

1992 Regional Cotton Fusarium Wilt Report



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1992 REGIONAL COTTON FUSARIUM WILT REPORT¹

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Cotton cultivars and elite breeding lines submitted by 20 cooperators were evaluated for fusarium wilt resistance under field conditions at the E. V. Smith Research Center, Shorter, 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 spp.).

Plots were 40-inch-wide bedded rows, 30 feet in length, separated by 6-foot alleys. Four replications of the test entries and checks, arranged in a block design, were evaluated. Both susceptible (Rowden) and resistant (Auburn 56) cultivars were included as checks. Auburn 56 was developed at Auburn and released in 1953. It was used as the resistant check in the Regional Fusarium Wilt Test for many years. However, it was replaced when it was no longer grown commercially. Auburn 56 is again being used as the resistant check because, although obsolete, it is the most consistently resistant cultivar available. Rowden was planted in row 5 and every tenth row thereafter (15,

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

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25,...,225) and Auburn 56 in row 10 and every tenth row thereafter (20, 30,...,220) throughout the test. Plots were planted May 14. Initial plant counts were made on June 18. Wilted plants were counted and removed on July 15, August 3, August 17, and August 24. The remaining live plants were also counted and recorded on August 24. Percent wilted plants were then determined and mean wilting for a given entry calculated.

Average wilting of the susceptible Rowden was 69, 59, 56, and 68 percent for the four replications (63 percent average). Corresponding wilt percentages for the resistant check, Auburn 56, were 13, 14, 10, and 11 (12 percent average). Critical evaluation of a given entry should be made relative to the checks closest to the entry within each replication. 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.

Entries submitted by W. C. Johnson 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 without regard to race, color, sex, or national origin

ACKNOWLEDGMENT

The author expresses appreciation to A.J. Kappelman, Jr., retired, for advice and technical assistance in conducting the test and preparing this report.

1992 Fusarium Wilt Test
E. V. Smith Research Center, Shorter, Alabama

Test entry designation	Percent wilt by replication					
	1	2	3	4	Mean	
1 Richard Sheetz, Cargill Hybrid Seed, Box 2, Aiken, TX 79221						
001	1.....	2	9	3	1	4
002	2.....	5	2	1	19	7
003	3.....	4	3	5	2	4
004	4.....	8	8	3	2	5
005	ROWDEN.....	61	39	77	41	54
006	5.....	5	3	12	4	6
007	6.....	2	6	0	18	6
008	7.....	11	3	5	10	7
009	8.....	26	6	2	9	11
010	AUBURN 56.....	6	2	0	9	4
2 Freddie M. Miller, Terra International Inc., Box 171376, Memphis, TN 38187						
011	1.....	55	11	23	27	29
012	2.....	60	4	1	71	34
013	3.....	13	20	0	11	11
014	4.....	57	48	54	61	55
015	ROWDEN.....	56	67	81	75	70
016	5.....	15	12	9	9	11
017	6.....	1	11	4	54	18
018	7.....	3	30	1	7	10
019	8.....	57	43	11	32	36
020	AUBURN 56.....	11	8	0	2	5
3 Warner Fisher, Chembred Inc., Rt. 3, Box 750, Marcopia, AZ 85239						
021	1.....	44	75	8	5	33
022	2.....	13	85	12	16	32
023	3.....	52	90	19	11	44
024	4.....	77	85	6	26	48
025	ROWDEN.....	97	34	40	76	62
026	5.....	45	93	7	37	46
027	6.....	35	75	2	19	33
028	7.....	40	22	9	4	11
029	8.....	16	7	19	16	14
030	AUBURN 56.....	17	0	5	23	11

