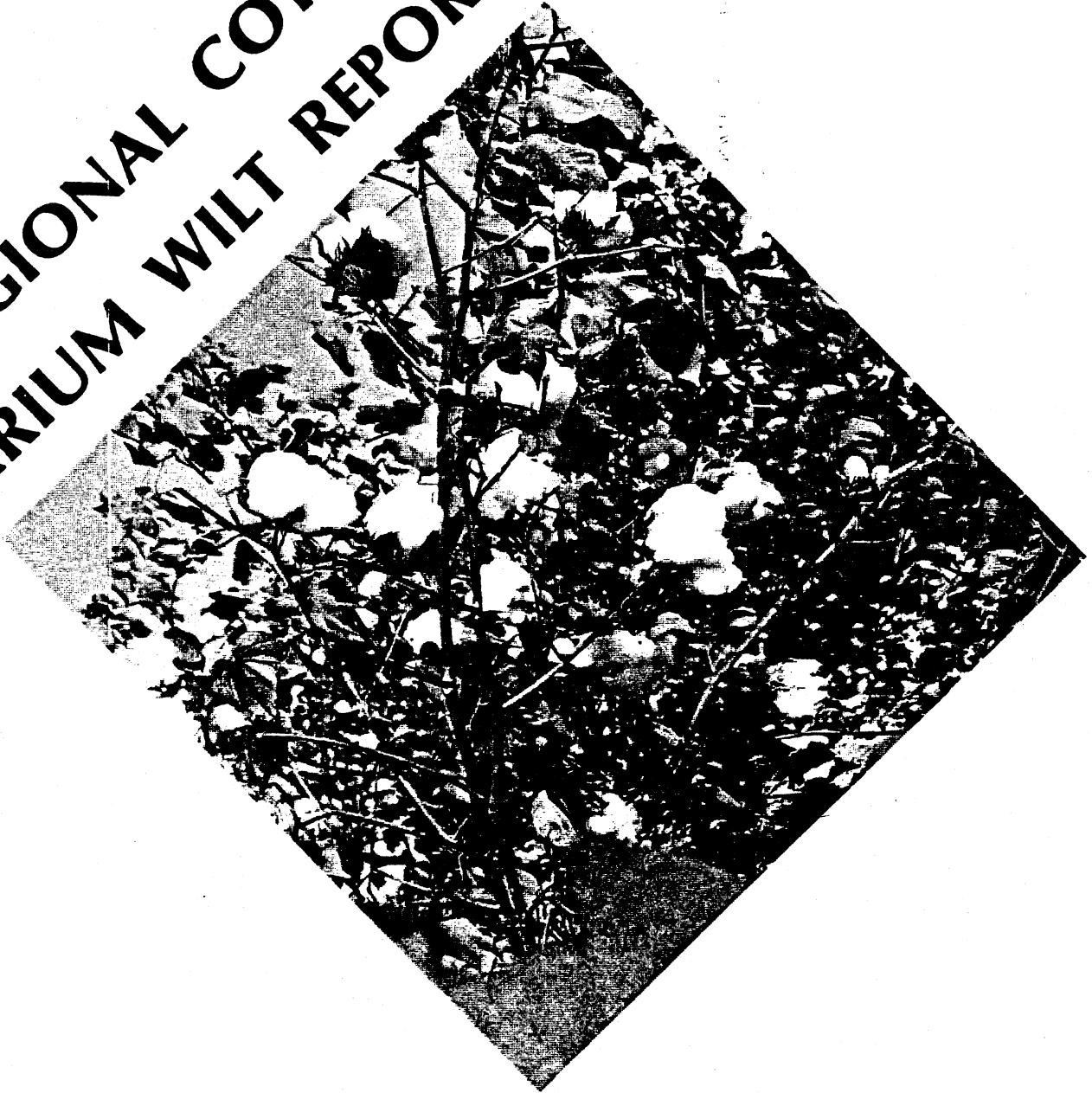


1985 REGIONAL COTTON
FUSARIUM WILT REPORT



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1985 REGIONAL COTTON FUSARIUM WILT REPORT¹

