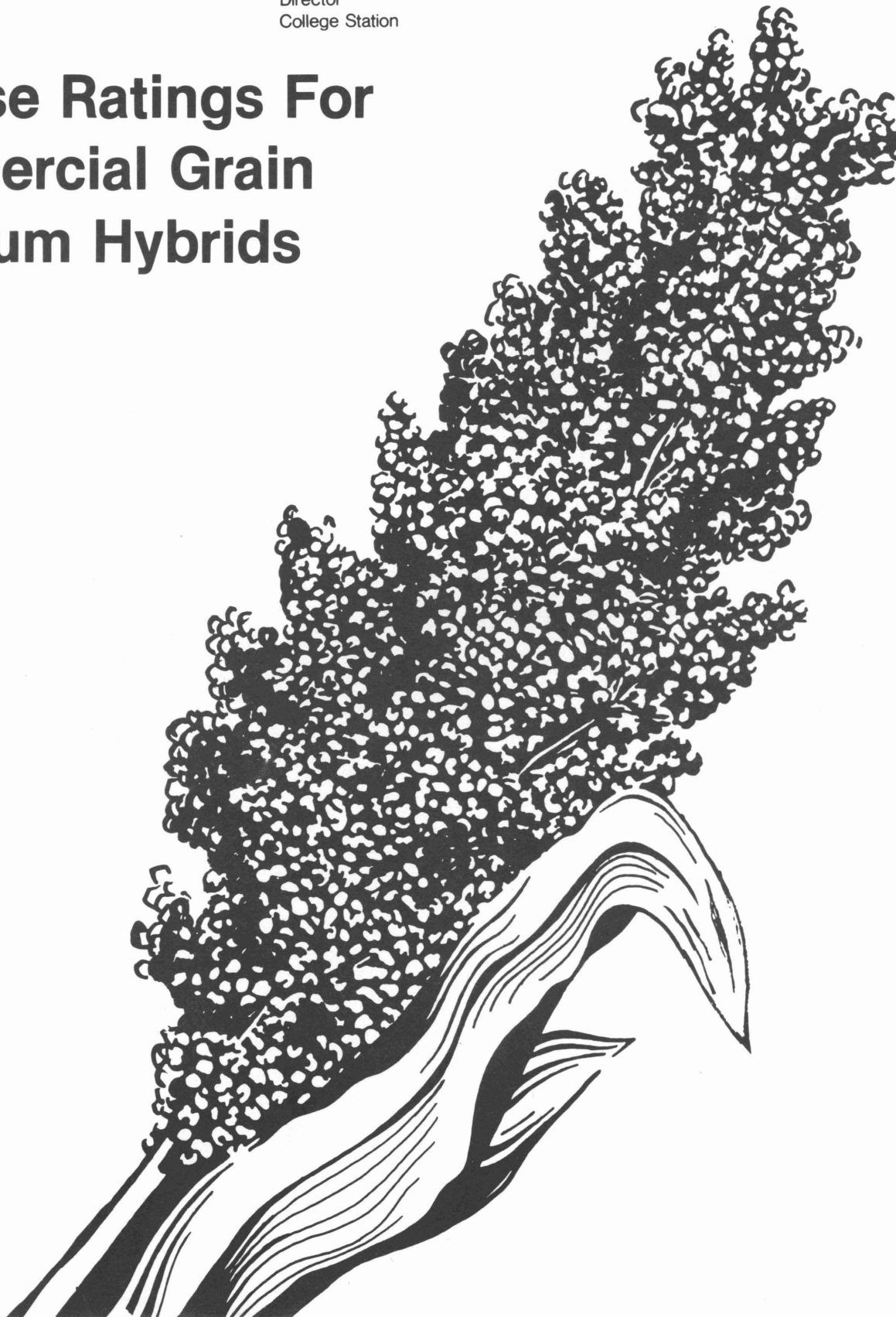




**Texas
Agricultural
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Service**

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Disease Ratings For Commercial Grain Sorghum Hybrids



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DISEASE RATINGS FOR COMMERCIAL
GRAIN SORGHUM HYBRIDS

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AREA OF STATE WHERE INFORMATION IS APPLICABLE

South Texas Grain sorghum producers will find this information to be most beneficial because the diseases for which ratings are given occur on a rather predictable basis. The information is just as reliable for producers in other parts of the state where these diseases represent a limiting production factor.

