

HERCULES, A NEW DURUM WHEAT

Hercules, a new cultivar of durum wheat (*Triticum turgidum* L.), was developed at the Canada Department of Agriculture Research Station, Winnipeg from the cross (R.L. 3097 × R.L. 3304) × (Stewart × R.L. 3380). The three numbered components of this cross are in themselves complex, involving a total of nine different cultivars, with some occurring in the pedigree of Hercules as often as eight times. These three components contributed short, strong straw and earlier maturity, derived from the cultivar Heiti. R.L. 3304 and R.L. 3380 contributed resistance to race 15B of stem rust derived from Khapli emmer and P.I. 94701 (1).

The two single crosses involved were made in the spring of 1957, and the F_1 progenies were crossed during the same summer. Selection for disease resistance, early maturity, and short, strong straw was carried out at Winnipeg from 1958 to 1961, using the pedigree method. The selection that was later named Hercules (R.L. 3676) was entered in preliminary yield and quality evaluation trials in 1962. In 1964 it was advanced to the Cooperative Durum Wheat Test, where it was tested for three years. The selection was purified and increased in 1967-68, and a license was granted in January, 1969.

Approximately 775 hl (2,200 bu) were distributed to seed growers in Manitoba, Saskatchewan, and Alberta in the spring of 1969.

Cultivar performance

In the Black soils of Manitoba and Saskatchewan, Hercules has yielded 98.7% and 109.2% of Stewart 63 and Ramsey, respectively. Comparable values for the Brown soils of Saskatchewan and Alberta are 91.8% and 93.9% (Table 1). The somewhat lower performance of Hercules in the Brown soils suggests that it is more readily affected by early-season drought than is Stewart 63. Hercules is about 6 days earlier maturing than Stewart 63. It is 23 cm shorter than Stewart 63 and has superior strength of straw, resulting in excellent resistance to lodging. It has satisfactory test weight and a good kernel size.

Hercules has good resistance to leaf and stem rust, loose smut, and kernel smudge (Table 2). It is moderately susceptible to bunt.

The cultivar has a strong gluten and a high pigment content, characteristics which are desired for pasta products.

Table 1. Summary of agronomic data derived from Co-operative tests of durum wheat cultivars, 1965-1968

Cultivar	Yield (metric tons/ha)*			Mean all sta.	Maturity (days)	Lodging (1-9)	Height (cm)†	Test wt (kg/hl)‡	1000-kernel wt (g)
	Black soil zone	Brown soil zone	U.S.A.						
No. of tests	15	16	3	34	30	27	35	33	33
Stewart 63	3.39	2.46	3.64	2.98	104.8	5.5	113.0	83.3	42.5
Hercules	3.34	2.25	3.87	2.87	99.2	2.7	89.9	82.7	43.7
Ramsey	3.06	2.40	3.24	2.78	103.9	4.7	103.4	77.2	40.1

*1 m. ton/ha = 8.92 cwt (U.S.)/ac.

†1 cm = 0.394 in.

‡1 kg/hl = 0.802 lb/bu.

Table 2. Summary of disease data, in percentage infection, from Co-operative tests of durum wheat cultivars, 1965-1968

Cultivar	Stem rust	Leaf rust	Kernel smudge	Loose smut	Bunt	Bacterial blight
No. of years	4	4	4	2	1	1
Stewart 63	tr*	tr	8.3	72.0	29.5	16
Hercules	tr	3.1	5.4	0.0	16.0	14
Ramsey	9.6	0.8	14.6	53.0	6.5	7

*tr = trace of infection.

Cultivar characteristics

SPIKE—Fusiform, awned, mid-dense; glumes glabrous, white, mid-long, mid-wide; shoulders narrow, elevated; beaks mid-wide, acuminate, varying in length from 3 mm at the base to 25 mm at the apex; kernels amber, mid-long to long, mid-wide, ovate to elliptical; germ mid-sized, oval; crease mid-wide, mid-deep; cheeks rounded to angular; brush very small and short to nil.

STRAW—Medium short, strong.

MATURITY—Early.

DISEASE REACTION—Resistant to prevalent races of leaf and stem rust; moderately resistant to kernel smudge; moderately susceptible to bunt; resistant to loose smut.

MACARONI QUALITY—Superior to Mindum.

- HEERMAN, R. M. 1960. Inheritance of stem rust reaction in tetraploid wheat hybrids: II. Genes for resistance to race 15B from Khapli emmer. *Agron. J.* **52**: 107-110.

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