

Table 1. Twelve root-knot resistant, nonphotoperiodic lines of cotton with primitive race germplasm and their recurrent parents.

Release no.	Line		Accession no. (T-)	Recurrent parent	
	Res. no.	PI no.		Race	Origin
M 27-RNR	GP-333	517927	27	<i>punctatum</i>	Chiapas, Mexico
M 28-RNR	GP-334	517928	28	<i>punctatum</i>	Chiapas, Mexico
M 75-RNR	GP-335	517929	75	<i>latifolium</i>	Guatemala
M 78-RNR	GP-336	517930	78	<i>latifolium</i>	Guatemala
M 19-RNR	GP-337	517931	19	<i>richmondii</i>	Chiapas, Mexico
M 22-RNR	GP-338	517932	22	<i>latifolium</i>	Chiapas, Mexico
M 25-RNR	GP-339	517933	25	<i>punctatum</i>	Chiapas, Mexico
M 26-RNR	GP-340	517934	26	<i>punctatum</i>	Chiapas, Mexico
M 70-RNR	GP-341	517935	70	<i>latifolium</i>	Guatemala
M 188-RNR	GP-342	517936	188	<i>latifolium</i>	Guatemala
M 487-RNR	GP-343	517937	487	<i>punctatum</i>	Yucatan, Mexico
M 495-RNR	GP-344	517938	495	<i>punctatum</i>	unknown

span length, fiber strength (T_1), elongation (E_1), micronaire, and seed index (weight of 100 seed) of a majority of the germplasm lines were comparable with those of DPL-16.

Small amounts of seed of these twelve lines are available for distribution to cotton geneticists and other research workers. Written requests should be addressed to R.L. Shepherd, USDA-ARS, Crop Science Research Laboratory, P.O. box 5367, Mississippi State, MS 39762-5367.

RAYMOND L. SHEPHERD, JACK C. MCCARTY, JR., JOHNIE N. JENKINS,* AND WILLIAM L. PARROTT (4)

References and Notes

1. Anonymous. 1974. The regional collection of *Gossypium* germplasm, USDA-ARS. H-2.
2. Shepherd, R.L. 1983. Indices of resistance to root-knot nematodes for primitive race stocks of upland cotton. USDA-ARS ARM-S-33.
3. ———. 1983. New sources of resistance to root-knot nematodes among primitive cottons. *Crop Sci.* 23:999-1002.
4. USDA-ARS, Crop Sci. Res. Lab., P.O. Box 5367, Mississippi State, MS 39762-5367. Joint contribution of USDA-ARS and Mississippi Agric. and Forestry Exp. Stn., Mississippi State, MS. Registration by CSSA. Accepted 30 Mar. 1988. *Corresponding author.

Published in *Crop Sci.* 28:868-869 (1988).

REGISTRATION OF THREE NONCOMMERCIAL GERMPLASM LINES OF UPLAND COTTON TOLERANT TO TOBACCO BUDWORM

THREE cotton, *Gossypium hirsutum* L., germplasm lines MHR-10 (Reg. no. GP-345)(PI 517939) MHR-11 (Reg. no. GP-346) (PI 517940), and MHR-12 (Reg. no. GP-347) (PI 517941) tolerant to the tobacco budworm (TBW), *Heliothis virescens* F., were released by the USDA-ARS and the Mississippi Agricultural and Forestry Experiment Station in 1987. Tolerance to TBW was measured by comparing yield of cotton from plots infested with TBW with similar ones where all insects were controlled.

These three germplasm lines were developed from a backcross of (MOHG \times 'DES 24') \times MOHG. The MOHG line (tolerant of TBW) was obtained from W.P. Sappenfield and has Socorro Island wild in its parentage, which is also tolerant to TBW. MOHG has small bolls, low lint percentage, low yield potential, and lodges excessively. DES 24, a cultivar (1) has opposite traits.

Each of these germplasm lines is more tolerant to TBW than the susceptible cultivar 'Stoneville 213' (ST 213). Eval-

uations for tolerance to TBW were made under infestation levels which reduced lint yields of ST 213 by 508 and 1085 kg ha⁻¹ in 1985 and 1986, respectively. The lint lost in the tolerant germplasm lines ranged from 248 to 402 kg ha⁻¹ in 1985 and from 798 to 954 kg ha⁻¹ in 1986.

Lint percentage of each germplasm line is 2 to 4% less than ST 213; however, boll size, micronaire, 50% span length and elongation are similar to those of ST 213. Fiber length (2.5% span length) of MHR-10 is 1 mm longer, MHR-11 is 1 mm shorter and MHR-12 is equal to that of ST 213. MHR-10 is significantly stronger (249 vs. 203 kNm kg⁻¹ T1 fiber strength) than ST 213, whereas the other two are similar in strength to ST 213. When artificially infested with TBW larvae, each of these lines yielded more than ST 213 and when protected from all insects each yielded similar to ST 213. These germplasm lines should be useful for developing cultivars with increased tolerance to TBW.