HOW DISEASE RATING INFORMATION SHOULD BE USED

Disease resistance is only one of many characteristics to consider in selecting a grain sorghum hybrid. Yield potential in the local area is the first and most important consideration. County Extension agent demonstrations are a good source of information on yield performance of adapted hybrids. Seed companies also have yield information on hybrids in a given area. Give strong consideration to disease ratings when one of these diseases represents a limiting production factor.

EXPLANATION OF RATINGS

Maize Dwarf Mosaic

Very Tolerant - Very tolerant hybrids exhibit only slight symptoms when infected with the virus. Little effect has been noted, however, on plant growth or production. This rating is preferable in areas where heavy stands of virus infected johnsongrass occur. Growers should be aware that all grain sorghum hybrids are susceptible to infection when and if aphids transmit the virus from infected host plants. Very tolerant hybrids exhibit the highest level of tolerance to the infection and little damage occurs.

Tolerant - Tolerant hybrids show more evidence of infection than very tolerant hybrids. They can be reliably grown, however, in areas where infected johnsongrass occurs without serious loss. Hybrids having this designation will experience little loss if grown where johnsongrass is controlled in and around sorghum fields.

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

Susceptible - Susceptible hybrids will show heavy leaf mottling and/or red leaf symptoms when virus infection occurs and conditions favor their development. While they may be very satisfactory in areas where the maize dwarf mosaic virus does not occur they should be avoided in areas where disease development is expected to be heavy.

Downy Mildew

Resistant - Resistant hybrids should experience little damage from the disease organisms considered. Only slight infection by the fungi that cause downy mildew should be expected when these organisms are present.

Moderately Resistant - Hybrids showing this designation for a particular disease can be expected to experience some disease development and some loss if the potential for disease is high. Little damage should be expected when the disease potential is moderate to low.

Moderately Susceptible - Hybrids in this range may experience yield loss where the potential for disease is high. Furthermore, growing hybrids of this class in areas of high disease incidence may cause organism populations to build up in soils where the crop is grown.

Susceptible - Susceptible hybrids should be grown only in areas where the potential for disease development is low or absent. If used in areas of high disease potential, substantial losses may occur.

Head Smut

Very Resistant - Very resistant hybrids should experience no more than an occasional infected plant with no yield loss.

Resistant - Hybrids showing this designation may experience low levels of infection where the head smut spore population is moderate to high. Potential yield losses should be minimal.

Moderately Resistant - These hybrids should experience little infection where the head smut spore population is medium to low. In areas where the infection potential is high, however, losses may exceed desirable limits.

Moderately Susceptible - Hybrids in this group should be planted only in fields where the potential for head smut is not great. Economic losses may occur where the disease potential is medium to high.

Susceptible -Susceptible hybrids may experience substantial yield loss where the potential for disease development is medium to high. Spores of the head smut fungus may build up in soils where disease occurrence is high and affect future grain sorghum crops.

A BRIEF DESCRIPTION OF DISEASES FOR WHICH DISEASE RATINGS ARE GIVEN

Downy Mildew

Downy mildew has been most severe in South Texas producing areas, but it does occur to some extent in most areas where grain sorghum is grown. It is caused by a soil borne fungus that can persist in the soil for several years. When susceptible hybrids are grown in the presence of the fungus, the soil spore populations may build up to extremely high levels.

Systemically infected plants have striped leaves with white-to-light green bands. A downy type growth can be seen on the lower leaf surface which is further indication of the disease. Plants infected systemically are destined to be sterile and will not produce grain containing heads. Later these plants will have shredded leaves as though they had been hit by hail. Spores are liberated from these shredded leaves and fall to the soil.

Growers who have this disease occurring in their field should strongly consider using resistant hybrids. This will help avoid yield loss and prevent excessive buildup of the fungal spores in the soil. A new race of the downy mildew fungus has been found occurring in isolated areas of South Texas. Growers who experience higher than normal infection levels in their fields should suspect occurrence of the new race and report it to their County Extension Agent and seed company.

