13.2	78.8	3.9	37.6
Saintly	13.2	79.0	3.9	36.5
Caparoi	14.0	80.0	2.0	40.5
No of trials	21	21	21	21

Tjilkuri<sup>ϕ</sup> has been tested by San Remo and has preliminary for Durum grade (APDR) in South Australia with a milling and rheological profile as shown below. End product performance is generally better than Tamaroi and Kalka and Tjilkuri has superior semolina and pasta colour to Tamaroi.

Semolina yield	Still under evaluation
Dough rheology	Similar to Tamaroi and Kalka
Pasta colour	Much more yellow than Tamaroi and similar to Hyperno and Caparoi
Pasta firmness, cooking and stickiness	Similar to Tamaroi and Kalka
Semolina colour	More yellow than Tamaroi and similar to Hyperno and Caparoi

## Herbicide Reaction

Data and observations from trials conducted at Kybunga, S.A. during 2009 showed that Tjilkuri<sup>ϕ</sup> had good tolerance of a range of common grass and broadleaf herbicides. Further evaluation is being conducted in 2010.

## Soil Nutrient Requirements

Tjilkuri<sup>ϕ</sup> is tolerant to high soil boron and bicarbonate (high soil pH) relative to Tamaroi. These characteristics are likely to contribute to tolerance to dry topsoil conditions.

There is currently no evidence of varying nitrogen requirements in Tjilkuri relative to Tamaroi and Kalka although research by the Durum Growers Association is currently progressing.

## Sowing

Tjilkuri<sup>ϕ</sup> appears well suited to a range of sowing dates although no data is available for sowing beyond late June and before mid May.

Sowing rates should achieve a minimum plant density of 180 - 220 plants/m<sup>2</sup>, similar to requirements of Tamaroi, however research by the Durum Growers Association is currently underway to verify appropriate seed rates. Weight of grain sown should relate to seedbed conditions, germination % and grain weight, which is generally similar to Kalka and smaller than Tamaroi. (see table 3)

## Compiled by

Rob Wheeler and Kenton Porker, New Variety Agronomy Group, SARDI and Dr Tony Rathjen, University of Adelaide

## Information Provided by

New Variety Agronomy and Dr Hugh Wallwork, Field Crop Pathology Groups, S.A. Research and Development Institute, and the Durum Breeding Unit, Waite Campus, University of Adelaide.

The information in this pamphlet summarises the knowledge of Tjilkuri<sup>ϕ</sup> as at November, 2010. Continuing agronomic evaluation or changes in pathogenicity of pests and diseases make it necessary for farmers to seek updated information regularly.

## Acknowledgements

**The variety is named after the aboriginal word TJILKURI meaning “green shoots” and we thank the Ngarruidjeri people for their cooperation and contributions.**

National variety trial data is extensively used in this publication and GRDC is kindly acknowledged for its use.

## Seed Available from

Seed is exclusively licensed to the SA Durum Growers Association. For further information or seed, contact: Neville Sharpe on 8338 7339 or Dr Tony Rathjen on 8303 7216

### Logos

**On front insert picture of durum wheat  
On rear logos of SAGIT, GRDC, SARDI, UofA,  
PIRSA, StateGov,**