REGISTRATION OF PARENTAL LINES

Registration of Five Upland-Type Parental A- and B-Lines for Hybrid Cotton

FIVE UPLAND COTTON (Gossypium hirsutum L.) type maintainer (B) lines were released by the New Mexico Agricultural Experiment Station in 1992. These advanced parental lines have been tested in a limited number of crossed combinations, some of which were equal to or better in yield than the best check cultivars available: Acala 1517-75, Acala 1517-88, Paymaster 145, Paymaster HS-26 and the G. hirsutum × G. barbadense L. interspecific hybrid NX-1. These are advanced, uniform pure lines, as follows: A77-88090 (Reg. no. PL-7, PI566952), S51-88080 (Reg. no. PL-8, PI566951), S5T-88087 (Reg. no. PL-9, PI566950), SSE-88093 (Reg. no. PL-10, PI566949), and SC5-92106 (Reg. no. PL 11, PI566948). Populations propagated from these lines may contain some rogues resulting from the necessity to increase seed in semi-isolated open-pollinated blocks.

The recurrent parent of the A77-88090 B-Line is a direct selection out of Acala 1517-77, and maintains Acala fiber quality. The fiber quality is transmitted to hybrid progeny in additive fashion. This line is not stormproof, but has better storm resistance than most Acala types. It has shown excellent combining ability for yield with several R-Lines, particularly with BHLF and IV4F. Its primary weakness is low gin turnout, which it usually transmits to its hybrids as the mid-parent value. Its excellent combining ability in other respects has warranted efforts to improve the gin turnout component. Even with their low gin turnout, hybrids from this line are competitive with the best check cultivars in New Mexico.

The S51-88080 B-Line is a direct selection out of Acala 1517, and maintains Acala fiber quality. The fiber quality is transmitted to hybrid progeny in additive fashion. This line is not stormproof, but has better storm resistance than most Acala types. It has shown excellent combining ability for yield with several R-Lines, particularly with BHLF and IV4F. Its primary weakness is low gin turnout, which it usually transmits to its hybrids as the mid-parent value. Its excellent combining ability in other respects has warranted efforts to improve the gin turnout component. Even with their low gin turnout, hybrids from this line are competitive with the best check cultivars in New Mexico.

The S51-88080 B-Line is a direct selection out of family S51, the original female parent of NX-1. The pedigree of family S51 is 'Acala 1517 D'/Oklahoma CR-4//'Stahman 876' selection. Oklahoma CR-4 was a bacterial blight resistant, slightly larger and later than S51, but represents an early, short-statured, semi-smooth foliage, and fully stormproof bolls. It shows combining ability for yield and earliness in both upland x upland crosses and in interspecific crosses, and is used as the standard upland tester female in the hybrid breeding program in New Mexico.

The S5E-88093 B-Line is also descended from the progeny of S51/TAMCOT SP21S*/S51. S51 phenotypically, but is extremely early, semi-smooth foliage, and fully stormproof bolls. It shows combining ability for yield and earliness in both upland crosses and in interspecific crosses, and is used as the standard upland tester female in the hybrid breeding program in New Mexico.

The S5T-88087 B-Line descended from the backcross progeny of S51/TAMCOT SP21S*/S51. It is verticillium-wilt resistant, slightly larger and later than S51, but represents an early, short-statured, semi-smooth foliage, and fully stormproof bolls. It shows combining ability for yield and earliness in both upland x upland crosses and in interspecific crosses, and is used as the standard upland tester female in the hybrid breeding program in New Mexico.

The SC5-92106 B-Line descended from the cross S51/Coker 310*/S51. The potential of this line is not known, because it has been used only in test crosses, which tended to perform well. Although this line is susceptible to Verticillium wilt, its hybrid with the BHLF male was ranked second in yield at Las Cruces in 1991. It has more earliness as well as high yield potential to its progeny. Its fiber properties are equal to or superior to the deltapop type cultures.

Seed of these releases, their paired A-Lines, and representative testcross hybrids are available in variable quantities. These may be requested from the author, and will be dispersed according to the number of requests and supplies available. Seed will also be deposited with USDA-ARS in the National Collection of Gossypium Germplasm at Texas A&M University (1).

Use of these releases will not be restricted by Plant Variety Protection.

References and Notes


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