UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

and

Cooperating State Agricultural Experiment Stations

2004-2005

UNIFORM WINTER BARLEY TRIAL

Final Report

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USDA-ARS
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The purpose of the Uniform Winter Barley Trial (UWBT) is to evaluate winter-habit (fall planted) barley advanced lines for adaptation to those areas in the United States where winter barley is grown commercially. The entries in the 2004-05 UWBT were submitted by public barley breeding programs in Maryland Nebraska, North Carolina, South Carolina, Texas, and Virginia. A total of 22 entries (11 hull and 11 hulless) were included in the trial. Seven testing locations were used for the 2004-05 UWBT, with one in each state of Georgia, Maryland, Texas, and two in each state of North Carolina and Virginia.

Price had excellent yield and testweight, averaged across 5 locations. Three experimental varieties, MD931046-93, MD931046-38, and MD931043-25, had excellent yield and testweight averaged across 5 locations, but lodged at Blacksburg, VA location. Doyce had the highest yield, 82 bu/a, of all hulless entries, and a testweight of 56 lb/bu. Four experimental varieties, VA01H-37, VA00H-125, VA01H-68, and VA01H-124 had excellent yield and testweight.

Griffin, GA - Plot size-50ft^2; Reps-3; Planting Date-28 Oct 03; Harvest Date-2 June 04; Cooperators-J.W.Johnson, D.Bland, and S.Sutton.

Queenstown, MD - Severe winterkill resulted in uneven stands; Plot size-48ft^2 Reps-2; Planting Date-13 Oct 03; Harvest Date-8 June 04; Cooperators-J.Costa and A.Cooper.

Lincoln, NE - No data received for report. Poor season. Plot size-48ft2; Cooperator-P.S.Baenziger.

Kinston, NC - No disease, insect pressure or winterkill. Plot size-55ft^2; Reps-3; Planting Date-24 Oct 03; Harvest Date-7 June 04; Cooperators-D.Marshall and P.Murphy.

Laurel Springs, NC - Mountain location (elevation 3000ft); snow cover most of the winter; no disease or insect pressure; no winterkill.. Plot size-55ft^2; Reps-3; Planting Date-21 Sept 03; Harvest Date-15 July 04; Cooperators-D.Marshall and P.Murphy.

Clemson, SC - No data received for report. Fertilized 30-83-40 at planting, topdressed 65 N. Cool winter, dry March, little disease pressure Plot size-35ft^2; Reps-3; Planting Date-3 Nov 03; Harvest Date-28 May 04; Cooperator-B.Edge.

Florence, SC - No data received for report. Fertilized 30-98-73 plus sulfur at planting, topdressed 65 N. Cool winter, dry March, little disease pressure Plot size-35ft^2; Reps-3; Planting Date-25 Nov 03; Harvest Date-2 June 04; Cooperator-B.Edge.

Prosper, TX - The plots were planted dry, and had heavy rain for two weeks, The stands were reduced and plant height was also reduced. Plot size-70ft2; Reps-3; Planting Date-17 Oct 03; Harvest Date-30 May 04; Cooperator-R.Sutton.

Blacksburg, VA - Fertilizer: 25+60+100 on 10/7/03, 60+0+0 on 4/7/04. Other: 0.6 oz/A Harmony Extra on 4/7/04. Plot size-42.8ft2; Reps-3; Planting Date-9 Oct 03; Harvest Date-10 June 04; Cooperator-C.Griffey

Warsaw, VA - Fertilizer: 30+80+100+5S on 10/13/03, 25 lb/A 15-0-0 on 12/20/03 and 2/23/04, 40 lb/A 24-0-0-3S on 3/30/04. Other: 0.4 oz/A Finesse on 12/09/03, 2.56 oz/A Warrior T on 5/11/04. Plot size-45ft2; Reps-3; Planting Date-17 Oct 03; Harvest Date-8 June 04; Cooperator-C.Griffey

