

Prior Applications and Sales

Country	Year	Status	Name Applied
Germany	1994	granted	'Sunvop'
Denmark	1994	granted	'Sunvop'
Israel	1994	applied	'Sunvop'
Netherlands	1994	granted	'Sunvop'
Japan	1991	granted	'Suntory TP-V'
New Zealand	1996	applied	'Sunvop'
Belgium	1994	granted	'Sunvop'
France	1994	granted	'Sunvop'
United States	1995	granted	'Sunmaref TP-V'

First sold Japan, 1993.

Description: **Ian Paananen, Paananen Consulting Pty Ltd**, Central Coast, NSW.

'Suntory TP-W' syn White Lightning

Application No: 95/246 Accepted: 30 Oct 1995.

Applicant: **Suntory Limited**, Osaka, Japan

Agent: **ForBio Plants Pty Ltd**, Somersby, NSW.

Description (Table 31, Figure 25) Plant: spreading, vigorous growing, branching abundant, blooming profuse, perennial herb. Stem: internode length medium, diameter 2mm - 3 mm, anthocyanin absent, pubescence medium. Leaf: yellow-green, opposite, bipinnatisect, deep incisions, lobes angled outwards. Inflorescence: spike. Peduncle: short - medium. Calyx: anthocyanin present. Flower: upward facing, petals curve slightly outwards, petal colour violet (RHS 85D), eye zone white (RHS 155B), corolla lobes separate.

Origin Controlled pollination: 'Rainbow Carpet White' x Brazilian wild type, 1988. Breeders: Ryuichi Tachibana, Yuji Tamura, Ushio Sakazaki, Yamanashi, Japan. Selection Criteria: spreading growth habit, abundant branching, many flowers per spike. Propagation: cuttings and micropropagation through many generations.

Comparative Trial Comparators: 'Pink Passion', 'Lilac Reflections', 'Purple Passion'. Location: Somersby, NSW Feb 1997 - Apr 1997. Conditions: plants were raised in a standard exotic potting mixture in 200 mm pots in open beds. Trial design: plants arranged in a completely randomised design. Measurements: taken from 10 specimens selected randomly from 10 plants.

Prior Applications and Sales

Country	Year	Status	Name Applied
Germany	1994	granted	'Sunvat'
Denmark	1994	granted	'Sunvat'
Israel	1994	applied	'Sunvat'
Netherlands	1994	granted	'Sunvat'
Japan	1991	granted	'Suntory TP-W'
New Zealand	1996	applied	'Sunvat'
Belgium	1994	granted	'Sunvat'
France	1994	granted	'Sunvat'
United States	1994	granted	'Sunmaref TP-W'

First sold Japan, 1992.

Description: **Ian Paananen, Paananen Consulting Pty Ltd**, Central Coast, NSW.

WHEAT

Triticum aestivum

'Arnhem' syn QT4299

Application No: 96/180 Accepted: 27 Aug 1996.

Applicant: **The State of Queensland through its Department of Primary Industries**, Brisbane, QLD.

Description (Tables 32 & 33, Figure 46) Plant: spring wheat, habit semi erect during tillering, height medium, maturity early. Stem: pith thin, neck glaucosity medium. Leaf: flag leaf very highly recurved, ligule anthocyanin absent or very weak, sheath glaucosity medium, blade glaucosity weak. Ear: density medium, length long, shape in profile parallel sided, colour white, glaucosity medium, awns present and length medium, hairs on convex surface of apical rachis segment absent or very weak. Floret: lower glume beak length medium, shoulder narrow and slightly sloping, extent of internal hairs medium; lowest lemma beak slightly curved. Grain: white and hard. Disease resistance: resistant to stem rust (*Sr2*, *Sr30*) and leaf rust (*Lr1*, *Lr13*, *LrAPR*), moderately resistant to stripe rust (*Yr6*, *Yr7*, *YrAPR*). Grain quality: has bands 2+12 for the high molecular weight glutenin locus Glu-1D (distinct from comparator).

