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xTSE AU Hawkeye Cultivar Source: University of Adelaide (Waite Campus), Glen Osmond (South Australia) AU CID:_ SID:_

Kath Cooper (breeder), Jason Reinheimer (breeder), Gil Hollamby (author). Variety descriptions: triticale (x Triticosecale): 'Hawkeye'. *Plant Varieties J. (AU, online)* 20 (4): 107-108,288-291 (2007)

Plant breeders' rights were subsequently granted to Australian Grain Technologies Pty Ltd, see *Plant Varieties J. (AU, online)* 21(3): 504 (2008).

Plant Breeders Rights - Search Result Details

Triticale *(xTriticosecale)*

Variety:	'Hawkeye'
Synonym:	N/A
Application no:	2007/234
Current status:	GRANTED
Certificate no:	3608
Received:	12-Sep-2007
Refused:	N/A
Accepted:	10-Oct-2007
Withdrawn:	N/A
Granted:	16-Sep-2008
Terminated:	N/A

full image and caption (click to enlarge)

Description published in Plant Varieties Journal:	Volume 20, Issue 4

The detailed description of this variety is available in Word format.

Title Holder:	Australian Grain Technologies Pty Ltd
Agent:	N/A
Telephone:	0883036861
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Triticale ***(xTriticosecale)***

Triticale - Upper (L to R): Mature ears of ‘Hawkeye’, ‘Kosciuszko’, ‘Tahara’ and ‘TICKIT’ grown in the comparative trial Mintaro SA 2007. Note differences in ear length, width and density. Lower: Close up images of centre of the ears of ‘Hawkeye’ (left) and ‘Kosciuszko’ (right) showing the pubescence of ‘Hawkeye’ versus the non pubescence of ‘Kosciuszko’.

Details of Application

Application Number	2007/234
Variety Name	'Hawkeye'
Genus Species	x*Triticosecale*
Common Name	Triticale
Synonym	Nil
Accepted Date	10 Oct 2007
Applicant	Australian Grain Technologies Pty Ltd, Glen Osmond, SA
Agent	N/A
Qualified Person	Gil Hollamby

Details of Comparative Trial

Location	Mintaro, South Australia.
Descriptor	Triticale (x*Triticosecale*) TG/83/4
Period	Winter to spring 2007.
Conditions	The trial was grown in a black self mulching soil which had been pasture in 2006 and wheat in 2005. The area was sprayed with Roundup Power Max (1.2L/ha) + Goal CT (75ml/ha) on 24 May 2007 and direct drilled at 2-4cm in slightly moist conditions on 25 May at 200 plants/m2 and with 90kg/ha DAP and 80kg/ha Urea. During the winter months moisture was adequate and the trial grew well. In crop weeds were controlled with 2,4-D amine 625 (1.5l/ha) on 6 Sep. Spring was dry and some moisture stress occurred. Harvest took place on 11 Dec about two weeks earlier than normal. There were no diseases of note. A similar trial was planted at Roseworthy.
Trial Design	Randomised Block Design of 3 blocks and 16 entries consisting of comparators and potential candidates. Sown in 12 ranges of 4 plots wide, block 1 being in ranges 1 to 4 and so on. Plots were 1.25m wide (5 rows) and 3.2m long. There were approx. 1000 plants per plot.
Measurements	Heading times were recorded on the same trial planted at Roseworthy 2007, but this trial later was abandoned due to a heavy infestation of Crown Rot. All other measurements and observations were recorded on plant samples taken from the Mintaro trial. At anthesis 5 primary tillers were sampled from each plot in each replicate and flag leaf measurements made. Glaucosity and leaf angle was observed at this time. After maturity plant heights to the top of the awns were recorded at 10 random locations in replicate 2 and 3 only. Twenty heads were also sampled at random from each plot in replicates 2 and 3 for head descriptions and measurements. Measurements were performed on 10 intact heads per block. Physical quality data was measured on the grain harvested from the plots. Statistical analyses were completed using GENSTAT software.
RHS Chart - edition	N/A

