

CULTIVAR DESCRIPTION

AC Michael hard red spring wheat

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Kibite, S. 1995. AC Michael hard red spring wheat. *Can. J. Plant Sci.* 75: 199–200. AC Michael is a hard red spring wheat cultivar adapted to Alberta and western Saskatchewan. It combines high grain yield with a maturity about 1 and 2 d earlier than Neepawa and Laura, respectively, and has superior resistance to common bunt and loose smut compared to Laura.

Key words: *Triticum aestivum*, spring wheat, cultivar description

Kibite, S. 1995. Cultivar de blé roux vitreux de printemps AC Michael. *Can. J. Plant Sci.* 75: 199–200. AC Michael est un cultivar de blé roux vitreux de printemps adapté aux conditions de culture de l'Alberta et de l'ouest de la Saskatchewan. À un fort rendement grainier il allie une précocité de 1 et 2 jours supérieure, respectivement, à celle de Neepawa et de Laura. En outre, il affiche une meilleure résistance que Laura à la carie commune et au charbon nu.

Mots clés: *Triticum aestivum*, blé de printemps, description de cultivar

AC Michael is a hard red spring wheat (*Triticum aestivum* L. em. Thell) cultivar developed by Agriculture and Agri-Food Canada Research Centre, Lacombe, Alberta. It was registered (no. 3863) by the Plant Variety Registration Office, Seed Division, Food Production and Inspection Branch, Agriculture and Agri-Food Canada, on 12 January 1994. AC Michael is recommended for Alberta and western Saskatchewan.

Pedigree and Breeding Method

AC Michael was selected from the cross Park/Neepawa made in 1982. The F₁ generation of this cross was grown in a greenhouse and the F₂ generation was grown in the field. The F₃ through F₆ generations were developed by single-seed descent. Head-rows were grown in the F₇ generation and selected for maturity, lodging resistance and morphological uniformity. Each selected F₇ head-row was harvested in bulk. In the F₈, F₉ and F₁₀ generations, the F₇-derived lines were grown in replicated, multi-location trials and evaluated for yield, maturity, lodging resistance, kernel size and shape, kernel hardness, test weight, falling number and protein content. AC Michael was selected (selection no. LAW-135-001) as a line having a desirable combination of the above characteristics. Thereafter, it was tested as BW653 in the Western Bread Wheat Cooperative Test in 1990, 1991 and 1992. This test was conducted at the Universities of Alberta and Saskatchewan, the Product Development Centre of the Saskatchewan Wheat Pool at Watrous, and several Agriculture and Agri-Food Canada Research Centres in Alberta and Saskatchewan. Disease reaction data were supplied by cereal pathologists at Agriculture and Agri-Food Canada Research Centres located in Winnipeg, Saskatoon and Lethbridge. End-use quality evaluations were conducted by the Canadian Grain Commission, Grain Research Laboratory, and by the Agriculture and Agri-Food Canada Research Centre in Winnipeg.

The breeder seed of AC Michael was developed from a balanced composite sample of approximately 200 F₁₁-derived F₁₃ head-row plots. Each head-row plot was selected for uniformity and trueness-to-type.

Performance and Adaptation

In 3 yr of testing in the Western Bread Wheat Cooperative Test (27 location years), AC Michael averaged 3.69 t ha⁻¹, out-yielding Neepawa and Katepwa by about 3 and 2%, respectively (Table 1). In the same test, AC Michael has yielded about 1% less than Laura. However, this shortcoming was compensated for by its earlier maturity (Table 1) and superior resistance to loose smut (*Ustilago tritici*) and common bunt (*Tilletia caries* and *T. foetida*) compared with Laura (Table 2).

AC Michael is well adapted to Alberta and western Saskatchewan. It is not recommended for the rust-prone areas of Manitoba and eastern Saskatchewan.

Other Characteristics

PLANT CHARACTERISTICS

Growth habit. Spring.

Coleoptile color. Green.

Juvenile growth habit. Erect.

Leaves. Medium green with slightly waxy bloom; medium width and length; sheath and blades glabrous; attitude intermediate; auricles white, glabrous. The lower side of the flag leaf blade is glossy.

Straw. Straight neck; internode hollow; upper internode is glabrous and covered with light waxy bloom; no anthocyanin coloration at maturity.

Tillering capacity. Intermediate.

Anthems. Yellow.

Maturity. Mid-season, similar to Katepwa, slightly earlier than Neepawa, approximately 2 d earlier than Laura.

