

It is resistant to prevalent races of stem rust (caused by *Puccinia graminis* Pers. f. sp. *tritici* Eriks. and E. Henn.); moderately resistant to common root rot [caused by *Bipolaris sorokiniana* (Sacc. in Sorok.) Shoem. and *Fusarium* sp.] and common bunt [caused by *Tilletia foetida* (Wallr.) Liro and *Tilletia caries* (DC.) Tul.]; and moderately susceptible to loose

smut [caused by *Ustilago tritici* (Pers.) Rostr.].

The Canadian Expert Committee on Grain Quality has rated Sinton equal in breadmaking quality to 'Marquis' and Manitou. A more detailed description of the cultivar has been published.⁴

Breeder seed is being maintained at the Research Station, Agriculture Canada, Regina, Saskatchewan. S4P 3A2.

Registration of Germplasms

REGISTRATION OF BW76-31 COTTON GERMPLASM¹ (Reg. No. GP 162)

L. G. Stokes and W. P. Sappenfield²

THE BW76-31 cotton (*Gossypium hirsutum* L.) was released as a germplasm line by the Missouri Agric. Exp. Stn., 31 Jan. 1981.

BW76-31 cotton is a doubled haploid with high gossypol. A haploid of an F₄ plant from the cross {XG15-1 × [(Delcot 277 × 'MoDel') F₁ × Delcot 277] BC₁S₃} F₄ was derived via semigamy (4) and doubled to produce BW76-31. XG15-1 was a selection derived from [(Deltapine 15 × 'Socorro Island') F₂ × M11] F₃. Socorro Island was a wild *Gossypium hirsutum* possessing high flower bud gossypol (3). M11 was a doubled haploid derived from the 'Empire' cultivar (1).

BW76-31 is a prolific, early-maturing, storm resistant, small-bolled, determinate to semi-determinate line that produces a 2X normal amount of gossypol and/or other terpenoid-like grandular components in flower buds and vegetative parts.

BW76-31 is resistant to *Xanthomonas malvacearum* (E. F. Sm.) Dows; races 1 and 11 and moderately tolerant to the Verticillium wilt pathogen caused by *Verticillium dahliae* Kleb. It is moderately tolerant to the Fusarium wilt-root knot disease complex incited by *Fusarium oxysporum* Schlecht. f. *vasinfectum* (Atk.) Synd. and Hans. and *Meloidogyne incognita* (Kofoid and White) Chitwood (2). BW76-31 is sensitive to *Cercospora-Alternaria* leaf blight complex, frequently causing premature defoliation.

BW76-31 produces lint yields of approximately 80% of the yield of standard commercial varieties. Plants tend toward dwarfness with soil or moisture stress. Adaptation is narrow. Flower bud gossypol averaged 1.03% for BW76-31 and 0.52% for Stoneville 213.¹

Seed index of BW76-31 compared with Stoneville 213 averaged 11.3 vs. 12.0 g; lint fraction 35.5% vs. 36.7%; boll size 4.4 vs. 5.9 g; 2.5% span fiber length 27.4 mm vs. 28.5 mm; fiber length uniformity ratio 48 vs. 46; fiber micronaire units 4.7 vs. 4.8; T₁ fiber strength (cN/tex) 20.60 vs. 17.79; yarn tenacity (cN/tex) 11.40 vs. 12.86; and E₁ fiber elongation (%) 9.34 vs. 9.51.

The doubled haploid genetic stability, high gossypol producing capabilities, dwarf and prolific fruiting plant type, moderate yield, disease resistance potentials, acceptable boll, seed, ginning and fiber quality characteristics all contribute to the potential usefulness of BW76-31 as a germplasm source of high gossypol and for inter/intra-specific hybrid cotton development.

Seed of BW76-31 will be maintained by the Missouri Agricultural Experiment Station and small quantities can be obtained from W. P. Sappenfield, University of Missouri, Delta Center, P.O. Box 160, Portageville, MO 63873.

ACKNOWLEDGMENTS

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¹ Registered by the Crop Sci. Soc. Am. Published with approval of the Director of the Missouri Agric. Exp. Stn. as Journal Article No. 8778. Accepted 3 June 1981.

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REGISTRATION OF HYC76-59 COTTON GERMPLASM¹ (Reg. No. GP 163)

W. P. Sappenfield²

HYC76-59 cotton (*Gossypium hirsutum* L.) was released as a germplasm line by the Missouri Agric. Exp. Stn., 2 Feb. 1981.

HYC76-59 originated as a single F₅ plant selected from a bulk planting of HYC74-283. HYC74-283 was a single F₂ plant selection of HYC MDR-1. HYC MDR-1 was a mass cross involving 'Half & Half,' 'Quapaw,' 'Stripper 31,' 'Paymaster 18' and MO59-1021 as female parents and 71CX-15 and 71C-18 as male parents. The males were the multiple disease resistant donor parents.

HYC76-59 is a prolific, early-maturing, short-season, determinate to semi-determinate, multiple disease resistant line with short, coarse fiber.

HYC76-59 approaches field immunity to bacterial blight caused by *Xanthomonas malvacearum* (E. F. Sm.) Dows; races 1, 2, 7, 10, 11, 12, 18.

HYC76-59 is tolerant to the Verticillium wilt pathogen, *Verticillium dahliae* Kleb. It is resistant to the Fusarium wilt-root knot nematode disease complex incited by *Fusarium oxysporum* Schlecht. f. *vasinfectum* (Atk.) Synd. and Hans. and *Meloidogyne incognita* (Kofoid and White) Chitwood.

HYC76-59 has produced excellent lint yields on sandy loam and clay soils. It has been very productive on southeast Missouri sandy loam soils in plantings made after 15 May. In delayed plantings on sandy loam and clay soils, 1977-79, HYC76-59 averaged 10 to 12% higher lint yields than 'Coker 304,' 'Stoneville 213' and 'McNair 235.' Seed index of HYC76-59 compared with Stoneville 213 averaged 11.7 vs. 12.6 g; lint fraction 37.5% vs. 37.4%; boll size 6.63 vs. 6.15 g; 2.5% span fiber length 26.7 mm vs. 28.2 mm; fiber length uniformity ratio 49 vs. 47; fiber micronaire units 5.6 vs. 4.6; T₁ fiber

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