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Ratings of Commercial Grain Sorghum Hybrids to the Maize Dwarf Mosaic Virus

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72

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Number/company/hybrid	Maize dwarf mosaic virus
1. Browning Challenger XX	Intermediate
2. Browning Golden 865	Tolerant
3. Browning GS 7372	Very tolerant
4. Cargill 662	Tolerant
5. Cargill 1022	Susceptible
6. Cargill 1099	Intermediate
7. Cargill 2250	Susceptible
8. Cargill 4432	Intermediate
9. Cargill 4433	Intermediate
10. Cargill 4462	Susceptible
11. Cargill 4474	Susceptible
12. Cargill 5514	Intermediate
13. Cargill 5665	Intermediate
14. Cargill 6658	Tolerant
15. Cargill C 55	Susceptible
16. Cargill C 60	Tolerant
17. Cargill D 70	Intermediate
18. Cargill DR 1035	Tolerant
19. Cargill DR 1075	Very tolerant
20. Cargill GR 108	Intermediate
21. Cargill GR 1018	Very tolerant
22. Cargill GR 1138	Tolerant
23. Cargill R 109A	Intermediate
24. Cargill R 1090	Intermediate
25. Coker C-7605	Intermediate
26. Coker C-7623	Intermediate
27. Coker C-7638	Tolerant
28. Coker C-7675	Tolerant
29. Coker C-7723	Susceptible
30. Coker C-7737	Susceptible
31. Conlee Pronto	Tolerant
32. Conlee Quickee	Intermediate
33. Conlee Rawhide	Intermediate
34. Conlee Top Hand II	Intermediate
35. Conlee Top Hand TA	Susceptible
36. DeKalb D-42a	Intermediate
37. DeKalb D-42y+	Intermediate
38. DeKalb D-55	Tolerant
39. DeKalb DK-38	Intermediate
40. DeKalb DK-43	Intermediate
41. DeKalb DK-45	Intermediate
42. DeKalb DK-64	Susceptible
43. DeKalb DK-64a	Susceptible
44. DeKalb M-565	Intermediate

Number/company/hybrid	Maize dwarf mosaic virus
45. DeKalb X-350	Susceptible
46. Funk G-522 DR	Tolerant
47. Funk G-611	Intermediate
48. Funk G-1498	Tolerant
49. Funk HW-2308	Intermediate
50. Funk HW-5247	Susceptible
51. Funk HW-5374	Intermediate
52. Funk HW-5445	Susceptible
53. Funk HW-5974	Intermediate
54. Funk HW-6031	Intermediate
55. Funk HW-6037	Intermediate
56. Horizon H-45-G	Intermediate
57. Horizon H-84D	Tolerant
58. Horizon H-85D	Intermediate
59. Horizon H-94D	Susceptible
60. Horizon H-95G	Tolerant
61. Horizon H-101G	Tolerant
62. Horizon H-104G	Susceptible
63. Horizon H-106D	Tolerant
64. King DK 737 DR	Tolerant
65. King DK 760 DR	Intermediate
66. King DK 762 DR	Intermediate
67. Mitchell Standking D-T	Tolerant
68. Mitchell Standking D-T-E	Tolerant
69. Mitchell Standking D-T-Y	Intermediate
70. Mitchell Standking Y-G	Intermediate
71. Mitchell Standking Y-G-25	Intermediate
72. Mitchell Standking Y-G-37	Tolerant
73. Mitchell Standking Y-G-51	Tolerant
74. Northrup King 233	Intermediate
75. Northrup King 266	Tolerant
76. Northrup King 1580	Susceptible
77. Northrup King 2189	Intermediate
78. Northrup King 2244	Intermediate
79. Northrup King 2650	Tolerant
80. Northrup King 2660	Tolerant
81. Northrup King 2670	Susceptible
82. Richardson Y-100 A	Tolerant

Number/company/hybrid	Maize dwarf mosaic virus
83. Richardson Y-300 D	Tolerant
84. Richardson Y-314 D	Tolerant
85. Richardson Y-344	Tolerant
86. Richardson Exp. 2228	Intermediate
87. SeedTec WAC 651 DR	Intermediate
88. SeedTec WAC 652 G	Intermediate
89. SeedTec WAC 692	Intermediate
90. SeedTec WAC 692 G	Intermediate
91. SeedTec WAC 692 R	Intermediate
92. SeedTec WAC 694 G	Susceptible
93. SeedTec WAC 701 G	Tolerant
94. SeedTec WAC 710 DR	Intermediate
95. SeedTec WAC 715 DR	Susceptible
96. SeedTec WAC 716 DR	Intermediate
97. SeedTec WAC 2003	Intermediate
98. SeedTec WAC SX8203	Intermediate
99. SeedTec WAC SX8204	Intermediate
100. SeedTec WAC SX8206	Tolerant
101. SeedTec WAC SX8231	Susceptible
102. TAES ATX399 × RTX 430	Intermediate
103. TAES ATX399 × RTX 2536	Tolerant
104. TAES ATX399 × RTX 2567	Intermediate
105. Taylor-Evans Dinero	Very tolerant
106. Taylor-Evans Dinero-R	Tolerant
107. Taylor-Evans Hondo	Tolerant
108. Taylor-Evans 8163	Susceptible
109. Taylor-Evans 8522	Tolerant
110. Taylor-Evans Y-44-R	Very tolerant
111. Taylor-Evans Y-45-G	Intermediate
112. Taylor-Evans Y-60	Susceptible
113. Taylor-Evans Y-77	Tolerant
114. Taylor-Evans Y-101-D	Intermediate
115. Taylor-Evans Y-101-G	Intermediate