ENTRIES		
Entry	*Designation*	*Pedigree*
1	Wysor	Composite cross/4/Harrison/3/Cebada Capa/Wong//awnleted Hudson (=PI501526; VA83-42-63)
2	Perkins	Nebar selection/Dundy (=PI536646; NE851808)
3	Price	Callao/SC830366 (=PI632708; VA96-44-321)
4	MD931043-25	VA90-41-14/MD811064-33
5	MD931046-38	GA82-594/MD45-59-32
6	MD931046-93	GA82-594/MD45-59-32
7	MD931048-38	Wysor/SC830073/2/VA85-44-226/3/Nomini
8	NE98919	NE86841/Sussex 9024//NE83826
9	NB018199	NB94723/NB93727
10	NC99-1253	Mollybloom/CMB83A-173-43Y-2B-1Y-1B-04
11	NC00-592	Mollybloom/CMB83A-173-43Y-2B-1Y-1B-04//VA92-42-46
12	Doyce	Sangregado"S"//VA90-42-56/VA90-42-22/3/Pamunkey/4/SC890585 (hulless) (=PI634932; VA00H-137)
13	SC010441	VA75-4-24/SC793556//CI*ho* 2457 (hulless)
14	SC010456	VA75-4-24/SC793556//CI*ho* 2457 (hulless)
15	TX00D664	TAMBAR 402*2/CI5823//PI190762 (hulless)
16	VA00H-65	SC890585/VA93-44-316 (hulless)
17	VA00H-99	H585/VA93-44-316 (hulless)
18	VA01H-1	H585/Pennbar 66 (hulless)
19	VA01H-37	Sangregado"S"//VA90-42-56/VA90-42-22/3/Pamunkey/4/H585 (hulless)
20	VA01H-68	SC860974/94-42-13 (hulless)
21	VA01H-124	90-41-10/90-42-9//CMB84A-1664/3/92-42-46/4/SC871077/5/SC871077/4/90-41-10/90-42-9//CMB84A-1664/3/Nomini (hulless)
22	VA00H-125	90-41-10/90-42-9//CMB84A-1664/3/92-42-46/4/SC871077/5/SC871077/4/90-41-10/90-42-9//CMB84A-1664/3/Nomini (hulless)
Locations for B-glucan, and Lipid: College Park, MD and Warsaw, VA.		
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GRAIN YIELD

																5-location*		5-location*		5-location*	
		Griffin,GA*		Queenstown,MD		Kinston,NC		Lrl Spr,NC*		Prosper,TX		Warsaw,VA		Blacksburg,VA		mean		hull mean		hulless mean	
Entry	Designation	bu/ac	rank	bu/ac	rank	bu/ac	rank	bu/ac	rank	bu/ac	rank	bu/ac	rank	bu/ac	rank	bu/ac	rank	bu/ac	rank	bu/ac	rank
1	Wysor	7.1	22	100.3	5	89.5	6	63.3	7	78.0	9	98.1	8	112.1	8	95.6	6	95.6	6	—	—
2	Perkins	75.8	17	70.7	17	75.2	15	44.0	17	72.7	11	79.3	11	82.4	14	76.1	12	76.1	11	—	—
3	Price	27.7	20	102.5	3	92.7	4	81.7	1	91.3	3	101.5	5	128.2	4	103.2	2	103.2	2	—	—
4	MD931043-25	76.7	16	95.3	7	74.5	16	69.3	3	101.8	2	102.1	3	121.0	6	98.9	5	98.9	5	—	—
5	MD931046-38	107.2	6	102.2	4	81.2	10	78.6	2	89.8	5	99.3	6	132.3	2	101.0	4	101.0	4	—	—
6	MD931046-93	113.4	4	109.9	1	102.9	1	64.2	5	102.1	1	102.0	4	128.3	3	109.0	1	109.0	1	—	—
7	MD931048-38	113.8	3	102.7	2	92.7	5	57.7	12	81.2	7	103.4	2	133.2	1	102.6	3	102.6	3	—	—
8	NE98919	7.3	21	94.1	8	78.3	13	50.7	15	90.4	4	109.5	1	99.2	9	94.3	8	94.3	8	—	—
9	NB018199	103.7	9	90.3	9	79.5	11	33.3	22	78.2	8	98.3	7	83.9	11	86.0	10	86.0	10	—	—
10	NC99-1253	71.6	18	79.6	10	99.8	2	67.7	4	83.6	6	88.5	9	122.4	5	94.8	7	94.8	7	—	—
11	NC00-592	103.8	8	77.1	13	99.0	3	58.8	11	65.3	18	87.5	10	112.4	7	88.3	9	88.3	9	—	—
12	Doyce	90.7	15	96.5	6	85.6	7	59.9	9	68.7	14	75.4	14	83.8	12	82.0	11	—	—	82.0	1
13	SC010441	93.2	13	65.2	19	77.1	14	57.7	13	57.2	21	66.9	19	64.2	20	66.1	20	—	—	66.1	9
14	SC010456	98.1	11	59.0	21	52.2	22	42.3	19	52.9	22	73.8	15	60.1	22	59.6	22	—	—	59.6	11
15	TX00D664	108.1	5	78.0	12	63.1	21	42.8	18	65.7	17	66.9	20	65.6	19	67.9	19	—	—	67.9	8
16	VA00H-65	122.5	1	78.8	11	69.6	19	60.9	8	66.7	15	68.8	17	70.1	17	70.8	17	—	—	70.8	6
17	VA00H-99	114.4	2	73.6	16	71.7	17	52.5	14	71.5	12	61.2	22	75.1	15	70.6	18	—	—	70.6	7
18	VA01H-1	107.1	7	45.8	22	69.8	18	63.7	6	63.1	19	68.2	18	74.4	16	64.3	21	—	—	64.3	10
19	VA01H-37	97.5	12	62.8	20	82.8	9	38.1	21	75.8	10	65.1	21	86.6	10	74.6	13	—	—	74.6	2
20	VA01H-68	66.3	19	65.3	18	69.5	20	41.6	20	69.2	13	73.5	16	82.9	13	72.1	15	—	—	72.1	4
21	VA01H-124	91.1	14	75.2	15	85.4	8	45.1	16	58.8	20	78.7	12	60.9	21	71.8	16	—	—	71.8	5
22	VA00H-125	99.7	10	75.8	14	78.8	12	59.9	10	65.8	16	76.5	13	65.7	18	72.5	14	—	—	72.5	3
	Mean	86.2		81.8		80.5		56.1		74.3		83.8		92.9		82.8		95.4		70.2	
	LSD (5%)	—		19.2		15.5		26.2		14.8		10.2		7.6		12.9		12.4		10.4	
	CV (%)	—		11		9		23		12		9		6		12		10		12	