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Cotton cultivars and elite breeding lines submitted by 19 cooperators were evaluated for fusarium wilt resistance under field conditions at the Plant Breeding Unit, Tallassee, Alabama. These entries were grown on a Cahaba loamy fine sand highly infested with both the fusarium wilt fungus (Fusarium oxysporum Schlect. f. vasinfectum [Atk.] Snyder & 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 (McNair 235) cultivars were included as checks. Rowden was planted in row 5 and every tenth row thereafter (15, 25, ..., 205) and McNair 235 in row 10 and every tenth row thereafter (20, 30, ..., 200) throughout the test. Plots were planted May 1 and thinned to three or four plants per foot on June 18. Initial live plant counts were also made on that date. Wilted plants were counted, removed, and recorded on July 16, August 15, and September 18. The remaining live plants were also counted and recorded on September 18.

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 Professor of Agronomy and Soils and former Research Associate of Agronomy and Soils (currently Sumter County, Florida Extension Supervisor), respectively.

Percent wilted plants per plot were then determined and mean wilting for a given entry calculated.

The incidence of wilt was high within the experimental area and was not excessively variable, appearing to be more or less randomly distributed. Average wilting of the susceptible Rowden was 65.8, 68.6, 81.4, and 60.8 percent for each of the four replications. The mean incidence of wilting in the resistant check, McNair 235, was 2.9, 5.8, 10.9, and 3.7 percent in the corresponding replications. Critical evaluation of a given entry should be made relative to the checks closest to the entry within each replication. Evaluation of breeding progress 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. Thus, these entries 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.

ACKNOWLEDGMENT

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

1985 Regional Cotton Fusarium Wilt Test,
Plant Breeding Unit, Tallassee, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
Robert R. Bridge, DBES, P.O. Box 197, Stoneville, MS, 38776					
RRB-1	3.1	1.0	3.2	19.4	6.7
RRB-2	5.0	1.0	0	33.8	10.0
RRB-3	7.4	0	0	11.4	4.7
RRB-4	0.8	5.6	0	57.1	15.9
Rowden	35.5	100.0	13.3	88.5	59.3
RRB-5	0	6.8	1.6	2.5	2.7
RRB-6	2.0	15.8	0	0	4.4
RRB-7	0.8	0	0	14.4	3.8
RRB-8	2.6	5.2	0	50.0	14.4
McNair 235	8.7	5.4	4.6	10.5	7.3
Kamal M. El-Zik, Dept. of Plant Sciences, Texas A&M, College Station, TX 77843					
KE-1	1.6	19.7	2.2	14.9	9.6
KE-2	10.0	45.6	3.0	9.1	16.9
KE-3	6.1	21.1	1.3	14.0	10.6
KE-4	5.6	4.8	16.3	9.2	9.0
Rowden	72.4	30.2	48.8	82.5	58.5
KE-5	6.5	7.6	9.2	52.8	19.0
KE-6	7.0	27.1	1.5	25.5	15.3
KE-7	20.3	3.1	7.6	0	7.8
KE-8	15.7	14.1	7.1	50.8	21.9
McNair 235	8.8	5.9	7.5	1.9	6.0
Luther S. Bird, Dept. of Plant Sciences, Texas A&M, College Station, TX 77843					
LB-1	31.2	24.7	53.7	34.7	36.1
LB-2	36.7	40.3	33.8	62.0	43.2
LB-3	66.7	71.8	21.2	67.8	56.9
LB-4	60.0	44.0	19.4	67.9	47.8
Rowden	94.7	60.2	50.6	89.4	73.7
LB-5	30.2	8.0	39.4	98.7	44.1
LB-6	0	7.4	58.0	40.3	26.4
LB-7	1.1	0	28.9	2.6	8.2
LB-8	7.9	1.4	26.8	14.5	12.6
McNair 235	0	1.2	11.5	6.3	4.8

Continued

1985 Regional Cotton Fusarium Wilt Test,
Plant Breeding Unit, Tallassee, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
Mason Hawkins, Ranger Seed Co., Box 1288, Tahoka, TX 79373					
RSC-1	5.3	3.2	6.1	16.3	7.7
RSC-2	5.5	0	34.1	24.7	16.1
RSC-3	9.4	0	0	6.7	4.0
RSC-4	9.3	4.8	11.8	13.9	10.0
Rowden	48.2	96.4	72.3	93.0	77.5
RSC-5	8.7	3.8	8.3	17.8	9.6
RSC-6	8.8	19.0	23.6	34.4	21.4
RSC-7	0	2.5	23.6	4.7	7.7
RSC-8	12.1	1.5	35.6	1.1	12.6
McNair 235	2.1	3.6	5.2	4.7	3.9

