

MN-76 was developed from a four-clone double cross (R302xR304) × (R328xR332). The two single crosses were made in the greenhouse in 1973-1974. The double cross was made in the field at Rosemount, Minn. by interplanting alternate single-cross plants in 1976. Seed harvested from the double cross constitutes the germplasm. Clones R302, R304, and R332 trace to open pollination progenies of PI 234780 (W. Germany), and PI 252537 and PI 253316 (Yugoslavia), respectively, whereas R328 was a progeny from a plant (73A-3) selected at the University of Minnesota by A.B. Simons and which traced to a field selection made near Waseca, Minn. by R.C. Kalton. Selection criteria for the parental clones of MN-76 were indole alkaloid type and concentration, forage quality, anthesis date, and plant vigor. All four parental clones contained gramine, a simple recessive indole alkaloid derived from the amino acid tryptophan, and they were free of dimethyl tryptamines, 5-methoxy tryptamines, and β -carbolines. Between 1977 and 1981 the two single crosses, MN-76, and available reed canarygrass cultivars were evaluated in the field at Rosemount as spaced plants and as solid-seeded plots and in the greenhouse. The single crosses and MN-76 were low in total indole alkaloid concentration and they were exclusively of the gramine type.

At no time did the total indole alkaloid concentration of MN-76 exceed 57% that of the available U.S. cultivars, and frequently MN-76 contained less than 30% as much alkaloid as other cultivars. MN-76 contains predominantly gramine with occasional traces of N-monomethyl-tryptamine of the eight indole alkaloids that are known to occur in reed canarygrass.

In Minnesota forage yield tests, MN-76 yielded up to 16% less dry matter per unit area than 'Rise' and up to 9% less than 'Vantage.' However, in Indiana, MN-76 yielded as well as Rise and Vantage. Its heading date was similar to that of 'Flare' (about 4 days earlier than that of Vantage and Rise). At heading, with high fertility and good moisture availability, the average leaf blade width of MN-76 was about 3mm narrower than that of Rise and Vantage. MN-76 is a moderate seed producer. In 4 harvest years it produced about 60% as much seed as Rise and Vantage. In Minnesota grazing trials, ruminants gained more weight when they grazed second and third crops of MN-76 compared to Rise (lambs and steers) or Vantage (lambs) when conditions allowed maximum expression of alkaloid concentration (up to 2.5g kg⁻¹ dry wt in MN-76 and up to 5.0g kg⁻¹ dry wt in Rise or Vantage). Incidence of diarrhea among grazing lambs was as much as 26 times greater with Rise than with MN-76⁽¹⁾.

Up to 500 g of seed of MN-76 are available to each applicant upon written request and agreement to make appropriate recognition of its source as a matter of open record when the germplasm contributes to the development of a new cultivar or hybrid. Request seed from either Laddie J. Elling or Donald K. Barnes, Dep. of Agronomy and Plant Genetics, Univ. of Minnesota, 1509 Gortner Avenue, St. Paul, MN 55108.

A. W. HOVIN AND G. C. MARTEN

References and Notes

1. Marten, G.C., R.M. Jordan, and A.W. Hovin. 1981. Improved lamb performance associated with breeding for alkaloid reduction in reed canarygrass. *Crop Sci.* 21:295-298.
2. Associate director, Montana Agric. Exp. Stn., Bozeman, MT 59717 (formerly professor, Dep. of Agronomy and Plant Genetics, Univ. of Minnesota, St. Paul, MN 55108) and research agronomist, USDA-ARS and professor of Agronomy, Dep. of Agronomy and Plant Genetics, Univ.

of Minnesota, St. Paul, MN 55108. Registration by the Crop Sci. Soc. of Am.; Joint contribution of the Minnesota Agric. Exp. Stn. (Journal Series Paper no. 13 333) and USDA-ARS. Accepted 2 May 1983.

THREE FUSARIUM WILT RESISTANT, OKRA-LEAF COTTON GERMPLASMS

THREE okra-leaf cotton (*Gossypium hirsutum* L.) lines, Auburn 72 OK-4 (GP 218), Auburn 72 OK-8 (GP 219), and Auburn 72 OK-14 (GP 220) with resistance to fusarium wilt caused by *Fusarium oxysporum* Schlecht. f. *vasinfectum* (Atk.) Syd. & Hans. and root-knot nematode (*Meloidogyne* spp.) were developed and released cooperatively by USDA-ARS and the Alabama Agricultural Experiment Station in 1982.