1992 Fusarium Wilt Test
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Test entry designation	Percent wilt by replication					
	1	2	3	4	Mean	
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4	John Green, Seed Source, Inc., 106 4th Street, Leland, MS 38756					
031	SS9201.....	13	9	4	4	8
032	SS9202.....	17	59	4	11	23
033	SS9203.....	49	3	2	10	16
034	SS9204.....	54	17	2	2	19
035	ROWDEN.....	73	42	37	83	59
036	SS9205.....	47	11	44	39	35
037	SS9206.....	39	18	50	36	36
038	SS9207.....	24	16	16	42	24
039	SS9208.....	17	18	13	42	22
040	AUBURN 56.....	5	31	14	31	20
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5	O. Lloyd May, CPRU, P. O. Box 3039, Florence, SC 29502-3039					
041	PD 5246.....	13	21	7	10	13
042	PD 5256.....	1	14	15	10	10
043	PD 5286.....	49	8	7	27	23
044	PD 5582.....	19	17	11	3	12
045	ROWDEN.....	95	98	52	48	73
046	PD 5529.....	68	18	19	38	36
047	PD 5576.....	54	29	28	20	33
048	PD 5363.....	28	19	23	22	23
049	PD 5472.....	24	11	26	1	16
050	AUBURN 56.....	4	11	1	14	8
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6	A. L. Germany, Stoneville Pedigreed Seed Co. Inc., Box 167, Stoneville, MS 38776					
051	ALG-1.....	7	24	0	7	10
052	ALG-2.....	10	6	5	19	10
053	ALG-3.....	8	95	17	14	34
054	ALG-4.....	10	9	12	40	18
055	ROWDEN.....	32	84	45	73	59
056	ALG-5.....	4	10	13	3	8
057	ALG-6.....	10	20	10	12	13
058	ALG-7.....	9	9	7	62	22
059	ALG-8.....	7	26	13	9	14
060	AUBURN 56.....	9	15	5	55	21

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	1	2	3	4	Mean	
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7	Verlin Boeder, Chembred Inc., Rt. 3, Box 750, Marcopla AZ 85239					
061	1.....	0	6	5	13	6
062	2.....	11	12	3	4	8
063	3.....	3	4	15	5	7
064	4.....	13	16	4	37	18
065	ROWDEN.....	55	50	98	94	74
066	5.....	9	6	2	0	4
067	6.....	35	23	14	16	22
068	7.....	16	5	38	3	16
069	8.....	3	19	7	3	8
070	AUBURN 56.....	4	5	38	4	13
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8	Keith R. Jones, Delta & Pine Land Co., P.O. Box 157, Scott, MS 38772					
071	DPL 1.....	0	0	5	5	2
072	DPL 2.....	0	1	1	1	1
073	DPL 3.....	9	46	14	2	18
074	DPL 4.....	3	7	5	0	4
075	ROWDEN.....	76	100	35	55	66
076	DPL 5.....	13	4	2	1	5
077	DPL 6.....	24	68	25	23	35
078	DPL 7.....	3	39	9	0	13
079	DPL 8.....	26	2	4	1	8
080	AUBURN 56.....	31	20	21	6	20
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9	Peggy Thaxton, Dept. of Soil & Crop Sci., Texas A&M Univ., College Station, TX 77843-2474					
081	PMT-1.....	31	12	3	10	14
082	PMT-2.....	50	93	16	11	42
083	PMT-3.....	42	18	40	13	28
084	PMT-4.....	73	76	7	6	40
085	ROWDEN.....	100	74	83	84	85
086	PMT-5.....	38	1	6	16	15
087	PMT-6.....	42	33	1	11	22
088	PMT-7.....	49	24	65	12	38
089	PMT-8.....	70	7	9	8	24
090	AUBURN 56.....	44	6	18	12	20

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E. V. Smith Research Center, Shorter, Alabama

