

Plenty Durum wheat

Knott, D. R. 1991. **Plenty durum wheat**. *Can. J. Plant Sci.* **71**: 501–503. Plenty durum wheat (*Triticum turgidum* L.) is a high-yielding, moderately late durum wheat that is eligible for the top grades of amber durum wheat. It has moderately tall, strong straw and is well-adapted to the drier areas of durum production. It is similar to other durum cultivars in disease resistance.

Key words: *Triticum turgidum*, durum wheat, cultivar description

Knott, D. R. 1991. **Blé dur Plenty**. *Can. J. Plant Sci.* **71**: 501–503. Plenty est un cultivar de blé dur (*Triticum turgidum* L.) de tardivité modérée est à rendement élevé, qui est admissible aux classes supérieures de blé dur ambre. Sa paille est résistante et modérément haute et il est bien adapté aux régions de production de blé dur plus arides. Sa résistance aux maladies est similaire à celle des autres cultivars de blé dur.

Mots clés: *Triticum turgidum*, blé dur, description du cultivar

Plenty durum wheat (*Triticum turgidum* L.) was developed in the Department of Crop Science and Plant Ecology at the University of Saskatchewan. Certificate of Registration number 3301 was issued for Plenty on 4 May 1990 by the Food Production and Inspection Branch of Agriculture Canada.

Breeding Method and Pedigree

Plenty was developed from the cross, Vic/Wascana//Hercules/DT 310, with the final cross being made in 1979.

The F₁ plants were grown in New Zealand in 1979–1980. The F₂ population was grown in Saskatoon in 1980 in an artificially inoculated leaf and stem rust nursery. One head was taken from plants selected for rust resistance, earliness, strength of straw and general plant type. The heads were threshed in bulk and a bulk F₃ population grown in New Zealand in 1980–1981. One head was taken from every normal F₃ plant and threshed in bulk. The F₄ population was grown in Saskatoon in 1981 and handled like the F₂ generation. However, three heads were taken from each selected plant and each set of three was threshed separately to provide seed for an F₅ row. The F₅ lines were grown in a rust nursery in Saskatoon in 1982 and again

selected for rust resistance, earliness, strength of straw, height and vigor. One F₅ line was bulked, designated D83896 and entered into a preliminary yield trial at Saskatoon in 1983. In 1984 it was tested at Saskatoon and Elrose. In 1985 it was grown in the Durum Wheat 'B' Test at five locations as entry number 19. In 1986 it was entered in the Cooperative Durum Wheat Test and designated DT 606.

To produce breeder's seed, about 1000 spaced plants were grown in 1987. No off-types of the kind normally found (tall, black awns, etc.) were observed. Two hundred plants were pulled and the rest of the plot harvested as breeder's seed. In 1989, two hundred plots were grown from the individual plants. One plot was slightly taller than the rest. It was eliminated and the rest bulked as additional breeder's seed.

Performance and Adaptation

Plenty is well-adapted to the durum wheat growing area of the prairie provinces. In the black soil zones, it outyielded the highest-yielding commercial cultivar, Sceptre, by 2.4% and in the brown soil zones it outyielded Kyle by 5.1% (Table 1). In Saskatchewan regional trials in 1989, it outyielded Kyle by 5.5% (Table 2). Plenty is similar in height to Kyle and taller than Sceptre and Medora, but has good straw strength (better than Kyle) (Table 3). Farmers in drier areas tend to

Table 1. Summary of the yield of Plenty and other cultivars in the Cooperative Durum Tests, 1986-1989

Cultivar	Tests on		Mean
	Black soils ^z	Brown soils ^y	
	<i>100 kg ha⁻¹ (% of Sceptre)</i>		
Hercules	31.9(87)	20.5(81)	26.2(84)
Wakooma	33.3(90)	25.4(100)	29.4(95)
Kyle	33.9(92)	25.6(101)	29.8(96)
Sceptre	36.8(100)	25.4(100)	31.1(100)
Medora	35.9(98)	24.8(98)	30.4(98)
Plenty	37.7(102)	26.9(106)	32.3(104)
Tests	19	19	38
SE ^x	0.76	0.49	0.33

^zTests at Glenlea, Morden, Portage la Prairie, Brandon and Indian Head.

^yTests at Regina, Saskatoon, Elrose, Swift Current and Lethbridge.

^xBased on the cultivar × site mean square.