*At Griffin, GA, there was deer damage of 100% on entries 1, 3, and 8; 70% on entry 4; and 50% on entry 10. Laurel Springs, NC and Griffin, GA data not included in 5-location means.

TEST WEIGHT

		Griffin*	Qtown	Kinston	Lrl Spr*	Prosper	Warsaw	Bksburg	5-location*		5-location*		5-location*	
		GA	MD	NC	NC	TX	VA	NC	mean		hull mean		hulless mean	
Entry#	Designation	lb/bu	lb/bu	lb/bu	lb/bu	lb/bu	lb/bu	lb/bu	lb/bu	rank	lb/bu	rank	lb/bu	rank
1	Wysor	39.5	49.5	48.9	48.1	48.2	44.0	44.5	47.0	20	47.0	9	—	—
2	Perkins	45.0	50.9	49.8	50.3	53.1	37.7	45.3	47.4	18	47.4	7	—	—
3	Price	48.1	54.7	49.2	50.9	51.2	47.3	48.2	50.1	12	50.1	1	—	—
4	MD931043-25	47.1	54.0	49.1	47.7	49.7	44.0	44.4	48.2	15	48.2	4	—	—
5	MD931046-38	46.7	54.1	49.9	49.9	50.5	37.7	45.6	47.6	17	47.6	6	—	—
6	MD931046-93	43.8	52.8	51.2	46.6	50.8	38.7	45.5	47.8	16	47.8	5	—	—
7	MD931048-38	43.1	53.2	48.8	48.9	48.8	39.7	46.4	47.4	19	47.4	8	—	—
8	NE98919	nd	46.2	48.3	44.1	46.5	41.0	40.2	44.4	22	44.4	11	—	—
9	NB018199	40.0	46.2	49.5	48.1	47.1	45.0	41.6	45.9	21	45.9	10	—	—
10	NC99-1253	45.1	51.5	49.3	47.9	51.1	46.0	47.3	49.0	13	49.0	2	—	—
11	NC00-592	45.9	52.1	51.8	50.9	52.2	39.3	47.5	48.6	14	48.6	3	—	—
12	Doyce	52.6	60.3	50.2	52.9	59.9	56.0	54.4	56.2	11	—	—	56.2	11
13	SC010441	53.0	61.2	51.4	49.5	62.0	58.3	56.0	57.8	6	—	—	57.8	6
14	SC010456	54.1	61.1	52.6	53.6	61.7	58.0	56.0	57.9	4	—	—	57.9	4
15	TX00D664	53.8	62.1	52.9	53.7	62.6	59.0	57.5	58.8	1	—	—	58.8	1
16	VA00H-65	52.3	61.4	52.7	52.0	62.3	58.7	55.8	58.2	3	—	—	58.2	3
17	VA00H-99	55.6	58.7	51.9	51.0	61.4	57.7	54.5	56.8	10	—	—	56.8	10
18	VA01H-1	53.2	55.1	52.0	53.7	61.7	60.0	57.3	57.2	8	—	—	57.2	8
19	VA01H-37	53.5	60.7	50.4	51.5	60.5	57.7	55.9	57.0	9	—	—	57.0	9
20	VA01H-68	54.4	60.7	51.8	49.0	62.1	59.0	59.0	58.5	2	—	—	58.5	2
21	VA01H-124	53.7	62.5	51.9	51.8	62.2	59.0	53.9	57.9	5	—	—	57.9	5
22	VA00H-125	56.6	62.4	51.9	52.8	61.9	59.0	54.0	57.8	7	—	—	57.8	7
	Mean	86.2	55.9	50.7	50.2	55.8	50.1	50.5	52.6		47.6		57.6	
	LSD (5%)	22.4	3.2	1.4	4.8	—	1.4	1.0	4.0		2.9		1.6	
	CV (%)	16	2	1	5	—	2	1	6		5		2	

