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University of Tennessee Agricultural Experiment Station

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# University of Tennessee Agricultural Experiment Station

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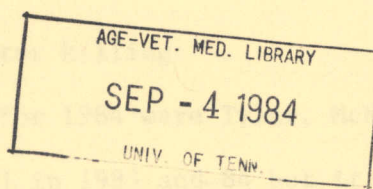
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August, 1984

Research Report 84-09

## Performance of Wheat, Barley, Oats, and Rye Varieties in 1984

Charles R. Graves



Dept. of Plant and Soil Science

PERFORMANCE OF WHEAT, BARLEY, OATS AND RYE VARIETIES IN 1984<sup>1/</sup>

Charles R. Graves<sup>2/</sup>

Wheat

Twenty-six soft red winter wheat varieties were evaluated in 1984.

No yield data are reported for Springfield, Crossville and Greeneville due to various conditions which made the data too variable to be reported.

Very little disease was noted in 1984. Knoxville was the only location where disease ratings were made. In 1983 virus disease had been a problem at several locations but in 1984 little or no virus was observed at the location where the tests were conducted. Some virus was present in some areas in West Tennessee. The Entomology and Plant Pathology Department had a wheat variety test in Lake County and the reaction of wheat varieties to the virus differed greatly.

The 1983-84 growing season was quite cold. All oat varieties winter killed at most locations but little winter injury was noted on most wheat varieties. Some varieties such as Florida 301 showed some tip injury but the stand was reduced very little from winter killing.

The leading wheat varieties in yield for 1984 were Tyler, McNair 1003, Caldwell and Coker 916. Tyler yielded well in 1983 and 84 but it is susceptible to leaf rust which might cause problems under severe leaf rust conditions. However, in the absence of leaf rust, Tyler has a good yield potential. McNair 1003 yielded well in 1984 but poorly in 1983. This variety has been erratic in yield for many years and this is probably due to its susceptibility

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<sup>1/</sup> These results will be included in the 1984 Bulletin, "Performance of Field Crop Varieties", which will be available in 1985.

<sup>2/</sup> Professor of Plant and Soil Science.

to some of the virus disease.

Caldwell yielded well in 1984 as it has for the past three years. In 1983 Caldwell had some glume blotch disease but in 1985 this did not seem to be a problem. Florida 302 performed well but showed some stand thinning with tip burn from the cold. Auburn performed well in 1984 and 1983 but like Fillmore it is late maturing. Auburn has shown some glume blotch where the disease pressure has been heavy. In 1984 the wheat varieties at Knoxville, Jackson and Spring Hill were evaluated with and without a fungicide. The results reported here are from the untreated plots. The results from the sprayed plots will be reported in a later publication.

No yield increase was obtained at Jackson and Spring Hill; however, at Knoxville most varieties responded to the fungicide treatment. Little to no disease was observed at Jackson and Spring Hill. At Knoxville some glume blotch, leaf rust and powdery mildew were present. At Knoxville susceptible varieties responded to fungicide treatment and resistant varieties did not. Tyler gave a good response whereas varieties such as Coker 916, Auburn and Fillmore did not respond to the fungicide treatment. These three varieties have more resistance to leaf rust than Tyler.

Tyler appears to have a high yield potential but under leaf rust disease, a fungicide program may be necessary if the potential is to be realized.

The recommended wheat varieties for 1984-85 are Auburn, Caldwell, Coker 747, Coker 916, Fillmore, Hart<sup>3/</sup>, Pioneer brand 2550, Pioneer brand S76<sup>3/</sup>, and Tyler. Wheeler will be evaluated further. It has yielded well in the state variety test but is susceptible to leaf rust and powdery mildew.

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<sup>3/</sup> Present plans indicate that these varieties will not be recommended after this year.

### Barley

The barley varieties were evaluated at four locations in 1984. The data from Greeneville and Crossville are not reported due to variations within the test. No disease was noted on the barley varieties in 1984. Some reduction in stand from winter injury was observed at Jackson.

The leading varieties in yield for 1984 were Dawn, Volbar, Anson and Maury.

The recommended barley varieties for 1984-85 are Volbar and Henry.

### Fall Seeded Oats

All fall seeded oats winter killed at all locations except at Spring Hill. The stand at Spring Hill was reduced for all varieties with Cumberland and Citation winter killing. The varieties planted in 1983-84 were Southern States 76-30, Citation, Coker 81-21, Coker 716 and Cumberland. The recommended fall seeded oats for 1984-85 are Southern States 76-30, Coker 716 and Cumberland.

### Spring Oats

Ten spring oat varieties were evaluated for grain and forage at Knoxville in 1984. Larry and Lang produced the highest grain yield and differences among the varieties for forage yield were not significant. All varieties were harvested in the boot stage for forage determination.

