Cotton cultivars and elite breeding lines submitted by 21 cooperators were evaluated for fusarium wilt resistance under field conditions at the E. V. Smith Research Center, Plant Breeding Unit, Tallassee, Alabama. These entries were grown on an Independence loamy fine sand highly infested with both the fusarium wilt fungus (*Fusarium oxysporum* Schlect. f. *vasinfectum* [Atk.] (Snyd. & Hans.) and root-knot nematodes (*Meloidogyne incognita*).

Plots were 40-inch-wide rows, 20 feet in length, separated by 5-foot alleys. Four replications of the test entries and checks, arranged in a block design, were evaluated. Both susceptible (Rowden) and resistant (M-315) cultivars were included as checks. Rowden was planted in row 5 and every tenth row thereafter (15, 25, ..., 205) and M-315 in row 10 and every tenth row thereafter (20, 30, ..., 210) throughout the test. Plots were planted May 17. Initial plant counts were made on June 14. Wilted plants were counted and removed on July 12, July 26, and August 21. The remaining live plants were counted and recorded on August 21. Percent wilted plants were then determined and mean wilting for a given entry calculated.

Average wilting of the susceptible Rowden was 8, 3, 7, and 7 percent for the four replications (6 percent average). Corresponding wilt percentages for the resistant check, M-315, were 0, 1, 0, and 1 percent (0.5 percent average). **Critical evaluation of a given entry should be made relative to the checks closest to the entry within each replication.**

---

1. This report is a joint contribution between USDA-ARS, Crop Science Research Laboratory, Mississippi State, Mississippi, and the Alabama Agricultural Experiment Station, Auburn University, Alabama.

2. Research Assistant of Agronomy and Soils and Professor and Extension Plant Pathologist/Nematologist.
Evaluation of breeding process or evaluation of entries over years should be made only between the relative value of this entry and that of the closest susceptible check rows for each year.

In 1994, a soil analysis for nematodes revealed that southern root-knot (Meloidogyne incognita) and lance (Hoplolaimus galeatus) are two predominant nematode species in the test plots. High populations of both species are found throughout the test area. Other nematode genera present are stubby root (Trichodorus sp.) and stunt (Tylenchorhynchus sp.). Root-knot nematodes, however, appear to be causing the major damage to cotton in the Fusarium Wilt Test as indicated by the high galling indices found on the roots of all cotton lines.

Root-knot nematode damage was unusually light on cotton roots of all varieties including the susceptible cultivar, Rowden. Cooler than normal temperatures in the spring and early fall may have reduced root-knot nematode populations as well as the incidence of Fusarium wilt. Root-knot nematode damage to the cotton in other areas of south and central Alabama was also extremely light.

Entries submitted by Kathryn Glass are commonly grown cultivars or advanced commercial materials and are listed by name. Entries submitted by other cooperators are listed by their coded numbers. Additional information regarding the genetic background of a specific coded entry should be obtained from the named cooperator.