Table 2. Summary of the yield performance of Plenty and other cultivars in Saskatchewan Regional Trials in 1989

Cultivar	Tests in				Mean
	Zone 1 ^z	Zone 2 ^y	Zone 3 ^x	Zone 4 ^w	
	<i>100 kg ha⁻¹ (% of Sceptre)</i>				
Wakooma	25.2(87)	23.0(87)	23.1(87)	28.1(100)	24.0(88.2)
Kyle	28.9(100)	26.3(100)	26.5(100)	28.0(100)	27.2(100)
Sceptre	27.5(95)	26.2(100)	28.5(108)	33.4(119)	27.7(101.8)
Medora	28.2(98)	26.6(101)	25.9(98)	29.6(100)	27.1(99.6)
Plenty	29.5(102)	27.0(103)	30.5(115)	31.0(111)	28.7(105.5)
Tests	6	10	5	2	23
SE ^v	0.48	0.75	1.31	1.14	0.35

^zTests at Assiniboia, Fox Valley, Beverly, Swift Current, Stewart Valley and Shaunavon.

^yTests at Alameda, Arcola, Elrose, Kernan, North Battleford, Outlook, Riverhurst, Kindersley, Regina and Scott.

^xTests at Kelvington, Wynyard, Indian Head, Lashburn and Melfort.

^wTests at Codette and Shellbrook.

^vBased on the cultivar × site mean square.

Table 3. Agronomic performance of Plenty and other cultivars in the Cooperative Durum Test, 1986-1989 (not all variables were measured at all sites each year)

Cultivar	Maturity (d)	Height (cm)	Lodging (1-9) ^z	Test weight (kg hL ⁻¹)	Kernel weight (mg)
Hercules	94.6	84	2.8	80.4	45.7
Wakooma	98.4	91	4.3	78.8	41.2
Kyle	98.9	92	4.4	79.7	43.3
Sceptre	96.4	77	2.0	80.0	42.1
Medora	97.2	85	2.4	80.4	43.3
Plenty	98.3	92	2.7	79.7	43.0
Tests	31	34	16	37	37
SE	0.32	0.69	0.32	0.22	0.34

^z1 = standing straight, 9 = completely flat.

Table 4. Disease data for DT 606 and check cultivars in the Cooperative Durum Test, 1986-1988

Cultivar	Stem rust reaction	Leaf rust reaction	Loose smut reaction	Bunt reaction	Kernel smudge %	Root rot %	Starchy kernels %
Hercules	4VR ^z	3R	MS	VR	10.7	44.7	18.8
Wakooma	6VR	2R	MS	R	7.6	35.0	9.0
Kyle	4R	2R	S	VR	9.7	40.0	6.6
Sceptre	3VR	3R	HS	VR	6.7	37.7	12.4
Medora	3VR	2VR	S	VR	11.0	36.3	11.5
Plenty	3VR	4R	HS	R	13.7	31.0	9.4
Tests	—	—	—	—	38	11	38
SE	—	—	—	—	0.56	1.5	1.4

^zVR = very resistant, R = resistant, MS = moderately susceptible, S = susceptible, HS = highly susceptible.

prefer a taller cultivar because it is easier to swath and pick up than shorter ones. Plenty is slightly earlier than Kyle but later than Sceptre and Medora.

Plenty is similar to other commercial durum cultivars in disease resistance (Table 4). It is resistant to stem rust (*Puccinia graminis* Pers. f.sp. *tritici* Eriks. and E. Henn.), leaf rust (*Puccinia recondita* Rob. ex Desm. f.sp. *tritici*) and bunt (*Tilletia caries* (DC.) Tul. and *T. foetida* (Wallr.) Liro.), but susceptible to loose smut (*Ustilago tritici* (Pers.) Rostr.). It is slightly more resistant than the checks to common root rot (*Cochiobolus sativus* (Ito and Kurib.) Drechsl. ex Dastur). Plenty is similar to the checks in percent starchy kernels and slightly higher in percent kernel smudge.

Other Characteristics

GROWTH HABIT Spring.

COLEOPTILE. Green.

LEAVES. Green, slight waxy bloom, glabrous.

SPIKES. Tapering, mid-dense, erect, little waxy bloom; awns slightly spreading; glumes medium length and width, glabrous, white,

elevated shoulder, narrow and acute beak, prominent basal fold.

KERNELS. Amber, hard, medium length and width, elliptical, angular cheeks; brush mid-size, short; germ mid-size, ovate; crease wide to mid-wide, mid-deep to deep.

STRAW. Moderately tall, strong, hollow; neck medium thick, slightly curved.

QUALITY. Good, eligible for the top grades of amber durum wheat.

Maintenance and Distribution of Pedigreed Seed

Breeder's seed will be maintained by the Department of Crop Science and Plant Ecology, University of Saskatchewan, Saskatoon, SK S7N 0W0. Maintenance and distribution of pedigreed seed stocks will be handled by SeCan Association, 512-885 Meadowlands Drive, Ottawa, ON K2C 3N2

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