Disease Reaction of Sorghum Hybrids to Infection by Maize Dwarf Mosaic Virus Strain A

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Maize dwarf mosaic of sorghum, *Sorghum bicolor* (L.) Moench, is caused by maize dwarf mosaic virus (MDMV). Infection of sorghum by MDMV produces variable symptoms depending on virus strain, plant genotype, and temperature. Infection causes a yellow to dark green pattern (mosaic) and, on certain genotypes, a necrotic reaction (red-leaf) develops when the temperature drops below 21°C (69°F). Hybrids expressing the mosaic reaction when the temperature drops show less reduction in yield than plants with red-leaf symptoms. Immunity to MDMV is not present in commercially available hybrid sorghums tested.

**Procedure**

Studies were conducted at the Fort Hays Experiment Station. All sorghum hybrids were tested under both greenhouse and field conditions. In greenhouse tests, sorghum hybrids were planted in metal flats with 15 seeds/entry and 33 entries/flat. Seedlings were inoculated in the two-leaf stage with a Devilbiss atomizer (7.0 kg/cm² - 100 lbs/in² air pressure). Inoculated plants were maintained at 27 ± 4°C (80 ± 4°F) in the greenhouse. Control plants, inoculated with buffer and abrasive only, were maintained in the same environment.

The presence of mosaic symptoms was noted 14 days following inoculation. Test plants were then
placed in a growth chamber at 15°C (59°F). Four days later plants were returned to the greenhouse and the presence of red-leaf symptoms was noted. Greenhouse tests were repeated three times.

Field-grown plants in the two- to three-leaf stage were inoculated with a Devilbiss EGA-502 spray gun attached to a 3.5L (1 gal) inoculum reservoir. Compressor line pressure was maintained at 7.0 kg/cm² (100 lbs/in²). Notes on red-leaf development were recorded at weekly intervals during the growing season beginning 2 weeks after inoculation. Planting was delayed until late June to assure cool temperatures for induction of red-leaf necrosis.

**Results**

Reactions of all hybrids tested are shown in the following table. Symptoms in sorghum other than those described may be due to infection by the B-strain of MDMV.

**Acknowledgements**

This research was partially funded by a grant from the Kansas Sorghum Commission.

Yield data for sorghum hybrids used in this study can be found in Report of Progress 465, 1984 Kansas Sorghum Performance Tests.
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*Disease reactions are the same for both field and greenhouse tests.*

*M=Mosaic  RL=Red Leaf*