

Pacific hard red spring wheat

L. A. Hunt¹, Z. A. Szlavnic¹, T. F. Townley-Smith², and A. B. Campbell²

¹Department of Crop Science, University of Guelph, Guelph, Ontario, Canada N1G 2W1; ²Agriculture and Agri-Food Canada Research Centre, 195 Dafoe Rd., Winnipeg, Manitoba, Canada R3T 2M9. Received 20 March 1995, accepted 6 March 1996.

Hunt, L. A., Szlavnic, Z. A., Townley-Smith, T. F. and Campbell, A. B. 1996. **Pacific hard red spring wheat**. Can. J. Plant Sci. **76**: 491–492. Pacific is a high yielding hard red spring wheat with high test weight and good resistance to powdery mildew and leaf rust. It is adapted to the spring wheat growing areas of Ontario.

Key words: Cultivar description, *Triticum aestivum* L., wheat (hard red spring)

Hunt, L. A., Szlavnic, Z. A., Townley-Smith, T. F. et Campbell, A. B. 1996. **Nouveau cultivar de blé roux vitreux de printemps Pacific**. Can. J. Plant Sci. **76**: 491–492. Pacific est un blé roux vitreux de printemps à haut rendement, possédant un poids spécifique élevé et une bonne résistance au blanc et à la rouille des feuilles. Il convient aux zones de culture du blé de printemps de l'Ontario.

Mots clés: Description de cultivar, *Triticum aestivum* L., blé roux vitreux de printemps

Pacific (reg. no. 4008) is a high-yielding hard red spring wheat (*Triticum aestivum* L.) developed at the Agriculture and Agri-Food Canada Research Centre, Winnipeg, MB. It was accessioned as RL 4476 and was entered and tested as BW 90 in the Central Bread Wheat Coop from 1983 to 1985. Subsequently, it was evaluated in Ontario by the University of Guelph, and entered into the Ontario Spring Wheat Registration Trial in 1987.

Pedigree and Breeding Methods

Pacific, a sister line of Roblin, was developed by the pedigree method from the cross RL4302/RL4356//RL4359/RL4353 made in 1976. The pedigree of the parents are shown in Table 1.

The F₂ plants were selected on the basis of leaf rust and stem rust resistance, short strong straw, early maturity, kernel size and resistance to black point (*Cochliobolus sativus*). Similar selection criteria were applied in the F₄ and F₆ generations along with screening of the bulked grain from the parental row for protein content, flour yield and mixing strength. The F₃ and F₅ generations were grown as head rows at Ciudad Obregon, Mexico, where selection was based on straw strength and plant height. Seed from a single F₆ plant was sown in New Zealand and harvested in bulk in 1980. This was increased in 1980 and entered into the Central Bread Wheat Test in 1981 as BW90. In 1987, Pacific was entered in the Ontario Spring Wheat Registration Trial. Several public and private institutions in Ontario were involved in the yield testing, namely: the Agriculture and Agri-Food Canada Research Centre at Ottawa, New Liskeard College of Agricultural Technology, University of Guelph, C & M Seeds at Palmerston, King Agro at Listowel, and W.G. Thompson and Sons Ltd. at

Nairn. Quality testing was done at the Agriculture and Agri-Food Canada Research Centre in Ottawa.

Performance and Description

Co-operative Trial data are presented in Table 2. In Areas II and V the yield of Pacific was arithmetically greater than the checks over seven growing seasons from 1988 to 1995 (1992 not included; Pacific not tested). Similarly, the test weight of Pacific was arithmetically greater than that of the check cultivars, and the seed weight was slightly lower than that of the checks. Over the trial years, Pacific was on average 10 cm taller than Roblin and 16 cm taller than Celtic, and had a lodging score higher than that of the checks. Heading date was the same as Celtic and 3 d later than Roblin, which is the earliest of the checks.

SPIKE. The spikes are tapering, mid-long, medium density, erect and apically awnleted. The glumes are narrow, mid-long and glabrous. The glume shoulder is square and narrow with the glume beak being short and acute.

KERNEL. The kernel is hard red, medium to large in size, mid-wide, long, and elliptical. The kernel crease is mid-wide and shallow to mid-deep. The kernel cheeks are angu-

Table 1. Pedigrees of the parents of Pacific

RL4302	BW15	Manitou/Tobari 66
RL4356	BW38	CT615/Neepawa
RL4359	BW40	CT615/Neepawa
RL4353		CT934/Neepawa/Era/Park
CT615	UM953A	Sonora 64/Tezanos Pintos Precoz
CT934	WS1809	from World Seeds Inc.

