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Table 1. Identification and agronomic characteristics of four pairs of greenbug-resistant vs. susceptible near-isolines and two check cultivars of winter barley.†

Reg. no.	Selection no.‡	PI or CI no.	Heading date§	Plant height	Test wt.	Grain yield
				cm	kg m^{-1}	kg ha^{-1}
GP-97	OK87851S	518635	0	81	605	4294
GP-98	OK87851R	518636	−1	84	595	4146
GP-99	OK87852S	518637	−2	82	616	4038
GP-100	OK87852R	518638	−1	85	601	3999
GP-101	OK87853S	518639	−4	81	624	3523
GP-102	OK87853R	518640	−3	78	613	3273
GP-103	OK87854S	518641	−3	80	620	3688
GP-104	OK87854R	518642	−2	80	619	3852
–	Rogers	9174	0	81	577	3546
–	Will	11652	0	76	541	3748

† Date collected in Stillwater, OK, and averaged across 3 (heading date and test weight) or 4 (plant height) yr. Grain yield data collected from replicated plots (3.7 m^2) in Stillwater and Woodward, OK, in 3 yr over five experiments.

‡ Near-isoline pairs share a common selection number, but each line differs in character suffix according to its response to greenbug biotypes C and E (S = susceptible and R = resistant).

§ Days earlier than Rogers, the recurrent parent.

¶ LSD (0.05) = 427 kg ha^{-1} for comparing grain yield means between near-isoline pairs.

greenbug. Each line was homogeneous for resistance or susceptibility and consistent for responses to both biotypes. Small amounts of seed of each line are available for research purposes upon written request to B.F. Carver, Department of Agronomy, Oklahoma State University, Stillwater, OK 74078.

B. F. CARVER,* G. H. MORGAN, L. H. EDWARDS, AND J. A. WEBSTER (3)

References and Notes

1. Merkle, O.G., J.A. Webster, and G.H. Morgan. 1987. Inheritance of a second source of greenbug resistance in barley. Crop Sci. 27:241–243.
2. Starks, K.J., and R.L. Burton. 1977. Greenbugs: Determining biotypes, culturing, and screening for plant resistance, with notes on rearing parasitoids. USDA-ARS Tech. Bull. 1556. U.S. Gov. Print. Office, Washington, DC.
3. B.F. Carver, G.H. Morgan, and L.H. Edwards, Dep. of Agronomy, Oklahoma State Univ., Stillwater, OK 74078; and J.A. Webster, USDA-ARS, Plant Science and Water Conservation Lab., P.O. Box 1029, Stillwater, OK 74076. Joint contribution of the Oklahoma Agric. Exp. Stn. and USDA-ARS, Stillwater, OK. Journal article no. J-5396 of the Oklahoma Agric. Exp. Stn. Registration by CSSA. Accepted 30 May 1988. *Corresponding author.

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REGISTRATION OF MISCOT T8-27 COTTON GERMPLASM

A GERMPLASM line of cotton (*Gossypium hirsutum* L.), Miscot T8-27 (Reg. no. GP-353) (PI 518655) developed by the Mississippi Agricultural and Forestry Experiment Station was released in 1987. Miscot T8-27, tested as T8-27-8-7, was developed from a cross between 'DES 56' (2) and 'TAMCOT SP37' (1).

Miscot T8-27 is resistant to all known USA races of *Xanthomonas campestris* pv *malvacearum* (Smith) Dye, the causal agent of bacterial blight. It is also as resistant as 'McNair 235' to fusarium wilt [caused by *Fusarium oxysporum* f. sp. *vasinfectum* (Atk.) Snyd. and Hans.]. Miscot T8-27 was more resistant than 'Stoneville 213' to tobacco budworm, *Heliothis virenscens* F. Yields of Miscot T8-27 were 62% higher than Stoneville 213 in larvae infested plots and 20% higher in larvae controlled plots of tests conducted at the USDA-ARS Crop Science Laboratory, Mississippi State, MS in 1985 and 1986.

Miscot T8-27 yielded 8.4% more lint and matured slightly earlier than 'DES 422' in tests at Mississippi State and Stoneville, MS from 1984 to 1986. Lint percentage of Miscot T8-27 was 1.9 units greater than DES 422 but fiber length was 1.8 mm shorter. Micronaire and strength of Miscot T8-27 were equal to those traits in DES 422. Tested in a composite with two sister lines, Miscot T8-27 produced higher yields than Stoneville 213 in regional Heliothis tests conducted at locations from North Carolina to Texas.

Seed (25 g) of Miscot T8-27 may be obtained from the Department of Agronomy, P.O. Box 5248, Mississippi State, MS 39762.

