MN-76 was developed from a four-clone double cross \((R302 \times R304) \times (R328 \times R332)\). The two single double 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 \(\beta\)-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.

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 A.B. Simons of Minnesota, St. Paul, MN 55108. Registration of Am.; Joint contribution of the Minnesota Agr. Exp. Series Paper no. 13 335) and USDA-ARS. Accepted April 25, 1983.

## THREE FUSARIA WILT RESISTANT, OKRA-LEAF COTTON GERMPLASMS

Three okra-leaf cotton \((Gossypium hirsutum\ L.\)

Three okra-leaf cotton \((Gossypium hirsutum\ L.)\) lines; [K4E X Auburn 56-5) X 79N. E is a selection from the cross \((K4E \times \text{Auburn okra-leaf}) \times (K4E \times 'Hopicala'). K4E is a selection from Knight's BAR 4/16 \times 'Empire', backcrosses to Empire, and was developed by L. S. Bird. Auburn 72 OK-4 from \(F_2\) selections from the cross \([K4E \times BC_4 \times \text{Auburn okra-leaf}]. K4E is a selection from Knight's BAR 4/16 \times 'Empire', backcrosses to Empire, and was developed by L. S. Bird. Auburn 72 OK-4, -8, and -14 were selected from the cross \((K4E \times \text{Auburn okra-leaf}) \times (K4E \times 'Hopicala'). K4E is a selection from Knight's BAR 4/16 \times 'Empire', backcrosses to Empire, and was developed by L. S. Bird. 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 Unit, USDA-ARS, Dep. of Agronomy and Soils, Auburn, AL 36849.

A. J. KAPPELMAN, JR.

## References and Notes