Head Smut

Head smut is caused by a soil borne fungus that infects young seedling plants very early in life. The fungus grows systemically in the tissues, and the plant appears normal until the smut structure develops at heading time. The smut observed actually consists of thousands of tiny fungus spores that fall to the soil where they overwinter.

The head smut fungus has a potential for new race development due to variability in its genetic make-up. When this occurs resistant hybrids show higher percentages of head smut infection than normally expected. Ratings shown in this publication were made from data collected in fields where mixtures of all known races were occurring.

Percent infections shown in this publication indicate what occurred in fields at Beeville, Berclair and LaGrange in 1981. Head smut percentages may vary depending on conditions prevailing in a given field but individual referenced hybrids should perform according to the listed description for that hybrid.

Growers who experience problems with head smut should certainly utilize resistant hybrids. Those who experience infection levels of more than five percent on previously resistant hybrids are likely to be dealing with a new race of the fungus. Consult test results from areas where the new races occur for information on the most resistant hybrids.

CAPS DISEASE RATINGS OF
COMMERCIAL GRAIN SORGHUM HYBRIDS

<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
1. Asgrow Corral	Very Tolerant	Susceptible	Moderately Susceptible	3.1
2. Asgrow Colt	Tolerant	Moderately Susceptible	Susceptible	4.8
3. Asgrow Double TX	Intermediate	Moderately Resistant	Susceptible	10.7
4. Asgrow Dorado E	Tolerant	Susceptible	Susceptible	6.7
5. Asgrow Mustang	Intermediate	Susceptible	Moderately Susceptible	3.8
6. Asgrow Ranchero	Tolerant	Susceptible	Moderately Resistant	2.5
7. Asgrow Topaz	Tolerant	Resistant	Susceptible	5.5
8. Asgrow H796	Tolerant	Resistant	Very Resistant	0.8
9. Browning Yellow Martin	Tolerant	Susceptible	Moderately Resistant	2.8
10. Browning Spirit of '76	Tolerant	Moderately Susceptible	Susceptible	5.0
11. Browning Challenger	Intermediate	Susceptible	Moderately Resistant	2.4
12. Browning Challenger Plus	Susceptible	Resistant	Very Resistant	0.2
13. Cokers 7623	Intermediate	Resistant	Resistant	1.6
14. Cokers 7638	Very Tolerant	Susceptible	Resistant	1.2
15. Cokers 7675	Tolerant	Resistant	Resistant	1.1
16. Cokers 7723	Susceptible	Resistant	Very Resistant	1.0
17. Cokers 7737	Susceptible	Resistant	Very Resistant	0.2
18. Conlee Quikee	Tolerant	Susceptible	Moderately Susceptible	3.4

*Percent head smut is shown as an indication that disease occurrence was low at the three test locations in 1981. The figures shown represent average infections at the three locations and the authors believe that growers will be benefited by knowing exact figures where close decisions are required.

<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
19. Conlee Rawhide	Tolerant	Susceptible	Susceptible	4.7
20. Conlee Top Hand	Tolerant	Susceptible	Moderately Resistant	2.1
21. Conlee Top Hand II	Intermediate	Resistant	Very Resistant	0
22. Conlee Top Hand TA	Susceptible	Resistant	Very Resistant	0.3
23. Crosbyton SLF-0017	Intermediate	Susceptible	Moderately Resistant	3.0
24. Crosbyton SLF-0023	Intermediate	Susceptible	Susceptible	5.7
25. Crosbyton SLF-0028	Tolerant	Susceptible	Moderately Resistant	2.2
26. Crosbyton SLF-0030	Susceptible	Susceptible	Moderately Resistant	3.0
27. Crosbyton SLF-0042	Intermediate	Resistant	Resistant	1.6
28. Crosbyton SLF-0043	Very Tolerant	Resistant	Very Resistant	1.0
29. Crosbyton SLF-0045	Tolerant	Resistant	Resistant	1.5
30. Crosbyton SLF-0048	Tolerant	Resistant	Moderately Resistant	2.8
31. DeKalb D-42a	Tolerant	Resistant	Resistant	1.2
32. DeKalb D-42y+	Tolerant	Resistant	Very Resistant	0.1
33. DeKalb D-55	Very Tolerant	Resistant	Resistant	1.3
34. DeKalb DK-54	Very Tolerant	Resistant	Moderately Resistant	2.3
35. DeKalb DK-59	Very Tolerant	Resistant	Moderately Resistant	2.6
36. DeKalb DK-64	Tolerant	Resistant	Susceptible	9.6
37. DeKalb DK-64a	Tolerant	Resistant	Very Resistant	0
38. Douglass King 727DR	Tolerant	Resistant	Moderately Susceptible	3.5