F. M. BOURLAND* AND R. R. BRIDGE (3)

References and Notes

1. Bird, L.S. 1976. Registration of TAMCOT SP21, TAMCOT SP23, and TAMCOT SP37 cottons. Crop Sci. 16:884.
2. Bridge, R.R., and J.F. Chism. 1978. Registration of DES 56 cotton. Crop Sci. 18:524.
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 R.R. Bridge, Delta Branch, Mississippi Agric. For. Exp. Stn., Stoneville, MS 38776. Registration by CSSA. Accepted 3 Apr. 1988. *Corresponding author.

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REGISTRATION OF EIGHT SUB-OKRA COTTON GERMPLASM LINES

EIGHT germplasm lines (Stoneville 825S, DES 422S, DPL 26S, DPL 5540S, SC-1S, DES 210S, Tamcot Camd-ES, and MD 65-11S), designated GP-354 through GP-361, PI 518761 through PI 518768, of sub-okra upland cotton (*Gossypium hirsutum* L.) were released cooperatively by USDA-ARS and the Delta Branch of the Mississippi Agricultural and Forestry Experiment Station in 1987. These sub-okra strains were produced by crossing HYC 79-6, a sub-okra germplasm release (3) with the respective six cultivars and two germplasm lines by selecting sub-okra plants in the BC_4F_4 generation.

Sub-okra leaf 2(L_2^u) is a mutant leaf type of the multiple allelic series at the L_2 locus on chromosome 15 of the D genome. Normal leaf cottons, 2 (l_2), have either wider leaf lobes and/or less indentation between the major lobes than does sub-okra leaf. Visual differences among these genotypes have been fully described previously (1,4).

In 1984 and 1985, the integrated canopy apparent photosynthesis for sub-okra averaged about 7% higher than that of normal leaf (4). Comparisons with near isogenic F_3 normal vs. sub-okra populations indicated that sub-okra had a potential for increasing cotton yields at Stoneville by about 5% in 1982 (1). In 1985, sub-okra (BC_4F_3) lines were compared with their eight recurrent parents at three locations near Stoneville (2). The lint yield results indicated that sub-okra leaf averaged significantly higher yields, about 3%, but the yield difference ranged from −2.4 to 10.5%, depending on the genetic background of the comparison. Yield comparisons in 1986 with MD 65-11, Stoneville 825, and DES 422 showed sub-okra lines produced significantly higher yields, about 7% higher than their normal leaf recurrent parents.

No practical differences were detected in lint percentage, boll size, seed weight, and fiber properties in 3 yr of comparisons between normal and sub-okra leaf.

Small amounts of seed of the eight germplasm lines are available for distribution to breeders and research workers upon written request to W.R. Meredith, Jr., USDA-ARS, Cotton Physiology and Genetics, Jamie Whitten Delta States Research Center, Box 345, Stoneville, MS 38776.

W. R. MEREDITH, JR.* (5).

References and Notes

1. Meredith, W.R., Jr. 1984. Influence of leaf morphology on lint yield of cotton-enhancement by the sub-okra trait. Crop Sci. 24:855–857.
2. Meredith, W.R., Jr., and R. Wells. 1987. Sub-okra leaf influence on cotton yield. Crop Sci. 27:47–48.
3. Sappenfield, W.P. 1984. Registration of HYC 79-6 cotton germplasm. Crop Sci. 24:829.
4. Wells, R., W.R. Meredith, Jr., and J.R. Williford. 1986. Canopy photosynthesis and its relationship to plant productivity in cotton isolines differing in leaf morphology. Plant Physiol. 82:635–640.
5. USDA-ARS, Cotton Physiology and Genetics, Box 345, Stoneville, MS 38776. Joint contribution of USDA-ARS and Mississippi Agric. and Forestry Exp. Stn., Delta Branch. Registration by CSSA. Accepted 30 May 1988. *Corresponding author.

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REGISTRATION OF USDA 19058M MALE HOP GERMPLASM

THE male hop, *Humulus lupulus* L., germplasm line USDA 19058M (Registration no. GP-17) (PI 518760) has been used in the USDA hop breeding program for nearly 20 yr. The exact origin of USDA 19058M is obscure. It was selected in the early 1950s as an open-pollinated seedling from the English female hop 'Early Green' at Corvallis, OR. USDA 19058M consistently exhibited exceptional vigor, excellent pollen production, and good primary and secondary laterals, traits that are thought to be related to high yield potential. USDA 19058M has been maintained at the USDA Male Hop Germplasm Collection at Oregon State University for over 25 yr.