*Griffin and Laurel Springs data not included in 5-location mean

HEADING DATE (JULIAN)													
		Griffin	*Q'town*	*Kinston*	*Prosper*	*Warsaw*	*Bksburg*	*6-location*		*6-location*		*6-location*	
Entry	*Designation*	*GA*	*MD*	*NC*	*TX*	*VA*	*VA*	*mean*	*rank*	*hull mean*	*rank*	*hulless mean*	*rank*
1	Wysor	104	122	99	99	114	117	109	*19*	109	*8*	—	
2	Perkins	110	128	105	102	124	127	116	*22*	116	*11*	—	
3	Price	101	121	98	95	114	117	108	*10*	108	*2*	—	
4	MD931043-25	100	118	104	95	112	113	107	*6*	107	*1*	—	
5	MD931046-38	100	122	103	95	114	117	109	*14*	109	*4*	—	
6	MD931046-93	99	121	104	95	114	117	108	*13*	108	*3*	—	
7	MD931048-38	103	122	99	96	115	118	109	*15*	109	*5*	—	
8	NE98919	101	122	106	95	114	116	109	*17*	109	*7*	—	
9	NB018199	110	127	103	103	124	127	116	*21*	116	*10*	—	
10	NC99-1253	101	124	99	95	115	119	109	*16*	109	*6*	—	
11	NC00-592	101	124	104	98	117	119	111	*20*	111	*9*	—	
12	Doyce	100	122	93	95	114	118	107	*7*	—		107	*6*
13	SC010441	98	120	104	94	111	116	107	*8*	—		107	*7*
14	SC010456	98	122	98	94	110	114	106	*3*	—		106	*3*
15	TX00D664	98	119	103	95	111	115	107	*5*	—		107	*5*
16	VA00H-65	99	123	103	95	112	116	108	*11*	—		108	*9*
17	VA00H-99	100	123	103	95	116	118	109	*18*	—		109	*11*
18	VA01H-1	100	123	98	95	115	117	108	*12*	—		108	*10*
19	VA01H-37	100	122	93	95	115	118	107	*9*	—		107	*8*
20	VA01H-68	101	122	94	95	111	113	106	*4*	—		106	*4*
21	VA01H-124	99	118	92	95	110	115	105	*1*	—		105	*1*
22	VA00H-125	99	118	93	95	110	114	105	*2*	—		105	*2*
	Mean	101	122	100	96	114	117	108		110		107	
	LSD (5%)	—	3.0	1	—	1	1	2		2		3	
	CV (%)	—	1	1	—	1	1	2		2		2	

HEIGHT											
		Griffin	*Q'town*	*Warsaw*	*Bksburg*	*4-location*		*4-location*		*4-location*	
		GA	*MD*	*VA*	*VA*	*mean*		*hull mean*		*hulless mean*	
Entry	*Designation*	*in.*	*in.*	*in.*	*in.*	*in.*	*rank*	*in.*	*rank*	*in.*	*rank*
1	Wysor	37	40	39	37	38	*22*	38	*11*	—	
2	Perkins	30	36	35	38	35	*16*	35	*6*	—	
3	Price	29	32	32	34	32	*5*	32	*2*	—	
4	MD931043-25	28	31	30	34	31	*3*	31	*1*	—	
5	MD931046-38	35	34	34	37	35	*17*	35	*7*	—	
6	MD931046-93	34	34	33	36	34	*15*	34	*5*	—	
7	MD931048-38	31	36	36	38	35	*18*	35	*8*	—	
8	NE98919	35	39	39	38	38	*20*	38	*9*	—	
9	NB018199	36	39	38	39	38	*21*	38	*10*	—	
10	NC99-1253	34	32	34	36	34	*14*	34	*4*	—	
11	NC00-592	29	35	33	34	33	*8*	33	*3*	—	
12	Doyce	31	35	34	34	33	*12*	—		33	*9*
13	SC010441	33	36	37	36	35	*19*	—		35	*11*
14	SC010456	29	32	36	33	33	*7*	—		33	*5*
15	TX00D664	32	35	35	34	34	*13*	—		34	*10*
16	VA00H-65	31	34	33	33	33	*9*	—		33	*6*
17	VA00H-99	31	34	32	35	33	*10*	—		33	*7*
18	VA01H-1	29	32	33	34	32	*6*	—		32	*4*
19	VA01H-37	30	31	31	33	31	*4*	—		31	*3*
20	VA01H-68	31	33	34	34	33	*11*	—		33	*8*
21	VA01H-124	27	29	29	30	29	*2*	—		29	*2*
22	VA00H-125	25	28	29	30	28	*1*	—		28	*1*
	Mean	31	34	34	35	33		35		32	
	LSD (5%)	—	3	2	2	2		2		1	
	CV (%)	—	4	5	5	4		4		3	

