

recognition of its source as a matter of open record when the germplasm contributes to the development of a new cultivar or hybrid. Seed should be requested from the Department of Agronomy and Horticulture, Box 30003, New Mexico State University, Las Cruces, NM 88003-0003.

B. MELTON*, C. CURRIER, B. MCCASLIN, D. MILLER, N. WAISSMAN, AND E. OLIVARES (4).

References and Notes

1. 75-189 is a nondormant clone of 'El Unico', 'Mesa Sirsa', and 'Hayden' parentage selected for high seed production.
2. Olivares-Saenz, E. 1987. Physiological differences in alfalfa populations selected for high and low phosphorus concentrations. Ph.D. diss. New Mexico State Univ. Las Cruces. (Diss. Abstr. 88-01625).
3. Waissman, N. 1984. Effects of selection for phosphorus accumulation in alfalfa on mineral balance and response to phosphorus fertilization. M.S. Thesis. New Mexico State Univ. Las Cruces.
4. B. Melton,* C. Currier, B. McCaslin, D. Miller, N. Waissman, and E. Olivares. Dep. of Agronomy and Horticulture, New Mexico State Univ. Las Cruces, N.M. 88003-0003. Journal Article no. 1397. Registration by the CSSA. Accepted 30 Oct. 1988. *Corresponding Author.

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REGISTRATION OF WAPRS-4 ALFALFA GERMPLASM RESISTANT TO PHYTOPHTHORA ROOT ROT

WAPRS-4 alfalfa (*Medicago sativa* L.) germplasm (Reg. no. GP-214 (PI 527309) was released by the Wisconsin Agricultural Experiment Station in October 1988. WAPRS-4 is a tetraploid ($2n = 4x = 32$) synthetic developed by combining resistance to *Phytophthora* root rot, caused by *Phytophthora megasperma* Drechs. f. sp. *medicaginis* (Pmm) Kuan and Erwin, from diploid ($2n = 2x = 16$) *Medicago falcata* L. and $4x$ *M. sativa*. Resistance to Pmm from *M. falcata* (PI 410970 from the USDA Plant Introduction Station, Ames, IA) is inherited as a dominant allele at either of two independently segregating loci, Pm_3 and Pm_4 (1). Resistance to Pmm from the $4x$ plant M193 [selected from Nickerson American Plant Breeders line 0310 (4)] was transferred to the $2x$ level by interploid bridge crosses (2). Inheritance studies at the $2x$ level revealed two different modes of inheritance: resistance inherited as a dominant allele at both of two independently segregating complementary loci, Pm_1 and Pm_2 , and resistance inherited as a dominant allele at either of two independently segregating loci, Pm_5 and Pm_6 (2). The Pm_1 through Pm_6 genes are independently inherited and diploid plants were identified with resistance factors from $2x$ and $4x$ alfalfa (2).

Tetraploidization was achieved by $2x$ - $4x$ crosses using the $4x$ plant Arc-2 (provided by J. Elgin, Jr., USDA, Beltsville, MD) as the pollen parent. Arc-2 was susceptible to Pmm and resistant to race one of anthracnose [caused by *Colletotrichum trifolii* (Ct) Bain.]. Tetraploid progeny were identified by resistance to Pmm and Ct, fertility as a pollen parent in crosses with a self-incompatible $4x$ seed parent, or chromosome counts in root tips (3).

WAPRS-4 was produced by hand polycrossing 60 $4x$ plants resistant to Ct and Pmm. It was increased under cage isolation in California through North Central Regional Project 83. Seed of WAPRS-4 (about 5 g) will be sent upon written request and agreement to recognize the source of the germplasm when used in publications or development of new germplasm or cultivars. Requests should be addressed to Dr.

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M. J. HAVEY, J. A. G. IRWIN, AND D. P. MAXWELL* (5)

References and Notes

1. Havey, M.J., and D.P. Maxwell. 1987. Inheritance of *Phytophthora* root rot resistance in two diploid alfalfa species. Crop Sci. 27:225-228.
2. ———, ———, and J.A.G. Irwin. 1987. Independent inheritance of genes conditioning resistance to *Phytophthora* root rot from diploid and tetraploid alfalfa. Crop Sci. 27:873-879.
3. ———, and ———. 1988. Transfer of disease resistance from diploid to tetraploid alfalfa by unreduced female gametes. Plant Disease 72:603-604.
4. Irwin, J.A.G., D.P. Maxwell, and E.T. Bingham. 1981. Inheritance of resistance to *Phytophthora megasperma* in tetraploid alfalfa. Crop Sci. 21:277-283.
5. Dep. of Plant Pathology, Univ. of Wisconsin, Madison, WI 53706. Registration by CSSA. Accepted 30 Nov. 1988. *Corresponding author.