Small amounts of seed of each of these lines are available for distribution to cotton breeders and other research workers upon written request to Johnie N. Jenkins, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762-5367.

JOHNIE N. JENKINS,* W. L. PARROTT, J. C. MCCARTY, JR., AND R. L. SHEPHERD (2)

References and Notes

1. Bridge, R.R. and J.F. Chism. 1978. Registration of DES 24 cotton. *Crop Sci.* 18:523-524.
2. USDA-ARS, Crop Sci. Res. Lab., P.O. Box 5367, Mississippi State, MS 39762. Mississippi Agric. and Forestry Exp. Stn. Publ. no. 6746, Mississippi State, MS. Registration by CSSA. Accepted 30 March 1988. *Corresponding author.

Published in *Crop Sci.* 28:869 (1988).

REGISTRATION OF THREE NONCOMMERCIAL GERMPLASM LINES OF UPLAND COTTON TOLERANT TO TOBACCO BUDWORM AND TARNISHED PLANT BUG

THREE cotton, *Gossypium hirsutum* L., germplasm lines MHR-14 (Reg. no. GP-348) (PI 517942) MHR-15 (Reg. no. GP-349) (PI 517943), and MHR-16 (Reg. no. GP-350) (PI 517944) tolerant to the tobacco budworm (TBW), *Heliothis virescens* F., and the tarnished plant bug (TPB), *Lygus lineolaris* Palisot de Beauvois, were released by USDA-ARS and the Mississippi Agricultural and Forestry Experiment Station in 1987.

These germplasm lines were developed from a cross of TIMOK 811 \times 'Stoneville 213' (ST 213). TIMOK 811 is an accession (SA 1082) from the obsolete variety collection that is tolerant to the TPB (1), but has relatively poor fiber quality. ST 213 is also tolerant to TPB.

Tolerance was measured by comparing yield of cotton from plots artificially infested with TBW with those where all insects were controlled. Tolerance to TPB was measured by boll set when progeny rows were exposed to high populations of TPB developed on a nurse crop of garden mustard, *Brassica juncea* (L.) (2).

Each of the germplasms lost significantly less lint to TBW than ST 213. Lint losses were 650, 417, and 974 kg ha⁻¹ for ST 213 in 1984, 1985 and 1986. Losses in these tolerant germplasm lines ranged from 83 to 246 kg ha⁻¹ in 1984, from 21 to 138 kg ha⁻¹ in 1985 and from 653 to 700 kg ha⁻¹ in 1986.

Yields of the MHR-14 and MHR-16 were significantly less than ST 213 when grown without any insects. MHR-15 is the highest yielding of the three germplasms and produces similar yield to that of ST 213 when insects are controlled. Fiber length of these germplasm lines is 2 to 3 mm shorter than ST 213; however, strength, elongation, micronaire, and boll size are comparable to this cultivar. MHR-15 is equal to ST 213 in lint percentage, but MHR-14 and MHR-16 are about 1.5% lower.

These three germplasms tolerant to TBW and TPB should be useful in developing cultivars with increased tolerance to these major cotton pests.

Small amounts of seed of each of these lines are available for distribution to cotton breeders and other research workers upon written request to Johnnie N. Jenkins, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762-5367.

JOHNNIE N. JENKINS,* W. L. PARROTT, J. C. MCCARTY, JR.
AND R. L. SHEPHERD (3)

References and Notes

1. Jenkins, J.N., J.C. McCarty and W.L. Parrott. 1977. Inheritance of resistance to tarnished plant bugs in a cross of Stoneville 213 by Timok 811. p. 97. J.M. Brown (ed.). In Proc. Beltwide Cotton Prod. Res. Conf. 10-12 Jan. 1977. National Cotton Council, Atlanta, GA.
2. Jenkins, J.N., W.L. Parrott, J.C. McCarty, and Larry Latson. 1977. Evaluation of cotton, *Gossypium hirsutum* L., lines for resistance to tarnished plant bug, *Lygus lineolaris*. Tech. Bull. 89, Mississippi Agric. and Forestry Expt. Stn.
3. USDA-ARS, Crop Sci. Res. Lab., P.O. Box 5367, Mississippi State, MS 39762. Mississippi Agric. and Forestry Exp. Stn. Publ. no. 6745, Mississippi State, MS. Registration by CSSA. Accepted 30 Mar 1988. *Corresponding author.

Published in Crop Sci. 28:869-870 (1988).