LODGING										
		Griffin	*Warsaw*	*Bksburg*	*2-location**		*2-location**		*2-location**	
		GA	*VA**	*VA**	*mean*		*hull mean*		*hulless mean*	
Entry	*Designation*	*%*	*0.2-10*	*0.2-10*	*0.2-10*	*rank*	*0.2-10*	*rank*	*0.2-10*	*rank*
1	Wysor	0	1.1	10.0	5.6	*22*	5.6	*11*	—	
2	Perkins	50	0.5	2.9	1.7	*5*	1.7	*3*	—	
3	Price	5	0.4	6.9	3.7	*14*	3.7	*5*	—	
4	MD931043-25	40	1.3	8.4	4.9	*20*	4.9	*10*	—	
5	MD931046-38	30	0.3	9.0	4.7	*17*	4.7	*7*	—	
6	MD931046-93	5	0.7	8.3	4.5	*16*	4.5	*6*	—	
7	MD931048-38	30	1.0	8.4	4.7	*18*	4.7	*8*	—	
8	NE98919	20	1.6	7.8	4.7	*19*	4.7	*9*	—	
9	NB018199	60	1.0	3.9	2.5	*6*	2.5	*4*	—	
10	NC99-1253	20	1.0	1.9	1.5	*3*	1.5	*2*	—	
11	NC00-592	10	1.1	0.7	0.9	*2*	0.9	*1*	—	
12	Doyce	40	0.2	6.2	3.2	*11*	—		3.2	*7*
13	SC010441	20	0.3	4.9	2.6	*9*	—		2.6	*5*
14	SC010456	5	0.3	2.7	1.5	*4*	—		1.5	*2*
15	TX00D664	5	0.3	5.4	2.9	*10*	—		2.9	*6*
16	VA00H-65	10	0.3	9.7	5.0	*21*	—		5.0	*11*
17	VA00H-99	10	0.3	6.5	3.4	*13*	—		3.4	*9*
18	VA01H-1	10	0.2	1.1	0.7	*1*	—		0.7	*1*
19	VA01H-37	30	0.3	7.9	4.1	*15*	—		4.1	*10*
20	VA01H-68	20	0.7	5.9	3.3	*12*	—		3.3	*8*
21	VA01H-124	30	0.3	4.6	2.5	*7*	—		2.5	*3*
22	VA00H-125	40	0.3	4.6	2.5	*8*	—		2.5	*4*
	Mean	22	0.6	5.8	3.2		3.6		2.9	
	LSD (5%)	—	0.3	1.8	4.0		5.1		3.6	
	CV (%)	—	37	22	61		65		57	

*Belgian Lodging Scale = Area x Intensity x 0.2. Area is rated on a scale from 1 (plot unaffected) to 10 (entire plot affected). Intensity is rated on a scale from 1 (plants standing upright) to 5 (plants lying flat on the ground).

DISEASE AND OTHER TRAITS						
		Leaf Rust		Net Blotch	Winter Damage	
		Blacksburg	*Kinston*	*Blacksburg*	*Laurel Springs*	*Kinston*
		VA	*NC*	*VA*	*NC*	*NC*
Entry	*Designation*	*0-9*	*%*	*0-9*	*0-5*	*0-5*
1	Wysor	8.0	8	4.7	3.0	2.7
2	Perkins	6.0	1	4.7	1.2	2.0
3	Price	6.3	6	5.7	3.0	2.2
4	MD931043-25	5.0	3	7.0	2.2	3.5
5	MD931046-38	5.3	1	4.0	3.2	3.5
6	MD931046-93	4.7	10	3.3	2.2	3.5
7	MD931048-38	5.0	0	3.0	2.0	3.5
8	NE98919	8.7	23	2.7	3.2	2.5
9	NB018199	7.7	13	4.3	2.7	2.0
10	NC99-1253	1.0	1	4.7	2.2	3.0
11	NC00-592	4.7	0	2.0	2.5	3.0
12	Doyce	1.0	1	6.7	2.7	2.7
13	SC010441	7.7	25	5.0	3.0	2.7
14	SC010456	9.0	90	4.0	3.2	2.7
15	TX00D664	7.3	45	4.7	2.2	3.0
16	VA00H-65	8.0	31	6.3	2.2	2.2
17	VA00H-99	6.7	55	7.0	2.2	2.5
18	VA01H-1	6.7	13	3.7	3.2	3.0
19	VA01H-37	1.7	0	7.0	3.0	3.0
20	VA01H-68	6.7	10	5.3	3.0	3.0
21	VA01H-124	7.0	13	8.0	3.0	2.2
22	VA00H-125	7.3	15	7.3	3.0	2.0
	Mean	6.0	16	5.1	2.7	2.8
	LSD (5%)	1.1	27	1.2	0.7	0.5
	CV (%)	14	80	17	12	9

