



Keeping
Up With
Research

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**FIELD SYMPTOM-RESPONSE
OF SORGHUM HYBRIDS
INFECTED BY MAIZE DWARF
MOSAIC VIRUS**

D.L. Seifers and K.D. Kofoid*

Sorghum (*Sorghum bicolor* (L.) Moench) that is infected by maize dwarf mosaic virus (MDMV) expresses different symptoms depending on plant genotype and temperature. Infection causes a yellow to dark green pattern (mosaic), and a necrotic reaction (red-leaf) develops on certain genotypes when the temperature drops below approximately 21 °C (69°F). Hybrids expressing the red-leaf symptom show a greater reduction in yield. Immunity to MDMV is not present in commercially available hybrid sorghums.

Procedures

Studies were conducted at the Kansas State University Agricultural Research Center-Hays to determine symptom response of sorghum hybrids infected by MDMV under field conditions (2 years of testing). Sorghum seed was planted in 6.1 m rows. When at the two- to three-leaf stage, plants in half of each row were inoculated, and plants in the remaining half of the row served as healthy controls. Plants were inoculated with a Devilbiss EGA-502 spray gun attached to a 3.5 L (1 gal) inoculum reservoir. Compressor line pressure was maintained at 7.0 kg/cm² (100 lbs/h²). Symptom notes were recorded at biweekly intervals during the growing

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Marc A. Johnson, Director

season beginning 2 weeks after inoculation. Planting was delayed until late June to assure cool temperatures for induction of red-leaf necrosis.

Results

Field symptoms of hybrids are shown in Table 1. Symptoms of the sorghums to infection are given as M=mosaic reaction with no necrosis, NSp=necrotic spots (least severe RL reaction), NS=necrotic streaks often coalescing to form large irregularly shaped necrotic areas on the leaf, and RL=entire leaf necrotic (most severe necrotic reaction). Data so far indicate that sorghum hybrids having the M reaction suffer less yield loss than plants developing necrosis (RL types).

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Note: Trade names are used to identify products. No endorsement is intended, nor is any criticism implied of similar products not mentioned.

* Plant pathologist and sorghum breeder, respectively, KSU Agricultural Research Center-Hays, 1232 240th Ave., Hays, KS 67601-9228.

Table 1. Field Symptom-Response of Sorghum Hybrids to Infection by Maize Dwarf Mosaic Virus

Brand	Hybrid	Symptom Response
Agrigene	AG2470W	NS
Agrigene	AG2505	M
Agrigene	AG2725	M
Agripro	AP 9250	RS
Agripro	AP 9830	RS
Agripro	AP 9850	M
Agripro	ST 686	M
Agripro	ST D701G	M
Asgrow	A504	M
Asgrow	Madera	M
Asgrow	Osage	M
Asgrow	Seneca	M
Asgrow	Topaz	M
Cargill	1099	M
Cargill	575	NS
Cargill	607E	M
Cargill	618Y	M
Cargill	630	NS
Cargill	837	M
Cargill	847	M
Casterline	SR 305	M
Casterline	SR 314EC	M
Casterline	SR 315E	M
Casterline	SR 319E	M
Casterline	SR 324E	M
Dekalb	DK-39Y	M
Dekalb	DK-40Y	M
Dekalb	DK-41Y	M
Dekalb	DK-48	M
Dekalb	DK-56	M
Dekalb	DK-66	M
Dekalb	M-572	M
Delange	DSA 117	M
Delange	DSA 121	M
Delange	DSA 131	M
Delange	DSA 141C	NS
Delange	DSA 922	M
Deltapine	1506	M
Deltapine	G-1492	M
Deltapine	G-1616	NS
Deltapine	G-1655	M
Deltapine	G-550E	M
DyNA	DN 31	M
Fontanelle	5550	M
Fontanelle	5590	M
Fontanelle	W 5000	NS
Garrison	SG-651	M
Garrison	SG-821	NS
Garrison	SG-942	M
Garst	5319	M
Garst	5392	M
Garst	5503	M
Garst	5511	M

Brand	Hybrid	Symptom Response
Garst	5522Y	NS
Garst	5681	NS
Golden Acres	T-E 76	M
Golden Acres	T-E 77-E	M
Golden Acres	T-E Dinero	M
Golden Acres	T-E Eden	M
Golden Acres	T-E Rio	M
Golden Acres	T-E Wahoo	M
Golden Acres	T-E Y-60	NS
Golden Acres	T-E Y-75	M
Golden Acres	T-E Y-101G	M
Golden Harvest	H-388W	NS
Golden Harvest	H-444W	M
Golden Harvest	H-514B	M
Golden Harvest	H-515E	M
GRI	890111	RL
Groagri	GSC 1214	NS
Groagri	GSC 1313	M
Groagri	GSC 3146	M
Groagri	GSC 3148	M
Groagri	GSC 3150	M
Groagri	GSC 3159	M
Groagri	GSC 3605	M
Hoegemeyer	6636	M
Hoegemeyer	671	RL
Hoegemeyer	6744	RL
Hoegemeyer	6878	M
Hoegemeyer	688	M
Horizon	200Y	NS
Horizon	213Y	NS
Horizon	216G	M
Horizon	76G	M
Hyperformer	1255 DR	M
Hyperformer	Honcho	M
Hyperformer	HSC 1289C	M
Hyperformer	HSC Cherokee	M
Jacques	211	M
Jacques	377-W	NS
Jacques	411	M
Jacques	606E	M
NC+	270	M
NC+	371	NS
NC+	472	NS
NC+	7B81	NS
NC+	7C49	NS
NC+	Y363	M
Northrup-King	2656	M
Northrup-King	KS-383Y	M
Northrup-King	KS-555Y	NS
Northrup-King	KS-710	M
Northrup-King	KS-714Y	NS
Northrup-King	KS-737	M
Northrup-King	S-9740Y	NS
Northrup-King	S 9750	M
Ohlde	120C	NS
Ohlde	134	M

Brand	Hybrid	Symptom Response
Ohlde	139A	M
Ohlde	140W	NS
Ohlde	246y	M
Oro	Alpha	M
Oro	Amigo	M
Oro	Baron	M
Oro	Edge	M
Oro	G XTRA	M
Oro	Hombre	M
Oro	Ivory	NS
Oro	Ultra	M
Pioneer	8231Y	M
Pioneer	8260	NS
Pioneer	8358	NSp
Pioneer	8379	NS
Pioneer	8500	M
Pioneer	8536Y	M
Pioneer	8557Y	M
Pioneer	8601	M
Pioneer	8696Y	M
Pioneer	8699	RL
Pioneer	8771	M
SSI	SBPO01	M
SSI	SBPO05	M
SSI	SBPO11	M
Stine	SM 68 BR	M
Stine	SM 69	M
Stine	SM 74	M
Stine	SM 75R	M
Terra	TR 4580	M
Terra	TR 4620	M
Terra	TR 4637Y	RL
Triumph	TR 46	M
Triumph	TR 50yG	M
Triumph	TR 58Y	M
Triumph	TR 60-G	M
Triumph	TR 65-G+	NSp
Triumph	TR 74CR	NS
Triumph	TWO 64yG	M
Triumph	TWO 80-D	M
Warner	W-624-Y	M
Warner	W-625-Y	M
Warner	W-902-W	M
Warner	W-917-E	M
Wilson	515W	NS
Wilson	522W	NS
Wilson	535Y	M
Wilson	622E	M

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Agricultural Experiment Station
Kansas State University
Manhattan 66506-4008

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