

Pintail (W460)

Awnless, general purpose, winter wheat

Field Crop Development Centre, March 2011



Origin and Breeding History: 00H050 (W460) was selected from the cross 98W049. 98W049 pedigree expands to 93W022/CDC KESTREL//CDC CLAIR/3/AC READYMADE/4/83W020007/5/CDC HARRIER. The 93W022 line was derived from a complex cross which has a genetic background from well adapted and winter hardy Canadian winter wheat varieties such as NORSTAR and NORWIN. 83W020007 line originates from a cross between a Winter Wheat Composite selection (78W005002) and NORSTAR.

W460 is an awnless, general purpose winter wheat variety derived from cross (98W049W-14) by using a doubled Haploid technique at the Field Crop Development Centre (FCDC) - Lacombe. The 93W022 line was derived from a complex cross which has a genetic background from well adapted and winter hardy Canadian winter wheat varieties such as NORSTAR and NORWIN. W460 is a high yielding variety with high winter survival. It has good resistance to stripe rust.

End Use	<ul style="list-style-type: none"> W460 is a general purpose winter wheat adapted to the non-rust areas of western Canada.
Strengths	<ul style="list-style-type: none"> High grain yield - 104% of the GP checks over 3 years of testing. Particularly well adapted to the Parkland region (Area 2). Very good winter hardiness Resistant to stripe rust (<i>Puccinia striiformis</i>) Moderate height Good lodging resistance Awnless spike which lends itself to improved silage palatability
Neutral Traits	<ul style="list-style-type: none"> Moderate resistance to leaf spots and powdery mildew Intermediate resistance to stem and leaf rust (<i>Puccinia graminis</i> and <i>P. triticina</i>) Test weight within the range of the GP checks
Weaknesses	<ul style="list-style-type: none"> Susceptible to Fusarium Head Blight (<i>Fusarium graminearum</i>). Susceptible to common bunt (<i>Tilletia tritici</i> and <i>T. laevis</i>) equal to GP Checks

Table 1. Seed characteristics of W460 compared to the check cultivars in the Western Winter Wheat Cooperative Registration Trial, 2008-2010.^z

Entry		Test Weight (kg/hl)		Seed Weight (mg)		Grain Protein (%)	
		2 Yr. Mean	3 Yr. Mean	2 Yr. Mean	3 Yr. Mean	2 Yr. Mean	3 Yr. Mean
CDC Harrier	GP Ck	76.2	76.6	32.5	32.2	10.7	10.8
CDC Falcon	GP Ck	77.5	78.1	31.0	30.7	11.5	11.4
CDC Ptarmigan	GP Ck	74.9	--	35.1	--	9.9	--
W460		75.8	76.2	29.5	29.3	10.4	10.5
CDC Osprey	RW Ck	77.3	77.9	31.6	31.2	11.6	11.7
AC Tempest	RW Ck	--	--	--	--	--	--
AC Bellatrix	RW Ck	78.6	79.0	35.6	35.4	12.2	12.4
Radiant	RW Ck	78.2	78.6	35.2	35.2	11.7	11.8
CDC Buteo	RW Ck	79.6	--	33.6	--	11.8	--
CWGP Check Mean		76.2	77.3	32.9	31.4	10.7	11.1
CWRW Check Mean		78.4	78.5	34.0	33.9	11.8	12.0
LSD _{0.05}		0.5	0.5	1.0	0.9	0.3	0.4
Location-Years		19	26	19	26	17	24

^z All means weighted by the number of location-years.

Table 2. Grain yield (t/ha) of W460 compared to the check cultivars in the Western Winter Wheat Cooperative Registration Trial, 2008-2010.^Z

Entry		Yield (t/ha)		Area: ^Y	2 Year Mean Yield:					3 Year Mean Yield:				
		Mean	Mean		2009-2010 (t/ha)					2008-2010 (t/ha)				
					1	2	3	4	Mean	1	2	3	4	Mean
CDC Harrier	GP Ck	5.71	5.79		5.98	5.11	4.53	6.24	5.71	6.13	5.03	4.53	6.18	5.79
CDC Falcon	GP Ck	5.34	5.56		5.81	4.98	3.62	5.7	5.34	6.09	4.97	3.62	5.75	5.56
CDC Ptarmigan	GP Ck	5.86	--		6.53	4.95	3.96	6.44	5.86	--	--	--	--	--
W460		5.78	5.88		5.97	5.5	4.3	6.28	5.78	6.22	5.35	4.3	6.2	5.88
CDC Osprey	RW Ck	5.61	5.63		5.83	5.31	4.28	6.02	5.61	5.95	5.08	4.28	5.9	5.63
AC Tempest	RW Ck	--	--		--	--	--	--	--	--	--	--	--	--
AC Bellatrix	RW Ck	5.42	5.51		5.39	5.39	4.17	5.87	5.42	5.65	5.21	4.17	5.87	5.51
Radiant	RW Ck	5.24	5.5		5.75	4.89	3.85	5.42	5.24	6.14	4.87	3.85	5.5	5.5
CDC Buteo	RW Ck	5.41	--		5.58	5.04	4.18	5.9	5.41	--	--	--	--	--
CWGP Check Mean		5.64	5.68		6.1	5.01	4.04	6.13	5.64	6.11	5	4.08	5.97	5.68
CWRW Check Mean		5.42	5.55		5.64	5.16	4.12	5.8	5.42	5.91	5.05	4.1	5.76	5.55
LSD _{0.05}		0.37	0.29		0.75	0.83	0.53	0.56	0.37	0.51	0.6	0.51	0.49	0.29
Location-Years		18	25		6	4	2	6	18	10	5	2	8	25
Z	All means weighted by the number of location-years.													
Y	Area 1: Southern Alberta sites: includes Lethbridge Irrigated, Lethbridge Dryland, Warner, Vauxhall.													
	Area 2: Parkland sites: includes Lacombe, Olds, Beaverlodge.													
	Area 3: Semi-Arid Prairie sites: includes Swift Current.													
	Area 4: Rust Area sites: includes Saskatoon, Indian Head, Brandon, Carman.													

Table 3. Agronomic characteristics of W460 compared to the check cultivars in the Western Winter Wheat Cooperative Registration Trial, 2008-2010.^Z

Entry		Survival (%)		Maturity (d)		Height (cm)		Lodging (1-9)	
		2 Yr. Mean	3 Yr. Mean	2 Yr. Mean	3 Yr. Mean	2 Yr. Mean	3 Yr. Mean	2 Yr. Mean	3 Yr. Mean
CDC Harrier	GP Ck	84	87	219.9	219.4	99	97	2.9	3.2
CDC Falcon	GP Ck	80	84	216.7	216.1	77	77	2.2	2.6
CDC Ptarmigan	GP Ck	77	--	219.4	--	98	--	3.2	--
W460		87	90	220.2	220.1	91	90	3.0	3.2
CDC Osprey	RW Ck	82	85	218.2	217.5	97	96	3.2	3.6
AC Tempest	RW Ck	--	--	--	--	--	--	--	--
AC Bellatrix	RW Ck	79	84	220.4	219.8	96	95	4.0	4.2
Radiant	RW Ck	80	83	221.8	221.1	94	92	2.2	2.4
CDC Buteo	RW Ck	82	--	219.5	--	95	--	3.3	--
CWGP Check Mean		80	86	218.7	217.7	91	87	2.8	2.9
CWRW Check Mean		81	84	220.0	219.5	95	94	3.2	3.4
LSD _{0.05}		6	5	1.2	1.1	2	2	0.6	0.6
Location-Years		15	20	14	18	17	23	10	13