Table 2. Grain yield and agronomic data comparing the cultivar Pacific to Celtic and Roblin from the Ontario Registration and Recommendation Trials (1988–1995)^z

Traits	No. of locations ^y	Pacific	Celtic	Roblin
Area II ^x yield (t ha ⁻¹)	28	3.15±0.78	3.12±0.71	3.02±0.80
Area III yield (t ha ⁻¹)	8	3.37±0.94	3.49±1.04	3.17±0.97
Area V yield (t ha ⁻¹)	8	3.77±0.92	3.58±0.80	3.61±0.94
Test weight (kg hL ⁻¹)	47	74.8±3.1	74.1±3.4	72.8±2.8
Seed weight (mg)	46	32.5±4.6	33.3±4.8	33.5±3.9
Lodging (0-9) ^w	15	2.6±1.5	0.8±0.8	1.1±0.9
Height (cm)	44	96±13	80±9	86±13
Heading date ^v	42	55±7	55±7	52±7
Mildew (0-9) ^u	19	2.0±1.2	3.9±1.8	4.0±2.4
Leaf Rust (0-9)	12	1.5±1.5	1.3±1.6	1.7±1.7
Septoria (0-9)	13	3.3±1.8	3.5±1.9	4.3±2.3
Glume Blotch (0-9)	5	3.2±2.1	3.4±2.3	2.7±1.7
BYDV ^t (0-9)	2	5.0±1.5	4.4±0.7	5.7±2

^z1992 data were not included because Pacific was not grown in the test.

^yNumber of locations reporting trait.

^x"Area" refers to the divisions of the Province with respect to corn heat units. Area II, West of Frontenac between the 2900 and 2300 heat unit line. Area III, East of Frontenac between the 2900 and 2300 heat unit line. Area V, northern Ontario between the 2300 and 1900 heat unit line. Spring wheat is tested only in these areas.

^w0 = no lodging; 9 = completely lodged.

^vDays from planting.

^u0 = very resistant; 9 = very susceptible.

^tBarley yellow dwarf virus.

Table 3. Kernel and flour characteristics comparing the cultivar Pacific to Celtic and Roblin^z

Traits	Pacific	Celtic	Roblin
Kernel hardness (NIR)	63.0	62.5	67.8
Grain protein (%)	15.2	14.0	14.6
Grain ash (%)	1.83	1.79	1.74
Falling number (sec)	380	359	319
Flour yield (%)	74.2	74.9	76.4
Flour protein (%)	14.2	13.1	14.1
Loaf volume (cm ³)	895	893	1013

^z1991 Quality data courtesy of the Grain Quality Laboratory, Plant Research Centre, Ottawa, ON. No other quality data are available comparing Pacific to Celtic and Roblin.

lar and the kernel brush hairs are mid-long. The kernel germ is small to mid-size and elliptical to ovate.

DISEASE REACTION. Pacific has an improved reaction in powdery mildew (caused by *Erysiphe graminis* DC. f. sp. *tritici* E. Marchal) resistance relative to the check cultivars and, as with the checks shows good resistance to leaf rust (caused by *Puccinia recondita* Rob. ex. Desm. f. sp. *tritici*). Pacific is susceptible to barley yellow dwarf virus and moderately

tolerant to glume blotch [caused by *Septoria nodorum* (Berk.) Berk.] and septoria (caused by *Septoria tritici*), as are the checks.

QUALITY. Quality characteristics are summarized in Table 3. Pacific had higher grain and flour protein levels but a lower loaf volume than Roblin.

Maintenance of Pedigreed Seed Stocks

Breeder Seed will be maintained by the Seed Increase Unit at the Indian Head Experimental Farm, Agriculture and Agri-Food Canada, Indian Head, SK S0G 2K0. SeCan Association, 512-885 Meadowlands Drive, Ottawa, ON K2C 3N2 has the rights with the exclusive agent C & M Seeds being responsible for local increase and distribution. Pacific is a joint release between Agriculture and Agri-Food Canada Research Centre, Winnipeg, MB R3T 2M9 and the Department of Crop Science, University of Guelph, Guelph, ON N1G 2W1.

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