The 1993 Regional Cotton Fusarium Wilt Report

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1993 REGIONAL COTTON FUSARIUM WILT REPORT[1]

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Cotton cultivars and elite breeding lines submitted by 24 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 incogneta.).

Plots were 40-inch-wide 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, developed at Auburn and released in 1953, 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 it is the most consistently resistant cultivar available. Rowden was planted in row 5 and every tenth row thereafter (15, 25,...,275) and Auburn 56 in row 10 and every tenth row thereafter (20, 30,...,270) throughout the test. Plots were planted May 7. Initial plant counts were made

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[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.

on June 2. Wilted plants were counted and removed on June 25, July 9, July 27, 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 93, 85, 94, and 76 percent for the four replications (87 percent average). Corresponding wilt percentages for the resistant check, Auburn 56, were 52, 37, 55, and 37 (45 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 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.

1993 Fusarium Wilt Test
E. V. Smith Research Center, Shorter, Alabama

Test entry designation		Percent wilt by replication 1	2	3	4	Mean
1	C. Wayne Smith, Dept. of Soil & Crop Sci., Texas A&M Univ., College Station, TX 77843-2474					
001	WS-1	98	98	100	100	99
002	WS-2	22	58	71	40	48
003	WS-3	-	98	95	96	96
004	WS-4	-	77	95	96	89
005	ROWDEN	-	96	96	94	95
006	WS-5	80	44	88	75	71
007	WS-6	99	96	99	97	98
008	WS-7	48	80	98	66	73
009	WS-8	95	74	97	75	85
010	AUBURN 56	37	74	79	28	55
2	James L. Starr, Dept. of Plant Pathology and Microbiology, Texas A & M University, College Station, TX 77843-2474					
011	JS-1	47	66	41	47	50
012	JS-2	31	65	32	23	38
013	JS-3	23	43	55	22	36
014	JS-4	27	55	32	24	35
015	ROWDEN	88	93	92	94	92
016	JS-5	9	58	51	36	38
017	JS-6	21	53	71	30	44
018	JS-7	12	43	73	50	44
019	JS-8	26	37	51	19	33
020	AUBURN 56	38	28	41	29	34
3	J. Jefferson Gwyn, Chembred, Inc., 10201 So. 51st Street, Phoenix, AZ 85044					
021	CB 232	36	48	87	83	63
022	CB 333	45	65	75	70	64
023	CB 407	56	63	80	57	64
024	CB 1135	60	77	69	2	52
025	ROWDEN	94	93	97	62	87
026	CB 1233	40	67	27	32	42
027	Acala CB 1210	66	80	82	5	58
028	Acala CB 7	39	51	72	30	48
029	Acala CB 305	53	38	55	10	39
030	AUBURN 56	55	45	73	28	50

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4	Bobby Phipps, Agrigenetics, 13974 W. Van Buren St. Goodyear, AZ 85338					
031	AGC 2006	86	80	92	14	68
032	AGC 2008	60	40	63	18	45
033	AGC 2009	88	44	89	24	61
034	AGC 3042	73	25	60	12	43
035	ROWDEN	91	96	97	80	91
036	AGC 3043	52	55	94	22	56
037	AGC 3049	75	88	54	62	70
038	AGC 3015	41	66	83	20	52
039	AGC 2005	28	56	35	13	33
040	AUBURN 56	15	26	50	16	27
5	Fred Bourland, 115 Plant Science Bldg., Univ. of Arkansas, Fayetteville, AR 72701					
041	FB-1	43	87	68	32	58
042	FB-2	58	93	87	58	74
043	FB-3	49	73	97	45	66
044	FB-4	88	67	90	78	81
045	ROWDEN	97	91	97	95	95
046	FB-5	47	74	81	84	72
047	FB-6	17	51	92	84	61
048	FB-7	16	43	69	35	41
049	FB-8	18	75	87	49	57
050	AUBURN 56	32	66	55	63	54
6	John Green, Seed Source, Inc., 106 4th Street, Leland, MS 38756					
051	JMG-1	21	43	78	37	45
052	JMG-2	20	68	62	30	45
053	JMG-3	22	48	67	53	47
054	ALG-4	40	78	75	78	68
055	ROWDEN	93	90	98	65	86
056	JMG-5	72	58	90	75	74
057	JMG-6	59	69	79	74	70
058	JMG-7	98	51	84	62	74
059	JMG-8	86	73	86	68	78
060	AUBURN 56	92	54	64	51	65

