

CDC Osprey winter wheat

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Fowler D. B. 1997. **CDC Osprey winter wheat**. *Can. J. Plant Sci.* **77**: 665–667. CDC Osprey is a high-yielding, lodging-resistant, semidwarf winter wheat (*Triticum aestivum* L.) with good winterhardiness. CDC Osprey has excellent grain quality. It has a grain protein concentration that is similar to Norstar combined with the superior agronomic performance of CDC Kestrel in Alberta and Saskatchewan. However, more susceptible rust reactions and lower grain yields than CDC Kestrel may limit the production of CDC Osprey in southeastern Manitoba. CDC Osprey is eligible for grades of the Canada Western Red Winter Wheat class.

Key words: *Triticum aestivum* L., cultivar description, wheat (winter)

Fowler D. B. 1997. **Nouveau cultivar de blé d'automne CDC Osprey**. *Can. J. Plant Sci.* **77**: 665–667. CDC Osprey est un blé d'automne (*Triticum aestivum* L.) demi-nain, productif et résistant à la verse et possédant une bonne résistance au froid de l'hiver. Son grain d'excellente qualité offre une teneur en protéine semblable à celle du grain de Norstar et son comportement agronomique supérieur en Alberta et en Saskatchewan est égal à celui de CDC Kestrel. A la colonne des moins, sa sensibilité plus forte aux rouilles et son rendement grainier moins élevé que chez CDC Kestrel pourraient en restreindre la culture dans le sud-est du Manitoba. Le nouveau cultivar est admissible aux grades de la catégorie des blés d'automne roux de l'ouest canadien (BAROC).

Mots clés: *Triticum aestivum* L., description de cultivar, blé (d'automne)

CDC Osprey is a high-yielding, semidwarf winter wheat (*Triticum aestivum* L.) that was developed at the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan. The Food Production and Inspection Branch of Agriculture and Agri-Food Canada issued registration no. 4814 for CDC Osprey on October 4, 1995.

Pedigree and Breeding Method

CDC Osprey was selected from the progeny of a cross Plainsman V/CIMMYT Selection//Agritriticum 100 made in 1981. The F₁ and F₂ generations were produced in a greenhouse in 1982. All subsequent generations were advanced one generation per year in the field where winterhardiness, height, straw strength, plant and kernel type, and disease reaction were evaluated. CDC Osprey originated from a single plant selection that was made in 1986 and later designated as S87-165 (W276). S87-165 was grown as a

head row in an irrigation nursery that was inoculated with an epidemic mixture of both stem and leaf rust in 1987. The agronomic performance of S87-165 was further evaluated in yield trials at three locations in Saskatchewan in both 1987–1988 and 1988–1989. S87-165 was then evaluated in the Central and Western Hard Red Winter Wheat Cooperative tests and was subsequently registered for production in western Canada in 1995. This registration was extended to eastern Canada in 1997. Seed of 118 head rows selected from S87-165 was bulked in 1993 to produce the original breeder seed of CDC Osprey.

Performance

CDC Osprey had an average grain yield that was 113% of Norstar and 99% of CDC Kestrel, the dominant cultivars in western Canada outside of southern Alberta during the 5-yr test period considered in this summary (Table 1). The grain yield of CDC Osprey was similar to CDC Kestrel under

Table 1. Grain yield (t ha⁻¹) of CDC Osprey compared with Norstar and CDC Kestrel. Data from the Western and Central Hard Red Winter Wheat Cooperative tests (1992–1996)^z

Cultivar	Alberta		Saskatchewan			Southeast Manitoba	Mean
	Southwest	Central	Brown soils	Parkland	Irrigation		
Norstar	3.56	7.07	3.22	3.67	4.64	4.50	4.17
CDC Kestrel	4.15	7.70	3.21	3.92	6.58	5.61	4.77
CDC Osprey	4.11	7.86	3.28	4.03	6.12	4.98	4.71
LSD ($P \leq 0.05$)	0.31	0.44	0.24	0.26	0.63	0.48	0.18
No. of tests	8	6	8	20	7	5	54

^zAll means are weighted by the number of tests within a zone. Alberta locations included Lethbridge, Vauxhall, and Warner (southwest); and Lacombe and Olds (central). Saskatchewan locations included Swift Current, Elrose, and Saskatoon (brown soils); Clair, Indian Head, Melfort, Porcupine Plain, and Yorkton (parkland); and Saskatoon and Outlook (irrigation). Southeast Manitoba locations included Carman, Portage la Prairie, and Winnipeg.

Table 2. Agronomic performance of CDC Osprey compared with Norstar and CDC Kestrel. Data from the Western and Central Hard Red Winter Wheat Cooperative tests (1992–1996)

Character	Norstar	CDC Kestrel	CDC Osprey	LSD ($P \leq 0.05$)	No. of tests
Winter survival (%)	96	95	93	8.9	3
Heading date (DOY) ^z	173	172	171	0.4	25
Maturity (DOY) ^z	217	217	216	0.8	27
Plant height (cm)	112	96	92	1.8	42
Lodging (0–9) ^y	6.7	3.1	1.9	0.89	21

^zDay of year.^y0, all plants vertical; 9, all plants horizontal.**Table 3. Stem rust reactions of CDC Osprey compared with Norstar and CDC Kestrel based on data from Central Hard Red Winter Wheat Cooperative tests. With the exception of 1993, which was from a natural infection at Canora, Saskatchewan, all stem rust ratings were based on artificial infections at Saskatoon, Sask., using epidemic mixtures supplied by Agriculture and Agri-Food Canada in Winnipeg, Manitoba**

Year	Norstar	CDC Kestrel	CDC Osprey
1992	60S ^z	30MS	40S
1993	75VS	45S	50VS
1994	65S	15MS	15MS
1995a	60VS	60S	60S
1995b	75VS	20S	50S
1996a	80VS	40S	45S
1996b	90VS	0 ^y	35S

^zPercent infection and type of reaction: VS, very susceptible; S, susceptible; MS, moderately susceptible.^ySlow rusting. Plants matured before rust established on CDC Kestrel.

dryland conditions in Alberta and Saskatchewan. However, its grain yield fell to 93 and 89% of CDC Kestrel under irrigation in Saskatchewan and dryland in southeastern Manitoba, respectively.