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<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
39. Douglass King 737DR	Tolerant	Resistant	Very Resistant	0.1
40. Douglass King 762DR	Tolerant	Resistant	Very Resistant	0.8
41. Douglass King 788DR	Tolerant	Resistant	Very Resistant	0.1
42. Douglass King 755G	Tolerant	Moderately Susceptible	Susceptible	10.8
43. Funks G-421	Tolerant	Susceptible	Moderately Resistant	2.5
44. Funks G-550	Tolerant	Resistant	Resistant	1.6
45. Funks G-611	Tolerant	Resistant	Very Resistant	0.5
46. Funks G-766W	Very Tolerant	Susceptible	Moderately Susceptible	3.7
47. Funks G-1498				
48. Funks G-3847	Very Tolerant	Susceptible	Moderately Resistant	2.4
49. Funks G-499GBR	Tolerant	Susceptible	Susceptible	5.4
50. Funks G-623GBR	Tolerant	Moderately Susceptible	Susceptible	6.5
51. Growers E-110	Intermediate	Susceptible	Susceptible	7.7
52. Growers 1180	Tolerant	Resistant	Susceptible	4.9
53. Growers 1210B	Tolerant	Susceptible	Susceptible	4.3
54. Growers 1212	Tolerant	Susceptible	Resistant	1.7
55. Growers 1290	Tolerant	Resistant	Very Resistant	0.7
56. Growers 1310A	Tolerant	Susceptible	Very Resistant	0.7
57. Growers SG-10	Intermediate	Susceptible	Susceptible	7.3
58. Growers SG-17GBR	Very Tolerant	Susceptible	Susceptible	8.3

*Percent head smut is shown as an indication that disease occurrence was low at the three test locations in 1981. The figures shown represent average infections at the three locations and the authors believe that growers will be benefited by knowing exact figures where close decisions are required.

<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
59. Growers SG-40GBR	Tolerant	Susceptible	Susceptible	4.1
60. Growers SG-39DMR	Tolerant	Resistant	Very Resistant	0
61. Horizon 45G	Tolerant	Susceptible	Moderately Susceptible	4.0
62. Horizon 84D	Tolerant	Resistant	Very Resistant	0.4
63. Horizon 94D	Susceptible	Resistant	Very Resistant	0.3
64. Horizon 101G	Tolerant	Susceptible	Moderately Resistant	2.0
65. Horizon 104G	Susceptible	Susceptible	Susceptible	8.5
66. NC+ 55X	Susceptible	Susceptible	Susceptible	5.1
67. NC+ 160	Very Tolerant	Susceptible	Susceptible	4.2
68. NC+ 161	Tolerant	Susceptible	Susceptible	9.2
69. NC+ 168	Tolerant	Susceptible	Moderately Susceptible	3.8
70. NC+ 170	Tolerant	Susceptible	Susceptible	5.1
71. NC+ 171	Susceptible	Susceptible	Susceptible	10.9
72. NC+ 172	Tolerant	Susceptible	Moderately Resistant	2.7
73. NC+ 174	Intermediate	Resistant	Resistant	1.2
74. NC+ 175	Tolerant	Susceptible	Susceptible	6.6
75. NC+ 271	Susceptible	Susceptible	Moderately Susceptible	3.9
76. NK 233	Tolerant	Resistant	Moderately Susceptible	3.7
77. NK 266	Tolerant	Moderately Resistant	Very Resistant	0
78. NK 1580	Susceptible	Resistant	Susceptible	4.3

