Registration of Miscot 8001, Miscot 8004 and Miscot 8006 Germplasm Lines of Cotton

Three germplasm lines of cotton, *Gossypium hirsutum* L., Miscot 8001 (Reg. no. GP-590, PI 564679), Miscot 8004 (Reg. no. GP-591, PI 564680), and Miscot 8006 (Reg. no. GP-592, PI 564681), were released jointly by the Mississippi Agricultural and Forestry Experiment Station and Arkansas Agricultural Experiment Station in 1992. The lines were selected for prolific secondary root development and agronomic qualities.

The three lines were derived from crosses made in 1980 using ‘McNair 235’ as a common parent. The second parent for Miscot 8001, Miscot 8004, and Miscot 8006 was ‘Tamcot CAMD-E’ (2), PD 875 (3), and ‘Stoneville 603’, respectively. Prior to crossing, seedlings of each parent were selected for secondary root development on germination paper soaked with 3 mg kg⁻¹ trifluralin [2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl) benzenamine], then transplanted. Trifluralin is a preplant, incorporated herbicide that is commonly used in cotton production. It inhibits secondary root development of cotton seedlings in treated soil. F₂ seedlings, obtained from bulked F₂ plants, were selected in the greenhouse using modified multiple-adversity resistance procedures (1). The modifications included treatment of soil with 0.28 kg ha⁻¹ trifluralin, then placement of the germinated seed on the periphery of a cup to permit selection for secondary root development when the cup was removed. Subsequently, seedlings from the F₃ generation were subjected to a second cycle of selection using the same procedures. Miscot 8001 (tested as 8001-12) and Miscot 8004 (tested as 8004-4) were derived from the first selection cycle, and Miscot 8006 (tested as 8006-3-2) was derived from the second cycle.

In a greenhouse study, Miscot 8001, Miscot 8004, and Miscot 8006 had 32, 40, and 67% more secondary roots, respectively, than did ‘DES 119’ in trifluralin-treated soil, and 8, 25, and 30% more, respectively, in untreated soil. In a subsequent test, the three lines had more secondary roots than did ‘Stoneville 506’. Miscot 8004 and Miscot 8006 had more roots than their respective mid-parent value. Compared to their common parent, McNair 235, the three lines tended to have higher shoot weights but lower root weights, resulting in lower root to shoot ratios. These data suggest that the secondary roots of these lines may be as numerous but finer than the secondary roots of McNair 235.

After having been selected as progeny rows, the three lines were evaluated in replicated tests during 1987 at two Mississippi sites and from 1988 through 1990 at two Arkansas sites. In the eight tests over 4 yr, lint yields of the three lines were 2.2 to 5.7% less than that of DES 119. Each line yielded significantly less than did DES 119 in two of the eight tests while non-significant differences in yield occurred in the other six tests. Maturity of Miscot 8006 was equal to that of DES 119 while Miscot 8001 and Miscot 8004 matured slightly earlier than DES 119. Average lint percentages of Miscot 8004 were significantly less than did DES 119 in two of the eight tests.

References and Notes


Published in Crop Sci. 33:1106 (1993).

Registration of ARS-2936 Scarlet Globemallow Germplasm

Scarlet globemallow ([*Sphaeralcea coccinea* (Pursh) Rydb.], [Sphaerakea coccinea Nels.], and one other accession of *S. coccinea*. ARS-2936, Reg. no. GP-4, PI 564590, is an herbaceous species of Malvaceae widely distributed in the Mountain and Great Plains rangelands of the U.S. This species is characterized by widely spaced, brick-red petals, and a dense, short, racemose inflorescence and stellate trichomes. Flowers are attractive to bees from May to July or longer with favorable weather, and are palmately veined with the lobes coarsely toothed. Height is less than 30 cm and commonly 15 cm. Scarlet globemallow often is found in 15% sandy or gravelly soils, open flats, talus slopes, along roadsides and generally in arid places (2). When grazed by small mammals, pronghorn, sheep, and cattle, scarlet globemallow is an important rangeland component of small mammals, pronghorn, sheep, and cattle.

Seeds of ARS-2936 were harvested from a 13-ha sheep grazing trial established at Kimberly, ID, in 1987. The accession was compared with ‘Hycrest’ crested wheatgrass (*Agropyron cristatum* (L.) Gaertn. × *A. desertorum* (Fisch.) Fisch.), ‘Spredor 2’ alfalfa (*Medicago sativa* L.), ‘Spredor 2’ alfalfa (*Medicago sativa* L.), ‘Spredor 2’ alfalfa (*Medicago sativa* L.), ‘Spredor 2’ alfalfa (*Medicago sativa* L.), and one other accession of *S. coccinea*. Seed data were obtained in the fall of 1988 and spring of 1990 and 1991 (3). Although all three accessions of globemallow species other than ARS-2936 yielded twice as much forage as the accession in the experiment (Table 1). Utilization by sheep was superior to other mallows.

Some 4-m² plots of ARS-2936 at Kimberly were occupied by this rhizomatous accession 6 mo after transplanting despite competition from *S. coccinea*. Five observers each noted that the mutant accession of *S. coccinea* included in the test spread as extensively as ARS-2936, no