Fred Bourland, Dept. of Agronomy, P.O. Box 5248, Mississippi State, MS 39762

FMB-1	3.5	15.5	12.2	2.9	8.5
FMB-2	3.8	0	14.3	18.4	9.1
FMB-3	16.9	1.1	50.0	8.0	19.0
FMB-4	1.0	0	5.2	1.9	2.0
Rowden	100.0	16.2	100.0	91.0	76.8
FMB-5	7.5	2.7	69.7	6.2	21.5
FMB-6	0	0	50.4	4.5	13.7
FMB-7	4.2	0	71.7	0	19.0
FMB-8	1.8	3.2	4.9	4.5	3.6
McNair 235	0	2.2	7.6	0	2.4

John Green, Northrup King Seed Co., P.O. Drawer 272, Leland, MS 38756

JMG-1	0	0	4.4	3.2	1.9
JMG-2	4.9	0	12.4	7.7	6.2
JMG-3	18.4	26.6	38.6	1.0	21.2
JMG-4	1.1	1.2	0	2.1	1.1
Rowden	74.8	88.2	70.8	23.3	64.3
JMG-5	2.0	15.1	24.4	2.2	10.9
JMG-6	9.5	69.0	65.2	26.5	42.6
JMG-7	0	0.8	76.3	0	19.3
JMG-8	0	16.7	27.8	1.0	11.4
McNair 235	0.9	2.9	26.6	0	7.6

Continued

1985 Regional Cotton Fusarium Wilt Test,
Plant Breeding Unit, Tallassee, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
Henry W. Webb, Coker's Pedigreed Seed Co., P.O. Box 340, Hartsville, SC 29550					
CO-1	6.7	8.4	21.8	0	9.2
CO-2	3.0	1.9	34.4	0.9	10.0
CO-3	1.8	0	6.5	5.2	3.4
CO-4	1.2	0.9	22.3	11.7	9.0
Rowden	92.9	66.7	100.0	50.0	77.4
CO-5	5.8	1.8	9.8	2.2	4.9
CO-6	6.6	15.4	16.9	3.4	10.6
CO-7	3.0	24.0	48.8	4.1	20.0
CO-8	0	40.4	9.8	9.1	14.8
McNair 235	4.1	7.3	20.7	0	8.0
C.W. Manning, Stoneville Pedigreed Seed Co., P.O. Box 167, Stoneville, MS 38776					
ST-1	4.2	34.1	15.8	35.1	22.3
ST-2	1.0	0	20.5	0	5.4
ST-3	11.6	33.7	5.1	1.1	12.9
ST-4	39.2	1.1	18.4	0	14.7
Rowden	89.2	98.9	87.4	27.5	75.8
ST-5	18.9	32.4	15.1	9.8	19.0
ST-6	1.9	1.8	9.2	0	3.2
ST-7	2.0	44.4	14.3	0	15.2
ST-8	6.9	1.1	15.6	1.3	6.2
McNair 235	0	6.1	9.0	0.9	4.0
Larry Barton, Rogers Cottonseed Co., P.O. Drawer 1340, Waco, TX 76703					
LLB-1	12.6	10.5	58.5	18.4	25.0
LLB-2	0	5.1	31.1	0	9.0
LLB-3	1.7	6.5	62.0	4.3	18.6
LLB-4	14.0	0.7	79.1	37.8	32.9
Rowden	19.1	67.9	98.3	45.3	57.6
LLB-5	21.8	32.1	42.6	18.6	28.8
LLB-6	40.2	18.0	59.4	29.5	36.8
LLB-7	21.6	60.0	63.9	17.6	40.8
LLB-8	3.4	33.3	69.9	2.2	27.2
McNair 235	1.1	12.9	3.4	3.4	5.2