Origin Controlled pollination: 'Pitic 62'2 x 'Hartog', 1981; selected through 11 generations, comprising pedigree selection, field performance testing, and milling, baking quality and disease resistance evaluation. Breeder: PS Brennan, Department of Primary Industries, Toowoomba, QLD. Selection criteria: high yield, good agronomic characteristics, high disease resistance, and good milling and baking quality. Propagation: seed produced by self-pollination through at least two generations.

Comparative Trial Comparator: 'Hartog'. Location: Wellcamp Farm, Wellcamp, Jondaryan shire, QLD, Jul 1996 - Nov 1996. Conditions: plants were raised in well fertilised, irrigated soil in open beds. Trial design: plots of approximately 1500 plants each, arranged in a randomised block with two replications. Measurements: taken from 10 specimens selected at random from each plot; electrophoretic bands of high molecular weight glutenins were determined on each of 10 seeds from each of two generations of 'Arnhem', and on each of 20 seeds of 'Hartog'.

Prior Applications and Sales Nil.

Description: **Tony Done, Queensland Wheat Research Institute**, Toowoomba, QLD.

Table 33 *Triticum* varieties

	'Arnhem'	* 'Hartog'
ELECTROPHORETIC BANDS (Glu-1D locus)	2+12	5+10

Table 32 *Triticum* varieties

	'Kennedy'	'Sturt'	'Arnhem'	'Mawson'	'QT5793'	'Ford'	'Hartog'	'Batavia'
PLANT growth habit	semi-erect	semi-erect to intermediate	semi-erect	semi-erect to intermediate	semi-erect	semi-erect to intermediate	semi-erect	semi-erect to intermediate
PLANT LENGTH (cm) LSD($P \leq 0.01$) = 5.6								
mean	80.0a	80.0a	90.0b	121.0c	93.0b	132.0d	90.0b	91.0b
std deviation	2.72	4.33	4.96	6.01	4.11	4.77	2.36	3.95
LIGULE ANTHOCYANIN	absent or very weak	absent or very weak to weak	absent or very weak	absent or very weak	absent or very weak	absent or very weak	absent or very weak	strong
FLAG LEAF ATTITUDE	very strongly recurved	very strongly recurved	very strongly recurved	strongly recurved	very strongly recurved	very strongly recurved	very strongly recurved	very strongly recurved
STRAW PITH THICKNESS	thin to medium	thin to medium	thin	thin	thin	thin	thin	thin
CULM GLAUCOSITY	medium	weak	medium	weak	medium	weak	medium	medium
LEAF GLAUCOSITY	medium	weak	weak	weak	weak	medium	weak	weak
LEAF SHEATH GLAUCOSITY	strong	medium	medium	weak	strong	weak	strong	medium to strong
MATURITY GROWTH STAGE CODE (2 Oct 1996, 91 days after planting)	56	49	65	40	59	40	59	45
MATURITY GROWTH STAGE CODE (9 Oct 1996, 98 days after planting)	69	65	75	45	69	45	72	60

Table 32 (continued)

EAR LENGTH (cm) LSD(P≤0.01) = 1.1						
mean	11.3bc	10.5a	12.2c	11.2bc	14.2d	12.3c
std deviation	0.51	0.77	0.93	0.39	1.03	0.59
EAR						
density	medium	medium	medium	medium	lax	medium
presence of awns and or scurs	awns present	awns present	awns present	awns present	scurs present	awns present
presence of rachis hairs	absent or weak	weak	absent or weak	absent or weak	weak to medium	absent or weak
AWN LENGTH						
	short	medium	medium	medium	short	long
GLUME						
width	medium	absent or very narrow	narrow	narrow to medium	broad to very broad	absent or very narrow
shape	slightly sloping	sloping	slightly sloping	slightly sloping	straight	sloping
beak length	long	medium	medium	long	very short	medium
beak shape	slightly curved	slightly curved	straight	straight	straight	slightly curved
hairs	strong	medium	medium	medium	strong	medium
LEMMA BEAK SHAPE						
	straight	slightly curved	slightly curved	straight	strongly curved	straight to slightly curved

'Kennedy' syn QT6063

Application No: 96 /209 Accepted: 11 Oct 1996.