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7	Peggy Thaxton, Dept. of Soil & Crop Sci., Texas A&M Univ., College Station, TX 77843-2474					
061	PMT-1	-	38	55	68	54
062	PMT-2	99	86	94	95	94
063	PMT-3	42	75	78	84	70
064	PMT-4	78	80	95	84	84
065	ROWDEN	93	93	96	93	94
066	PMT-5	78	96	96	95	91
067	PMT-6	-	87	92	92	90
068	PMT-7	-	97	92	95	95
069	PMT-8	98	81	93	79	88
070	AUBURN 56	75	41	81	47	61
8	Laval M. Verhalan, Dept. of Agronomy, Oklahoma State Univ., Stillwater, OK 74078-0507					
071	OKLA-1	100	79	93	92	91
072	OKLA-2	68	72	99	80	80
073	OKLA-3	51	42	61	42	49
074	OKLA-4	90	72	92	9	66
075	ROWDEN	88	92	88	87	89
076	OKLA-5	11	66	37	22	34
077	OKLA-6	31	41	25	38	34
078	OKLA-7	28	63	48	59	49
079	OKLA-8	76	70	79	65	72
080	AUBURN 56	42	23	25	36	32
9	R. R. Bridge, Suregrow Research, P.O. Box 312, Leland, MS 38756					
081	SG-1	56	74	87	57	68
082	SG-2	45	41	89	65	60
083	SG-3	51	42	90	64	62
084	SG-4	64	19	74	78	59
085	ROWDEN	96	90	95	84	91
086	SG-5	23	19	68	40	37
087	SG-6	72	74	96	58	75
088	SG-7	61	44	79	29	53
089	SG-8	26	32	78	14	37
090	AUBURN 56	53	27	79	23	45

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E. V. Smith Research Center, Shorter, Alabama

Test designation	entry	Percent wilt by replication 1	2	3	4	Mean
10	Larry Burdett, Delta and Pine Land Co., 1305 N. VIP Blvd. Casa Grande, AZ 85222					
091	1	76	67	96	73	78
092	2	84	54	97	77	78
093	3	100	98	98	69	91
094	4	66	21	85	29	50
095	ROWDEN	98	96	95	40	82
096	5	92	34	67	6	50
097	6	94	56	70	33	63
098	7	77	54	58	9	50
099	8	40	60	90	49	60
100	AUBURN 56	29	33	40	31	33
11	O. Lloyd May, CPRU, P. O. Box 3039, Florence, SC 29502-3039					
101	L.MAY-1	81	69	60	65	69
102	L.MAY-2	76	64	68	42	62
103	L.MAY-3	88	90	67	75	80
104	L.MAY-4	88	70	94	24	69
105	ROWDEN	94	94	92	70	88
106	L.MAY-5	89	74	64	55	71
107	L.MAY-6	92	84	86	57	80
108	L.MAY-7	78	20	78	43	55
109	L.MAY-8	89	46	88	50	68
110	AUBURN 56	51	22	84	32	47
12	Richard Sheetz, Cargill Hybrid Seed, Box 2, Aiken, TX 79221					
111	1	53	10	84	59	51
112	2	48	17	69	39	43
113	3	62	12	38	21	33
114	4	77	28	60	43	52
115	ROWDEN	93	51	90	78	78
116	5	67	49	84	66	66
117	6	34	21	77	30	40
118	7	52	23	94	76	61
119	8	75	25	100	24	56
120	AUBURN 56	60	16	77	80	58