FLOUR PROTEIN PERCENT*											
		Queenstown	*Kinston*	*Laurel Springs*	*Warwaw*	*4-location*		*4-location*		*4-location*	
Entry	*Designation*	*MD*	*NC*	*NC*	*VA*	*mean*	*rank*	*hulled mean*	*rank*	*hulless mean*	*rank*
1	Wysor	8.0	8.7	9.7	12.4	9.7	*22*	9.7	*11*	—	
2	Perkins	7.2	9.6	10.1	13.7	10.2	*18*	10.2	*7*	—	
3	Price	8.0	8.3	9.9	13.4	9.9	*21*	9.9	*10*	—	
4	MD931043-25	8.5	9.1	9.7	13.8	10.3	*17*	10.3	*6*	—	
5	MD931046-38	8.5	9.1	10.3	12.7	10.2	*19*	10.2	*8*	—	
6	MD931046-93	8.6	9.2	9.9	12.6	10.1	*20*	10.1	*9*	—	
7	MD931048-38	12.0	9.0	11.5	13.0	11.4	*12*	11.4	*3*	—	
8	NE98919	11.3	8.8	9.5	12.4	10.5	*16*	10.5	*5*	—	
9	NB018199	12.1	9.1	11.1	12.7	11.3	*13*	11.3	*4*	—	
10	NC99-1253	12.4	9.7	13.6	15.6	12.8	*2*	12.8	*2*	—	
11	NC00-592	15.2	10.0	13.2	15.5	13.5	*1*	13.5	*1*	—	
12	Doyce	11.8	9.2	10.4	13.1	11.1	*14*	—		11.1	*10*
13	SC010441	12.8	10.0	12.3	14.0	12.3	*7*	—		12.3	*5*
14	SC010456	13.9	10.9	10.7	13.8	12.3	*6*	—		12.3	*4*
15	TX00D664	12.2	10.7	11.6	15.0	12.4	*5*	—		12.4	*3*
16	VA00H-65	14.6	10.1	10.9	14.0	12.4	*3*	—		12.4	*1*
17	VA00H-99	14.3	10.3	10.8	14.2	12.4	*4*	—		12.4	*2*
18	VA01H-1	13.8	9.7	11.4	13.4	12.1	*9*	—		12.1	*7*
19	VA01H-37	11.1	9.5	9.7	12.8	10.8	*15*	—		10.8	*11*
20	VA01H-68	13.4	10.0	10.7	14.4	12.1	*8*	—		12.1	*6*
21	VA01H-124	12.9	10.0	10.9	13.0	11.7	*11*	—		11.7	*9*
22	VA00H-125	12.5	10.1	10.9	13.5	11.8	*10*	—		11.8	*8*
	Mean	11.6	9.6	10.9	13.6	11.4		10.9		11.9	
	LSD (5%)	—	0.8	1.3	—	1.5		1.7		0.9	
	CV (%)	—	4	6	—	10		11		5	

* Hulled entries (#1-11) were pearled (hulls removed) for analysis.

GRAIN β-GLUCAN PERCENT*									
		Queenstown	*Warsaw*	*2-location*		*2-location*		*2-location*	
Entry	*Designation*	*MD*	*VA*	*mean*	*rank*	*hulled mean*	*rank*	*hulless mean*	*rank*
1	Wysor	4.36	4.80	4.58	*10*	4.58	*9*	—	
2	Perkins	5.13	4.82	4.98	*4*	4.975	*4*	—	
3	Price	5.34	4.90	5.12	*2*	5.12	*2*	—	
4	MD931043-25	4.87	4.94	4.91	*5*	4.905	*5*	—	
5	MD931046-38	4.59	5.05	4.82	*7*	4.82	*7*	—	
6	MD931046-93	4.57	5.11	4.84	*6*	4.84	*6*	—	
7	MD931048-38	4.22	5.20	4.71	*8*	4.71	*8*	—	
8	NE98919	4.24	4.36	4.30	*12*	4.3	*10*	—	
9	NB018199	5.17	5.48	5.33	*1*	5.325	*1*	—	
10	NC99-1253	5.20	4.95	5.08	*3*	5.075	*3*	—	
11	NC00-592	4.23	4.15	4.19	*13*	4.19	*11*	—	
12	Doyce	4.04	3.86	3.95	*18*	—		3.95	*7*
13	SC010441	4.00	4.35	4.18	*14*	—		4.18	*3*
14	SC010456	3.86	3.19	3.53	*21*	—		3.53	*10*
15	TX00D664	3.69	3.69	3.69	*19*	—		3.69	*8*
16	VA00H-65	4.38	3.96	4.17	*15*	—		4.17	*4*
17	VA00H-99	4.32	3.89	4.11	*16*	—		4.11	*5*
18	VA01H-1	3.86	4.06	3.96	*17*	—		3.96	*6*
19	VA01H-37	3.30	3.87	3.59	*20*	—		3.59	*9*
20	VA01H-68	3.73	3.31	3.52	*22*	—		3.52	*11*
21	VA01H-124	4.30	4.51	4.41	*11*	—		4.41	*2*
22	VA00H-125	4.36	4.87	4.62	*9*	—		4.62	*1*
	Mean	4.35	4.42	4.39		4.80		3.97	
	LSD (5%)	—	—	0.63		0.67		0.67	
	CV (%)	—	—	7		6		8	
* Hulled entries (#1-11) were pearled (hulls removed) for analysis.									