Auburn 72 OK-4 originated from an F₂ selection from the cross (K₄E × Auburn okra-leaf) × (K₄E × 'Hopicala'). Auburn 72 OK-8 and Auburn 72 OK-14 were developed from F₂ selections from the cross [(K₄E × 'Auburn 56') BC₄ × Auburn okra-leaf]. K₄E is a selection from a cross between Knight's BAR 4/16 × 'Empire' followed by three backcrosses to Empire, and was developed by L. S. Bird. Auburn 56 was derived from Cook 307-7, while Auburn okra-leaf originated from a backcross transfer of the okra-leaf trait into Auburn 56 by A. L. Smith. The number of backcrosses and sources of the okra-leaf trait used in this conversion program are unknown. Hopicala originated from crosses of the native Hopi Indian cotton and an Acala variety.

Auburn 72 OK-4, -8, and -14 were selected for wilt resistance on soil highly infested with fusarium wilt and root-knot nematodes at Tallassee, Ala. Fiber properties and fusarium wilt resistance of these lines are comparable or superior to those of the check, 'Stoneville 603'. The lint turnout of these lines is lower than that of Stoneville '603'; however, their mean lint yields were comparable to that of this check when grown on wilt-free soil over a 5-year period.

Small amounts of seed of these lines are available upon written request, as long as present supplies last. Requests should be addressed to the Crop Science Res. Unit, USDA-ARS, Dep. of Agronomy and Soils, Auburn University, AL 36849.

A. J. KAPPELMAN, JR.

References and Notes

1. Research plant pathologist, USDA-ARS, Auburn University, AL 36849. Registration by Crop Sci. Soc. of Am. Cooperative investigations of USDA-ARS and Alabama Agric. Stn., Auburn University, AL 36849. Accepted 25 Apr. 1983.

FOUR DISEASE-RESISTANT COTTON GERMPLASMS

FOUR disease-resistant cotton (*Gossypium hirsutum* L.) lines; Auburn 73B-1 (GP221), Auburn 73B-2 (GP222), Auburn 73B-5 (GP223), Auburn 73B-12 (GP224) were developed and released cooperatively by the USDA-ARS and the Alabama Agricultural Experiment Station in 1982.

These lines were derived from individual F₃ plant selections from the cross (K₄E × Auburn 56-5) × 79N. K₄E is a selection made by L. S. Bird from a cross between Knight's BAR 4/16 × 'Empire' followed by three backcrosses to Empire. K₄E has both the B₂ and B₃ genes for resistance

to bacterial blight (*Xanthomonas malvacearum* (E. F. Sm.) Dows.). Auburn 56-5 is a line selection made by A. L. Smith from 'Auburn 56' and contains excellent resistance to fusarium wilt (*Fusarium oxysporum* Schlecht. f. *vasinfectum* (Atk.) Snyder & Hans.). 79N was a selection from the same breeding stock as 'Tancot SP 21' and possessed the B₂, B₃, and B₇ genes for resistance to bacterial blight. This line was then advanced for 3 years at Tallahassee, Ala. following annual selection for resistance to the fusarium wilt-root-knot nematode complex.

Auburn 73B-1, -2, -5, and -12 are all resistant to the fusarium wilt-root-knot nematode complex under field conditions at Tallahassee. In addition, these lines are resistant to races 1, 2, 6, 7, 10, and 18 of bacterial blight under field conditions following artificial inoculation. Lint yields of these lines were equal to those of 'Stoneville 603' although all these had a lower lint percentage. Fiber properties of these lines were equal or superior to those of Stoneville 603.

Small amounts of seed of these lines are available, upon written request, as long as present supplies last. Requests should be addressed to the Crop Science Research Unit, USDA-ARS, Dep. of Agronomy and Soils, Auburn University, Alabama 36849.

A. J. KAPPELMAN, JR.

References and Notes

1. Bird, L. S. 1976. Registration of Tancot SP 21, Tancot SP 23, and Tancot SP 37 cottons. *Crop Sci.* 16:884.
2. Research plant pathologist, USDA-ARS, Auburn University, AL 36849. Registration by the Crop Sci. Soc. of Am. Cooperative investigations of USDA-ARS, and Alabama Agric. Exp. Stn., Auburn University, AL 36849. Accepted 2 May 1983.

