REQUEST FOR SUPPORT OF REGISTRATION OF BW1085

CROP KIND: Wheat TYPE: Canada Western Red Spring

PROPOSERS: P. Hucl and C. Briggs

CDC, Univ. of Saskatchewan, Saskatoon, SK, S7N 5A8

TEST NUMBERS: BW1085, W15141 **PEDIGREE:** Carberry/CDC Utmost

BW1085 was selected from the cross Carberry/CDC Utmost made at the University of Saskatchewan during the summer of 2009.

The resulting F_1 from the cross Carberry/CDC Utmost was grown in New Zealand during the winter of 2009/2010. The F_2 generation was grown in bulk plots in Saskatoon in 2010, the F_3 generation was grown in a winter nursery (2010/2011) while the F_4 generation was grown in a space-planted nursery at Saskatoon in 2011. F_5 and F_6 hills were grown at Saskatoon in 2012 and 2013. Seed from a bulked F_6 row was used as a source for entry into an unreplicated yield trial nursery at Saskatoon in 2014. W05141 was grown in a replicated trial at Saskatoon in 2015 and in a replicated trial at six locations in 2016. The entry was also evaluated for reaction to leaf and stem rust in an irrigated nursery from 2012 to 2016.

BW1085 was evaluated as W05141 in the Central Bread Wheat 'B' test in 2017 (as code#32). BW1085 was subsequently evaluated in the Central Bread Wheat Cooperative Test from 2018 to 2020.

AREA OF ADAPTATION: Spring wheat growing regions of Central Canada.

STRENGTHS: BW1085 is higher yielding than two of the three check cultivars with intermediate height and low lodging scores. BW1085 is earlier maturing than the three check cultivars.

WEAKNESSES: Slightly lower Test Weight than the checks.

DESCRIPTION: BW1085 is a semi dwarf line with intermediate lodging scores. BW1085 is awned and hollow-stemmed. In three years of testing in the Central Bread Wheat Cooperative Test, BW1085 was 2%, 9% and 9% higher yielding than Unity, Glenn and Carberry, respectively (Table 1). BW1085 yielded 2% less than AAC Viewfield (Table 1).

BW1085 was intermediate for maturity, plant height, lodging score and kernel weight relative to the check cultivars (Table 1). BW1085 had a lower test weight than the checks (Table 1).

BW1085 was resistant to prevalent races of leaf, stem and stripe rust as well as common bunt (Table 2). The FHB reactions for BW1085 were mostly "MR" or "I" (Table 3). BW1085 is resistant to the wheat midge (Table 2).

After two years of quality evaluation BW1085 was awarded a "DNO" vote by the QET.

Table 1. Agronomic data for BW1085 and check cultivars in the Central Bread Wheat Cooperative Test, 2018 to 2020

Entry	Yield (kg ha-1)	% of Unit	Maturity (days)	Height (cm)	Lodging (1-9)	Test Weight (kg hL ⁻¹)	Kernel wt (g)	Grain Protein (%)
Unity	4956	100	89	92	2.3	79.5	35.5	14.2
Glenn	4632	93	91	85	1.5	82.3	35.6	14.5
Carberry	4623	93	92	80	1.3	80.1	36.8	14.7
AAC Viewfield	5185	105	92	75	1.4	80.8	35.0	14.1
BW1085	5061	102	91	80	1.5	79.1	35.7	14.4
Grand Mean	4892		91	82	1.58	80.4	35.7	14.4
CV	5.4		1.6	3.4	22.6	0.9	3.4	3.8
LSD	210		1.16	2.16	0.3	0.3	0.55	0.25
Location-Years	32		33	34	13	35	35	35