Continued

1985 Regional Cotton Fusarium Wilt Test,
Plant Breeding Unit, Tallassee, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
Keith R. Jones, Delta & Pine Land Co., P.O. Box 157, Scott, MS 38772					
DPL-1	0	0	0	0	0
DPL-2	0	2.8	0	6.8	2.4
DPL-3	3.3	1.8	8.8	8.4	5.6
DPL-4	7.8	3.4	14.8	1.9	7.0
Rowden	44.4	82.1	96.1	80.9	75.9
DPL-5	5.3	2.7	4.9	1.8	3.7
DPL-6	30.9	43.4	5.0	0	19.8
DPL-7	2.1	1.8	18.2	4.6	6.7
DPL-8	0	2.1	34.0	13.2	12.3
McNair 235	2.4	3.5	2.4	0.9	2.3
Gene Douglas, Res. Div., Hollandale Agr. Ser., P.O. Box 397, Hollandale, MS 38748					
HAS 1501	43.5	94.0	67.5	3.6	52.2
HAS 1502	3.5	10.6	4.3	0	4.6
HAS 1503	1.0	11.5	4.4	0	4.2
HAS 1504	0.9	1.0	4.7	0	1.6
Rowden	88.5	100.0	91.2	7.6	71.8
HAS 1505	0.8	0	0	0	0.2
HAS 1506	2.0	0	5.6	1.1	2.2
HAS 1507	92.2	54.8	76.7	41.2	66.2
HAS 1508	89.2	66.7	82.7	7.8	61.6
McNair 235	3.7	5.1	2.5	2.0	3.3
Jerry D. Carroll, Terra Seed Co., P.O. Box 10121, Lubbock, TX 79408					
JDC-1	2.7	8.8	14.3	0	6.4
JDC-2	1.1	6.3	52.3	4.1	16.0
JDC-3	2.2	21.1	25.2	4.0	13.1
JDC-4	3.4	0	34.4	0	9.4
Rowden	26.0	44.1	96.3	69.5	59.0
JDC-5	0	5.8	21.2	0	6.8
JDC-6	1.1	1.1	0	0	0.6
JDC-7	6.6	0	51.7	1.0	14.8
JDC-8	0	0.9	18.8	0	4.9
McNair 235	8.8	0	3.1	0	3.0

Continued

1985 Regional Cotton Fusarium Wilt Test,
Plant Breeding Unit, Tallassee, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
J.B. Weaver, Dept. of Agronomy, University of Georgia, Athens, GA 30602					
JBW-1	0	0.9	9.5	0	2.6
JBW-2	18.0	14.4	19.1	6.1	14.4
JBW-3	1.0	14.0	10.8	0.8	6.6
JBW-4	0.9	0	0	6.2	1.8
Rowden	27.3	16.9	67.1	10.7	30.5
JBW-5	0	0	5.7	0	1.4
JBW-6	16.5	0	29.5	6.5	13.1
JBW-7	1.0	6.6	40.0	5.1	13.2
JBW-8	0.9	6.8	33.1	4.0	11.2
McNair 235	0	4.3	31.8	0	9.0

T.W. Culp, USDA, Cotton Production Research Unit, P.O. Box 2131, Florence, SC 29503

TWC-1	1.8	20.0	15.3	5.7	10.7
TWC-2	84.6	85.7	89.3	63.4	80.8
TWC-3	57.4	33.9	43.6	25.0	40.0
TWC-4	66.2	83.3	63.2	32.8	61.4
Rowden	100.0	89.5	97.8	70.4	89.4
TWC-5	48.0	90.0	76.0	41.9	64.0
TWC-6	71.4	32.1	87.8	11.8	50.8
TWC-7	45.5	43.3	23.0	49.3	40.3
TWC-8	3.1	24.0	12.5	12.5	13.0
McNair 235	8.5	0	0	6.1	3.6

Joel F. Mahill, GroAgri Seed Co., P.O. Box 1656, Lubbock, TX 79408

GSC 1004	5.9	19.3	25.0	53.3	25.9
GSC 1005	4.5	11.6	3.6	5.4	6.3
GSC 1006	3.4	13.6	10.5	51.9	19.9
Stoneville 453	15.0	15.9	1.6	55.0	21.9
Rowden	83.9	54.1	80.4	96.4	78.7