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REGISTRATION OF NINE COTTON GERMPLASM LINES

NINE germplasm lines of cotton (*Gossypium hirsutum* L.), designated CA-3001 through CA-3007, CA-3012, and CA-3013 (Reg. no. GP-365 through GP-373), (PI 525461 through PI 525469), were released by the Texas Agricultural Experiment Station in 1985. These germplasm lines combine increased fiber length and tensile strength.

CA-3001 is a single plant selection out of CA-1056, which was derived from the cross of [(Del Cerro \times CA-398) \times AZ 6024-11-1]. It produced larger bolls with longer and stronger fibers than the four commercial check cultivars Paymaster 303, Acala SJ-5, Dunn 219, and Tamcot 788.

CA-3002 was selected as a single plant from CA-2266, which was developed from the cross of El Paso Source Material (EPSM) \times CA-1056. It possesses long, strong fibers that exhibit a micronaire value less than those of the commercial checks.

CA-3003 through CA-3007 are sib selections out of CA-2153, which was derived from the cross of [Lambright 28 \times (CA-491 \times Pima = *G. barbadense* L.)]. CA-3006 has the shortest fibers, highest length uniformity ratio, and highest micronaire value of these five lines, but all possess fiber that is longer and stronger than the four commercial check cultivars.

CA-3012 is a bulk selection out of CA-2153. This is the only germplasm line that exhibited a tensile strength of less than 294.4 kNmkg⁻¹. Its strength of 265.9 kNmkg⁻¹ exceeded the strength of the commercial cultivars Tamcot 788 and Paymaster 303.

CA-3013 is a single plant selection out of CA-2135, which was derived from a cross of CA-1056 \times Auburn 623A RNR. It possesses smaller bolls than the check cultivars but has longer and stronger fibers.

These germplasm lines have not been screened for resistance to any diseases or insects. Lint percentages are lower than those of the commercial check cultivars. With the exception of CA-3013, boll size is comparable to boll size of the commercial checks. All of these germplasm lines are segregating for seed fuzz density.

Breeder seed are maintained by the Texas Agricultural Experiment Station and may be obtained in germplasm quantities from John R. Gannaway, Texas Agricultural Experiment Station, Route 3, Box 219, Lubbock, TX 79401-9757.

JOHN R. GANNAWAY* (1)

Reference and Notes

1. Texas Agric. Exp. Stn., Lubbock, TX 79401. Contribution TA no. 23683, Texas Agric. Exp. Stn., Texas A&M University, College Station, TX 77843. This research was supported in part by grant funds from Lamesa Cotton Growers, Lamesa, TX; Plains Cotton Growers, Inc., Lubbock, TX; and Plains Cotton Improvement Program, Lubbock, TX. Registration by CSSA. Accepted 30 Oct. 1988. *Corresponding author.

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REGISTRATION OF EIGHT COTTON GERMPLASM LINES

EIGHT germplasm lines of cotton (*Gossypium hirsutum* L.), designated CA-3022 through CA-3029 (Reg. nos. GP-374 through GP-381), (PI 525482 through PI 525489), were released by the Texas Agricultural Experiment Station in 1985. These germplasm lines combine increased fiber length and tensile strength.

These eight lines originated from individual plant selections out of El Paso Source Materials (EPSM). Historical records did not permit the determination of accurate pedigrees of these materials. However, the records indicated that these lines were the original germplasm utilized by the late Paul J. Lyerly in the initiation of his fiber quality research program.

CA-3022 exhibited a very low lint percentage of 28%. The four commercial check cultivars, Acala SJ-5, Dunn 219, Paymaster 303, and Tamcot 788, showed lint percentages ranging from 34.2 to 36.9%. CA-3028 had a lint percentage of 35.1%. Lint percentages of the other lines ranged from 31.1 to 33.8%.

Boll size of these lines was comparable to that of the commercial checks with the exception of CA-3022, which produced very small bolls. Storm resistance ratings for seven of the eight lines were similar to that of Acala SJ-5. CA-3026 exhibited a boll conformation similar to that of Paymaster 303.

CA-3022, CA-3026, and CA-3028 are segregating for seed fuzz density. Seed fuzz density is normal for the remaining lines.