Information contained herein is available to all persons regardless of race, color, sex, or national origin.
<table>
<thead>
<tr>
<th>Test entry designation</th>
<th>Percent wilt by replication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Donald M. Panter, Stoneville Pedigreed Seed Co., Inc., P.O. Box 167, Stoneville, MS 38776</td>
<td></td>
</tr>
<tr>
<td>001 DMP 1</td>
<td>0</td>
</tr>
<tr>
<td>002 DMP 2</td>
<td>0</td>
</tr>
<tr>
<td>003 DMP 3</td>
<td>2</td>
</tr>
<tr>
<td>004 DMP 4</td>
<td>0</td>
</tr>
<tr>
<td>005 ROWDEN</td>
<td>2</td>
</tr>
<tr>
<td>006 DMP 5</td>
<td>0</td>
</tr>
<tr>
<td>007 DMP 6</td>
<td>0</td>
</tr>
<tr>
<td>008 DMP 7</td>
<td>0</td>
</tr>
<tr>
<td>009 DMP 8</td>
<td>0</td>
</tr>
<tr>
<td>010 M-315</td>
<td>0</td>
</tr>
<tr>
<td>Freddie M. Miller, Terra International, Inc., P.O. Box 171376, Memphis, TN 38187</td>
<td></td>
</tr>
<tr>
<td>011 1</td>
<td>0</td>
</tr>
<tr>
<td>012 2</td>
<td>0</td>
</tr>
<tr>
<td>013 3</td>
<td>0</td>
</tr>
<tr>
<td>014 4</td>
<td>0</td>
</tr>
<tr>
<td>015 ROWDEN</td>
<td>4</td>
</tr>
<tr>
<td>016 5</td>
<td>0</td>
</tr>
<tr>
<td>017 6</td>
<td>0</td>
</tr>
<tr>
<td>018 7</td>
<td>0</td>
</tr>
<tr>
<td>019 8</td>
<td>4</td>
</tr>
<tr>
<td>020 M-315</td>
<td>0</td>
</tr>
<tr>
<td>Don Keim, Delta and Pine Land Co., 100 Main Street, Scott, MS 38772</td>
<td></td>
</tr>
<tr>
<td>021 DPX 1111</td>
<td>0</td>
</tr>
<tr>
<td>022 DPX 2048</td>
<td>0</td>
</tr>
<tr>
<td>023 DPX 2166</td>
<td>0</td>
</tr>
<tr>
<td>024 DPX 2044</td>
<td>0</td>
</tr>
<tr>
<td>025 ROWDEN</td>
<td>3</td>
</tr>
<tr>
<td>026 DPX 1979</td>
<td>0</td>
</tr>
<tr>
<td>027 DPX 6954</td>
<td>0</td>
</tr>
<tr>
<td>028 DPX 6926</td>
<td>0</td>
</tr>
<tr>
<td>029 DPX 0026</td>
<td>0</td>
</tr>
<tr>
<td>030 M-315</td>
<td>0</td>
</tr>
<tr>
<td>Test entry designation</td>
<td>Percent wilt by replication</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>4 C. Wayne Smith, Dept. of Soil &amp; Crop Sci., Texas A&amp;M Univ., College Station, TX 77843-2474</td>
<td>031 CWS 1</td>
</tr>
<tr>
<td></td>
<td>032 CWS 2</td>
</tr>
<tr>
<td></td>
<td>033 CWS 3</td>
</tr>
<tr>
<td></td>
<td>034 CWS 4</td>
</tr>
<tr>
<td></td>
<td>035 ROWDEN</td>
</tr>
<tr>
<td></td>
<td>036 CWS 5</td>
</tr>
<tr>
<td></td>
<td>037 CWS 6</td>
</tr>
<tr>
<td></td>
<td>038 CWS 7</td>
</tr>
<tr>
<td></td>
<td>039 CWS 8</td>
</tr>
<tr>
<td></td>
<td>040 M-315</td>
</tr>
<tr>
<td>5 Terry Weesner, Arizona Processing, Inc., P.O. Box 50609, Phoenix, AZ 85076</td>
<td>041 AZ-1</td>
</tr>
<tr>
<td></td>
<td>042 AZ-2</td>
</tr>
<tr>
<td></td>
<td>043 AZ-3</td>
</tr>
<tr>
<td></td>
<td>044 AZ-4</td>
</tr>
<tr>
<td></td>
<td>045 ROWDEN</td>
</tr>
<tr>
<td></td>
<td>046 AZ-5</td>
</tr>
<tr>
<td></td>
<td>047 AZ-6</td>
</tr>
<tr>
<td></td>
<td>048 AZ-7</td>
</tr>
<tr>
<td></td>
<td>049 AZ-8</td>
</tr>
<tr>
<td></td>
<td>050 M-315</td>
</tr>
<tr>
<td>6 O. Lloyd May, USDA-ARS, Route 1, Box 531, Florence, SC 29501-9603</td>
<td>051 1</td>
</tr>
<tr>
<td></td>
<td>052 2</td>
</tr>
<tr>
<td></td>
<td>053 3</td>
</tr>
<tr>
<td></td>
<td>054 4</td>
</tr>
<tr>
<td></td>
<td>055 ROWDEN</td>
</tr>
<tr>
<td></td>
<td>056 5</td>
</tr>
<tr>
<td></td>
<td>057 6</td>
</tr>
<tr>
<td></td>
<td>058 7</td>
</tr>
<tr>
<td></td>
<td>059 8</td>
</tr>
<tr>
<td></td>
<td>060 M 315</td>
</tr>
</tbody>
</table>
### 1996 Fusarium Wilt Test
E. V. Smith Research Center, Tallahassee, Alabama