GRAIN LIPID PERCENT*									
		Queenstown	*Warsaw*	*2-location*		*2-location*		*2-location*	
Entry	*Designation*	*MD*	*VA*	*mean*	*rank*	*hulled mean*	*rank*	*hulless mean*	*rank*
1	Wysor	1.18	1.04	1.11	*20*	1.11	*10*	—	
2	Perkins	1.57	1.44	1.51	*5*	1.51	*2*	—	
3	Price	1.62	1.20	1.41	*11*	1.41	*5*	—	
4	MD931043-25	1.45	1.07	1.26	*14*	1.26	*7*	—	
5	MD931046-38	1.44	1.67	1.56	*4*	1.56	*1*	—	
6	MD931046-93	1.40	1.14	1.27	*13*	1.27	*6*	—	
7	MD931048-38	1.17	1.15	1.16	*19*	1.16	*9*	—	
8	NE98919	0.87	0.89	0.88	*22*	0.88	*11*	—	
9	NB018199	1.65	1.24	1.45	*9*	1.45	*4*	—	
10	NC99-1253	0.94	1.45	1.20	*17*	1.20	*8*	—	
11	NC00-592	1.32	1.60	1.46	*8*	1.46	*3*	—	
12	Doyce	1.18	1.81	1.50	*6*	—		1.50	*4*
13	SC010441	1.27	1.17	1.22	*16*	—		1.22	*9*
14	SC010456	1.36	1.57	1.47	*7*	—		1.47	*5*
15	TX00D664	1.46	1.81	1.64	*2*	—		1.64	*2*
16	VA00H-65	1.82	1.42	1.62	*3*	—		1.62	*3*
17	VA00H-99	1.89	2.38	2.14	*1*	—		2.14	*1*
18	VA01H-1	1.38	1.39	1.39	*12*	—		1.39	*7*
19	VA01H-37	1.32	1.56	1.44	*10*	—		1.44	*6*
20	VA01H-68	1.25	1.12	1.19	*18*	—		1.19	*10*
21	VA01H-124	1.57	0.92	1.25	*15*	—		1.25	*8*
22	VA00H-125	1.12	0.81	0.97	*21*	—		0.97	*11*
	Mean	1.37	1.36	1.37		1.30		1.44	
	LSD (5%)	—	—	0.51		0.48		0.62	
	CV (%)	—	—	18		17		19	

* Hulled entries (#1-11) were pearled (hulls removed) for analysis.