Applicant: **The State for Queensland through its Department of Primary Industries, Brisbane, QLD.**

Description (Tables 32 & 34, Figure 44) Plant: spring wheat, habit semi erect during tillering, height medium (shorter than comparators), maturity early. Stem: pith thin, neck glaucosity medium. Leaf: flag leaf very highly recurved, ligule anthocyanin absent or very weak, sheath glaucosity strong, blade glaucosity medium. Ear: density medium, length long, shape in profile parallel sided, colour white, glaucosity medium, awns present and short, hairs on convex surface of apical rachis segment absent or very weak. Floret: lower glume beak long, shoulder medium width and slightly sloping, extent of internal hairs strong; lowest lemma beak straight. Grain: white and hard. Disease resistance: resistant to stem (*Sr2*, *Sr9g*, *Sr30*) and leaf (*Lr1*, *Lr13*) rusts, moderately resistant to stripe rust (*Yr6*, *Yr7*, *YrAPR*), highly tolerant to root lesion nematode (RLN, *Pratylenchus thorneii*), moderately susceptible to yellow spot (*Pyrenophora tritici-repentis*, distinct from comparators).

Origin Controlled pollination: 'Veery #5' x 'Hartog', 1984; selected through 8 generations, comprising pedigree selection, field performance testing, and milling, baking quality and disease resistance evaluation. Breeder: PS Brennan, Department of Primary Industries, Toowoomba, QLD. Selection criteria: high yield, good agronomic characteristics, high disease resistance, high RLN tolerance, and good milling and baking quality. Propagation: seed produced by self-pollination through at least two generations.

Comparative Trial Comparators: 'QT5793', 'Hartog'. Location: Wellcamp Farm, Wellcamp, Jondaryan Shire, QLD, Jul 1996 - Nov 1996. Conditions: plants were raised in well fertilised, irrigated soil in open beds. Trial design: plots of approximately 1500 plants each, arranged in a randomised block with two replications, Measurements: taken from 10 specimens selected at random from each plot; 50 seedlings of each of two generations of 'QT5793' and 'Kennedy' and 20 seedlings of their comparator 'Hartog' were grown in pots in two replications of a randomised block design in growth rooms, inoculated with yellow spot and evaluated for subsequent severity of yellow spot infection, Mar 1997.

Description: **Tony Done, Queensland Wheat Research Institute, Toowoomba, QLD.****Table 34 *Triticum* varieties**

	'Kennedy'	'QT5793'	* 'Hartog'
YELLOW SPOT RESPONSE TEST IN SEEDLING (1 = resistant, 10 = very susceptible)			
mean	6.8	3.5	8.1
std deviation	0.25	0.15	0.25
LSD/sig	0.18 ¹	P≤0.01	P≤0.01

¹ Compared with 'Hartog'**'Mawson' syn QT7274**

Application No: 96 /179 Accepted: 27 Aug 1996.

Applicant: **The State of Queensland through its Department of Primary Industries, Brisbane, QLD.**

Description (Tables 32 & 35, Figure 45) Plant: spring wheat, habit semi erect to intermediate during tillering, height tall, maturity very late. Stem: pith thin, neck glaucosity weak to medium. Leaf: flag leaf highly recurved, ligule anthocyanin absent or very weak to weak, sheath glaucosity weak, blade glaucosity weak. Ear: density lax, length long, shape in profile parallel sided, colour white, glaucosity medium, awns and scurs absent, hairs on convex surface of apical rachis segment absent or very weak. Floret: lower glume beak short, shoulder broad to very broad and straight, extent of internal hairs weak; lowest lemma beak slightly curved. Grain: white and soft. Disease resistance: resistant to stem (*Sr31*) and leaf (*Lr26*) rusts and stripe rust (*Yr9*) (distinct from comparator for rust resistance).

Origin Controlled pollination: 'Veery #5'/3 x 'Ford' 1989; selected through 8 generations, comprising pedigree selection and disease resistance evaluation. Breeders: D The, University of Sydney, Plant Breeding Institute, Cobbitty, NSW and PS Brennan, Department of Primary Industries, Toowoomba, QLD. Selection criteria: very late maturity and high rust resistance. Propagation: seed produced by self-pollination through at least two generations.