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Test entry designation		Percent wilt by replication 1	2	3	4	Mean
13	Shelby H. Baker, Univ. of Georgia, Coastal Plain Station, Tifton, GA 31793					
121	GA-1	97	34	95	70	74
122	GA-2	100	47	93	78	79
123	GA-3	80	25	90	84	70
124	GA-4	93	39	89	68	72
125	ROWDEN	-	51	94	97	80
126	GA-5	64	8	67	32	43
127	GA-6	22	6	49	26	26
128	GA-7	30	16	55	16	29
129	GA-8	13	2	41	12	17
130	AUBURN 56	31	14	30	41	29
14	Keith R. Jones, Delta & Pine Land Co., P.O. Box 157, Scott, MS 38772					
131	DPL-1	53	13	34	37	34
132	DPL-2	70	4	16	25	29
133	DPL-3	95	10	75	44	56
134	DPL-4	81	6	57	61	51
135	ROWDEN	90	44	94	92	80
136	DPL-5	80	6	80	37	51
137	DPL-6	86	14	94	37	58
138	DPL-7	99	11	99	50	64
139	DPL-8	67	8	47	31	38
140	AUBURN 56	54	18	41	34	37
15	Bill Falaga, Terra International Inc., P. O. Box 171376, Memphis, TN 38187					
141	1	51	17	66	30	41
142	2	65	17	81	63	56
143	3	78	10	41	57	47
144	4	72	28	70	46	54
145	ROWDEN	95	59	94	61	77
146	5	43	24	70	67	51
147	6	78	30	78	54	60
148	7	89	16	61	61	56
149	8	84	10	84	52	57
150	AUBURN 56	58	9	71	44	45

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Test designation	entry	Percent wilt by replication 1	2	3	4	Mean
16	Kamal M. El-Zik, Dept. of Soil & Crop Sci., Texas A&M Univ., College Station, TX 77843-2474					
151	KME-1	88	14	93	75	68
152	KME-2	87	21	85	44	59
153	KME-3	77	24	92	35	57
154	KME-4	86	34	90	70	70
155	ROWDEN	91	67	95	69	80
156	KME-5	74	19	81	65	60
157	KME-6	64	27	77	32	50
158	KME-7	95	77	100	63	84
159	KME-8	61	26	57	25	42
160	AUBURN 56	63	12	55	34	41
17	Curtis Williams, Jacob Hartz Seed Co., Inc., P.O. Box 946, Stuttgart, AR 72160					
161	1	76	20	84	77	64
162	2	70	15	74	56	54
163	3	72	14	77	43	52
164	4	56	10	32	14	28
165	ROWDEN	91	43	90	87	78
166	5	56	8	23	37	31
167	6	71	20	67	46	51
168	7	33	21	42	30	31
169	8	81	19	72	58	58
170	AUBURN 56	56	7	51	36	38
18	Jim Mitchell, Jacob Hartz Seed Co., Inc., P.O. Box 946 Stuttgart, AR 72160					
171	JM-1	49	4	82	39	44
172	JM-2	93	48	91	60	73
173	JM-3	71	9	86	53	55
174	JM-4	88	34	96	74	73
175	ROWDEN	96	92	97	71	89

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19	D. Steven Calhoun, Dept. of Agronomy, 104 Madison B. Sturgis Hall, Louisiana State Univ., Baton Rouge, LA 70803-2110					
176	LA890725	64	22	68	10	41
177	LA861875	56	11	33	45	36
178	LA861877	72	12	40	26	37
179	LA861879	49	33	38	47	42
180	AUBURN 56	27	15	53	53	37
20	Don Panter, Stoneville Pedigreed Seed Co. Inc., Box 167, Stoneville, MS 38776					
181	DMP-1	69	26	70	56	55
182	DMP-2	85	60	93	78	79
183	DMP-3	100	82	97	72	88
184	DMP-4	100	79	98	71	87
185	ROWDEN	99	92	99	86	94
186	DMP-5	100	52	95	58	76
187	DMP-6	100	70	100	51	80
188	DMP-7	99	50	93	66	77
189	DMP-8	86	84	22	20	53
190	AUBURN 56	55	59	57	12	46
21	A. L. Germany, Stoneville Pedigreed Seed Co. Inc., Box 167, Stoneville, MS 38776					
191	SPSCO-1	98	93	94	81	91
192	SPSCO-2	78	72	62	6	55
193	SPSCO-3	61	58	50	28	49
194	SPSCO-4	30	53	38	46	42
195	ROWDEN	91	87	91	86	89
196	SPSCO-5	97	88	97	95	94
197	SPSCO-6	100	71	97	60	82
198	SPSCO-7	99	89	92	67	86
199	SPSCO-8	97	50	85	65	74
200	AUBURN 56	77	39	56	64	59