Test entry designation	Percent wilt by replication					
	1	2	3	4	Mean	
10	Kamal M. El-Zik, Dept. of Soil & Crop Sci., Texas A&M Univ., College Station, TX 77843-2474					
091	KME-1.....	13	5	5	9	8
092	KME-2.....	20	2	39	15	19
093	KME-3.....	92	16	42	23	43
094	KME-4.....	61	13	23	18	29
095	ROWDEN.....	55	31	72	81	60
096	KME-5.....	19	27	24	61	33
097	KME-6.....	10	9	6	12	9
098	KME-7.....	62	70	7	54	48
099	KME-8.....	43	11	4	2	15
100	AUBURN 56.....	12	33	2	5	13
11	Laval M. Verhalan, Dept. of Agronomy, Oklahoma State Univ., Stillwater, OK 74079-0507					
101	1.....	6	26	0	0	8
102	2.....	32	23	0	29	21
103	3.....	64	60	3	56	46
104	4.....	13	24	4	0	10
105	ROWDEN.....	48	60	15	47	42
106	5.....	14	13	7	7	10
107	6.....	7	13	18	6	11
108	7.....	2	14	5	3	6
109	8.....	24	58	44	7	33
110	AUBURN 56.....	12	4	3	0	5
12	Fred Bourland, 115 Plant Science Bldg., Univ. of Arkansas, Fayetteville, AR 72701					
111	FB-1.....	0	11	10	6	7
112	FB-2.....	1	30	1	13	11
113	FB-3.....	1	6	2	17	6
114	FB-4.....	1	4	1	33	10
115	ROWDEN.....	28	20	19	91	40
116	FB-5.....	10	2	8	0	5
117	FB-6.....	3	5	0	1	2
118	FB-7.....	10	12	10	11	11
119	FB-8.....	20	7	4	10	10
120	AUBURN 56.....	8	10	21	0	10

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Test entry designation	Percent wilt by replication					
	1	2	3	4	Mean	
13 Don Panter, Stoneville Pedigreed Seed Co. Inc., Box 167, Stoneville, MS 38776						
121	SPSCO-1.....	36	27	12	2	19
122	SPSCO-2.....	14	10	9	4	9
123	SPSCO-3.....	19	15	25	5	16
124	SPSCO-4.....	10	1	2	1	4
125	ROWDEN.....	74	72	33	87	66
126	SPSCO-5.....	8	46	12	13	20
127	SPSCO-6.....	12	70	21	3	26
128	SPSCO-7.....	0	25	35	7	17
129	SPSCO-8.....	47	86	45	22	50
130	AUBURN 56.....	2	13	6	11	8
14 C. Wayne Smith, Dept. of Soil & Crop Sci., Texas A&M Univ., College Station, TX 77843-2474						
131	90C-19.....	2	99	61	8	42
132	86TT-2.....	10	100	9	6	31
133	89E-51.....	4	84	2	16	26
134	89F-46S.....	93	100	42	29	66
135	ROWDEN.....	97	99	27	78	75
136	89F-51.....	93	100	7	98	74
137	89H-41.....	35	14	1	18	17
138	89H-44.....	11	37	7	0	14
139	88G-104.....	65	26	10	13	28
140	AUBURN 56.....	9	29	18	8	16
15 Shelby H. Baker, Univ. of Georgia, Coastal Plain Station, Tifton, GA 31793						
141	1.....	2	5	3	5	4
142	2.....	11	8	6	8	8
143	3.....	3	2	7	20	8
144	4.....	7	1	9	4	5
145	ROWDEN.....	88	45	12	25	42
146	5.....	10	10	2	15	9
147	6.....	26	19	0	7	13
148	7.....	5	13	2	4	6
149	8.....	16	6	7	5	8
150	AUBURN 56.....	8	1	0	6	4

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Test entry designation	Percent wilt by replication					
	1	2	3	4	Mean	
16 Bill Falaga, Terra International Inc., P. O. Box 171376, Memphis, TN 38187						
151	1.....	2	6	1	12	5
152	2.....	19	19	6	13	14
153	3.....	48	37	92	28	51
154	4.....	44	6	45	47	36
155	ROWDEN.....	32	69	66	67	58
156	5.....	10	8	5	43	16
157	6.....	18	29	36	26	27
158	7.....	28	21	2	10	15
159	8.....	12	14	10	1	9
160	AUBURN 56.....	31	11	0	31	18
17 Peter B. Goodell, Kearny Agricultural Center, 9240 South Riverbend Ave., Parlier, CA 93648						
161	1.....	5	6	5	12	7
162	2.....	5	1	1	0	2
163	3.....	3	0	2	0	1
164	4.....	3	3	2	1	2
165	ROWDEN.....	58	60	45	69	58
166	5.....	3	1	8	2	4
167	6.....	5	3	7	1	4
168	7.....	1	3	1	0	1
169	8.....	1	7	2	0	2
170	AUBURN 56.....	9	6	30	3	12
18 D. Steven Calhoun, Dept. of Agronomy, 104 Madison B. Sturgis Hall, Louisiana State Univ., Baton Rouge, LA 70803-2110						
171	1.....	8	5	6	6	6
172	2.....	2	4	14	5	6
173	3.....	0	25	15	12	13
174	4.....	14	6	11	1	8
175	ROWDEN.....	30	24	95	65	54
176	5.....	12	2	20	17	13
177	6.....	8	7	33	0	12
178	7.....	16	5	41	8	18

