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**TrAE AU Kukri Cultivar Source: Roseworthy Agricultural College,
Roseworthy (South Australia) AU CID:293736 SID:0**

Gil Hollamby (breeder and author). Descriptions: *Triticum aestivum*, wheat 'Kukri'. *Plant Varieties J. (AU)* 14 (1): 67-68, Fig 45 (2001) Plant breeders' rights were subsequently granted to Luminis Pty. Ltd. and Grains Research and Development Corporation GRDC, see *Plant Varieties J. (AU)* 14(4): 89 (2001).

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Treloar
ROSES

'Korwarpeel' – 2001 Release Hybrid Tea

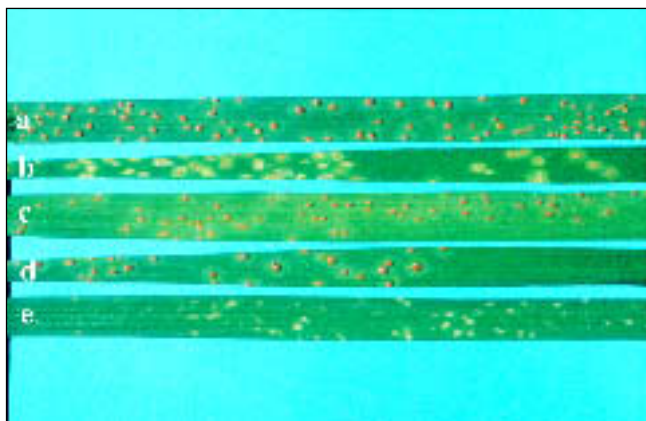


Fig 44 Wheat – seedling leaves of cultivars inoculated with *Puccinia triticina* (formerly *P. recondita tritici*) pathotype 104-1,2,3,(6),(7),11. a. ‘Morocco’ (infection type 3+), b. Lr13 control (X-), c. ‘Tatiara’(3+), d. ‘Bowie’(3+), e. ‘Anlace’(0);. Not shown ‘Buckley’ (3+).

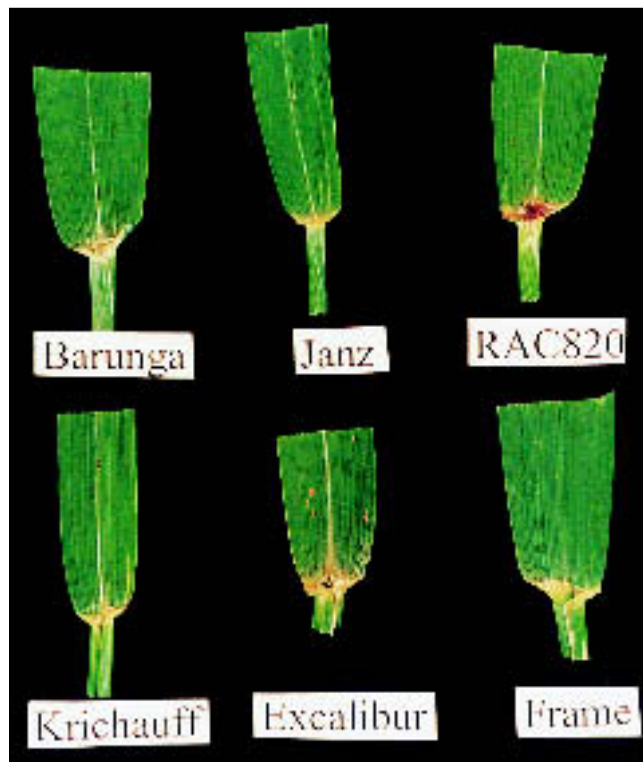


Fig 45 Wheat – auricles of ‘Kukri’ (shown as RAC820 top right) with the comparator varieties. A strong purple anthocyanin colouration is apparent in ‘Kukri’ while it is absent in comparator varieties.



Fig 46 Wheat – ‘Mitre’ (2 generations, centre) showing distinct mature height difference to comparator ‘Janz’ (right) and distinct time to maturity difference to comparator ‘Beulah’ (left).



Fig 47 Wheat – ears of ‘Babbler’ (left) with comparators ‘Janz’ (centre) and ‘Lark’ (right).

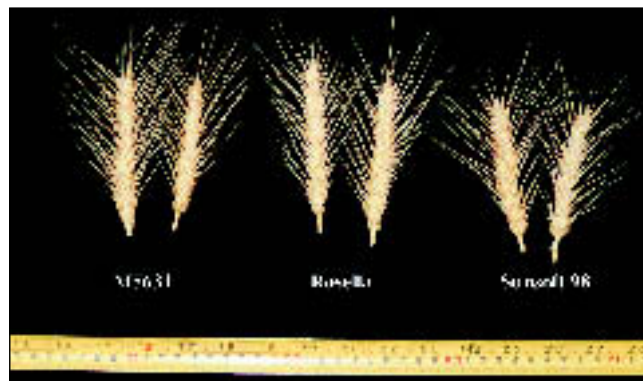


Fig 48 Wheat – ears of ‘M5631’ (left) with comparators ‘Rosella’ (centre) and ‘Sunsoft 98’ (right).