<table>
<thead>
<tr>
<th>Test entry designation</th>
<th>Percent wilt by replication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>7 Laval M. Verhalen, Dept. of Agronomy, Oklahoma State University, Stillwater, OK 74078</td>
<td></td>
</tr>
<tr>
<td>061 OKLA-1</td>
<td>0</td>
</tr>
<tr>
<td>062 OKLA-2</td>
<td>0</td>
</tr>
<tr>
<td>063 OKLA-3</td>
<td>0</td>
</tr>
<tr>
<td>064 OKLA-4</td>
<td>0</td>
</tr>
<tr>
<td>065 ROWDEN</td>
<td>15</td>
</tr>
<tr>
<td>066 OKLA-5</td>
<td>0</td>
</tr>
<tr>
<td>067 OKLA-6</td>
<td>0</td>
</tr>
<tr>
<td>068 OKLA-7</td>
<td>0</td>
</tr>
<tr>
<td>069 OKLA-8</td>
<td>0</td>
</tr>
<tr>
<td>070 M-315</td>
<td>0</td>
</tr>
<tr>
<td>8 A.L. Germany, Stoneville Pedigreed Seed Co. Inc., Box 167, Stoneville, MS 38776</td>
<td></td>
</tr>
<tr>
<td>071 ALG-1</td>
<td>0</td>
</tr>
<tr>
<td>072 ALG-2</td>
<td>0</td>
</tr>
<tr>
<td>073 ALG-3</td>
<td>2</td>
</tr>
<tr>
<td>074 ALG-4</td>
<td>0</td>
</tr>
<tr>
<td>075 ROWDEN</td>
<td>0</td>
</tr>
<tr>
<td>076 ALG-5</td>
<td>0</td>
</tr>
<tr>
<td>077 ALG-6</td>
<td>0</td>
</tr>
<tr>
<td>078 ALG-7</td>
<td>0</td>
</tr>
<tr>
<td>079 ALG-8</td>
<td>0</td>
</tr>
<tr>
<td>080 M-315</td>
<td>0</td>
</tr>
<tr>
<td>9 Peggy Thaxton, Dept. of Soil &amp; Crop Sci., Texas A&amp;M Univ., College Station, TX 77843-2474</td>
<td></td>
</tr>
<tr>
<td>081 MAR-1</td>
<td>2</td>
</tr>
<tr>
<td>082 MAR-2</td>
<td>0</td>
</tr>
<tr>
<td>083 MAR-3</td>
<td>0</td>
</tr>
<tr>
<td>084 MAR-4</td>
<td>4</td>
</tr>
<tr>
<td>085 ROWDEN</td>
<td>0</td>
</tr>
<tr>
<td>086 MAR-5</td>
<td>4</td>
</tr>
<tr>
<td>087 MAR-6</td>
<td>0</td>
</tr>
<tr>
<td>088 MAR-7</td>
<td>1</td>
</tr>
<tr>
<td>089 MAR-8</td>
<td>0</td>
</tr>
<tr>
<td>090 M-315</td>
<td>0</td>
</tr>
<tr>
<td>Test entry designation</td>
<td>Percent wilt by replication</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>10 Richard Sheetz, Paymaster Cottonseed, P.O. Box 8, Aiken, TX 79221</td>
<td></td>
</tr>
<tr>
<td>091 1 .............................</td>
<td>0</td>
</tr>
<tr>
<td>092 2 .............................</td>
<td>1</td>
</tr>
<tr>
<td>093 3 .............................</td>
<td>0</td>
</tr>
<tr>
<td>094 4 .............................</td>
<td>0</td>
</tr>
<tr>
<td>095 ROWDEN .........................</td>
<td>21</td>
</tr>
<tr>
<td>096 5 .............................</td>
<td>0</td>
</tr>
<tr>
<td>097 6 .............................</td>
<td>0</td>
</tr>
<tr>
<td>098 7 .............................</td>
<td>0</td>
</tr>
<tr>
<td>099 8 .............................</td>
<td>0</td>
</tr>
<tr>
<td>100 M-315 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>101 1 .............................</td>
