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## Herbicide reaction

Data and observations from trials conducted at Hart, S.A. during 2000 and 2001 shows that Kukri<sup>®</sup> is similar to most commercial varieties in tolerance to the application of many commonly used herbicides. Kukri<sup>®</sup> has shown increased sensitivity to LVE MCPA<sup>®</sup> and caution is suggested when using this herbicide until further data is collected.

## Plant characteristics

Kukri<sup>®</sup> has a medium length coleoptile, good early vigour and an average plant height similar to Frame and taller than Janz and Machete. Kukri<sup>®</sup> has good straw strength slightly better than Frame and a white fully awned head. Kukri<sup>®</sup> is early flowering, being similar to Machete and Excalibur. Kukri has characteristic purple auricles.

## Soil nutrient requirements

Kukri<sup>®</sup> has poor tolerance to high soil boron levels and response to other soil nutrient levels is still under investigation.

## Sowing

Kukri<sup>®</sup> is well suited to a range of sowing dates although relative yields will decline as seeding is delayed beyond May as shown in Table 4.

**Table 4. Yields of Kukri<sup>®</sup>, Frame, Machete, Janz and Yitpi as a % of Frame according to sowing time (Nos of trials in italics, SAFCEP data 1992–2001, weighted averages).**

Variety	Sowing time		
	May	June	July+
Kukri <sup>®</sup>	95 (33)	95 (65)	93 (4)
Yitpi <sup>®</sup>	103 (61)	103 (86)	104 (6)
Janz	99 (102)	99 (136)	98 (12)
Machete	94 (102)	94 (137)	92 (12)
Frame	100	100	100
Frame t/ha	2.64 (86)	2.48 (127)	1.89 (12)

Sowing rates should achieve a minimum plant density of 180 plants/m<sup>2</sup>. Weight of grain sown should relate to seedbed conditions, germ-ination % and grain weight, which is generally larger than Janz and similar to Machete.

## Compiled by

Rob Wheeler, Field Crop Evaluation Unit, SARDI and Prof. Gil Hollamby, Wheat Breeding, Roseworthy Campus.

## Information provided by

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

The information in this pamphlet summarises the knowledge of Kukri<sup>®</sup> in July, 2002. Continuing agronomic evaluation or changes in pathogenicity of pests and diseases make it necessary for farmers to seek updated information regularly.

## Publication

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## Seed available from

Seed is licensed to AWB Seeds Ltd. For seed availability, contact 1800 054 433



## 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

# KUKRI<sup>®</sup>

**A premium Australian Hard quality rust resistant wheat for southern Australia**

## Summary

- Kukri<sup>®</sup> is a premium quality Australian Hard wheat (tested as RAC820).
- Kukri<sup>®</sup> is a hard, white-grained variety with very strong and extensible dough properties across a range of protein levels.
- Kukri<sup>®</sup> has shown similar yields to the AH variety Machete in most SA districts and although slightly lower yielding than Yitpi and Janz, could be considered an alternative to these varieties.
- Kukri<sup>®</sup> has good resistance against stem and leaf rust and moderate resistance to stripe rust.
- Kukri<sup>®</sup> is susceptible and intolerant to cereal eelworm but is moderately susceptible to moderately resistant and moderately tolerant to *Pratylenchus neglectus*.
- Kukri<sup>®</sup> is an early flowering, fully awned wheat with good straw strength and coleoptile length.
- Kukri<sup>®</sup> is moderately susceptible to yellow leaf spot and to crown rot and intolerant to boron toxic soils



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## Breeding

Developed by Prof. Gil Hollamby, the Roseworthy Campus Wheat Breeding Team and breeding collaborators from SARDI and other institutions. Kukri<sup>®</sup> was selected from the cross 76ECN36 / 76ECN34 // RAC549, largely comprising CIMMYT wheat lines. Kukri<sup>®</sup> was released in September 1999. The name, Kukri<sup>®</sup>, represents a Gurkha knife. Seed is licensed to AWB Seeds and grain produced is subject to an end point levy.

## Grain yield

Within all districts Kukri<sup>®</sup> has only moderate yield, generally performing better than Barunga and Machete but less than Frame, Janz and Yitpi. Kukri is best suited to northern districts across SA where because of climatic conditions the crop is often over 13% protein, which with Kukri's qualities will attract a premium, particularly if ever received as APH. Kukri<sup>®</sup> could also be considered in other areas that regularly produce grain of 13% protein.