Comparative Trial Comparator: 'Ford'. Location: Wellcamp Farm, Wellcamp, Jondaryan Shire, QLD Jul 1996 - Nov 1996. Conditions: plants were raised in well fertilised, irrigated soil in open beds. Trial design: plots of approximately 1500 plants each, arranged in a randomised block with two replications, Measurements: taken from 10 specimens selected at random from each plot; reaction to a mixture of stem and leaf rust races was determined on each of 40 seedlings of each of two generations of 'Mawson', and on each of 20 seedlings of 'Ford', grown in pots in a glasshouse test in a randomised block design with two replications, Mar 1997.

Prior Applications and Sales Nil.Description: **Tony Done, Queensland Wheat Research Institute, Toowoomba, QLD.****Table 35 *Triticum* varieties**

	'Mawson'	* 'Ford'
REACTION OF SEEDLINGS TO A MIXTURE OF LEAF RUST (Races 104 - 1, 2, 3, 6, (7), 11 and 68 - 1, 2, 3, 4) AND STEM RUST (Races 343 - 1, 2, 3, 4, 5, 6 and 34 - 2, 4, 5, 11). (0 = resistant, 4 = highly susceptible)		
mean	1.8	3.4
std deviation	0.16	0.30
LSD/sig	0.16	P≤0.01

'QT5793'

Application No: 96 /178 Accepted: 27 Aug 1996.

Applicant: **The State of Queensland through its Department of Primary Industries, Brisbane, QLD.**

Description (Tables 32 & 34, Figure 44) Plant: spring wheat, habit semi erect during tillering, height medium, maturity early. Stem: pith thin, neck glaucosity medium. Leaf: flag leaf very highly recurved, ligule anthocyanin absent or very weak, sheath glaucosity strong, blade glaucosity weak. Ear: density medium, length long, shape in profile parallel sided, colour white, glaucosity medium, awns present and of medium length, hairs on convex surface of apical rachis segment absent or very weak. Floret: lower glume beak long, shoulder narrow to medium, lower glume and slightly sloping, extent of internal hairs medium; lowest lemma beak straight. Grain: white and hard. Disease resistance: resistant to stem (*Sr2*, *Sr9g* (heterogeneous), *Sr30*), leaf (*Lr1*, *Lr13*, *LrAPR*) rusts and stripe rust (*Yr6*, *Yr7* (heterogeneous), *SrAPR*), moderately resistant to yellow spot (*Pyrenophora tritici-repentis*) (distinct from comparator).

Origin Controlled pollination: 'CNT2'/4 x 'Hartog', initial cross 1984, last cross 1987; selected through 13 generations, comprising four cycles of crossing, screening and selection for yellow spot resistance, followed by pedigree selection, field performance testing, and disease resistance, milling and baking quality evaluation. Breeders: RG Rees and RL Eisemann, Department of Primary Industries, Toowoomba, QLD. Selection criteria: high yield, good agronomic characteristics, high disease resistance including moderate yellow spot resistance. Propagation: seed produced by self-pollination through at least two generations.

Comparative Trial Comparator: 'Hartog'. Location: Wellcamp Farm, Wellcamp, Jondaryan Shire, QLD, Jul 1996 - Nov 1996. Conditions: plants were raised in well fertilised, irrigated soil in open beds. Trial design: plots of approximately 1500 plants each, arranged in a randomised block with two replications, Measurements: taken from 10 specimens selected at random from each plot; 50 seedlings of each of two generations of 'QT5793' and 20 seedlings of 'Hartog' were grown in pots in two replications of a randomised block design in growth rooms, inoculated with yellow spot and evaluated for subsequent severity of yellow spot infection, Mar 1997.

Prior Applications and Sales Nil.

Description: **Tony Done, Queensland Wheat Research Institute, Toowoomba, QLD.**

'Stiletto' syn RAC680

Application No: 93/240 Accepted: 25 Nov 1993.

