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REGISTRATION OF GERMPLASMS

REGISTRATION OF MISCOT 7813 AND MISCOT 7841 GERMPLASM LINES OF COTTON

Two germplasm lines of cotton (*Gossypium hirsutum* L.), Miscot 7813 (Reg. no. GP-303) and Miscot 7841 (Reg. no. GP-304), were developed by the Dep. of Agronomy, Mississippi Agricultural and Forestry Experiment Station and released in May 1986. Miscot 7813, tested as 7813-52-1, was developed from a cross of two advanced strains, (GN-6-76 × MAR-22-74), from the Texas A&M Multi-Adversity Resistance program. Miscot 7841, tested as 7841-3-5, was developed from a cross between MAR-22-74 and 'Rex 713'.

Seed from individual F_2 plant selections of both crosses were reselected using modified MAR procedures (1) and F_3 plants were grown in a greenhouse. The major modification of the MAR procedures was direct selection for improved lateral root systems by planting seed with micropylar ends pointed toward the edge of cups. Subsequently, individual plants in advanced generations were reselected using the MAR procedures and evaluated for agronomic properties and insect resistance in field tests.

These lines displayed resistance to the tobacco budworm, *Heliothis virescens* F., in tests at the USDA-ARS Crop Science Research Laboratory, Mississippi State, MS. In these tests, lines were evaluated without tobacco budworm (control by insecticide) and with tobacco budworm (artifically infested with larvae). Average yields of the two resistant lines were 8.5% lower than 'Stoneville 213' in non-infested plots and 49.4% higher in infested plots.

In other field tests at Mississippi State and the Delta Branch Experiment Station, Stoneville, MS, yields of Miscot 7813 and Miscot 7841 were comparable with that of Stoneville 213 and earliness was comparable with that of 'DES 56'. Both lines are resistant to bacterial blight, [*Xanthomonas campestris* pv *malvacearum* (Smith) Dye]. Lint fraction and micronaire of each line are about 2 and 0.5 units, respectively, less than Stoneville 213. Fiber length (2.5% SL) of Miscot 7841 is equivalent to that of Stoneville 213 and approximately 10% greater than that of Miscot 7813. Mean fiber length (50% SL), strength (T_1), and elongation (E_1) of the lines are equivalent to those of Stoneville 213. The relatively high resistance to tobacco budworm and bacterial blight of these two lines indicates that they may be valuable in the development of improved cotton cultivars.

Seed (25 g) of these breeding lines may be obtained from the Dep. of Agronomy, P.O. Box 5248, Mississippi State, MS 39762.

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References and Notes

1. Bird, L.S. 1982. The MAR (multi-adversity resistance) system for genetic improvement of cotton. Plant Dis. 66:172–176.
2. Associate agronomist, Dep. of Agronomy, Mississippi State Univ., Mississippi State, MS 39762. Registration by the Crop Sci. Soc. of Am. Accepted 30 Sept. 1986.

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REGISTRATION OF ICML 11 RUST-RESISTANT PEARL MILLET GERMPLASM

An S_5 progeny of pearl millet [*Pennisetum americanum* (L.) Leeke] (Reg. no. GP-51) has been named and released in 1984 as ICML 11 by ICRISAT. The germplasm line was derived through five generations of selfing and ear-to-row selection from accession IP 2696 which originated from the Republic of Chad. ICML 11 was made available in 1984 as a source of resistance to pearl millet rust caused by *Puccinia penniseti* Zimm. [= *P. substriata* Ell. and Barth. var. *indica* Ramachar and Cumm.]. ICML 11 also showed resistance to downy mildew caused by *Sclerospora graminicola* (Sacc.) Schroet. in India with about 10% infection compared with >80% in the susceptible check (F_1 hybrid, NHB 3). ICML 11 is an early-maturing line (65–70 days from planting to harvest), has rapid early leaf development, tillers profusely (6–7 head bearing tillers/plant), produces short (7–10 cm), compact, cylindrical heads and bears medium-sized (8 g/1000) grey brown, obovate seed. Its resistance to rust is based on hypersensitivity, with slight necrotic flecking, and a complete absence of pustule development. Experiments conducted at three locations in India in 1983 on parents and progenies of crosses between ICML 11 and several susceptible lines, showed that resistance was due to a single dominant gene, named Rpp1(1).

The stability of rust resistance of ICML 11 was evaluated using Cobb's modified scale (2) at soft dough stage under natural rust pressure in tests grown at five locations in India in 1984. ICML 11 remained rust free at all five locations (Table 1). In contrast, the rust severity in 700481-21-8, a rust-resistant check, varied from 1% at Ludhiana to a maximum of 10% at Bhavanisagar. In the rust-susceptible check, hybrid NHB 3, all plants evaluated developed rust with se-

Table 1. Mean rust severity of three pearl millet lines grown at five locations in India during the 1984 rainy season.

Entry	Mean rust† severity at Kovilpatti (9N, 78 E)	Bhavanisagar (11N 77 E)	ICRISAT Center (17N, 78 E)	Pune (18N, 74 E)	Ludhiana (31N 76 E)
	%				
1CML 11	0 (0/40)‡	0 (0/40)	0 (0/40)	0 (0/40)	0 (0/40)
700481-21-8§	4 (20/40)	10 (33/40)	5 (28/40)	6 (13/40)	1 (9/26)
NHB 3¶	28 (200/200)	72 (200/200)	55 (200/200)	58 (200/200)	25 (200/200)

† Mean of two plots for ICML 11 and 700481-21-8, and 10 plots for NHB-3.
‡ Figures in parentheses are number of rusted plants/total plants assessed.
§ Rust-resistant check.
¶ Rust-susceptible check.