<td>0</td>
</tr>
<tr>
<td>102 2 .............................</td>
<td>0</td>
</tr>
<tr>
<td>103 3 .............................</td>
<td>0</td>
</tr>
<tr>
<td>104 4 .............................</td>
<td>0</td>
</tr>
<tr>
<td>105 ROWDEN .........................</td>
<td>13</td>
</tr>
<tr>
<td>106 5 .............................</td>
<td>0</td>
</tr>
<tr>
<td>107 6 .............................</td>
<td>0</td>
</tr>
<tr>
<td>108 7 .............................</td>
<td>0</td>
</tr>
<tr>
<td>109 8 .............................</td>
<td>0</td>
</tr>
<tr>
<td>110 M-315 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>12 W. P. Sappenfield, 115 Mango Cove, Leesburg, FL 34748</td>
<td></td>
</tr>
<tr>
<td>111 WPS-1 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>112 WPS-2 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>113 WPS-3 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>114 WPS-4 ..........................</td>
<td>2</td>
</tr>
<tr>
<td>115 ROWDEN .........................</td>
<td>4</td>
</tr>
<tr>
<td>116 WPS-5 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>117 WPS-6 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>118 WPS-7 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>119 WPS-8 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>120 M-315 ..........................</td>
<td>0</td>
</tr>
<tr>
<td>Test entry designation</td>
<td>Percent wilt by replication</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>13 John Green, Seed Source Inc., P.O. Box 28, Stoneville, MS 38776</td>
<td></td>
</tr>
<tr>
<td>121 SS-1</td>
<td>3</td>
</tr>
<tr>
<td>122 SS-2</td>
<td>0</td>
</tr>
<tr>
<td>123 SS-3</td>
<td>2</td>
</tr>
<tr>
<td>124 SS-4</td>
<td>0</td>
</tr>
<tr>
<td>125 ROWDEN</td>
<td>0</td>
</tr>
<tr>
<td>126 SS-5</td>
<td>0</td>
</tr>
<tr>
<td>127 SS-6</td>
<td>0</td>
</tr>
<tr>
<td>128 SS-7</td>
<td>0</td>
</tr>
<tr>
<td>129 SS-8</td>
<td>0</td>
</tr>
<tr>
<td>130 M-315</td>
<td>2</td>
</tr>
<tr>
<td>14 Shelby H. Baker, Univ. of Georgia, Coastal Plain Station, P.O. Box 748, Tifton, GA 31793</td>
<td></td>
</tr>
<tr>
<td>131 GA 1</td>
<td>0</td>
</tr>
<tr>
<td>132 GA 2</td>
<td>0</td>
</tr>
<tr>
<td>133 GA 3</td>
<td>0</td>
</tr>
<tr>
<td>134 GA 4</td>
<td>2</td>
</tr>
<tr>
<td>135 ROWDEN</td>
<td>0</td>
</tr>
<tr>
<td>136 GA 5</td>
<td>0</td>
</tr>
<tr>
<td>137 GA 6</td>
<td>0</td>
</tr>
<tr>
<td>138 GA 7</td>
<td>0</td>
</tr>
<tr>
<td>139 GA 8</td>
<td>4</td>
</tr>
<tr>
<td>140 M-315</td>
<td>1</td>
</tr>
<tr>
<td>15 Cindy Green, Delta and Pine Land Co., P.O. Box 1529, Hartsville, SC 29550</td>
<td></td>
</tr>
<tr>
<td>141 1</td>
<td>8</td>