Origin and Breeding

Controlled pollination: The cross ISR499-61/TX93-19-2 was made by Dr Kath V Cooper in the glasshouse at Waite Campus, The University of Adelaide in the spring of 1996. The female parent, ISR499-61 (NSW accession number of an imported CIMMYT line POPP1_2), had a broad head type. The male parent was a sib of 'Tickit' and 'Speedee' and had a shorter stature, resistance to cereal cyst nematode and resistance to the stem rust pathotype 34-2,12,13. F_1 generation seed was harvested in Jan 1997, and allocated the number TX97-41. Fl seed was immediately sown in pots in the glasshouse to produce F_2 generation seed, harvested May 1997, and sown as a single plot at Callington, SA. Single heads from plants showing desired agronomic type were taken in Dec and sown as head hills in the Waite Campus birdcage, under irrigation. F_3 generation head hills were harvested in May 1998 and sown as (F_4 generation) single plots at Callington. A line having desirable plant type, cereal cyst nematode resistance (SARDI test) and stem rust resistance (NRCP test), was selected and designated TX97-41-1. TX97 -41-1 was assessed for grain yield, plant type and grain conformation as F_5 replicated field trials in 1999 (2 sites), as F_6 in 2000 and as F_7 in 2001 (4 sites). Sites used were Callington, Lameroo, Cleve and Birdwood all in SA. Re-selections were taken from TX97-41-1 at the Callington site in 2001 to improve uniformity. These F_8 heads were sown as head hills at Waite Campus, in the birdcage under irrigation, in Dec 2001, harvested May 2002 and resown at Birdwood, Jun 2002. One of these reselections, designated TX97-41-1-2 after yield testing in replicated trials at 3 sites during winter 2003 was transferred by Dr. Cooper to Australian Grain Technologies under a licensing agreement where its trialling was continued by Jason Reinheimer. TX97-41-1-2 was assessed for yield, physical grain quality, disease resistance and plant type at 11 sites across Australia in 2004 as well as CCN resistance in the laboratory. In 2004, 50 single head selections were taken from a single plot of TX97-41-1-2 and were grown over summer at Roseworthy Campus, University of Adelaide. In 2005 these single selections were assessed individually for plant type, rust resistance and CCN resistance with the resistant individuals that were similar in plant type formed a bulk designated TSA0108. This line was assessed for yield, rust resistance, CCN resistance and physical grain quality at 19 sites by AGT and 15 sites by the National Variety Trial system across Australia in 2006 and again in 2007. Breeders: Dr Kath Cooper, The University of Adelaide and Mr. Jason Reinheimer, Australian Grain Technologies.

Choice of Comparators Characteristics used for grouping varieties to identify the most similar Variety of Common Knowledge

Organ/Plant Part	Context	State of Expression in Group of Varieties
Plant	time of ear emergence	250 to 255 Julian days
Plant	height	105 to 120cm
Flag leaf	length of blade	>180mm
Ear	degree of awning	fully awned
Ear	colour	white

Most Similar Varieties of Common Knowledge identified (VCK)

Name	Comments
'Tahara'	common variety grown in the area of adaptation.
'Tickit'	related variety.
'Kosciuszko'	visually similar in the field.

Varieties of Common Knowledge identified and subsequently excluded

Variety	Distinguishing Characteristics		State of Expression in Candidate Variety	State of Expression in Comparator Variety
'Speedee'	Plant	time of ear emergence	253.8 Julian days	247.0 Julian days
'Jackie'	Plant	time of ear emergence	253.8 Julian days	271.0 Julian days
'Abacus'	Plant	time of ear emergence	253.8 Julian days	262.7 Julian days
'Jackie'	Flag leaf	length	205.0mm	137.9mm
'Jackie'	Flag leaf	width	17.00mm	14.30mm
'Treat'	Plant	time of ear emergence	253.8 Julian days	251.7 Julian days

Variety Description and Distinctness - Characteristics which distinguish the candidate from one or more of the comparators are marked with a tick.

Organ/Plant Part: Context	'Hawkeye'	'Kosciuszko'	'Tahara'	'Tickit'
☐ *Ploidy:	hexaploid	hexaploid	hexaploid	hexaploid
☑ Flag leaf: anthocyanin colouration of auricles	medium	absent or very weak	weak to medium	medium
☐ Awn: anthocyanin colouration	absent or very weak		absent or very weak	absent or very weak
☐ Ear: glaucosity	medium		medium	medium
☐ *Stem: density of hairiness of neck	strong	strong to very strong	strong to very strong	strong
☐ *Ear: distribution of awns	fully awned	fully awned	fully awned	fully awned
☐ *Awns above the tip of ear: length	short to medium	short	short to medium	short to medium
☐ *Lower glume: length of first beak	short to medium	medium	short	medium
☐ Lower glume: size of second beak	absent or very small	absent or very small	absent or very small	absent or very small
☑ *Lower glume: hairiness on external surface	present	absent	absent	absent
☐ Straw: pith in cross section	thin to medium	medium	thin to medium	thin
☐ Ear: colour	white	white	white	white
☐ *Grain: colouration with phenol	very dark	dark	very dark	very dark
☐ *Seasonal type:	spring type	spring type	spring type	spring type