Fiber length and tensile strength of these lines exceeds those values for the four commercial check cultivars. Fiber length ranged from 27.2 to 30.0 mm while strength ranged from 296.3 to 323.7 kNmkg⁻¹. Micronaire readings were all within the premium range.

Breeder seed are maintained by the Texas Agricultural Experiment Station and may be obtained in germplasm quantities from John R. Gannaway, Texas Agricultural Experiment Station, Route 3, Box 219, Lubbock, TX 79401-9757.

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Reference and Notes

1. Texas Agric. Exp. Stn., Lubbock, TX. 79401. Contribution TA no. 23777, Texas Agric. Exp. Stn., Texas A&M University, College Station, TX. 77843. This research was supported in part by grant funds from Lamesa Cotton Growers, Lamesa, TX., Plains Cotton Growers, Inc., Lubbock, TX., and Plains Cotton Improvement Program, Lubbock, TX. Registration by CSSA. Accepted 30 Oct. 1988. *Corresponding Author.

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REGISTRATION OF TWELVE COTTON GERMPLASM LINES

TWELVE germplasm lines of cotton (*Gossypium hirsutum* L.), designated CA-3008 through CA-3011, and CA-3014 through

CA-3021 (Reg. no. GP-382 through GP-393), (PI 525470 through PI 525481), were released by the Texas Agricultural Experiment Station in 1985. These germplasm lines possess unique combinations of various fiber properties that are needed by some segments of the textile industry.

These twelve lines originated from individual plant selections of El Paso Source Materials (EPSM). Historical records did not permit determination of accurate pedigrees of these materials. Pima, Del Cerro, and Acala cultivars, along with other unknown parents, were used in developing these germplasm lines.

The commercial cultivars used for comparisons were Acala SJ-5, Dunn 219, Paymaster 303, and Tamcot 788. Lint percentages of the germplasm lines were generally lower than those of the commercial check cultivars. CA-3014 exhibited a lint percentage greater than that of Tamcot 788 but lower than those of the other check cultivars.

CA-3008, CA-3009, and CA-3014 produced bolls larger than those of the check cultivars, while bolls produced by CA-3010 and CA-3011 were comparable to those cultivars. The remaining seven lines produced relatively small bolls. CA-3008 and CA-3011 exhibited a boll conformation similar to that of Paymaster 303. The remainder exhibited boll types similar to that of Acala SJ-5.

Four of these lines, CA-3008 through CA-3011, are segregating for seed fuzz density. The other lines exhibited normal seed fuzz density with the exception of CA-3019, which has reduced density.

Fiber properties of these lines are generally better than the commercial check cultivars. CA-3021 is the only line that did not produce fiber exceeding the fiber length of the longest fibered check cultivar, Acala SJ-5. Fiber tensile strengths for these twelve lines ranged from 304.1 to 363.0 kNmkg⁻¹. The range of the four commercial cultivars was from 240.3 to 277.6 kNmkg⁻¹. With the exception of CA-3015 and CA-3017 through CA-3019, all of the germplasm lines produced micronaire values in the premium range. The four exceptions had micronaire values below 3.5.

These germplasm lines have not been evaluated for resistance to any diseases or insects.

Breeder seed are maintained by the Texas Agricultural Experiment Station and may be obtained in germplasm quantities from John R. Gannaway, Texas Agricultural Experiment Station, Route 3, Box 219, Lubbock, TX, 79401-9757.

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Reference and Notes

1. Texas Agric. Exp. Stn. Lubbock, Texas, 79401. Contribution TA no. 23778, Texas Agric. Exp. Stn., Texas A&M Univ., College Station, TX. 77843. This research was supported in part by grant funds from Lamesa Cotton Growers, Lamesa, TX; Plains Cotton Growers, Inc., Lubbock, TX; and Plains Cotton Improvement Program, Lubbock, TX. Registration by CSSA. Accepted 30 Oct. 1988. *Corresponding author.

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REGISTRATION OF BELDAK-RUST RESISTANT -1 AND -2 PINTO DRY BEAN GERMPLASM

Two pinto dry bean (*Phaseolus vulgaris* L.) germplasm lines, 'Beldak-Rust Resistant' (RR)-1 (Reg.No.GP-76) (PI 527310) and -2 (Reg.No.GP-77) (PI 527311), were released by USDA-ARS and the North Dakota Agricultural Experiment Station in July 1988. They are the first pinto dry bean germplasm lines developed specifically for homozygous resistance to the 33 available North American races (races 38 through 70) of