</tr>
<tr>
<td>142 2</td>
<td>3</td>
</tr>
<tr>
<td>143 3</td>
<td>0</td>
</tr>
<tr>
<td>144 4</td>
<td>0</td>
</tr>
<tr>
<td>145 ROWDEN</td>
<td>3</td>
</tr>
<tr>
<td>146 5</td>
<td>0</td>
</tr>
<tr>
<td>147 6</td>
<td>0</td>
</tr>
<tr>
<td>148 7</td>
<td>0</td>
</tr>
<tr>
<td>149 8</td>
<td>0</td>
</tr>
<tr>
<td>150 M-315</td>
<td>0</td>
</tr>
<tr>
<td>Test entry designation</td>
<td>Percent wilt by replication</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>16 Bill Fagala, Terra International Inc., P.O. Box 171376, Memphis, TN 38187</td>
<td>16</td>
</tr>
<tr>
<td>151 1.................................</td>
<td>0</td>
</tr>
<tr>
<td>152 2.................................</td>
<td>5</td>
</tr>
<tr>
<td>153 3.................................</td>
<td>0</td>
</tr>
<tr>
<td>154 4.................................</td>
<td>0</td>
</tr>
<tr>
<td>155 <strong>ROWDEN</strong>........................</td>
<td>9</td>
</tr>
<tr>
<td>156 5.................................</td>
<td>0</td>
</tr>
<tr>
<td>157 6.................................</td>
<td>0</td>
</tr>
<tr>
<td>158 7.................................</td>
<td>0</td>
</tr>
<tr>
<td>159 8.................................</td>
<td>0</td>
</tr>
<tr>
<td>160 <strong>M-315</strong>........................</td>
<td>0</td>
</tr>
<tr>
<td>17 Curtis Williams, Paymaster Technology Corp., Route 2, Box 57, Stuttgart, AR 72160</td>
<td>17</td>
</tr>
<tr>
<td>161 1.................................</td>
<td>0</td>
</tr>
<tr>
<td>162 2.................................</td>
<td>0</td>
</tr>
<tr>
<td>163 3.................................</td>
<td>0</td>
</tr>
<tr>
<td>164 4.................................</td>
<td>0</td>
</tr>
<tr>
<td>165 <strong>ROWDEN</strong>........................</td>
<td>0</td>
</tr>
<tr>
<td>166 5.................................</td>
<td>0</td>
</tr>
<tr>
<td>167 6.................................</td>
<td>0</td>
</tr>
<tr>
<td>168 7.................................</td>
<td>0</td>
</tr>
<tr>
<td>169 8.................................</td>
<td>0</td>
</tr>
<tr>
<td>170 <strong>M-315</strong>........................</td>
<td>1</td>
</tr>
<tr>
<td>18 Jim Mitchell, Paymaster Technology Corp., Route 2, Box 57, Stuttgart, AR 72160</td>
<td>18</td>
</tr>
<tr>
<td>171 1.................................</td>
<td>0</td>
</tr>
<tr>
<td>172 2.................................</td>
<td>1</td>
</tr>
<tr>
<td>173 3.................................</td>
<td>1</td>
</tr>
<tr>
<td>174 4.................................</td>
<td>1</td>
</tr>
<tr>
<td>175 <strong>ROWDEN</strong>........................</td>
<td>0</td>
</tr>
<tr>
<td>176 5.................................</td>