EIGHT GERmplASM LINES OF PEA RESISTANT TO PEA SEEDBORNE MOSAIC VIRUS

EIGHT germplasm lines of pea (*Pisum sativum* L.) (Reg. No. GP23 to GP30) resistant to pea seedborne mosaic virus (PSbMV) were developed cooperatively by USDA-ARS and the Washington Agriculture Research Center. The eight lines, developed by recurrent backcrossing, were released in February 1981. Recurrent parents were 'Scout', 'Tracer', 'Garfield', 'Alaska 4683', 'Campbells Scotch', 'Latah', 'Alaska', and 'Dark Skin Perfection'. The nonrecurrent parent, 'WIS 7105', carried the *sbm* gene for resistance to the virus (1,2). Initial crosses were made in 1975. Brief descriptions of the lines are as follows:

X78122 (GP23) is a BC₄ PSbMV-resistant derived line like its recurrent parent, Scout. It is a wrinkle-seeded canner with white flowers, yellow cotyledons, double pods, and it blooms in the 12th node. Like Scout, it has exceptionally dark green foliage.

X78123 (GP24) is a BC₄ PSbMV-resistant derived line like Tracer, its recurrent parent. It has smooth seeds of a dry edible type, white flowers, green cotyledons, triple pods, and it blooms in the 13th node.

X78124 (GP25) is a BC₄ PSbMV-resistant line derived by using Garfield as the recurrent parent. Like Garfield, X78124 is a large smooth-seeded dry edible type with white flowers, green cotyledons and single or double pods, and it blooms in the 14th node.

X78125 (GP26) is a BC₄ PSbMV-resistant line derived by using Alaska 4683 as the recurrent parent. Like Alaska 4683, X78125 is a wrinkle-seeded canner with white flow-

ers and green cotyledons. It is single or double podded and blooms in the ninth node.

X78126 (GP27) is a BC₄ PSbMV-resistant line derived by using Campbells Scotch as the recurrent parent. Like Campbells Scotch, X78126 is a smooth-seeded dry edible type with white flowers and dark green cotyledons. The line is predominantly single podded and blooms in the ninth node.

X78127 (GP28) is a BC₄ PSbMV-resistant line derived by using Latah as the recurrent parent. Like Latah, X78127 is a smooth-seeded dry edible type with white flowers and yellow cotyledons. The line blooms in the 14th node and is primarily single podded.

X78128 (GP29) is a BC₄ PSbMV-resistant line derived by using common Alaska as the recurrent parent. Like common Alaska, X78128 is a smooth-seeded dry edible type with white flowers and green cotyledons. The line blooms in the 9th or 10th node and produces both single and double pods.

X78006 (GP30) is a BC₃ PSbMV-resistant line derived by using Dark Skin Perfection as the recurrent parent. Like Dark Skin Perfection, X78006 is a wrinkle-seeded freezer with white flowers and green cotyledons. The line blooms in the 14th node and is single and double podded.

Small samples of seed are available upon request from USDA-ARS, Legume Breeding and Production Research Unit, 215 Johnson Hall, Washington State Univ., Pullman, WA 99164. Recipients of the germplasm are requested to acknowledge its source when it contributes to the development of a new cultivar or other improved germplasm.

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References and Notes

1. Hagedorn, D. J. and E. T. Gritton. 1971. Registration of Wisconsin 7105 and 7106 pea germplasm. *Crop Sci.* 11:945-946.
2. ———, and ———. 1973. Inheritance of resistance to pea seed-borne mosaic virus. *Phytopathology* 63:1130-1133.
3. Research geneticist, USDA-ARS, Dep. of Agronomy and Soils, Washington State Univ., Pullman, WA 99164. Registration by the Crop Sci. Soc. of Am. Cooperative investigations of the USDA-ARS and Washington State Univ. College of Agric. Res. Center. Scientific Paper no. 6296. Project 1790.

F334A-B-14 PEANUT GERmplASM

F334A-B-14 (*Arachis hypogaea* L.) (Reg. No. GP 32) was developed and released cooperatively by USDA-ARS, and the Georgia and Florida Agriculture Experiment Stations. The genotype has resistance to diploid collar rot caused by *Diplodia gossypina* Cooke. The disease, found throughout the world wherever peanut is grown, occurs sporadically in the southeastern United States. A yield reduction of 1% has been estimated, and mortality rates of 25%, or more, have occurred in isolated fields (4, 5).

F334A-B-14 was developed by pedigreed selection from a cross of breeding lines Georgia 207-3 and F230-118-2-2. Ga. 207-3, a spanish-type developed for oil production from the crosses 'Basse' × 'Spanish 18-38', was dropped for the edible peanut trade because of its bland flavor (3). F230-118-2-2 was derived from the cross of 'Dixie Giant' × 'Small White Spanish'.

F334A-B-14 is one of four component lines of the 'Flor-span Runner' cultivar. It has pods and seeds that are predominantly spanish type in characteristics, and plants are runner in growth habit (1).

F334A-B-14, four other related peanut genotypes, and