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E. V. Smith Research Center, Shorter, Alabama

Test entry designation	Percent wilt by replication				
	1	2	3	4	Mean
19 Daryl Bowman, Dept. of Crop Science, North Carolina State Univ., Box 8604, Raleigh, NC 27695-8604					
179 NC 88-99.....	10	5	17	4	9
180 AUBURN 56.....	4	2	10	3	5
181 NC 88-91.....	7	6	22	8	11
182 NC 88-95.....	4	28	1	15	14
20 W. C. Johnson, Dept. of Agronomy and Soils, Auburn University, Auburn University, AL 36849-5412					
183 CB 1233.....	12	3	15	6	9
184 DES 119.....	15	7	17	14	13
185 ROWDEN.....	59	79	73	85	74
186 Deltapine 90.....	3	3	8	6	5
187 GA 14-16.....	23	12	20	9	16
188 Pima 601.....	15	18	15	7	14
189 Deltapine 20.....	29	8	8	39	21
190 AUBURN 56.....	12	12	4	16	11
191 HS 46.....	70	43	32	33	44
192 CB 407.....	4	23	34	10	18
193 Stoneville LA 887.....	1	1	4	3	2
194 GA 88-15-19.....	5	1	5	5	4
195 ROWDEN.....	100	45	19	54	54
196 Delcot 344.....	12	2	7	0	5
197 HS 23.....	61	1	6	0	17
198 Deltapine 51.....	34	10	4	6	14
199 Suregrow 1001.....	24	10	7	19	15
200 AUBURN 56.....	8	10	2	1	5
201 Stoneville 453.....	19	3	23	7	13
202 Stoneville Coker 84-828.	30	22	9	6	17
203 Stoneville Coker 907....	2	9	33	4	12
204 Terra C 40.....	26	6	29	7	17
205 ROWDEN.....	87	24	96	12	55
206 Deltapine 5690.....	41	0	22	8	18
207 Stoneville X9358.....	7	18	36	6	17
208 Terra 207.....	8	3	9	0	5
209 HS Salcot 10.....	10	6	42	1	15
210 AUBURN 56.....	4	4	2	0	2
211 GA 88-92.....	16	17	61	3	24
212 Stoneville 132.....	4	8	1	0	3
213 Deltapine 50.....	17	22	13	4	14
214 CB 1135.....	10	12	32	6	15
215 ROWDEN.....	84	75	99	85	86
216 CB 333.....	3	12	9	6	8

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E. V. Smith Research Center, Shorter, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
217 Stoneville KC 311.....	4	8	18	9	10
218 Georgia King.....	21	7	12	4	11
219 Suregrow 501.....	54	10	73	9	36
220 AUBURN 56.....	14	6	9	9	10
221 Deltapine 5415.....	17	12	36	11	19
222 GA 88-88.....	31	11	44	9	24
223 PD 3.....	14	10	33	8	16
224 Stoneville Coker 320....	9	20	9	18	14
225 ROWDEN.....	92	63	67	89	78
226 Deltapine 549.....	16	6	72	12	26
227 CB 305.....	10	2	12	4	7
228 N8577.....	10	0	8	1	5
229 Pima-S6.....	0	0	7	4	3
230 AUBURN 56.....	24	62	13	3	26