Table 2. Diseas	e reactio	on of BW1	085 and	check	cultivars ((2018 to 2	2020).																
	Leaf Rust								;	Stem Ru	ıst			Stripe Rust (Lethbridge)									
	20)18	201	9	202	20		20	18	20	19	2020			201	8	2019		2	2020			
Entry	Sev	IT	Sev	IT	Sev	IT		Sev	IT	Sev	IT	Sev	Sev IT		Sev IT		Sev	IT	Sev	IT			
Unity	15	MR	57	MS	40	MS		1	R	10	R	1	R		29	ı	67	S	60	S			
Glenn	13	MR	35		43	MS		1	R	10	R	1	R		23	I	38		23	MR			
Carberry	2	R	13	MR	3	R		1	R	5	R	1	R		9	R	22	MR	18	MR			
AAC Viewfield	2	R	27	MR	22	MR		1	R	10	MR	1	R		10	MR	50	S	18	MR			
AAC Brandon	-	-	-	-	13	MR		-	-	-	-	1	R		-	-	-	-	10	R-MR			
BW1085	0	R	13	MR	8	R		5	- 1	40	I	1	R		4	R	9	R	13	MR-R			
	Common Bunt						Midge																
					BRA	IH	BRA	MEL	BRA	MEL													
	2018	2019	2020		2018	2018	2019	2019	2020	2020													
Entry	%Infec.	%Infec.	%Infec.		(R:S:U)	(R:S:U)	(R:S:U)	(R:S:U)	(R:S:U)	(R:S:U)													
Unity	0R	2R	-		4:1:4	7:2:1	7:1:3	3:0:2	8:2:0	7:2:1													
Glenn	231	10MR	-		0:5:0	0:10:0	0:9:1	0:5:0	0:10:0	0:10:0													
Carberry	0R	0R	-		0:5:0	0:10:0	0:10:0	0:5:0	0:10:0	0:10:0													
AAC Viewfield	10MR	5R	-		0:5:0	0:10:0	0:10:0	0:5:0	0:10:0	0:10:0													
AAC Brandon	-	-	-		-	-	-	-	0:10:0	0:3:7													
BW1085	4R	2R	_		5:0:5	8:0:2	6:0:4	3:0:6	6:0:4	7:0:3													

Table 3.FHB reaction		ofBW108	and	check	cultivars	(2018	to 2020)	١.				
			FFBVbce	2018		FHB	Morder	1 2019	FHB	Morden	2020	
	A		Avg DON		100	Avg	VDI	Avg DON	Avg		Avg DON	
	Avg	VRI	С	1004	ISD	VRIa	VRI	С	VRIa	VRI	С	
Entry	VRIa %		(ppm)		Rateb	%	Rateb	(ppm)	%	Rateb	(ppm)	Rating
Unity	41.3	S	3.8	4.9	MR	44.5	MS	10.7	32.7	MS	13.51	MR
Glenn	25.7		3.5	4.2	MR	23.4	MR	7.3	24.9		13.72	MR
Carberry	16.5	MR	4.4	4.5	MR	28.8		8.5	17.3	<u> </u>	16.52	<u> </u>
AAC Viewfield	20.2	I	6.3	5.7	l	40.5	MS	18.4	12.6	MR	23.61	MS
AAC Brandon	-	-	-	-	-	-	-	-	21.9	<u> </u>	19.53	
BW1085	27.3	l	6.9	6.3	l	31.5	Į	10.9	13.9	MR	22.19	MS
			FFBCama	2018		FHB	Carmar	1 2019	FHB	Carman	2020	
	A.16	VDI	Avg DON		ISD	Avg	VRI	Avg DON	Avg		Avg DON	
	Avg	VRI	С		ISD		ı vki	С	VRI a	VRI	С	
						VRIa						
Entry	VRI ^a %	Rateb	(ppm)	ISDd	Rateb	VRIa %	Rateb	(ppm)	%	Rateb	(ppm)	Rating
•	VRI ^a %	Rateb	(3.0	Rate ^b MR	%		(ppm)	% 39.6	Rateb		
Unity	16.3	Rate ^b	2.23	3.0		% 42.0	Rate ^b MS	4.8	39.6	Rateb	4.7	MR
Unity Glenn		Rate ^b I I MR	(MR	%	Rateb			l I	4.7 7.0	MR MR
Unity Glenn Carberry	16.3 15.8 10.7	I I MR	2.23 3.07 3	3.0 3.7 3.4	MR MR	42.0 18.0 12.3	MS MR	4.8 7.0 5.2	39.6 27.7 22.8	Rate ^b I I MR	4.7 7.0 7.8	MR
Unity Glenn	16.3 15.8		2.23	3.0	MR MR	% 42.0 18.0	MS MR	4.8 7.0	39.6 27.7	l I	4.7 7.0	MR MR