Characteristics Additional to the Descriptor/TG

Organ/Plant Part: Context	'Hawkeye'	'Kosciuszko'	'Tahara'	'Tickit'
☐ Leaves: reaction to stripe rust pathotype 110E143A+	resistant	resistant	resistant	resistant
☑ Leaves: reaction to stripe rust pathotype 134E16A+	resistant	moderately susceptible	resistant	moderately resistant
☑ Leaves: reaction to stripe rust pathotype 134E16A+J+	resistant	susceptible	moderately resistant	moderately resistant
☐ Ear: attitude at maturity	mixed erect to semi-recurved	mixed erect to semi-recurved	mixed erect to semi-recurved	mixed erect to semi-recurved
☑ Roots: reaction to high Boron levels	moderately intolerant			moderately tolerant

☑ Roots: reaction to Cereal Cyst Nematode	resistant	susceptible	resistant

Statistical Table

Organ/Plant Part: Context	'Hawkeye'	'Kosciuszko'	'Tahara'	'Tickit'
☐ Flag leaf blade: length (mm)				
Mean	205.00	182.40	206.90	203.30
Std. Deviation	28.70	33.00	29.20	21.70
LSD/sig	39.3	ns	ns	ns
☐ Flag leaf blade: width (mm)				
Mean	17.00	16.30	16.60	17.20
Std. Deviation	1.85	1.50	1.24	1.81
LSD/sig	1.7	ns	ns	ns
☑ Ear: length without awns (mm)				
Mean	100.50	128.00	107.40	107.40
Std. Deviation	6.70	11.10	9.50	8.30
LSD/sig	13.5	P≤0.01	ns	ns
☑ Ear: rachis internode length (mm)				
Mean	3.38	4.18	3.66	3.66
Std. Deviation	0.22	0.30	0.25	0.20
LSD/sig	0.38	P≤0.01	ns	ns
☐ Plant: height including awns (cm)				
Mean	111.20	118.20	115.60	109.70
Std. Deviation	4.10	5.20	3.20	3.47
LSD/sig	8.3	ns	ns	ns
☐ Plant: time of ear emergence from boot (Julian days)				
Mean	253.80	252.00	254.70	254.30
Std. Deviation	0.75	0	0.60	1.15
LSD/sig	1.9	ns	ns	ns
☑ Ear: width (mm)				
Mean	13.15	12.75	11.45	11.00
Std. Deviation	0.91	0.97	0.25	0.91
LSD/sig	1.87	ns	P≤0.01	P≤0.01
☑ Grain: test weight (kg/hl)				
Mean	79.93	78.93	76.27	76.93
Std. Deviation	0.61	0.46	0.90	0.83
LSD/sig	1.14	ns	P≤0.01	P≤0.01
☐ Grain: screenings, grain through 2mm sieve (%)				
Mean	1.69	4.65	7.05	4.96
Std. Deviation	0.30	0.74	3.85	0.39
LSD/sig	4.6	ns	P≤0.01	ns

Prior Applications and Sales

Nil.

Description: **Gil Hollamby,** Williamstown, SA.

‘Tammarin Rock’Φ

Application No: 2005/016 Grantee: **InterGrain Pty Ltd**, Victoria Park, WA.
Certificate No: 3605 Expiry Date: 15 September, 2028.

‘YENDA’Φ

Application No: 2006/207 Grantee: **Agriculture Victoria Services Pty Ltd and Grains Research and Development Corporation**.
Certificate No: 3578 Expiry Date: 31 July, 2028.
Agent: **Australian GrainTechnologies Pty Ltd**, Roseworthy, SA.

Triticum turgidum ssp *turgidum*

DURUM WHEAT

‘HYPERNO’Φ

Application No: 2007/300 Grantee: **Australian Grain Technologies Pty Ltd**, Roseworthy, SA.
Certificate No: 3589 Expiry Date: 11 September, 2028.

Vaccinium hybrid

SOUTHERN HIGHBUSH BLUEBERRY

‘C97-390’Φ

Application No: 2005/080 Grantee: **CostaExchange Ltd**, Corindi Beach, NSW.
Certificate No: 3568 Expiry Date: 3 July, 2028.

‘C99-42’Φ

Application No: 2005/082 Grantee: **CostaExchange Ltd**, Corindi Beach, NSW.
Certificate No: 3570 Expiry Date: 3 July, 2028.

Vicia faba

FIELD BEAN

‘Doza’Φ

Application No: 2007/161 Grantee: **Department of Primary Industries for and on behalf of the State of New South Wales,** Orange, NSW **and Grains Research and Development Corporation**, Barton, Act.
Certificate No: 3590 Expiry Date: 11 September, 2028.

x*Triticosecale*

TRITICALE

‘Hawkeye’Φ

Application No: 2007/234 Grantee: **Australian Grain Technologies Pty Ltd**, Urrbrae, SA.
Certificate No: 3608 Expiry Date: 16 September, 2028.

‘Jaywick’Φ

Application No: 2007/235 Grantee: **Australian Grain Technologies Pty Ltd**, Urrbrae, SA.
Certificate No: 3606 Expiry Date: 16 September, 2028.