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<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
79. NK 2189	Tolerant	Moderately Resistant	Moderately Resistant	3.0
80. NK 2244	Intermediate	Resistant	Very Resistant	0.6
81. NK 2650	Tolerant	Moderately Resistant	Very Resistant	0
82. NK 2670	Susceptible	Resistant	Very Resistant	0.1
83. PAG 5504	Intermediate	Resistant	Very Resistant	0
84. PAG 5514	Tolerant	Susceptible	Moderately Resistant	2.8
85. PAG 5550	Intermediate	Resistant	Resistant	2.0
86. PAG 6658	Tolerant	Resistant	Moderately Resistant	2.1
87. Pay Master DG-1195	Very Tolerant	Moderately Resistant	Susceptible	4.9
88. Pay Master DR-1035	Very Tolerant	Resistant	Moderately Susceptible	3.2
89. Pay Master DR-1075	Very Tolerant	Resistant	Susceptible	4.4
90. Pay Master DR-1085	Intermediate	Resistant	Resistant	1.5
91. Pay Master DR-1095	Tolerant	Moderately Resistant	Very Resistant	0
92. Pay Master DR-1105	Tolerant	Moderately Resistant	Moderately Susceptible	3.8
93. Pay Master DR-1125	Tolerant	Resistant	Very Resistant	0.9
94. Pay Master GR-108	Intermediate	Susceptible	Moderately Resistant	2.7
95. Pay Master GR-1018	Very Tolerant	Susceptible	Susceptible	5.9
96. Pay Master GR-1089	Tolerant	Moderately Susceptible	Susceptible	7.1

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<u>No./Company/Hybrid</u>	<u>Maise Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
97. Pay Master GR-1138	Tolerant	Moderately Susceptible	Susceptible	7.2
98. Pay Master GR ² -1100	Very Tolerant	Moderately Susceptible	Moderately Resistant	2.3
99. Pay Master GR ² -1200	Tolerant	Moderately Susceptible	Moderately Resistant	2.3
100. Pay Master R-109-A	Intermediate	Moderately Susceptible	Resistant	1.9
101. Pfizer M 56G	Intermediate	Susceptible	Moderately Resistant	2.5
102. Pfizer M 550G	Tolerant	Susceptible	Moderately Resistant	2.3
103. Pfizer M 565	Very Tolerant	Resistant	Very Resistant	0.3
104. Pfizer M 568G	Tolerant	Moderately Susceptible	Resistant	1.6
105. Pioneer 8244	Tolerant	Resistant	Very Resistant	0
106. Pioneer 8303	Susceptible	Resistant	Very Resistant	0.1
107. Pioneer 8308B	Susceptible	Resistant	Susceptible	4.8
108. Pioneer 8311	Susceptible	Resistant	Resistant	1.4
109. Pioneer 8501	Tolerant	Resistant	Moderately Susceptible	3.2
110. Taylor-Evans Champ	Intermediate	Moderately Susceptible	Resistant	1.1
111. Taylor-Evans Dinero	Very Tolerant	Resistant	Very Resistant	0
112. Taylor-Evans Dinero-R	Tolerant	Resistant	Very Resistant	0.5
113. Taylor-Evans Grainmaster-R	Tolerant	Moderately Susceptible	Resistant	2.0
114. Taylor-Evans Hondo	Tolerant	Resistant	Very Resistant	0.4