FLOUR AND GRAIN CHARACTERISTICS*

		Flour Falling Number (seconds)						*Grain Hardness Score*						*Grain Weight (mg)*						*Grain Diameter (mm)*					
		Q'town	*Kinston*	*Lrl Spr*	*Warsaw*	*4-location*		*Q'town*	*Kinston*	*Lrl Spr*	*Warsaw*	*4-location*		*Q'town*	*Kinston*	*Lrl Spr*	*Warsaw*	*4-location*		*Q'town*	*Kinston*	*Lrl Spr*	*Warsaw*	*4-location*	
Entry	*Designation*	*MD*	*NC*	*NC*	*VA*	*mean*	*rank*	*MD*	*NC*	*NC*	*VA*	*mean*	*rank*	*MD*	*NC*	*NC*	*VA*	*mean*	*rank*	*MD*	*NC*	*NC*	*VA*	*mean*	*rank*
1	Wysor	575	526	411	471	496	*8*	74	73	66	70	71	*14*	32.68	29.45	28.26	29.79	30.05	*13*	2.19	2.10	2.04	2.14	2.12	*8*
2	Perkins	534	540	489	508	518	*4*	81	83	82	82	82	*1*	28.51	26.77	25.81	28.09	27.30	*21*	2.02	2.07	1.99	2.09	2.04	*14*
3	Price	570	449	453	514	497	*7*	77	68	65	75	71	*13*	32.75	28.48	29.37	29.89	30.12	*12*	2.35	2.24	2.24	2.27	2.28	*3*
4	MD931043-25	426	486	422	412	437	*10*	69	70	63	61	66	*18*	32.46	27.95	31.10	31.03	30.64	*6*	2.27	2.16	2.25	2.39	2.27	*4*
5	MD931046-38	579	605	413	551	537	*2*	79	78	75	82	79	*4*	30.25	28.89	27.24	29.54	28.98	*16*	2.10	2.16	2.09	2.18	2.13	*7*
6	MD931046-93	595	583	404	560	536	*3*	84	74	75	76	77	*5*	27.38	27.98	27.33	29.16	27.96	*19*	1.96	2.11	2.05	2.13	2.06	*11*
7	MD931048-38	562	550	294	545	488	*9*	83	79	77	80	80	*3*	25.74	27.32	26.41	28.18	26.91	*22*	1.91	2.11	2.01	2.13	2.04	*15*
8	NE98919	519	343	196	442	375	*18*	79	74	77	72	76	*9*	32.21	29.55	28.89	32.38	30.76	*5*	2.17	2.10	2.12	2.25	2.16	*6*
9	NB018199	547	543	365	538	498	*6*	77	81	83	85	82	*2*	28.99	27.41	25.98	30.27	28.16	*17*	2.09	2.03	2.01	2.12	2.06	*12*
10	NC99-1253	681	479	349	487	499	*5*	75	63	75	73	72	*12*	29.65	28.81	27.19	31.00	29.16	*15*	2.31	2.39	2.15	2.40	2.31	*1*
11	NC00-592	672	598	360	627	564	*1*	76	75	78	77	77	*7*	33.37	28.91	27.51	32.01	30.45	*7*	2.36	2.22	2.18	2.31	2.27	*5*
12	Doyce	480	404	147	448	370	*19*	64	61	63	56	61	*19*	32.41	31.24	26.94	31.18	30.44	*8*	2.08	2.02	1.89	2.13	2.03	*16*
13	SC010441	460	474	140	465	385	*15*	70	73	70	54	67	*16*	31.70	31.41	27.58	33.43	31.03	*4*	2.06	1.98	1.93	2.13	2.03	*17*
14	SC010456	475	482	220	431	402	*11*	64	73	53	43	58	*22*	32.02	28.06	28.15	32.55	30.20	*11*	2.17	1.91	1.98	2.15	2.05	*13*
15	TX00D664	425	498	190	438	388	*14*	62	82	62	60	67	*17*	32.39	28.21	29.87	30.88	30.34	*9*	2.06	1.91	2.03	2.10	2.03	*18*
16	VA00H-65	512	428	123	440	376	*17*	72	79	65	67	71	*15*	33.51	30.39	26.80	30.62	30.33	*10*	2.21	2.01	1.93	2.11	2.07	*10*
17	VA00H-99	520	464	109	423	379	*16*	69	82	71	73	74	*11*	34.74	29.38	27.52	32.59	31.06	*3*	2.22	1.99	1.95	2.17	2.08	*9*
18	VA01H-1	535	355	127	462	370	*20*	75	77	76	69	74	*10*	31.61	28.83	25.42	34.22	30.02	*14*	2.11	1.91	1.87	2.20	2.02	*20*
19	VA01H-37	420	382	122	456	345	*21*	58	68	64	50	60	*20*	33.33	30.81	27.33	34.23	31.43	*2*	2.02	2.00	1.88	2.20	2.03	*19*
20	VA01H-68	459	98	62	527	287	*22*	62	61	59	53	59	*21*	38.61	33.97	29.41	37.43	34.86	*1*	2.44	2.21	2.06	2.41	2.28	*2*
21	VA01H-124	533	442	183	432	398	*12*	81	87	75	63	77	*8*	28.53	26.72	25.12	30.67	27.76	*20*	2.02	1.88	1.89	2.11	1.98	*22*
22	VA00H-125	469	487	199	433	397	*13*	79	89	72	67	77	*6*	29.79	26.31	26.36	29.86	28.08	*18*	2.10	1.88	1.95	2.10	2.01	*21*
	Mean	525	464	163	482	434		73	75	70	68	72		31.48	28.95	27.53	31.32	29.82		2.15	2.06	2.02	2.19	2.11	
	LSD (0.5%)	—	64	79	—	101		—	6	9	—	8		—	1.73	2.47	—	1.97		—	0.07	0.11	—	0.10	
	CV (%)	—	7	14	—	17		—	4	6	—	8		—	3	4	—	5		—	2	3	—	3	

* Hulled entries (#1-11) were pearled (hulls removed) for analysis.