

Herbicide reaction

Data and observations from trials conducted at Hart, S.A. during 2001 and 2002 shows that Kalka[®] is similar to Tamaroi in tolerance to the application of many commonly used herbicides. Some sensitivity was found to Tigrex[®] during 2002 which needs further evaluation.

Soil nutrient requirements

Kalka[®] has good tolerance to high soil boron levels, showing little visual symptoms where grown in boron toxic conditions.

Sowing

Kalka[®] is well suited to a range of sowing dates as shown in Table 4 although no data is available for sowing beyond late June and before mid May.

Table 4: Yields of Kalka[®], Tamaroi, Gunderoi, and Yallaroi as a % of Tamaroi according to trial sowing time (No's of trials in italics, SAFCEP data 2000-2002, weighted averages).

Variety	Sowing date	
	May	June
Kalka [®]	100 <i>11</i>	100 <i>26</i>
Tamaroi [®]	100	100
Gunderoi	98 <i>11</i>	98 <i>26</i>
Yallaroi	95 <i>4</i>	94 <i>22</i>
Tamaroi t/ha	3.28 <i>11</i>	2.79 <i>26</i>

Sowing rates should achieve a minimum plant density of 220 plants/m². Weight of grain sown should relate to seedbed conditions, germination % and grain weight, which is generally smaller than Tamaroi but larger than Yallaroi.

Compiled by

Rob Wheeler, Field Crop Evaluation Unit, SARDI.

Information provided by

Field Crop Evaluation Program and the Grain Quality Laboratory, S.A. Research and Development Institute, and the Wheat Breeding Unit, Waite Campus, University of Adelaide and Australian Grain Technologies Pty Ltd, Roseworthy.

The information in this pamphlet summarises the knowledge of Kalka[®] as at November, 2003. Continuing agronomic evaluation or changes in pathogenicity of pests and diseases make it necessary for farmers to seek updated information regularly.

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South Australian Field Crop Evaluation Program
SARDI

GPO Box 397 ADELAIDE SOUTH AUSTRALIA 5001
Telephone: (08) 8303 9480 Facsimile: (08) 8303 9378
International Code +618

KALKA[®]

**A durum with boron tolerance
and improved semolina quality
for Southern Australia**

Summary

- Kalka[®] is eligible for AWB Ltd's durum classification and is derived from Yallaroi (tested as KALKA).
- Kalka[®] has shown greatly improved yields over Yallaroi across several seasons and similar to Tamaroi and Gunderoi except in the very dry 2002 season.
- Kalka[®] has good resistance against stem, stripe and leaf rust races currently found in SA and is moderately resistant to yellow leaf spot and moderately susceptible to Septoria tritici blotch.
- Kalka[®] is moderately susceptible to cereal eelworm.
- Kalka[®] is an early to mid season flowering, fully awned durum wheat with moderate height, good straw strength and an intermediate coleoptile length like Yallaroi and Tamaroi.
- Kalka[®] has moderate tolerance to boron toxic soils
- Kalka[®] has better semolina and pasta colour than Tamaroi
- Kalka[®] has a low grain weight but high test weight and less screenings loss than Tamaroi being similar to Yallaroi.



Breeding

Developed by Dr Tony Rathjen, the Waite Institute Durum Wheat Breeding Team and breeding collaborators from SARDI and other institutions and released by Australian Grain Technologies Pty Ltd. Kalka[®] was selected from the cross Wollaroi*(Linghzi*Yallaroi)#*RH880009. Kalka[®] was released in autumn 2003.

Grain yield

Within all districts trialled, Kalka[®] has shown average yields similar to Tamaroi and significantly improved over Yallaroi (see tables 1 and 2). Kalka[®] is widely adapted and suitable for all areas where durum is currently grown and shows improved adaptation in higher rainfall areas (see table 2).

Table 1: Yields of Kalka[®], Gungeroi, Tamaroi and Yallaroi as a % of Frame according to S.A. agricultural district. (SAFCEP data, 1996-2002 weighted averages, number of trials in italics).

Variety	Agricultural district	
	Yorke Pen.	Mid North
Kalka	92	92
Gungeroi	91	91
Yallaroi	87	87
Tamaroi	92	92
Frame	100	100
Frame t/ha	3.64 20	3.26 27
	Lower Eyre Pen.	Upper and East Eyre Pen.
Kalka	90	83
Gungeroi	89	80
Yallaroi	84	72
Tamaroi	90	83
Frame	100	100
Frame t/ha	3.01 27	1.47 54

Table 2: Yields of Kalka[®] as a % of Tamaroi according to annual rainfall (SAFCEP data 2000-2002, weighted averages, number of trials in italics).

Variety	Annual rainfall (mm)	
	<325	325-450 >450
Kalka [®]	99 14	100 11
Gungeroi	99 14	99 11
Tamaroi	100	100
Yallaroi	88 13	94 6
Tamaroi t/ha	1.61 14	3.08 11
		4.37 12

Plant characteristics

Kalka[®] has moderate early vigour similar to Tamaroi and Yallaroi and average plant height taller than Tamaroi and much taller than Yallaroi. Kalka[®] has good straw strength slightly better than Tamaroi and a white fully awned head. Kalka[®] is early season flowering, being similar to Yallaroi and earlier than Tamaroi although the flowering period is extended in some situations.

Grain quality

Kalka[®] has moderate grain weight and lower average screenings than Tamaroi, Gungeroi and Yallaroi. Test weight is also improved over these varieties while grain protein tends to be slightly lower as shown in Table 3.

Table 3. Summary of grain quality characteristics on samples from variety trials in SA (SAFCEP data from 2001-2002 inclusive).

Variety	Protein (%)	Density (kg/hL)	Screenings	
			(% <2.0 mm)	1000 grain weight (g)
Kalka [®]	13.18	80.45	3.4	39.95
Tamaroi	13.35	78.29	4.3	41.15
Gungeroi	13.26	78.45	4.2	36.27
Yallaroi	13.44	78.17	3.6	38.86
No of trials	25	25	25	25

Kalka[®] has been approved for AWB Ltd Durum grade (APDR) in South Australia with a milling and rheological profile as shown below. End product performance is generally similar to Tamaroi and Yallaroi but Kalka has superior semolina and pasta colour.

Semolina yield	Slightly lower than Tamaroi and Yallaroi
Dough rheology	Similar to Tamaroi and Yallaroi
Pasta colour	More yellow than Tamaroi and similar to Yallaroi and Gunderoi
Pasta firmness, Cooking and Stickiness	Similar to Tamaroi and Yallaroi
Semolina colour	More yellow than Tamaroi and similar to Yallaroi and Gunderoi

Disease resistance

Within South Australia, Kalka[®] has good resistance against stem, stripe and leaf rust races currently found and is moderately resistant to yellow leaf spot and moderately susceptible to Septoria tritici blotch. Kalka[®] is moderately susceptible to cereal eelworm. Kalka[®] is very susceptible to crown rot, like most durums, although there is some evidence of a slight improvement in resistance.

Stem rust	Resistant	Equal to Tamaroi and Yallaroi
Stripe rust	Resistant	Equal to Tamaroi and Yallaroi
Leaf rust	Mod. Resistant	Equal to Yallaroi and slightly worse than Tamaroi
Septoria tritici blotch	Mod. susceptible	Inferior to Yallaroi but slightly better than Tamaroi
Crown rot	Very susceptible	Like Tamaroi and Yallaroi
Yellow leaf Spot	Mod. Resistant	Like Tamaroi and Yallaroi
Cereal cyst Nematode	Mod. susceptible	Like Tamaroi and Yallaroi