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<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
115. Taylor-Evans Total-D	Susceptible	Resistant	Susceptible	4.1
116. Taylor-Evans Total-R	Susceptible	Susceptible	Susceptible	6.3
117. Taylor-Evans 66B	Tolerant	Moderately Resistant	Moderately Resistant	2.9
118. Taylor-Evans 66R	Tolerant	Susceptible	Very Resistant	0.9
119. Taylor-Evans 77A	Intermediate	Moderately Resistant	Moderately Resistant	2.1
120. Taylor-Evans 77R	Tolerant	Susceptible	Moderately Resistant	2.3
121. Taylor-Evans 88A	Intermediate	Moderately Susceptible	Moderately Susceptible	3.3
122. Taylor-Evans Y-44-R	Very Tolerant	Susceptible	Moderately Resistant	2.3
123. Taylor-Evans Y-45	Tolerant	Susceptible	Susceptible	7.4
124. Taylor-Evans Y-101-R	Tolerant	Susceptible	Susceptible	5.5
125. Taylor-Evans Y-111	Tolerant	Resistant	Moderately Resistant	2.8
126. Texas Triumph Two 52yG	Tolerant	Susceptible	Moderately Susceptible	3.5
127. Texas Triumph Two 54yG	Very Tolerant	Susceptible	Susceptible	4.1
128. Texas Triumph Two 62yG	Tolerant	Susceptible	Susceptible	5.4
129. Texas Triumph Two 64yG	Very Tolerant	Moderately Susceptible	Very Resistant	0.9
130. Texas Triumph Two 72yG	Susceptible	Moderately Susceptible	Susceptible	8.2
131. Texas Triumph Two 70-D	Intermediate	Resistant	Very Resistant	0.9
132. Texas Triumph Two 80-D	Tolerant	Resistant	Very Resistant	0

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<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
133. Texas Triumph Two 62y	Tolerant	Susceptible	Moderately Resistant	2.5
134. Texas Triumph Two 72y	Susceptible	Susceptible	Moderately Susceptible	3.5
135. Texas Triumph Two 75BR	Susceptible	Susceptible	Susceptible	8.6
136. TAES ATX 399 X 2536	Very Tolerant	Susceptible	Moderately Resistant	2.9
137. TAES ATX 399 X RTX430	Tolerant	Resistant	Very Resistant	0.
138. WAC D701G	Very Tolerant	Resistant	Very Resistant	0.9
139. WAC 652G	Tolerant	Susceptible	Susceptible	4.8
140. WAC 692G	Intermediate	Susceptible	Moderately Resistant	2.2
141. WAC 694G	Susceptible	Moderately Susceptible	Susceptible	5.0
142. WAC 651DR	Tolerant	Resistant	Resistant	1.7
143. WAC 710DR	Tolerant	Resistant	Very Resistant	0
144. WAC 715DR	Susceptible	Resistant	Very Resistant	0.7
145. WAC 716DR	Tolerant	Resistant	Very Resistant	0.2
146. Warner 832	Very Tolerant	Resistant	Very Resistant	0.1
147. Warner 839A	Intermediate	Moderately Susceptible	Resistant	1.7
148. Warner 839DR	Intermediate	Resistant	Very Resistant	0
149. Warner 840DR	Susceptible	Resistant	Very Resistant	0.3
150. Warner 851DR	Very Tolerant	Resistant	Very Resistant	0.2
151. Warner 866A	Tolerant	Moderately Resistant	Moderately Susceptible	3.1
152. Warner 869DR	Susceptible	Resistant	Very Resistant	0.5

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<u>No./Company/Hybrid</u>	<u>Maize Dwarf Mosaic Virus</u>	<u>Downy Mildew</u>	<u>Head Smut</u>	<u>%*</u>
153. Young Early Oro G	Very Tolerant	Susceptible	Susceptible	8.8
154. Young Oro	Intermediate	Susceptible	Very Resistant	0.6
155. Young Oro DRII	Tolerant	Resistant	Very Resistant	0
156. Young Oro G	Tolerant	Susceptible	Moderately Susceptible	3.8
157. Young Oro T	Susceptible	Susceptible	Susceptible	4.7
158. Young Oro T-G	Susceptible	Susceptible	Susceptible	6.1
159. Young Oro Y-G	Tolerant	Susceptible	Susceptible	8.6
160. Young Oro Recio	Tolerant	Susceptible	Susceptible	8.7
161. Young Oro XTRA	Very Tolerant	Resistant	Very Resistant	0.5
162. Young Oro G XTRA	Very Tolerant	Resistant	Very Resistant	0.5
163. Young Oro T XTRA	Susceptible	Resistant	Resistant	1.2
164. Young Oro W XTRA	Very Tolerant	Resistant	Very Resistant	0.8

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