Applicant: **Minister for Primary Industries, Adelaide, SA and University of Adelaide, Adelaide, SA.**

Description (Table 36, Figure 43) Plant: Australian premium white grade spring wheat, habit semi-erect, height short/medium, maturity medium. Leaf: dark green, auricle anthocyanin colouration weak. Flag leaf sheath glaucosity

weak. Stem: straw pith thin, glaucosity of neck weak. Ear: white semi-erect fusiform fully awned, density medium, length medium, rachis hairiness medium. Lower glume: shoulder elevated, width medium, beak long curved, weakly hairy internally. Lowest lemma: beak slightly curved. Grain: white, hard, ovate. Disease resistance: Stem rust resistant gene 'Sr13', stripe rust resistant gene 'Yr6' (ineffective in Australia), moderately resistant to Flag smut and Bunt. Soil boron toxicity: tolerant.

Origin Controlled pollination: 'Veranopolis'/3* 'RAC177'/2/3* 'Spear'/3/ 'Dagger' - backcrossing and selection for stem rust resistance. Breeder: Gil Hollamby, Roseworthy Campus, The University of Adelaide, SA with assistance from the National Rust Control Program, The University of Sydney, Cobbitty, NSW. Propagation: seed through six generations of selection in SA for yield, adaptation and quality.

Comparative Trial Comparators: 'Spear', 'Dagger', 'Trident'. Location: Roseworthy SA, May 1995 - Jan 1996. Conditions: plants were sown using plot seeding equipment into a mallee soil with adequate fertiliser, representative seasonal conditions. Trial design: Randomised complete block of three blocks, plots six rows 18cm apart 5m long, approximately 1000 plants per plot. Measurements: 20 random plants per plot for descriptors. Rust reactions: measured at the National Rust Control Program, The University of Sydney. Grain quality: measurements made on grain samples from 23 evaluation trials over three years. DNA analyses: performed on pure seed lots housed at the Australian Winter Cereals Collection, Tamworth NSW by The University of Adelaide, SA.

Prior Applications and Sales: Nil.

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

Table 36 *Triticum* varieties

	'Stiletto'	*'Spear'	*'Trident'	*'Dagger'
DAYS TO HEADING (Roseworthy, SA 1995) -from 31 Aug (plot basis)				
	23.0	24.0	20.8	24.0
STEM RUST REACTION (infection type)				
Pathotype 34-1,2,3,4,5,6,7	2=	3+	X=	
Pathotype 34-1,2,3,4,5,6,7	;1-	3+	X=	
PROTEIN SUBUNITS (bands)				
Locus	GluA1	1	1	1
	GluB1	7+9	7+9	7+9
	GluD1	5+10	5+10	5+10
	GluB3	h	h	h
	GluD3	c	c	c
	GliA1	m	m	f
FLOUR YIELD (%)				
mean	73.3	72.6	71.8	not tested
LSD/sig, paired	0.5	0.7		
Comparisons with 'Stiletto'		33	20	

FLOUR EXTENSIBILITY (cm/unit protein)			
mean	1.71	1.68	1.62 not tested
LSD/sig, paired t	ns		0.06
Comparisons with 'Stiletto'		33	20
DNA ANALYSIS (fragment size, or null = absent)			
RFLP probe CDO347			
Enzyme HindIII	8.8kbp	null	(Trident (Dagger not tested) not tested)
RFLP probe CDO506			
Enzyme HindIII	5kbp	null	
"	3.5kbp	null	
Enzyme DraI	5.5kbp	null	
Enzyme EcoRV			
	6kbp	null	
RFLP probe CDO595			
Enzyme DraI	9.8kbp	null	
RFLP probe PSR911			
Enzyme EcoRV			
	10kbp	<10kbp	
Enzyme HindIII			
	9kbp	<9kbp	

'Sturt' syn QT6285

Application No: 96/208 Accepted: 11 Oct 1996.