Table 4. Quality evaluation of BW1085 and check cultivars, CBWC Test (2018-2020).																														
		σ c	> ∢	Wheat and Flour Characteristics							Milling Performance						Dough Properties					Baking Quality					Water dough colour			
Variety	Yr in Test	2	. o	Grade (and degrading	Wheat	Flour	Pro	FN	Amyl		Flour		Starch	Farino	Farino	Farino		EXT	EXT		Lean No	Time (LN1	Γ) Method			2h				
	۵			factors)	Pro	Pro			Peák	₩60 50 B		Dmg	Abs	DDT	Stab	Area	Rmax	Length	Abs	Pk Time	WHR/KG	LV	LTR	L*	a*	b*				
BW 406	Glenn			1CWRS	14.8	14.0	0.7	365	805	75.4	78.0	0.42	8.2	65.5	8.50	10.5	159	700	18.8	73	3.9	9.4	805	0.57	76.2	2.5	25.0			
BW 965	AAC Viewfi	eld		1CWRS	14.4	13.8	0.7	420	745	75.4	78.0	0.42	7.4	64.0	7.00	12.0	140	562	20.5		3.6	9.0	720	0.52	76.9	2.4	26.1			
BW 874	Carberry			1CWRS	14.9	14.0	1.0	395	540	74.8	77.0	0.44	7.5	64.4	6.50	7.0	113	411	21.8	71	3.1	7.8	695	0.49	76.3	2.3	25.6			
BW 932	AAC Brando	on		1CWRS	14.7	13.7	1.1	380	635	76.2	78.5	0.41	7.7	65.9	6.25	8.0	93	378	19.4	73	2.8	6.8	710	0.50	76.9	2.1	26.7			
2020 Mear	of Checks				14.7	13.9	0.8	395	695	75.2	77.7	0.43	7.7	64.6	7.25	10.0	137	558	20.4	72	3.5	8.7	740	0.53	76.4	2.4	25.6			
BW 406	Glenn			1CWRS	14.8	14.1	0.7	335	495	74.8	77.0	0.44	7.8	66.0	7.00	8.5	150	685	17.9	73	4.3	11.0	900	0.64	77.9	3.3	23.4			
BW 965	AAC Viewfi	eld		1CWRS	14.5	13.9	0.7	385	445	75.8	77.5	0.43	7.4	65.0	7.00	10.0	125	557	18.2	72	3.6	8.4	785	0.48	77.9	3.3	23.4			
BW 874	Carberry			2CWRS - MIL	15.2	14.2	1.0	360	355	75.9	77.0	0.44	6.9	64.6	6.75	7.5	124	471	20.6	72	3.5	8.6	775	0.50	78.4	3.2	24.2			
2019 Mear	n of Checks				14.8	14.1	0.8	360	430	75.5	77.2	0.44	7.4	65.2	7.00	8.5	133	571	18.9	72	3.8	9.3	820	0.54	78.1	3.3	23.7			
BW 406	Glenn			1CW RS-FUS DMG 0.11 MDGE 0.57 SPTD 0.18	14.2	13.5	0.6	345	745	75.4	79.0	0.40	8.6	65.9	9.00	13.0	139	689	16.7	73	4.1	10.3	845	0.58	79.5	3.0	23.4			
BW 965	AAC Viewfi	eld		1CW RS-FUS DMG 0.14 MDGE 0.83 SPTD 0.07	13.8	13.4	0.5	385	615	76.4	78.5	0.41	7.6	64.9	7.25	10.0	114	480	19.3	72	3.5	9.0	795	0.51	80.0	3.3	24.6			
BW 874	Carberry			1CW RS-FUS DMG 0.08 MDGE 0.85 SPTD 0.2 ERG 0.007	14.5	13.8	0.7	385	530	76.1	79.0	0.40	7.6	64.8	7.25	8.0	101	443	18.4	73	3.5	8.8	790	0.52	79.4	3.0	24.0			
BW 362	Unity VB			1 CNHR-FUS DMG 0.11 MDGE 0.05 ERG 0.002	14	13.4	0.6	400	885	76.5	78.5	0.41	8.2	65.1	5.25	7.0	87	366	18.8	72	2.9	7.8	765	0.50	80.1	2.6	22.8			
2018 Mear	of Checks				14.2	13.6	0.6	370	630	76.0	78.8	0.40	7.9	65.2	7.75	10.5	118	443	18.1	73	3.7	9.4	810	0.54	79.6	3.1	24.0			
BW 1085	3rd			1CWRS	14.6	13.9	0.7	395	630	74.8	78.0	0.42	6.7	64.8	6.50	10.5	132	467	22.3	72	3.1	8.6	750	0.48	77.6	2.1	25.4			
BW 1085	2nd	Bloc	k - DNO	2CWRS - MIL	15.0	14.2	0.8	410	470	75.2	77.5	0.43	6.1	65.4	7.00	12.0	141	513	22.0	73	3.5	9.5	825	0.55	78.9	3.2	24.1			
BW 1085	1st	- 2	4	1CW RS-FUS DMG 0.04 MDGE 0.47 ERG 0.004 GRASS GR 0.15	14.0	13.3	0.8	380	580	75.1	79.5	0.39	7.3	65.2	6.50	14.0	131	535	19.4						80.6	2.6	23.3			
74% extrac	ction flour was u	sedfo	or all flou	ır, dough and baking tests														-									i			

Available breeder seed for distribution: 300 kg.