GRAIN – from mid third of ear
 shape oval oval to oval to
 truncated truncated

TOLERANCE TO IMIDAZOLINONE BASED HERBICIDE
 tolerant susceptible susceptible

‘K3057’

Application No: 2001/008 Accepted: 9 Feb 2001.

Applicant: **Department of Agriculture for and on behalf of the State of New South Wales**, Orange, NSW and **Grains Research and Development Corporation**, Barton, ACT.

Characteristics (Table 43, Figure 51) Plant: growth habit semi-erect to erect, height medium, straw pith thin. Flag leaf: glaucosity medium to-weak. Ear: emergence early to medium, glaucosity medium to strong, shape tapering, density lax to medium, colour white, awns at tip medium to long. Lower glume: shoulder width narrow to medium, shoulder shape elevated, beak shape slight curve, beak length long. Lowest lemma: beak shape straight. Grain colour: white. Seasonal type: spring.

Origin and Breeding Controlled pollination: parentage K1056/M3348//‘Cook’//‘Dollarbird’. F₁ seed was sown in 1987 and single head selections from the F₂ population were sown into single rows in 1990. F₄ observation plots were sown in 1991 and preliminary yield assessment was conducted in unreplicated trial plots in 1992. Stage 2 replicated trials were conducted in 1993 where the line showed good yield potential with acid soil tolerance. K3057 progressed through NSW Agriculture’s advanced trials and was entered into stage 4 state wide evaluation trials in 1996. Grain samples from these trials were evaluated for grain quality where this lines weaker dough strength was identified as desirable. ‘K3057’ was tested at the Sydney University disease progress nursery in 1996 where resistance to the 3 rusts was identified. Large scale evaluation of grain quality was concluded in 1998 by the Uniform Quality Testing committee after which approval for release was granted. Selection criteria: high yield, resistance to stem rust, leaf rust, stripe rust, grain quality, acid soil tolerance. Propagation: seed. Breeder: Akram Khan, NSW Agriculture.

Choice of Comparators ‘Dollarbird’ as the pollen parent for the cross. ‘Diamondbird’ and ‘Janz’ were selected as commonly used varieties in the same agro-ecological region. ‘Tailorbird’ was not used as a comparator as there are significant yield and grain quality differences. ‘Wylah’, ‘Sunbrook’ and ‘Whistler’ were rejected for their winter habit as opposed to spring habit of K3057. ‘Cunningham’, ‘H45’ and ‘Silverstar’ have significant maturity and acid soil tolerance differences that exclude them from the comparator trial. The seed parent is an experimental breeding line and therefore was excluded.

Comparative Trial Location: sown on Temora Agricultural Research and Advisory Station, Barmedman Rd, Temora NSW. Conditions: sown into red clay soils on good moisture at 40kg/ha seeding rate with 100kg/ha of MAP. Trial design: randomised plots 6m x 1.42m in 2 replicates. Data collection: 10 specimens per replicate randomly selected from 1,750 plants per plot.

Prior Applications and Sale Nil.

Description: **Paul Breust**, NSW Agriculture, Temora, NSW.

Table 43 *Triticum* varieties

	‘K3057’	*‘Dollar-bird’	*‘Diamond-bird’	*‘Janz’
GROWTH HABIT	semi erect – erect	semi erect	semi erect – erect	semi erect
EAR EMERGENCE	early – medium	medium – early	medium – early	early
FLAG LEAF GLAUCOSITY	medium – weak	weak – medium	medium	medium
EAR GLAUCOSITY	medium – strong	medium	medium	medium- strong
EAR DENSITY	lax – medium	lax – medium	lax – medium	medium – dense
AWNS OR SCURS AT TIP OF EAR	medium – long	medium	medium -long	long – medium
LOWER GLUME SHOULDER WIDTH	narrow – medium	narrow – medium	narrow	narrow
LOWER GLUME SHOULDER SHAPE	elevated	slightly sloping	slightly sloping	elevated

‘Kukri’

Application No: 2000/151 Accepted: 25 May 2000.

Applicant: **Luminis Pty Ltd**, Adelaide, SA and **Grains Research and Development Corporation**, Barton, ACT.

Characteristics (Table 44, Figure 45) Plant: growth habit intermediate, height medium. Time of ear emergence: very early to early. Flag leaf: anthocyanin colouration of auricles strong, glaucosity weak. Ear: glaucosity weak, shape tapering, density lax, colour white, fully awned. Straw: pith thin. Apical rachis: hairiness medium. Lower glume: shoulder width medium, shoulder shape slightly elevated, beak length long, beak shape moderately curved. Grain: colour white, shape somewhat elongated, brush short. Coleoptile: short. Seasonal type: spring. Disease resistance: stem rust resistant (Sr2), leaf rust resistant, stripe rust moderately resistant, yellow leaf spot moderately resistant, crown rot moderately resistant, bunt very susceptible. Quality: glutenin bands a,b,d,d,h,b for Glu-A1, Glu-B1, Glu-D1, Glu-A3, Glu-B3 and Glu-D3 loci respectively, polyphenol oxidase activity low.