<td>1</td>
</tr>
<tr>
<td>177 6.................................</td>
<td>0</td>
</tr>
<tr>
<td>178 7.................................</td>
<td>1</td>
</tr>
<tr>
<td>179 8.................................</td>
<td>0</td>
</tr>
<tr>
<td>180 <strong>M-315</strong>........................</td>
<td>0</td>
</tr>
<tr>
<td>Test entry designation</td>
<td>Percent wilt by replication</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Jack E. Jones</td>
<td>19</td>
</tr>
<tr>
<td>JJ-1</td>
<td>0</td>
</tr>
<tr>
<td>JJ-2</td>
<td>0</td>
</tr>
<tr>
<td>JJ-3</td>
<td>0</td>
</tr>
<tr>
<td>JJ-4</td>
<td>1</td>
</tr>
<tr>
<td>ROWDEN</td>
<td>28</td>
</tr>
<tr>
<td>JJ-5</td>
<td>3</td>
</tr>
<tr>
<td>JJ-6</td>
<td>0</td>
</tr>
<tr>
<td>Daryl Bowman</td>
<td>20</td>
</tr>
<tr>
<td>NC 1</td>
<td>0</td>
</tr>
<tr>
<td>NC 112</td>
<td>0</td>
</tr>
<tr>
<td>M-315</td>
<td>0</td>
</tr>
<tr>
<td>NC 265</td>
<td>0</td>
</tr>
<tr>
<td>NC 258</td>
<td>1</td>
</tr>
<tr>
<td>NC 188</td>
<td>13</td>
</tr>
<tr>
<td>Kathryn M. Glass</td>
<td>21</td>
</tr>
<tr>
<td>Hartz H 1277</td>
<td>0</td>
</tr>
<tr>
<td>ROWDEN</td>
<td>4</td>
</tr>
<tr>
<td>Terra 302</td>
<td>0</td>
</tr>
<tr>
<td>Terra 366</td>
<td>0</td>
</tr>
<tr>
<td>Suregrow 125</td>
<td>0</td>
</tr>
<tr>
<td>Suregrow 404</td>
<td>0</td>
</tr>
<tr>
<td>M-315</td>
<td>0</td>
</tr>
<tr>
<td>Hartz H 1220</td>
<td>0</td>
</tr>
<tr>
<td>Hartz H 1244</td>
<td>3</td>
</tr>
<tr>
<td>Stoneville 474</td>
<td>0</td>
</tr>
<tr>
<td>Stoneville X 47</td>
<td>0</td>
</tr>
<tr>
<td>ROWDEN</td>
<td>4</td>
</tr>
<tr>
<td>Deltapine NuCotn 33</td>
<td>0</td>
</tr>
<tr>
<td>Deltapine NuCotn 35</td>
<td>0</td>
</tr>
<tr>
<td>Hy Performer HS 23</td>
<td>0</td>
</tr>
<tr>
<td>Hy Performer HS 46</td>
<td>0</td>
</tr>
<tr>
<td>M-315</td>
<td>0</td>
</tr>
</tbody>
</table>
Alabama's Agricultural Experiment Station System
AUBURN UNIVERSITY

- Main Agricultural Experiment Station, Auburn.
- E. V. Smith Research Center, Shorter.

1. Tennessee Valley Substation, Belle Mina.
2. Sand Mountain Substation, Crossville.
4. Upper Coastal Plain Substation, Winfield.
5. Forestry Unit, Fayette County.
7. Forestry Unit, Coosa County.
8. Piedmont Substation, Camp Hill.
9. Forestry Unit, Autauga County.
10. Prattville Experiment Field, Prattville.
11. Black Belt Substation, Marion Junction.
12. The Turnipseed-Ikenberry Place, Union Springs.
13. Lower Coastal Plain Substation, Camden.
14. Forestry Unit, Barbour County.
15. Monroeville Experiment Field, Monroeville.
17. Brewton Experiment Field, Brewton.
18. Ornamental Horticulture Substation, Spring Hill.
19. Gulf Coast Substation, Fairhope.