Table 1. Grain yield and agronomic characteristics of AC Michael and check cultivars based on data from the Western Bread Wheat Cooperative Test, 1990–1992

Cultivar	Grain yield (t ha ⁻¹)			Days to mature			Height (cm)	Lodging ^z (1–9)	Test wt. (kg hL ⁻¹)	Kernel wt. (mg)
	Zone 1 ^y	Zone 2	Mean	Zone 1	Zone 2	Mean				
Neepawa	3.56	3.60	3.59	102.9	100.3	100.8	91	3.2	78.9	32.5
Katepwa	3.54	3.64	3.62	101.8	99.2	99.6	92	3.1	79.0	32.4
Laura	3.64	3.74	3.72	103.5	101.9	102.2	90	3.5	79.2	32.4
AC Michael	3.65	3.70	3.69	102.6	99.5	100.0	92	3.2	78.5	32.4
LSD ^w (<i>P</i> = 0.05)	0.18	0.17	0.12	1.2	1.1	0.9	2	1.3	0.7	0.8
No. station-years	6	21	27	3	14	17	26	6	26	26

^z1 = no lodging, 9 = completely lodged.

^yZone 1 locations included Swift Current and Stewart Valley; Zone 2 locations included Scott, Regina, Kernen, Elrose, Watrous, Acme, Irricana, Ellerslie and Lethbridge.

^wLeast significant difference (*P* = 0.05), calculated from cultivar × test mean squares.

Table 2. Disease reactions of AC Michael and check cultivars based on data from the Western Bread Wheat Cooperative Test, 1990–1992

Year	Cultivar	Loose smut	Common bunt	Common root rot	Leaf rust	Stem rust	Tan spot	Spot blotch	<i>Septoria tritici</i>	<i>Leptosphaeria nodorum</i>
1990	Neepawa	2MR ^z	30I ^z	51 ^y	20RMR ^z	20MR ^z	ND ^x	ND	ND	ND
	Katepwa	-MR	6R	61	20RMR	10MR	ND	ND	ND	ND
	Laura	20S	63S	44	10M	5R	ND	ND	ND	ND
	AC Michael	OR	2R-	63	20MR	10MR	ND	ND	ND	ND
1991	Neepawa	7R	21I	37	30MRMS	ND	3–4 ^w	3 ^w	4 ^w	39 ^v
	Katepwa	13MR	3R	29	20MR	ND	4	4	4	49
	Laura	57S	56S	20	10M	ND	3	5	3	—
	AC Michael	OMR	12R+	45	20MR	ND	5	3	4	—
1992	Neepawa	-R	10I	25	50MR	30RMR,5MS	3–4	3–4	4	3
	Katepwa	OR	4R	25	50MR	20RMR	4	4	4	10
	Laura	62S	26S	18	10M	30R/MR	3	4–5	3	—
	AC Michael	13R	8R	25	40MR	20RMR	5	2–3	4	1+

^zPercent infection and reaction type. Type of reactions: R = resistant; MR = moderately resistant; I = intermediate resistance; M = intermediate to MR and MS; MS = moderately susceptible; S = susceptible.

^yDisease index.

^xNot determined.

^w1 = resistant, 9 = very susceptible.

^vPercent reductions in seed weight after inoculation with *Septoria nodorum*.

Plant height. Medium, similar to Neepawa and Katepwa.

Shattering resistance. Good.

Lodging resistance. Good.

SPIKE CHARACTERISTICS

Shape. Oblong, medium length, medium density.

Attitude. Erect.

Color. Medium green, light waxy bloom; white at maturity.

Awns. Apically awnleted, white at maturity.

Spikelet. No supernumerary spikelets, intermediate number per spike.

Glumes. Short, medium wide; beaks short, pointed; shoulders medium wide, rounded with slight basal fold.

KERNEL CHARACTERISTICS

Colour. Medium red.

Texture. Hard.

Size. Medium wide, medium long.

Shape. Ovate to elliptical.

Cheek. Rounded to angular.

Brush. Medium length, medium width, no collar.

Germ. Medium size, ovate.

Crease. Medium width, medium depth.

Quality. Equal in quality to Neepawa.

Grade eligibility. Canada Western Red Spring Wheat.

DISEASE REACTION

Resistant to stem rust (caused by *Puccinia graminis* Pers. f. sp. *tritici* Eriks and E. Henn.), common bunt [caused by *Tilletia caries* (DC.) Tul. and *T. foetida* (Wallr.) Liro], loose smut [caused by *Ustilago tritici* (Pers.) Rostr.] and *Septoria* leaf blotch (caused by *Leptosphaeria nodorum* E. Muller); moderately resistant to leaf rust (caused by *Puccinia recondita* Rob. ex. Desm. F. sp. *tritici* Eriks. and E. Henn.), common root rot [caused by *Cochliobolus sativus* (Ito and Kurib.) Drechs. ex. Dastur]; and susceptible to tan spot [caused by *Pyrenophora tritici-repentis* (Died.) Drechs].

Maintenance and Distribution of Pedigreed Seed Stocks

The beeder seed of AC Michael will be maintained by Agriculture and Agri-Food Canada, Experimental Farm, Indian Head, Saskatchewan. Multiplication and distribution of other classes of pedigreed seed will be handled by SeCan Association, 200–57 Auriga Drive, Nepean, Ontario, Canada K2E 8B2.