USDA 19058M has excellent spring regrowth early in the season. Its erect shoots are easy to train and readily climb a supporting string to a height of 5.5 m or more. In Western Oregon, pollen shedding occurs in mid to late July on sidearms that range from 75 to 120 cm in length. The sidearms carry well developed primary and secondary laterals that produce ample amounts of pollen over a 2- to 3-wk period. Resin glands from the sepals and anthers are easily collected according to the method of Likens et al.[1]. The alpha acids content measured in isolated lupulin glands has ranged from 16 to 36% over an 18-yr period, with an overall mean of 26.8%. The beta acids content over the same period averaged 45.7% with a range of 32.2 to 55.1%. Cohumulone content of USDA 19058M has always been low, with a mean of 16% and a range of 12 to 21%. This desirable low cohumulone content has been transmitted successfully to the progeny in test crosses.

USDA 19058M is resistant to crown infection by hop downy mildew (caused by *Pseudoperonospora humuli* Miy. et. Tak G.W. Wilson). Early leaf infection of basal shoots in the spring can easily be controlled with systemic fungicides. The genotype also appears to be resistant to Verticillium wilt (incited by *Verticillium dahliae* Kleb.) in Western Oregon.

USDA 19058M is free of the cherry and apple serotypes of Prunus Necrotic Ringspot Virus (PNRV) as judged from ELISA tests of dormant rhizome buds over a 3-yr period despite the presence of PNRV infected hop plants nearby. However, a mild positive reaction to the apple strain of PNRV was observed recently. The genotype has also remained free of Hop Latent Virus (HLV) and American Hop Latent Virus (AmHLV), but carries Hop Mosaic Virus (HMV). These latter three insect transmitted viruses are prevalent in hop growing areas of tbe Pacific Northwest, but their effect on hop yields and quality is unknown. The HMV infection in USDA 19058M is latent, and disease symptoms cannot be detected visually. Progeny of a test cross made in 1983 were free of HMV, indicating that this virus is not readily transmitted by crossing.

USDA 19058M has been used successfully in the past as a pollinator in commercial Oregon hop yards for producing a seeded crop. In controlled crosses, USDA 19058M has consistently transmitted a moderately high alpha- and beta-acids content to its progeny with a alpha:beta ratio near 1, similar to European aroma hops. The cohumulone content of the seedling progeny has also been low, indicating that this trait is highly heritable. Most seedlings of USDA 19058M have been remarkable because of the high degree of vigor and a high yield potential of the female progeny.

The US Department of Agriculture in cooperation with the Oregon Agricultural Experiment Station released USDA 19058M for public use in March 1988. Planting stock of USDA 19058M will be maintained by the Oregon Agricultural Experiment Station in cooperation with the USDA, ARS National Clonal Germplasm Repository–Corvallis, OR.

ALFRED HAUNOLD* AND G. B. NICKERSON (2)

References and Notes

1. Likens, S.T., G.B. Nickerson, and C.E. Zimmermann. An index of deterioration in hops (*Humulus lupulus*). Proc. Am. Soc. Brew. Chem. 1970:68–74.
2. Alfred Haunold, USDA-ARS, Dep. Crop Science, and G.B. Nickerson, Dep. Agric. Chemistry, Oregon State Univ., Corvallis, OR 97331. Contribution of the USDA-ARS in cooperation with the Oregon Agric. Exp. Stn. Technical Paper no. 8493. Registration by CSSA. Accepted 30 May 1988. *Corresponding author.

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REGISTRATION OF GT-DDSA (C5) AND GT-DDSB (C5) MAIZE GERMPLASMS

THE yellow dent maize (*Zea mays* L.) germplasm populations GT-DDSA (C5) (Reg. no. GP-180) (PI 518769) and GT-DDSB (C5) (Reg. no. GP-181) (PI 518770) were developed by five cycles of reciprocal recurrent selection for ear-feeding resistance to the corn earworm, *Heliothis zea* (Boddie), and released by the USDA-ARS and the University of Georgia Agriculture Experiment Station in November 1987. The A population was derived from chain crosses among single crosses between the inbreds AB18, GE72, GT112, and F44. The B population was similarly developed from crosses among inbreds F6, L501, SC235, and F44. Two hundred fifty crosses per cycle were evaluated for each population. Plants obtained from remnant selfed seed of the 25 best performing parents in each population were intercrossed for recombinations to form the respective populations for successive cycles of selection.

GT-DDSA(C5) and GT-DDSB(C5) have white cob color, and kernels are light to medium yellow, although GT-DDSA(C5) has a small percentage of red cobs with medium to deep yellow kernels. GT-DDSA(C5) reaches anthesis and