**Table 1. Yields of Kukri<sup>®</sup>, Frame, Janz, Machete and Yitpi<sup>®</sup> as a % of Frame according to S.A. agricultural district. (SAFCEP data, 1995–2001 weighted averages, number of trials in italics).**

Variety	Agricultural district		
	Yorke Peninsula	Mid North	South East
Kukri <sup>®</sup>	96 (11)	95 (16)	93 (11)
Yitpi <sup>®</sup>	101 (17)	100 (23)	102 (17)
Janz	97 (20)	98 (27)	94 (19)
Machete	93 (20)	95 (27)	93 (19)
Frame	100	100	100
Frame t/ha	3.95 (17)	3.55 (23)	3.21 (18)
	Lower Eyre Peninsula	Upper and East Eyre Peninsula	Murray Mallee
Kukri <sup>®</sup>	92 (12)	92 (30)	93 (24)
Yitpi <sup>®</sup>	101 (18)	103 (46)	103 (36)
Janz	94 (21)	94 (54)	97 (42)
Machete	93 (21)	92 (54)	94 (42)
Frame	100	100	100
Frame t/ha	3.16 (18)	1.57 (46)	2.12 (36)

**Table 2. Yields of Kukri<sup>®</sup>, Frame, Janz, Machete and Yitpi<sup>®</sup> as a % of Frame according to annual rainfall (SAFCEP data 1995–2001, weighted averages, numbers of trials in italics).**

Variety	Annual rainfall (mm)		
	<325	325–450	>450
Kukri <sup>®</sup>	97 (33)	94 (43)	95 (25)
Yitpi <sup>®</sup>	107 (48)	103 (75)	101 (29)
Janz	100 (88)	96 (99)	101 (62)
Machete	95 (89)	94 (99)	93 (62)
Frame	100	100	100
Frame t/ha	1.50 (78)	2.63 (87)	3.79 (59)

## Disease resistance

Kukri<sup>®</sup> has good stem and leaf rust resistance and moderate resistance to stripe rust. Kukri<sup>®</sup> is moderately susceptible to *Septoria tritici*, is susceptible and intolerant to cereal eelworm, like Machete, and has better resistance and tolerance to *Pratylenchus neglectus* than Frame and Machete. Kukri<sup>®</sup> has moderate susceptibility to yellow leaf spot and crown rot. Kukri is very susceptible to bunt and appropriate seed dressing is recommended.

Stem rust	resistant	like Janz
Stripe rust	moderately resistant	like Janz, slightly better than Frame
Leaf rust	resistant	better than Frame, Janz, Machete, Yitpi
<i>Septoria tritici</i> blotch	moderately susceptible	like Janz, better than Machete
Crown rot	moderately susceptible	slightly better than Frame, Janz
Yellow leaf spot	moderately susceptible	like Krichauff, better than Frame, Yitpi, Janz
<i>Pratylenchus neglectus</i>	moderately susceptible to moderately resistant	like Yitpi, better than Frame
Cereal cyst nematode	susceptible and intolerant	like Machete and Janz

## Grain quality

Kukri<sup>®</sup> has large grain with greater grain weight, but similar screenings potential, to Janz and Machete. Test weight is also improved over Machete while grain protein tends to be higher relative to all varieties although this may be partly an artefact of lower grain yields (Table 3).

**Table 3. Summary of grain quality characteristics on samples from variety trials in SA (SAFCEP data from 1999 to 2001 inclusive).**

Variety	Protein (%)	Test weight (kg/hl)	Screening (% <2.0 mm)	1000 grain weight (g)
Kukri <sup>®</sup>	13.14	80.05	2.7	36.49
Yitpi <sup>®</sup>	12.48	80.87	3.1	37.76
Janz	12.27	80.54	2.7	32.04
Machete	12.72	77.47	2.6	36.30
Frame	12.40	81.93	2.4	39.66
No. of trials	78	78	78	78

Kukri<sup>®</sup> is considered suitable for Australian Prime Hard, however, segregations have yet to be finalised as feasibility studies are still underway. Until this evaluation is complete, Kukri will be received as AH in South Australia.

Grain hardness	Hard grained similar to Machete
Milling yield	Similar to Janz and superior to Machete
Flour water absorption	similar to Janz and lower than Machete and Frame
Dough strength	stronger than Molineux and Machete
Dough extensibility	greater than Molineux and Machete
Flour colour	slightly more yellow than Janz and Machete