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22	Johnie N. Jenkins, Crop Sci. Research Laboratory, P.O. Box 5367, Mississippi State, MS 39762					
201	JNJ-1	38	12	19	20	22
202	JNJ-2	39	35	22	7	26
203	JNJ-3	87	77	75	55	73
204	JNJ-4	14	25	8	10	14
205	ROWDEN	79	91	94	85	87
206	JNJ-5	31	47	17	20	29
207	JNJ-6	36	28	13	10	22
208	JNJ-7	33	57	22	21	33
209	JNJ-8	46	59	15	42	40
210	AUBURN 56	56	44	43	8	37
211	JNJ-9	64	54	52	10	45
212	JNJ-10	66	53	49	32	50
213	JNJ-11	43	41	38	13	34
214	JNJ-12	90	27	76	18	53
215	ROWDEN	94	85	97	57	83
216	JNJ-13	73	62	71	13	55
217	JNJ-14	52	89	90	23	63
218	JNJ-15	92	96	89	43	80
219	JNJ-16	29	69	29	37	41
220	AUBURN 56	59	82	52	33	56
23	Freddie M. Miller, Terra International Inc., Box 171376, Memphis, TN 38187					
221	1	82	91	80	22	69
222	2	78	80	96	49	76
223	3	84	38	61	23	52
224	4	99	100	99	89	96
225	ROWDEN	91	95	90	93	92
226	5	93	57	65	33	62
227	6	53	42	47	65	52
228	7	85	90	76	51	75
229	8	63	54	42	33	48
230	AUBURN 56	34	65	45	18	40

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24	Kathryn M. Glass, Dept. of Agronomy and Soils, Auburn University, Auburn University, AL 36849-5412					
231	PD3.....	32	72	52	23	45
232	Stoneville 907.....	62	87	63	27	60
233	Deltapine DP 5415.....	93	66	78	43	70
234	Hyperformer HY 39.....	78	69	79	46	68
235	ROWDEN.....	97	89	91	63	85
236	Suregrow 501.....	86	81	90	47	76
237	Deltapine 51.....	67	44	84	58	63
238	Chembred CB 1233.....	82	39	91	31	61
239	Georgia King.....	77	91	92	33	73
240	AUBURN 56.....	39	52	45	40	44
241	Stoneville KC 311.....	83	75	40	44	61
242	Hyperformer HS 23.....	77	57	32	18	46
243	Deltapine DP 5690.....	65	82	52	32	58
244	Terra C 40.....	54	85	41	38	55
245	ROWDEN.....	89	96	90	72	86
246	GA 88-88.....	71	93	85	68	79
247	Suregrow 404.....	76	86	61	31	63
248	Hollybrook HB 133.....	99	92	92	66	87
249	Stoneville X84-828.....	91	67	91	57	77
250	AUBURN 56.....	70	49	53	37	52
251	Stoneville 453.....	97	89	93	78	89
252	SS 9202.....	99	80	55	35	67
253	Hyperformer HS 46.....	98	98	97	90	96
254	Deltapine DP 5409.....	99	97	78	40	78
255	ROWDEN.....	97	98	97	79	93
256	DES 119.....	63	93	71	58	72
257	Terra 292.....	70	87	84	44	71
258	Suregrow 1001.....	70	92	76	68	76
259	GA 88-15-19.....	96	61	56	43	64
260	AUBURN 56.....	73	25	36	49	46
261	Chembred CB 1135.....	91	59	79	40	67
262	Stoneville LA 887.....	42	42	64	50	49
263	SS 9303.....	79	78	84	51	73
264	Deltapine 50.....	75	86	81	48	73
265	ROWDEN.....	97	97	98	59	88
266	Hyperformer HS 44.....	69	86	65	35	64
267	Deltapine Acala 90.....	67	90	66	37	65
268	Terra 207.....	52	69	65	31	54
269	Suregrow 125.....	78	85	95	34	73
270	AUBURN 56.....	46	60	45	23	43
271	Stoneville X9573.....	96	93	100	77	91
272	Hollybrook HB 147.....	90	89	83	53	79
273	Deltapine 20.....	75	95	37	32	60
274	Stoneville 132.....	44	47	17	42	38
275	Rowden.....	95	96	98	72	90