The winter hardiness of CDC Osprey was similar to Norstar and CDC Kestrel (Table 2). CDC Osprey headed 1 d earlier than CDC Kestrel and 2 d earlier than Norstar and it matured 1 d earlier than both CDC Kestrel and Norstar. CDC Osprey had a plant height that was 4 and 20 cm shorter than CDC Kestrel and Norstar, respectively. The straw strength of CDC Osprey was stronger than both CDC Kestrel and Norstar.

The stem rust reaction of CDC Osprey was superior to Norstar and marginally poorer than CDC Kestrel (Table 3).

Natural and artificial leaf rust infections normally do not develop before leaf senescence starts on properly managed winter wheat in western Canada. Among the 9 inoculated nurseries and the 54 cooperative tests evaluated in this program, leaf rust reactions were only reported for one replicate from a 1992 test grown at Portage la Prairie, Manitoba, and the mean of three replicates from a 1994 test grown at Saskatoon, Saskatchewan: Norstar (20MS-S, 15S), CDC Kestrel (5MR-MS, 5S), CDC Osprey (60S, 45S). More susceptible rust reactions (Table 3), combined with the lower yield performance of CDC Osprey compared to CDC Kestrel in southeastern Manitoba (Table 1), will likely restrict the western Canadian production of CDC Osprey to Saskatchewan and Alberta. The following common bunt ratings were reported from 1992 and 1996 trials inoculated by Agriculture and Agri-Food Canada staff at Lethbridge, Alberta: Norstar (8S, 20S), CDC Kestrel (8S, 25HS), CDC Osprey (13S, 32HS).

CDC Osprey is eligible for grades of the Canada Western Red Winter Wheat Class. Its test weight falls between CDC Kestrel and Norstar and it has a kernel mass that is lower than both CDC Kestrel and Norstar (Table 4). The physical dough properties of CDC Osprey were stronger than CDC Kestrel and similar to those of Norstar. The grain protein concentration of CDC Osprey was 0.1 and 1.0 percent higher than Norstar and CDC Kestrel, respectively. The short, strong straw of CDC Osprey allows for the use of high rates of nitrogen fertilizer thereby providing the farmer with the opportunity to achieve both high grain yield and protein concentration targets.

Table 4. Grain quality of CDC Osprey compared with Norstar and CDC Kestrel. Data provided by K. P. Preston, Grain Research Laboratory, Canadian Grain Commission, Winnipeg, Manitoba, from analyses of Western and Central Hard Red Winter Wheat Cooperative test composites (1992–1995). American Association of Cereal Chemists methods were followed for determining the various end-use suitability traits

Character	Norstar	CDC Kestrel	CDC Osprey	LSD ($P \leq 0.05$)	No. of tests
Test weight (kg hL ⁻¹)	82.2	80.9	81.4	0.7	5
Kernel weight (mg)	33.5	33.2	32.1	0.9	5
Wheat protein (%)	12.1	11.2	12.2	0.4	5
Starch damage (Farrand units)	19.9	21.0	19.1	1.2	5
Falling number (sec)	362	365	388	44	5
Flour yield (%)	77.3	77.5	77.6	0.6	5
Flour ash (%)	0.41	0.41	0.42	0.01	5
Flour color (Kent-Jones)	-1.3	-1.2	-1.6	0.4	5
Farinograph					
Absorption (%)	57.3	57.5	57.1	0.5	5
Dough development (min)	5.0	3.5	5.5	0.5	5
Stability (min)	7.4	5.8	9.3	0.8	5
Baking strength index	104.0	105.2	105.7	2.3	5
Remix loaf volume (cm ³)	779	715	800	26	5

Other Characteristics

PLANT. Winter growth habit; coleoptile color green; juvenile growth prostrate; leaves dark green; flag leaf dark green, mid-wide, mid-long, intermediate attitude; sheath and leaf blades glabrous; auricles white to purplish with few hairs; many tillers; straw mid-long, internode hollow, culm neck straight, no anthocyanin coloration at maturity.

SPIKES. Tapering to oblong, mid-dense, semi-nodding, mid-long, awned; glumes mid-wide, mid-long to long, glabrous, white; glume shoulders wanting, narrow; glume beak mid-long to long, acuminate.

KERNEL. Medium red, hard, mid-size, mid-wide, short to mid-long, oval to ovate; cheeks slightly angular to rounded; brush hairs short to mid-long; crease mid-wide, shallow to mid-deep; germ small to mid-size, oval.

Maintenance and Distribution of Pedigreed Seed

Breeder seed originating from 118 breeder lines will be maintained by the Crop Development Centre, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 5A8. Distribution and multiplication of pedigreed seed stocks will be handled by Proven Seed, United Grain Growers Ltd., P.O. Box 6600, Winnipeg, Manitoba, R3C 3A7 in western Canada and W. G. Thompson and Sons Ltd., Ailsa Craig, Ontario, N0M 1A0 in eastern Canada.

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