

REGISTRATION OF MISCOT 7853 COTTON GERMPLASM

A GERMPLASM line of cotton (*Gossypium hirsutum* L.), Miscot 7853 (Reg. no. GP-421, PI 536525), was developed by the Mississippi Agricultural and Forestry Experiment Station and released in 1989. Miscot 7853, tested as 7853-53-1-1, was selected from a cross between 'DES 24' and 'Cascot BR-1'.

Resistance to seed deterioration expressed by Miscot 7853 was significantly higher than that of 'DES 422', 'Stoneville 825', and most of the breeding lines that were evaluated (1). Furbeck (2) found that this line exhibited high general combining ability for resistance to seed deterioration and for low water imbibition rate. Its water imbibition rate was equivalent to that of 'Deltapine 50' and Stoneville 825.

Miscot 7853 is a glabrous line that is resistant to all known U.S. races of *Xanthomonas campestris* pv *malvacearum* (Smith) Dye, the causal agent of bacterial blight. In the Regional Cotton Fusarium Wilt Test at Tallahassee, AL, resistance of Miscot 7853 to fusarium wilt [*Fusarium oxysporum* f. sp. *vasinfectum* (Atk.) Snyder & Hans.] was equal to that of the resistant check, 'McNair 235'.

In performance tests from 1984 through 1987 at Mississippi State, MS, and at the Delta Branch Experiment Station, Stoneville, MS, Miscot 7853 was 15% taller and yielded 5% less lint than DES 422. Plant maturity, lint fraction, and micronaire were similar but fiber length (both 2.5% SL and 50% SL) and fiber strength (T_1) were ca. 9% less for Miscot 7853 than for DES 422.

Seed (25 g) of Miscot 7853 may be obtained from the Department of Agronomy, Mississippi Agricultural and Forestry Experiment Station, P.O. Box 5248, Mississippi State, MS 39762.

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References and Notes

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2. Furbeck, S.M. 1989. Inheritance of seed characteristics in Upland cotton and their relationships to seed deterioration. M.S. thesis. Mississippi State Univ., Mississippi State.
3. F.M. Bourland, Dep. of Agronomy, Univ. of Arkansas, Fayetteville, AR 72701 (formerly, Dep. of Agronomy, Mississippi State Univ., Mississippi State, MS 39762); and S.M. Furbeck and B.W. White, Dep. of Agronomy, Mississippi State Univ., Mississippi State, MS 39762. Registration by CSSA. Accepted 31 Oct. 1989. *Corresponding author.

Published in Crop Sci. 30:756 (1990).

REGISTRATION OF SUPER NODULATION MUTANT, R32 COMMON BEAN GERMPLASM

THE COMMON BEAN (*Phaseolus vulgaris* L.) germplasm line R32 (Reg. no. GP-88, PI 536541) is a nitrate tolerant super-nodulation (ntsn) mutant of cultivar OAC Rico. It was selected in a field bean breeding program conducted by the Agriculture Canada Research Station at Harrow, Ontario to develop white, dry edible lines with improved nodulation and N_2 -fixation in the presence of nitrate.

R32 originated as an M_2 plant from a population of OAC Rico white bean treated with ethyl methane sulphonate (2). Following treatment of about 4500 seed, 175 M_1 plants were grown in a greenhouse in September 1985. For screening of nodulation in M_2 populations, 10 seeds harvested from individual M_1 plants were sown in black plastic pots filled with

a mixture of vermiculite and perlite. Seeds were inoculated with *Rhizobium leguminosarum* bv. *phaseoli* (Buchanan) Jordan strain TAL 182 and seedlings at the unifoliate stage were treated for 3 wk with 10 mM combined N, which substantially inhibited nodulation of the parental cultivar. One ntsn mutant was obtained from 175 M_1 lines. The M_3 progenies of the ntsn line bred true for the nodulation characteristic.

Crosses between the mutant and the wild type parent, OAC Rico, revealed a single recessive gene in R32 controlling the ntsn characteristic (3). A gene symbol *nod* was assigned.

In pot tests under a controlled environment (1), the R32 mutant grew much like the parent. When inoculated with *Rhizobia*, the mutant produced lower plant weight but in the absence of *Rhizobia*, the R32 line and parent had the same plant weight. Continuous treatment with 14 mM combined N severely reduced nodulation of the mutant as well as the parent, whereas 2.1 mM and 14 mM treatments discontinued after 10 d stimulated nodulation of the mutant. Specific nodule activity (ARA) was lower in the mutant than the parent but leaf nitrate reductase activity was similar in the mutant and parent. Reciprocal grafting of OAC Rico and the mutant line R32 showed that the ntsn characteristic was controlled by the shoot.

The germplasm line R32 was evaluated in comparison with OAC Rico in a replicated field trial conducted at 0 and 112 kg N ha⁻¹ at Harrow in 1988. Plant growth of the R32 lines was similar to, or somewhat less than, that of the parent but nodulation was superior to the parent. The mutant had a slightly delayed maturity compared to OAC Rico. Seed yield of 50 R32 lines averaged 1025 kg ha⁻¹ compared to 1778 kg ha⁻¹ for OAC Rico in the trial.

Like OAC Rico, R32 has green hypocotyl and white flower color, light brown pod at maturity, produces white beans with dull seed coat, and has indeterminate growth habit. Seed of R32 will be maintained and distributed by Agriculture Canada, Research Station, Harrow, Ontario.

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References and Notes

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Published in Crop Sci. 30:756 (1990).

REGISTRATION OF KyWVS AND KyYVS MAIZE GERMPLASMS

TWO MAIZE (*Zea mays* L.) breeding populations, Kentucky White Virus Synthetic (KyWVS) (Reg. no. GP-211, PI 536518) and Kentucky Yellow Virus Synthetic (KyYVS) (Reg. no. GP-212, PI 536519), were released by the Kentucky Agricultural Experiment Station in 1989. Both populations should provide unique genotypes with resistance to maize virus diseases, which are found in the southern corn belt. Although the two populations have some common parental