Continued

1985 Regional Cotton Fusarium Wilt Test,
Plant Breeding Unit, Tallassee, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
Laval M. Verhalen, Dept. of Agronomy, Oklahoma St. Univ., Stillwater, OK 74078					
OKLA-1	0	0.8	15.4	0.9	4.3
OKLA-2	1.9	0.8	13.6	0	4.1
OKLA-3	0	7.6	88.1	17.1	28.2
OKLA-4	3.5	1.1	36.7	2.3	10.9
Rowden	56.4	83.2	100.0	84.4	81.0
OKLA-5	4.9	4.1	18.3	0	6.8
OKLA-6	0	0.9	13.9	1.1	1.5
OKLA-7	0	1.1	11.7	4.5	4.3
OKLA-8	0	1.2	14.8	9.0	6.2
McNair 235	0	1.2	16.7	13.9	8.0
Jerry Rice, Cargill Seed Division, P.O. Box 1630, Plainview, TX 79072					
JR-1	0.8	1.2	25.0	2.1	7.3
JR-2	1.0	1.6	38.9	0	10.4
JR-3	12.2	7.1	96.7	60.2	44.0
JR-4	6.8	6.0	93.5	8.9	28.8
Rowden	55.4	86.1	100.0	20.0	65.4
JR-5	15.7	7.9	4.0	0	6.9
JR-6	0	3.4	4.8	0	2.0
JR-7	2.3	2.2	11.2	1.8	4.4
JR-8	0	1.0	13.5	1.8	4.1
McNair 235	1.1	3.2	14.7	1.0	5.0
Shelby H. Baker, Dept. of Agronomy, Univ. of Georgia, CPES, P.O. Box 748, Tifton, GA 31793-0740					
GaT-1	11.8	5.2	83.7	1.7	25.6
GaT-2	13.8	19.7	46.6	7.3	21.8
GaT-3	0	0	10.5	12.1	5.6
GaT-4	0	1.9	68.6	28.3	24.7
Rowden	41.9	90.5	100.0	50.9	70.8
GaT-5	1.6	2.4	65.2	7.5	19.2
GaT-6	2.3	0	28.1	1.9	8.1
GaT-7	1.0	1.6	65.6	2.8	17.8
GaT-8	1.2	1.0	36.9	0	9.8
McNair 235	2.8	1.2	12.1	10.2	6.6

continued

1985 Regional Cotton Fusarium Wilt Test,
Plant Breeding Unit, Tallassee, Alabama

Test entry designation	Percent wilt by replication				Mean
	1	2	3	4	
W.C. Johnson, Dept. of Agronomy & Soils, Auburn University, AL 36849					
Coker 81-102	2.1	1.2	43.5	0	11.7
Deltapine 90	0	1.1	0	0.8	0.5
Coker 81-139	1.4	14.6	8.6	0.8	6.4
KNX 2019	3.1	0	36.5	3.6	10.8
Rowden	73.3	8.3	63.1	56.0	50.2
Deltapine 61	38.4	21.9	28.3	92.8	45.4
Coker 310	6.8	2.2	10.9	23.7	10.9
Deltapine 41	1.0	0	12.1	10.3	5.8
Stoneville 213	29.1	1.1	85.4	44.6	40.0
McNair 235	0	3.8	18.5	2.7	6.2
Coker 3131	4.8	8.1	7.0	70.0	22.5
Deltapine 50	4.2	0	21.1	1.7	6.8
Stoneville 825	81.1	72.6	88.8	100.0	85.6
PD-1	29.1	25.0	19.8	64.5	34.6
Rowden	99.0	64.2	76.9	100.0	85.0
DES 422	0	9.8	0.9	9.1	5.0
Coker 304	13.6	32.1	17.1	7.4	17.6
Deltapine 20	0	3.3	4.1	0.9	2.1
Stoneville 112	0	8.3	21.6	1.1	7.8
McNair 235	3.9	26.3	7.4	8.4	11.5
Coker 315	20.7	12.5	8.7	53.7	23.9
McNair 308	2.2	13.4	88.3	4.4	27.1
Stoneville 506	2.2	1.0	17.9	12.4	8.4
PD-2	21.4	67.5	19.2	3.4	27.9
Rowden	59.3	97.1	100.0	40.1	74.1
Coker 208	24.5	52.1	73.0	18.5	42.0
McNair 220	11.5	16.7	24.0	0	13.0
Delcot 311	1.9	1.2	9.6	0	3.2
Gumbo	8.1	5.3	5.4	0	4.7
McNair 235	1.2	20.6	12.4	1.0	8.8