### Rye

Ten rye varieties and one triticale (Wintri) were evaluated for grain and forage production at Knoxville in 1984.

The leading varieties in grain yield were NF 74, Maton, Elbon, Bonel and Wintergrazer 80. Wintergrazer 80 and Wintergrazer 70-B produced the highest forage yields.

Table 1. Wheat: Grain yield of soft red winter wheat varieties evaluated in 1984 at five locations.

Variety	Avg.	Knox <sup>1/</sup>	Spring <sup>2/</sup>	Milan <sup>3/</sup>	Martin <sup>4/</sup>	Jackson <sup>5/</sup>
		ville	Hill			
Bushels per acre						
Tyler	68	74	85	66	53	61
McNair 1003	67	75	84	65	71	42
Caldwell	66	68	79	62	67	55
Florida 302	65	72	77	58	58	59
Coker 916	65	77	85	62	58	45
Auburn	64	69	80	57	57	55
Coker 983	64	76	76	61	61	46
Massey	64	73	77	66	57	46
Pike	62	63	78	62	56	54
Pioneer brand 2550	62	67	76	53	61	53
Scotty	61	73	64	56	61	52
Fillmore	61	61	69	62	60	51
Magnum	61	70	69	57	58	49
Adena	60	62	73	60	50	54
Wheeler	60	58	70	65	50	54
Hunter	59	67	73	66	48	40
Pioneer brand S76	58	58	72	53	54	56
Southern Belle	56	68	70	50	54	39
Compton	56	63	68	57	53	38
Nelson	55	59	68	52	54	43
Coker 747	55	61	63	56	41	53
Hart	55	52	67	58	43	53
Stacy	54	61	57	57	46	52
Arthur	53	50	57	55	51	51
Florida 301	51	49	57	50	54	44
Terral 81-17	-	58	77	-	52	39
L.S.D. (.05)		6.5	7.0	9.5	14.4	8.5
C.V. %		7.2	7.0	12.9	18.6	12.0
Avg.		64.7	71.1	58.6	54.9	50.1

<sup>1/</sup> Decatur silt loam (2% to 5% slopes).

<sup>2/</sup> Maury silt loam (2% to 5% slopes).

<sup>3/</sup> Memphis silt loam (2% to 5% slopes).

<sup>4/</sup> Collins silt loam (2% to 5% slopes).

<sup>5/</sup> Memphis silt loam (2% to 5% slopes).

Table 2. Wheat: Yield and other characteristics of soft red winter wheat varieties evaluated at five locations in 1984.

Variety	Yield Bu/A	Date headed	Date mature	Plant height In.	Lodging %
Tyler	68	5-5	6-13	42	7
McNair 1003	67	5-5	6-14	38	4
Caldwell	66	5-5	6-11	37	25
Florida 302	65	5-7	6-14	39	14
Coker 916	65	5-2	6-11	35	4
Auburn	64	5-8	6-13	40	Trace
Coker 983	64	5-5	6-13	34	0
Massey	64	5-4	6-12	40	19
Pike	62	5-5	6-12	38	37
Pioneer brand 2550	62	5-7	6-13	38	14
Scotty	61	5-6	6-12	38	9
Fillmore	61	5-11	6-15	43	Trace
Magnum	61	5-4	6-10	36	15
Adena	60	5-6	6-13	35	33
Wheeler	60	5-5	6-12	41	48
Hunter	59	5-3	6-12	35	40
Pioneer brand S76	58	5-5	6-11	38	15
Southern Belle	56	5-2	6-10	35	5
Compton	56	5-5	6-12	39	34
Nelson	55	5-3	6-11	39	16
Coker 747	55	5-6	6-12	35	23
Hart	55	5-5	6-10	40	50
Stacy	54	5-4	6-12	40	61
Arthur	53	5-5	6-10	40	55
Florida 301	51	5-2	6-11	39	59
Terral 81-17	-	5-2	-	38	65

Table 3. Wheat: Yield of soft red winter wheat varieties evaluated at five locations for two years (1983-84).

Variety	Avg.	Spring				
		Knoxville	Hill	Milan	Martin	Jackson
Bushels per acre						
Tyler	60	58	72	60	48	59
Caldwell	58	59	65	58	54	53
Auburn	56	58	67	53	48	52
Fillmore	55	55	59	58	51	51
Wheeler	54	42	65	64	47	53
Coker 916	54	55	68	59	46	43
Pioneer brand 2550	54	57	68	50	46	49
McNair 1003	54	51	62	58	55	44
Pike	54	46	61	58	50	54
Scotty	53	57	57	53	49	49
Massey	52	53	63	57	42	43
Pioneer brand S76	50	47	59	48	44	50
Coker 747	49	52	54	56	36	47
Hart	49	45	58	53	37	50
Nelson	48	49	58	49	44	42
Stacy	48	45	54	54	40	45
Arthur	47	43	54	52	42	44
Hunter	45	46	53	52	40	33
Southern Belle	44	40	49	46	44	38



Table 4. Wheat: Yield and other characteristics of soft red winter wheat varieties evaluated for two years (1983-84).