Origin and Breeding Controlled pollination: seed parent breeding line CO1213 x pollen parent breeding line RAC549 in a planned breeding program. The original cross was made in 1977 between lines in the Australian Elite

Crossing Nursery. The full pedigree is: DRP((FN-K58xN10B/Gb55)NAI60)/(TOB-CNO'S'xTOB-8156/CALxBb-CNO)/2/MDN/6*RAC177. Selection occurred at Roseworthy Agricultural College and further crosses were made, the last in 1987. Rust resistant F₂ plants were selected in the field at Castle Hill in 1988 and further single plant selection was carried out at Roseworthy in 1989 and 1990. A preliminary yield trial at Roseworthy in 1991 identified a line designated DT68570-117 as having potential and this was entered into replicated widescale yield trials across SA from 1994 to 2000 as RAC820, which was later released as 'Kukri'. Selection criteria: yield and adaptation, disease resistance and particularly potential Prime Hard quality. Propagation: by seed. Breeder: Gil Hollamby, Roseworthy Campus, The University of Adelaide, SA.

Choice of Comparators 'Barunga', 'Janz', 'Frame', 'Excalibur' and 'Krichauff' were chosen for the comparative trial, as these are similar fully awned varieties.

'Yitpi' was added as a comparator in the 2000 trial as this new release is also of similar phenotype. The parents were not included because these are non-commercial breeding lines.

Comparative Trials Location: Roseworthy Campus, Roseworthy, SA winter 1999 and again in winter 2000. Conditions: trials conducted in the field, sown at optimal time in a loamy mallee soil under normal farm practice of seeding rate and fertilisation, 1999 a dry season, 2000 above average but dry at heading. Trial design: randomised block design of 3 blocks, plots were 6 rows wide and 3.2m long, approximately 1000 plants per plot. Measurements: 5 plants per plot randomly selected, other measurements were taken from comparative yield trials sown at other sites.

Prior Applications and Sales

No prior applications. First sold in Australia in May 2000.

Description: **Gil Hollamby**, The University of Adelaide, Roseworthy Campus, Roseworthy, SA.

Table 44 *Triticum* varieties

	'Kukri'	*'Barunga'	*'Janz'	'Excalibur'	'Frame'	'Krichauff'	'Yitpi'
TIME OF EAR EMERGENCE (Days from 31st Aug)							
mean	20.8	19.5	23.0	20.5	29.0	20.0	25.8
std deviation	0.4	0.7	0.7	0.7	0.0	1.4	0.7
LSD/sig	2.6	ns	P≤0.01	ns	P≤0.01	ns	P≤0.01
SPIKELET NUMBER PER EAR (Including Sterile Basal Spikelets 2000)							
mean	22.9	19.8	22.3	20.7	21.9	19.8	21.3
std deviation	0.1	0.7	0.6	0.3	0.3	0.5	0.6
LSD/sig	1.1	P≤0.01	ns	P≤0.01	ns	P≤0.01	P≤0.01
BASAL STERILE SPIKELETS PER EAR (2000)							
mean	3.2	3.4	3.2	2.6	4.5	2.7	4.6
std deviation	0.2	0.9	0.9	0.7	0.8	0.1	0.3
LSD/sig	1.3	ns	ns	ns	P<0.01	ns	P<0.01
AURICLE ANTHOCYANIN							
	strong	absent	absent	absent	absent	absent	absent
HIGH MOLECULAR WEIGHT GLUTENIN BANDS (alleles at Glu-A1, Glu-B1 and Glu-D1 loci respect.)							
	abd	abd	aba	mixed	abd	acd	abd
LOW MOLECULAR WEIGHT GLUTENIN BANDS (alleles at Glu-A3, Glu-B3 and Glu-D3 loci respect.)							
	dhb	cbc	bbb	mixed	chc	cba	chc
POLYPHENOL OXIDASE ACTIVITY							
	low	high	high	high	medium	low	medium

'M5631'

Application No: 2000/141 Accepted: 6 Nov 2000.

Applicant: **Department of Agriculture for and on behalf of the State of New South Wales, Orange, NSW and Grains Research and Development Corporation, Barton, ACT.**

Characteristics (Table 45, Figure 48) Plant: growth habit intermediate, height medium, straw pith thin, anthocyanin colouration of auricles absent. Flag leaf: glaucosity medium. Ear: emergence early to medium, glaucosity medium to weak, shape tapering, density medium to dense,

awns at tip medium length, colour white to brown. Lower glume: shoulder width narrow to medium, shoulder shape sloping, beak shape straight, extent of internal hairs medium. Grain: colour white. Seasonal type: winter.

Origin and Breeding Controlled pollination: parentage SR33/'Rosella'. Initial cross was made by the National Cereal Rust Control Program under direction from NSW Agriculture. The seed parent is a breeding line used to impart a high level of stem rust in 'Rosella'. Selection for rust resistance was made at the Plant Breeding Institute, The University of Sydney, Cobbitty. Pedigree selection for habit