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REGISTRATION OF TWO RED CLOVER INTERSPECIFIC HYBRID GERMPLASMS

TWO INTERSPECIFIC hybrid germplasms involving red clover (*Trifolium pratense* L.) were released by the Kentucky Agricultural Experiment Station in 1988. The hybrid *T. pratense* × *T. diffusum* Ehrh. (Reg. no. GP-17) (PI 204517) was produced after doubling the chromosome number of *T. diffusum* and crossing it as male with plants from the red clover cultivar R-28 (2). The hybrid is intermediate between the parents in most characteristics and is highly fertile. It possesses 30 somatic chromosomes, 14 from *T. pratense* and 16 from *T. diffusum*. Reproduction more closely resembles the allogamy of *T. pratense* than the autogamy of *T. diffusum*. Seeds produced by cross pollination under field conditions, are yellow to brown, kidney shaped and approximately the same size as tetraploid *T. pratense*. Flowering is slightly later than that of the 'Kenland' cultivar. All hybrid plants are annual, and apparently do not possess characters desirable for transferring to *T. pratense*, but may be useful as a bridge for further interspecific hybridizations.

The hybrid *T. sarosiense* Hazsl. × *T. pratense* (Reg. no. GP-18) (PI 520608) was produced by in vitro embryo rescue following hand crosses (1). It is intermediate between the strongly perennial *T. sarosiense* (PI 292827) and the weakly perennial *T. pratense* ('Kenstar') and possesses 31 chromosomes, 24 from *T. sarosiense* and 7 from *T. pratense*. It is strongly perennial and somewhat less rhizomatous than *T. sarosiense* and is completely sterile, exhibiting almost complete lack of meiosis. Plants are maintained vegetatively. If the sterility could be overcome, the hybrid may have potential for transferring genes for perenniality to *T. pratense*.

Up to 100 seeds of the *T. pratense* × *T. diffusum* hybrid germplasm and up to 5 vegetative propagules of the *T. sarosiense* × *T. pratense* hybrid germplasm may be obtained from the Department of Agronomy, Agricultural Science Building -N., University of Kentucky, Lexington, KY 40546-0091.

NORMAN L. TAYLOR* AND G. B. COLLINS (3)

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REGISTRATION OF MISCOT 7918 COTTON GERMPLASM

A GERMPLASM line of cotton, (*Gossypium hirsutum* L.), Miscot 7918 (Reg. no. GP-362) (PI 520750), developed by the Mississippi Agricultural and Forestry Experiment Station was released in 1988. Miscot 7918, tested as 7918-1-2, was developed from a cross between 'Stoneville 825' and LEB0-2-78, an advanced line from the Texas A&M University Multi-Adversity Resistance program (1).

Miscot 7918 is a nectariless line that is resistant to all known U.S. races of *Xanthomonas campestris* pv *malvacearum* (Smith) Dye, the causal agent of bacterial blight. This germplasm line combines the bacterial blight resistance of LEB0-2-78 with the nectariless character and regional adaptability of Stoneville 825.

In tests at Mississippi State, MS from 1985 to 1987 and at the Delta Branch Experiment Station, Stoneville, MS from 1984 to 1987, Miscot 7918 was 15% taller, but yielded 7% less than 'DES 422'. Plant maturity and lint fractions of the two genotypes were similar. Micronaire and fiber length (2.5% SL and 50% SL) of Miscot 7918 were 9% greater and 5% less, respectively, than DES 422 in tests at Mississippi State, but were equal to DES 422 in tests at the Delta Branch Experiment Station. Across all tests, fiber strength (T₁) of Miscot 7918 was 4% less than DES 422.

Seed (25 g) of Miscot 7918 may be obtained from the Department of Agronomy, P.O. Box 5248, Mississippi State, MS 39762.

F. M. BOURLAND* AND B. W. WHITE (2)

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. F.M. Bourland, Dep. of Agronomy, Univ. of Arkansas, Fayetteville, AR 72701 (formerly, Dep. of Agronomy, Mississippi State Univ., Mississippi State, MS 39762); and B.W. White, Dep. of Agronomy, Mississippi State Univ., Mississippi State, MS 39762. Registration by CSSA. Accepted 30 July 1988. *Corresponding author.