REGISTRATION OF TWO NONCOMMERCIAL GERMPLASM LINES OF UPLAND COTTON TOLERANT TO TOBACCO BUDWORM

Two cotton, *Gossypium hirsutum* L., germplasm lines MHR-17 (Reg. no. GP-351) (PI 517945), MHR-18 (Reg. no. GP-352) (PI 517946) tolerant to the tobacco budworm (TBW), *Heliothis virescens* F., were released by the USDA-ARS and the Mississippi Agricultural and Forestry Experiment Station in 1987. Tolerance in these lines is expressed as the ability to produce harvestable bolls in the presence of an artificially induced infestation of TBW larvae. Tolerance was measured by comparing yield of cotton from plots infested with TBW with that from similar plots where all insects were controlled.

MHR-17 and MHR-18 were developed after extensive selection in JPM-781-69-3 (1) for tolerance to TBW. MHR-17 and MHR-18 are more tolerant to TBW than the susceptible check 'Stoneville 213' (ST 213). Under artificial infestations lint lost to TBW was 845 kg ha⁻¹ for ST 213 and 717 and 632 kg ha⁻¹ for MHR-17 and MHR-18 respectively. Yields were 1086, 1080, and 1235 kg ha⁻¹ for ST 213, MHR-17, and MHR-18 when insects were controlled and 241, 518, and 449 kg ha⁻¹, respectively, when tobacco budworms were infested in the plots. Thus, these germplasms produced lint yields equal to ST 213 when insects were controlled and about twice as much lint as ST 213 when infested with TBW. Lint percent, fiber, and boll properties of these germplasm lines are similar to those of ST 213.

Since the original release of JPM-781-69-3 was highly resistant to fusarium wilt caused by *Fusarium oxysporum* (sp) Schlecht. *f.vasinfestum* (Atk) Snyder and Hans, we expect MHR-17 and MHR-18 are also resistant; however, they have not been tested. These germplasms should be useful for developing cultivars with increased tolerance to TBW.

Small amounts of seed of each of these lines are available for distribution to cotton breeders and other research workers upon written request to Johnnie N. Jenkins, Crop Science Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762-5367.

JOHNNIE N. JENKINS,* W. L. PARROTT, J. C. MCCARTY, JR.
AND R. L. SHEPHERD (2)

References and Notes

1. Jenkins, J.N., J.C. McCarty and W.L. Parrott, and A.J. Kappelman, Jr. 1979. Registration of 11 cotton germplasms. Crop Sci. 19:932-933.
2. USDA, ARS, Crop Sci. Res. Lab., P.O. Box 5367, Mississippi State, MS 39762. Mississippi Agric. and Forestry Exp. Stn. Publ. no. 6747, Mississippi State, MS. Registration by CSSA. Accepted 30 Mar. 1988. *Corresponding author.

Published in Crop Sci. 28:870 (1988).

REGISTRATION OF DWARF TIFT N75 NAPIERGRASS GERMPLASM

TIFT N75 napiergrass (*Pennisetum purpureum* Schum.) (Reg. no. GP-55) (PI 517947) was developed cooperatively by USDA-ARS and the University of Georgia Coastal Plain Experiment Station at Tifton, GA. It was released by the two agencies in March 1986.

Tift N75 was selected in 1977 from among a selfed progeny of 'Merkeron' napiergrass, a tall hybrid selected from a dwarf × tall napiergrass cross made in 1941 by G.W. Burton. Tift N75 is heterozygous and does not breed true from seed so it has been vegetatively maintained in the field since 1977. Nondefoliated plants have survived each winter at Tifton, GA from 1977 to 1987. The lowest 1.5 m air temperature and 5 cm soil temperature were -22 °C and -2 °C, respectively, recorded in January 1985. Seventy-five percent of plants vegetatively propagated on 22 June 1984 and defoliated 9 Sept. 1984 survived the 1984 to 1985 winter. Survival of Tift N75 was equal to that of Merkeron, one of the most cold tolerant napiergrass cultivars.

Tift N75 will grow to an uncut vegetative height of 1.6 m compared to 4.0 m for Merkeron. Eight week forage regrowth from 26 August to 21 November had 74% leaf in Tift N75 compared to 46% leaf for Merkeron. Stem percent in vitro dry matter digestibility (IVDMD) of the 8-wk-old forage was 58% for Tift N75 and 50% for Merkeron while leaf percent IVDMDs were equal for the same forage from both cultivars, because of its dwarf growth habit, Tift N75 produced one-third as much total dry matter per unit area as Merkeron and some of the more vigorous tall cultivars in 1984 and 1985 yield trials.

Tift N75 is an excellent source of dwarfing genes controlling height in napiergrass and should be useful in breeding programs for producing high quality leafy napiergrass cultivars that are easy to manage. Tift N75 also has potential as a low-management cultivar that produces high quality forage. It has $2n = 4x = 28$ chromosomes and is male and female fertile. It is short-day sensitive and will not flower at Tifton, GA before frost (usually mid-November) but will flower at Gainesville, FL and at points further south.