Variety	Avg. Bu/A	Date headed	Date mature	Plant height In.	Lodging %
Tyler	60	5-8	6-16	43	12
Caldwell	58	5-8	6-14	38	35
Auburn	56	5-11	6-18	40	1
Fillmore	55	5-14	6-19	43	10
Wheeler	54	5-8	6-16	41	32
Coker 916	54	5-4	6-14	36	8
Pioneer brand 2550	54	5-10	6-16	38	17
McNair 1003	54	5-6	6-16	38	5
Pike	54	5-8	6-16	39	20
Scotty	53	5-8	6-15	38	13
Massey	52	5-5	6-16	39	31
Pioneer brand S76	50	5-9	6-15	38	11
Coker 747	49	5-8	6-16	35	29
Hart	49	5-8	6-14	39	26
Nelson	48	5-5	6-14	38	11
Stacy	48	5-6	6-15	41	52
Arthur	47	5-7	6-14	39	33
Hunter	45	5-4	6-15	33	20
Southern Belle	44	5-4	6-14	34	3

Table 5. Wheat: Yield of soft red winter wheat varieties evaluated at five locations for three years (1982-84).

Variety	Avg.	Spring				
		Knoxville	Hill	Milan	Martin	Jackson
Bushels per acre						
Caldwell	55	54	56	57	57	52
Tyler	55	55	60	56	50	52
Fillmore	54	54	57	57	53	51
Coker 916	53	51	60	59	47	51
McNair 1003	53	50	55	56	56	46
Pioneer brand 2550	52	53	57	51	48	48
Wheeler	51	42	58	60	48	48
Auburn	51	55	55	50	48	46
Pike	49	42	52	53	48	49
Pioneer brand S76	49	47	54	50	46	48
Stacy	48	43	49	51	43	56
Hunter	48	44	51	52	48	46
Coker 747	47	48	47	55	37	47
Hart	45	42	49	50	39	44
Arthur	44	39	46	51	43	41
Southern Belle	41	35	42	43	44	41

Table 6. Wheat: Yield of soft red winter wheat varieties evaluated for three years (1982-84).

Variety	Yield Bu/A	Date headed	Date mature	Plant	Lodging
				height In.	%
Caldwell	55	5-6	6-12	37	32
Tyler	55	5-7	6-14	42	21
Fillmore	54	5-13	6-17	43	12
Coker 916	53	5-3	6-11	35	19
McNair 1003	53	5-5	6-13	37	11
Pioneer brand 2550	52	5-7	6-13	37	21
Wheeler	51	5-7	6-13	40	30
Auburn	51	5-9	6-16	40	8
Pike	49	5-6	6-14	38	22
Pioneer brand S76	49	5-8	6-12	38	8
Stacy	48	5-5	6-12	40	55
Hunter	48	5-2	6-12	32	14
Coker 747	47	5-6	6-13	35	37
Hart	45	5-6	6-12	39	23
Arthur	44	5-5	6-11	39	33
Southern Belle	41	5-2	6-12	33	3

Table 7. Wheat: Yields of varieties evaluated in 10 inch rows and broadcast at Ames Plantation in 1984.

Variety	Avg.	Date Seeded	
		Oct. 1 10 inch rows	Oct. 17 Broadcast
Bushels per acre			
Caldwell	71	70	72
Pioneer brand 2550	60	56	63
McNair 1003	59	57	61
Fillmore	58	59	57
Pioneer brand S76	52	51	54
Coker 747	52	46	57
Hunter	48	48	48
Coker 916	48	42	54
Arthur	45	35	55
Southern Belle	41	39	44
L.S.D. (.05)		12.7	5.3
C.V. %		16.2	6.5
Avg.		50.4	56.4

Table 8. Barley: Yields of varieties evaluated at four locations in 1984.

Variety	Avg.	Knox- <sup>1/</sup>	Spring <sup>2/</sup>	Spring- <sup>3/</sup>	Jackson- <sup>4/</sup>
		ville	Hill	field	
Bushels per acre					
Dawn	80	66	86	91	75
Volbar	74	63	74	107	51
Anson	71	62	74	103	44
Maury	70	64	69	97	49
Henry	69	66	68	81	60
Red Hill	68	58	76	98	42
Milton	66	68	79	96	22
Surry	61	64	61	73	44
L.S.D. (.05)		N.S.	N.S.	13.1	13.8
C.V. %		11.7	18.1	9.5	19.4
Avg.		63.8	73.3	93.4	48.4

<sup>1/</sup> Decatur silt loam (2% to 5% slopes).