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REGISTRATION OF MISCOT 7803-51 AND MISCOT 7803-52 GERMPLASM LINES OF COTTON

Two germplasm lines of cotton, (*Gossypium hirsutum* L.), Miscot 7803-51 (Reg. no. GP-363) (PI520751) and Miscot 7803-52 (Reg. no. GP-364) (PI520752), developed by the Mississippi Agricultural and Forestry Experiment Station were released in 1988. Miscot 7803-51, tested as 7803-51-1, and Miscot 7803-52, tested as 7803-52-6-4, are sister lines developed from a cross between 'DES 56' and MAR-22-74, an advanced line from the Texas A&M University Multi-Adversity Resistance program (1).

In tests from 1984 to 1987, lint yields of Miscot 7803-51 were equivalent to those of 'DES 422'. Miscot 7803-51 yielded 14% less than Miscot 7803-52 in Mississippi Delta environments but 9% higher in Mississippi hill environments. Both lines were equal to or earlier maturing than DES 422. Miscot 7803-51 was 15% shorter in height than DES 422 and Miscot

7803-52. Lint fraction and micronaire of the two lines were similar to DES 422 but fiber length was 5% shorter. Fiber strength (T_1) of Miscot 7803-52 was equal to DES 422 and 5% greater than Miscot 7803-51.

Both lines are resistant to all known U.S. races of *Xanthomonas campestris* pv *malvacearum* (Smith) Dye, the causal agent of bacterial blight. Resistance of Miscot 7803-52 to fusarium wilt, caused by *Fusarium oxysporum* f. sp. *vasinfectum* (Atk.) Syd. and Hans., was equal to the resistant 'McNair 235', in the Regional Cotton Fusarium Wilt Test at Tallahassee, AL. In tobacco budworm, *Heliothis virescens* F., resistance tests conducted at the USDA-ARS Crop Science Laboratory, Mississippi State, MS, both lines were more resistant than 'Stoneville 213'. In tests from 1985 to 1987, lint yields of Miscot 7803-51 were 27% higher than Stoneville 213 in larvae infested plots and 18% higher in larvae controlled plots. Concurrently, yields of Miscot 7803-52 were 36% higher than Stoneville 213 in infested plots and 21% higher in controlled plots.

Seed (25 g) of Miscot 7803-51 and Miscot 7803-52 may be obtained from the Department 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. F.M. Bourland, Dep. of Agronomy, Univ. of Arkansas, Fayetteville, AR 72701 (formerly, Dep. of Agronomy, Mississippi State Univ., Mississippi State, MS 39762); and B.W. White, Dep. of Agronomy, Mississippi State Univ., Mississippi State, MS 39762. Registration by CSSA. Accepted 30 July 1988. *Corresponding author.

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REGISTRATION OF GT-SSRS-SX AND GT-SSRS-PX MAIZE GERMPLASMS

THE MIXED FLINT and dent maize (*Zea mays* L.) breeding populations GT-SSRS-SX (Reg. no. GP-182) (PI 520609) and GT-SSRS-PX (Reg. no. GP-183) (PI 520610) were developed from a single cycle of recurrent selection among S_1 progenies for increased concentrations of soluble solids in the stalk juices. Stalk sugars are the single major component among the soluble solids found in stalk juices. Due to the high cost of sugar content analyses, the significant correlation between sugars and soluble solids concentration in the stalk juices was utilized to increase stalk sugar by selecting for soluble solids concentration.

The base material for GT-SSRS-SX was bulked seed of chain crosses among seven single crosses involving six inbreds (9-54C, C17, C103, Hy, P39, and SC235). Seed from these bulked chain crosses were planted and 150 plants were selfed. The resulting S_1 progenies were evaluated for percent soluble solids in stalk juices and the 15 progenies with highest concentrations were intercrossed to form GT-SSRS-SX. The germplasm GT-SSRS-PX was developed in a similar manner with a base material of seed from bulked chain crosses among seven crosses between C103 and open-pollinated populations and collections. The source materials for both populations were selected for chain crossing based on their performance in replicated trials to identify types with high soluble solids concentration.