Applicant: **The State of Queensland through its Department of Primary Industries, Brisbane, QLD.**

Description (Tables 32 & 37, Figure 47) Plant: spring wheat, habit semi erect to intermediate during tillering, height medium, maturity late. Stem: pith thin to medium, neck glaucosity weak. Leaf: flag leaf very highly recurved, ligule anthocyanin absent or very weak to weak (distinct from comparator), sheath glaucosity medium, blade glaucosity weak. Ear: density medium, length long (10.5 cm), shape in profile parallel sided, colour white, glaucosity weak, awns present and medium length, hairs on convex surface of apical rachis segment weak. Floret: lower glume beak medium length, shoulder absent or very weak and sloping, extent of internal hairs medium; lowest lemma beak slightly curved. Grain: white and hard. Disease resistance: resistant to stem rust (*Sr24*), leaf rust (*Lr24*) and stripe rust (*YrA*, *YrAPR*); highly tolerant to very highly tolerant to root lesion nematode (RLN, *Pratylenchus thorneii*) (more tolerant than comparator).

Origin Controlled pollination: 'Moulin'/2 x 'QT3308', 1985; selected through 8 generations, comprising pedigree selection, field performance testing, and milling, baking quality and disease resistance evaluation. Breeders: PS Brennan and PM Banks, Department of Primary Industries, Toowoomba, QLD. Selection criteria: high yield, good agronomic characteristics, high disease resistance and high RLN tolerance. Propagation: seed produced by self-pollination through at least two generations.

1 QT3308 is an inbred line, pedigree '3Ag14'///4 x 'Condor'/'Oxley'/3 x 'Cook'.

Comparative Trial Comparator: 'Batavia'. Location: Wellcamp Farm, Wellcamp, Jondaryan Shire, QLD, Jul 1996 - Nov 1996. Conditions: plants were raised in well fertilised, irrigated soil in open beds. Trial design: Plots of approximately 1500 plants each, arranged in a randomised block with two replications, Measurements: taken from 10

specimens selected at random from each plot. Grain yield measurements, and visual assessments of RLN tolerance were made in three trials at a site heavily infected with RLN at 'Tangalooma', Formartin, QLD, Jun 1995 - Nov 1995 and May 1996 - Nov 1996.

Prior Applications and Sales Nil.

Description: **Tony Done, Queensland Wheat Research Institute, Toowoomba, QLD.**

Table 37 *Triticum* varieties

	'Sturt'	* 'Batavia'
ANTHOCYANIN COLOURATION OF FLAG LEAF AURICLES		
	absent or very weak	strong
ROOT LESION NEMATODE TOLERANCE (6 = very tolerant, 1 = very susceptible)		
mean	4.3	3.2

WHITE CLOVER *Trifolium repens*

'Waverley'

Application No: 95/020 Accepted: 24 Jan 1995.

Applicant: **SA Seedgrowers Co-operative Ltd, Hilton SA.**

Description (Table 38, Figure 50) Plant: upright, vigorous winter-active white clover. Leaf: large, predominantly green, less than 5% of leaves carry leaf marking. Central leaflet: length 28.2mm, width 26.4mm, petiole length 249mm, diameter 2.0 mm. Stolon: thickness 3.0mm. Inflorescence: carried on upright stiff peduncles.

Origin Mass selection: in long-established stands originally sown to winter-active varieties of white clover, 1989 followed by recurrent selection. Breeder: Dr RW Downes, Canberra, ACT 1989 - 1993. Selection criteria: vigour in autumn, winter and spring, resistance to grazing pressure, rapid recovery from cutting and grazing, leafy growth habit, high seed production and absence of virus and fungal diseases. Propagation through 4 generations by seed.

Comparative Trial Comparators: 'Tamar', 'Haifa', 'Irrigation White'. Location: Bordertown and Adelaide, SA Jun 1994 - Dec 1996. Conditions: plants were raised in soil in open beds and in pots. Trial design: plants arranged in randomised complete blocks of 12 plants in 5 replicates in open soil and 6 reps of 10 plants in pots in the glasshouse. Measurements: taken from 60 specimens. The field-grown plants were adversely affected by herbicides. Consequently field data were discarded and glasshouse data were used in these analyses.

Prior Applications and Sales

First sold Australia 1995.

Description: **Dr Ross Downes, Canberra, ACT.**