<sup>2/</sup> Maury silt loam (2% to 5% slopes).

<sup>3/</sup> Dickson silt loam (2% to 5% slopes).

<sup>4/</sup> Memphis silt loam (0% to 2% slopes).

Table 9. Spring Oats: Yield and other characteristics of varieties evaluated at Knoxville in 1984.<sup>1/</sup>

Variety	Yield		Date headed	Date mature	Plant ht.	Lodging	Test weight
	Bu/A	T/A <sup>2/</sup>			In.	%	Lb/bu.
Larry	80	2.30	5-30	6-23	38	9	28.2
Lang	78	2.19	5-29	6-23	41	1	28.5
Bates	75	2.28	5-29	6-23	40	74	28.3
Noble	73	2.18	6-3	6-26	39	4	28.5
Clintford	72	2.21	5-29	6-26	38	14	33.2
Ogle	72	2.25	6-4	6-26	40	1	24.2
Otee	67	2.01	6-3	6-26	40	1	27.9
Grundy	62	2.08	6-1	6-26	41	26	28.2
Dal	59	2.19	6-6	6-28	41	4	25.9
Lodi	41	2.10	6-9	7-2	44	15	24.2
L.S.D. (.05)	9.1	N.S.					
C.V. %	9.2	7.8					

<sup>1/</sup> Decatur silt loam (2% to 5% slopes).

<sup>2/</sup> Yields based on oven dry weights.

Table 10. Barley: Yields of varieties evaluated at four locations for two years (1983-84).

Variety	Avg.	Knox-	Spring	Spring-	Jackson
		ville	Hill	field	
Bushels per acre					
Volbar	78	56	85	96	74
Milton	61	48	78	81	38
Henry	61	60	64	73	48
Dawn	60	41	80	65	63
Maury	58	54	69	76	34
Red Hill	56	41	73	71	38
Surry	46	39	56	58	30

Table 11. Barley: Yield and other characteristics of varieties evaluated for two years (1983-84).

Variety	Yield Bu/A	Date headed	Date mature	Plant ht. In.	Lodging %
Volbar	78	5-5	6-14	40	55
Milton	61	5-4	6-9	34	59
Henry	61	5-4	6-6	37	56
Dawn	60	4-27	6-6	35	43
Maury	58	5-6	6-7	36	58
Red Hill	56	5-1	6-8	36	33
Surry	46	5-1	6-5	35	77

Table 12. Barley: Yields of varieties evaluated at four locations for three years (1982-84).

Variety	Avg.	Knox- ville	Spring Hill	Spring- field	Jackson
Bushels per acre					
Volbar	77	60	81	97	68
Henry	66	60	67	79	56
Maury	62	58	66	80	43
Red Hill	58	37	72	70	50
Surry	52	43	57	65	45

Table 13. Barley: Yield and other characteristics of varieties evaluated for three years (1982-84).

Variety	Yield Bu/A	Date headed	Date mature	Plant ht. In.	Lodging %
Volbar	77	5-3	6-11	39	51
Henry	66	5-2	6-5	36	52
Maury	62	5-4	6-6	36	57
Red Hill	58	4-30	6-6	36	31
Surry	52	4-30	6-4	34	72

Table 14. Rye: Yield and other characteristics of varieties evaluated at Knoxville in 1984.

Variety	Yield		Date	Date	Plant	Test
	Bu/A	T/A	headed	mature	ht. In.	weight Lb/bu.
NF 74	43	2.98	4-24	6-21	62	48.0
Maton	42	2.62	4-23	6-23	58	48.6
Elbon	41	2.81	4-23	6-22	61	48.9
Bonel	40	3.00	4-24	6-25	61	53.9
Wintergrazer 80	40	3.40	4-24	6-25	60	49.4
Vitagraze	35	3.18	4-21	6-22	60	48.9
Wintergrazer 70	35	3.23	4-24	6-24	62	49.5
Wintergrazer 70-B	35	3.36	4-24	6-22	62	49.2
SSI	32	2.47	4-21	6-22	61	47.5
Hiwassee	29	2.63	4-20	6-20	60	44.4
Wintri <sup>3/</sup>	26	-	4-27	6-26	60	41.2
L.S.D. (.05)	8.1	0.36				
C.V. %	15.6	8.3				
Avg.	35.9	2.97				

<sup>1/</sup> Decatur silt loam (2% to 5% slopes).

<sup>2/</sup> Yields based on oven dry weights.

<sup>3/</sup> Triticale.