Selection in GT-SSRS-SX and GT-SSRS-PX was based solely on the concentration of soluble solids in the stalk juices. The resultant populations, therefore, are unimproved for other agronomic characteristics. Both populations reach

50% pollen shed in 70 to 72 d (about AES 1100) at Tifton, GA and have mixed cob and kernel color. The *su₁* gene exists in GT-SSRS-SX at a very low frequency. The average percentages of soluble solids in stalk juices of GT-SSRS-SX and GT-SSRS-PX as determined by refractometer in replicated tests were 14.4 and 14.7, respectively. These values represent an increase of about 0.6 units over the original populations when measured at 6 wk after anthesis.

The populations were released in November 1987 by the USDA-ARS and the University of Georgia Agricultural Experiment Stations as source or base population material for breeding programs oriented toward increasing soluble solids or sugar content of stalk juices. Breeder seed will be maintained by the Insect Biology and Population Management Research Laboratory, P.O. Box 748, Tifton, GA 31793, and can be obtained in 100 to 200 g lots from the corresponding author at that address.

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References and Note

1. N.W. Widstrom, USDA-ARS-IBPMRL, P.O. Box 748, Tifton, GA 31793; and M.O. Bagby and M.E. Carr, USDA-ARS-NRRC, 1815 N. University Street, Peoria, IL 61604. Contribution of the USDA-ARS in cooperation with the Univ. of Georgia College of Agric. Exp. Stn., Coastal Plain Exp. Stn. Registration by CSSA. Accepted 30 June 1988. *Corresponding author.

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REGISTRATION OF NINE MAIZE GERMPLASM POPULATIONS

NINE maize (*Zea mays* L.) germplasm populations (Reg. no. GP-184 to GP-192) were released by Funk Seeds International to the National Germplasm System in 1987. Seed is available from the Regional Plant Introduction Station, Iowa State University, Ames, IA 50011.

GS07(R)C2 (GP-184) (PI 520761)—This yellow dent synthetic (AES maturity 400) was developed by Funk Seeds International from BS7(S)C1 by two cycles of reciprocal recurrent selection (inbred tester) at Owatonna, MN. The primary trait for selection was increased yield with secondary selection for reduced root and stalk lodging. BS7 synthetic was derived from Kenya CBK by two cycles of mass selection followed by one cycle of S_1 selection for increased yield in Iowa. CBK was formed at Kitale, Kenya by the Major Cereals Project in Africa with the U.S. Agency for International Development, the Agricultural Research Service of the USDA, the East African Agriculture and Forestry Research Organization, and the Kenya Ministry of Agriculture, co-operating. Kenya CBK was introduced as PI 329228 by the Plant Introduction Station, Ames, IA (2). Kenya CBK included approximately 50% Corn Belt germplasm and approximately 50% exotic material primarily from Central and South America. The Corn Belt sources were: Iowa Stiff Stalk Synthetic no. 2, Iowa Synthetic AA, Iowa Synthetic BB, Iowa Two Ear Synthetic no. 1, Krug Mass Selection, Nebraska Population V, Nebraska Population L, Pioneer 2-ear Composite, Pioneer hybrids, Dekalb hybrids, Funk hybrids, and PAG hybrids. The exotic material was: French lines (F_2 , F_7 , F_{47} , F_{49} , F_{52} , and F_{431}), NBZ (Corn Belt \times Brazilian varieties), Nebraska (ETO \times early U.S.), Nebraska (ETO \times Gaspé Flint), Alaskan Composite (Gaspé Flint \times early USA double crosses), Kenya Katumani Panmix (composite of Central American material), Kenya Katumani IV (probably derived from Salvadureño), Kenya Embu II (composite of 14 Central American varieties), and Kenya Pp coastal (com-