Number/company/hybrid	Maize dwarf mosaic virus
116. Taylor-Evans Y-101-R	Intermediate
117. Taylor-Evans Y-111	Very tolerant
118. Texas Triumph Two 48-YG	Tolerant
119. Texas Triumph Two 50-YG	Tolerant
120. Texas Triumph Two 64-YG	Tolerant
121. Texas Triumph Two 70-D	Intermediate
122. Texas Triumph Two 80-D	Intermediate
123. Texas Triumph Two 54-YG	Intermediate
124. Texas Triumph Two 60-D	Intermediate
125. Warner W-628	Susceptible
126. Warner W-630 DR	Intermediate
127. Warner W-655 T	Tolerant
128. Warner W-664 T	Tolerant
129. Warner W-684 DR	Intermediate
130. Warner W-685 DR	Intermediate
131. Warner W-744 DR	Susceptible
132. Warner W-746 DR	Tolerant
133. Warner W-832	Intermediate
134. Warner W-839 A	Intermediate
135. Warner W-839 DR	Intermediate
136. Warner W-839 T	Tolerant
137. Warner W-840 DR	Susceptible
138. Warner W-851 A	Intermediate
139. Warner W-851 DR	Intermediate
140. Warner W-866 DR	Tolerant
141. Warner W-869 A	Susceptible
142. Warner W-869 DR	Susceptible

Ratings of Commercial Grain Sorghum Hybrids to the Maize Dwarf Mosaic Virus

C. Wendell Horne, Project Group Supervisor in Plant Sciences and Plant Pathologist, Texas Agricultural Extension Service

Robert W. Toler, Plant Virologist, Texas Agricultural Experiment Station

Richard A. Frederiksen, Plant Pathologist, Texas Agricultural Experiment Station

Jerry D. Trampota, Extension Assistant in Plant Pathology, Texas Agricultural Extension Service

The Texas A&M University System

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Grain Sorghum Seed Companies

Browning Seed Company
Cargill Seed Division
Coker's Pedigreed Seed Company
Conlee Seed Company, Inc.
DeKalb-Pfizer Genetics
Douglass King Seed Company
Funk Seed Company, Inc.
George Warner Seed Co., Inc.
Horizon Seeds, Inc.
Northrup King and Company
R.C. Mitchell Grain Company
Richardson Seed Farms
SeedTec International, Inc.
Taylor-Evans Seed Company
Texas Triumph Seed Company, Inc.

AREA OF STATE WHERE INFORMATION IS APPLICABLE

Disease ratings in this publication are applicable wherever listed hybrids are grown and where Maize Dwarf Mosaic (MDM) occurs. Generally, grain sorghum producers in the lower Rio Grande Valley, Upper Gulf Coast, South Central Texas and the Texas High Plains have the most reason to be concerned. Since the source of the virus is in overwintering johnsongrass, one can assume the problem is most likely to occur where this plant is common in and around sorghum fields. Aphid populations vary from year to year and may cause annual occurrence to fluctuate.

HOW TO USE DISEASE RATING INFORMATION

Yield potential is the foremost consideration in hybrid selection. Following closely behind are factors influencing the achievement of yield potential. Disease resistance has a profound effect on final yields in many parts of the state. Information in this publication is intended to give producers the opportunity to select hybrids that are resistant to the maize dwarf mosaic virus. Obtain information on local yield potential from plots located as near the area as possible.

DISEASE DESCRIPTION

Maize Dwarf Mosaic

Maize dwarf mosaic is caused by an aphid-transmitted virus that overwinters in the rhizomes of johnsongrass. These virus particles are extremely small and contaminate the mouth parts of aphids that feed on johnsongrass and sorghum. As the aphid moves from johnsongrass to sorghum, virus particles are transmitted. The virus multiplies rapidly in sorghum plants and within 10 days symptoms appear.

The most common symptom is mottling which is represented by alternate light and green areas on the leaf. Symptoms may be mild or severe, depending on susceptibility of the hybrid being grown. In some cases, upper leaves may be light yellow because of severe reaction. Plants showing these symptoms are stunted and perform less efficiently than healthy plants.

EXPLANATION OF DISEASE RATINGS

Maize Dwarf Mosaic

Very tolerant - Only mild symptoms are expressed on very tolerant hybrids with little or no effect on plant growth and production. Select very tolerant hybrids where infected johnsongrass is common and maize dwarf mosaic is a limiting production factor.

Tolerant - Tolerant hybrids show more evidence of infection than very tolerant hybrids, but they can be grown without measurable damage where the maize dwarf mosaic virus is prevalent in johnsongrass.

Intermediate - Intermediate hybrids show obvious infection symptoms when grown in areas infested with johnsongrass. Some stunting and yield loss occur if heavy and early infection develops.

Susceptible - Severe mottling and red leaf may occur in susceptible hybrids when virus infection occurs, especially in early season. Plants are stunted and some stands may be lost. The red leaf symptom produced by the maize dwarf mosaic virus is a different symptom than that produced by the downy mildew fungus (foliar infection). Red leaf produced by the virus initially is on the upper leaves while the downy mildew fungus begins on lower leaves and moves upward. Do not grow susceptible hybrids where maize dwarf mosaic is a limiting production factor.

In some susceptible hybrids, a "red leaf" symptom may appear when virus infection takes place and the atmospheric temperature falls below 55° F. Red streaks appear on infected leaves. Fields containing such plants look ragged and grow poorly with more than the usual amount of time required to reach maturity.

Johnsongrass control in and around grain sorghum fields may reduce the percent of infection. It also helps reduce the amount of early infection, which in turn reduces yield losses.

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