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University of Tennessee Agricultural Experiment Station

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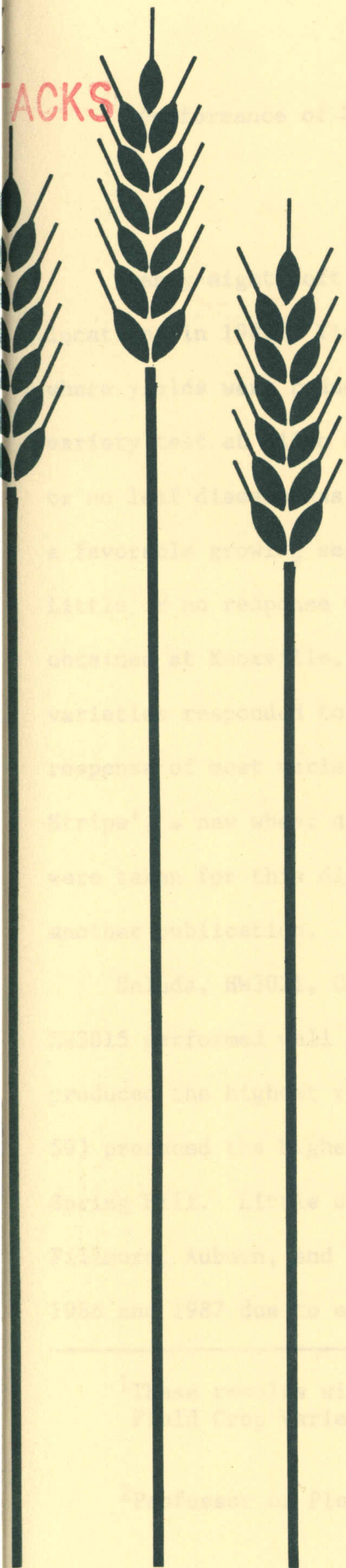
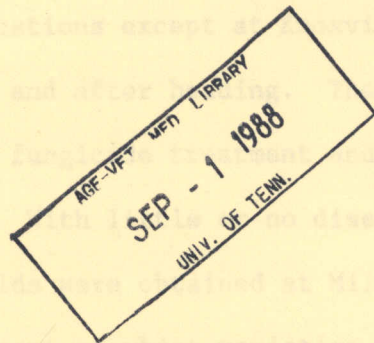
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University of Tennessee
Agricultural Experiment Station

Research Report 87-13
September 1987

Three stylized wheat stalks are positioned on the left side of the cover. Each stalk consists of a long, thin vertical stem and a head of wheat with several grains. The stalks are rendered in a dark, solid color.

*Performance of Wheat,
Barley, Oats, and Rye
Varieties in 1987*

Charles R. Graves

Department of Plant
and Soil Science

Performance of Wheat, Barley, Oats, and Rye Varieties in 1987¹

Charles R. Graves²

Wheat

Twenty-eight soft red winter wheat varieties were evaluated at eight locations in 1987. Yields were good at most locations except at Knoxville where yields were reduced by dry weather during and after heading. The variety test at Milan was sprayed with a foliar fungicide treatment and little or no leaf disease was observed on any variety. With little or no disease and a favorable growing season in 1986-87, high yields were obtained at Milan. Little or no response to foliar fungicide treatment on wheat varieties was obtained at Knoxville, Spring Hill, and Jackson in 1986. In 1987, some varieties responded to fungicide treatment at Knoxville and Jackson. Little response of most varieties was observed at Spring Hill in 1987. 'Rust Stripe', a new wheat disease for Tennessee, was observed at Jackson. Ratings were taken for this disease and others at Jackson and will be reported in another publication.

Saluda, HW3021, Cardinal, EH8504 (experimental), Coker brand 9323, and HW3015 performed well at most locations in 1987. Tyler, HW3021, and Massey produced the highest ratings for leaf rust in 1987. Newton and NASW (EXP76-59) produced the highest ratings for mildew at Greeneville, Jackson, and Spring Hill. Little or no disease was noted at the other locations. Fillmore, Auburn, and other late-maturing varieties did not perform as well in 1986 and 1987 due to early spring dry weather. Twain and Newton did not

¹These results will be included in the 1987 Bulletin, "Performance of Field Crop Varieties," which will be available in 1988.

²Professor of Plant and Soil Science.

perform well at several locations.

Using a three-year average, the highest wheat grain yielders were Saluda, HW3015, HW3021, Coker 916, and Pioneer brand 2550. Coker 747 has performed well for the past two years. Tyler, Fillmore, and Auburn have not performed as well for the past two years due to spring dry weather. Most late-maturing varieties have not performed well for the past two years. The recommended wheat varieties for 1987-88 are Auburn, Caldwell, Coker 747, Coker 983, Coker 916, Fillmore, Massey, Pioneer brand 2550, Scotty, and Tyler.

Barley

Seven barley cultivars were evaluated at Knoxville and only four at the other locations. Pennco, Wysor, and Ray were not included at all locations because seed of these varieties were received late. At Knoxville, Pennco and Wysor performed well and will be evaluated at more locations in 1988. Anson and Volbar produced the highest average yield. Volbar and Henry produced high yields at Springfield. The recommended barley varieties for 1987-88 are Volbar and Henry.

Fall Seeded Oats

All fall seeded winter oats winter-killed in 1984. In 1985, some winter-killing occurred but snow cover during severe cold reduced injury. At Greeneville in 1986, no yields were reported due to severe winter-killing for all varieties. In 1986, Jackson was the only location where little winter-injury occurred. In 1986, Madison winter-killed at all locations with yields being recorded for this variety at Jackson only. In 1987, little winter-killing occurred at most locations. At Knoxville, some winter injury occurred with Cumberland being injured the most. The recommended oat varieties for

1987-88 are Southern States 76-30, Coker 716, and Cumberland.³ Cumberland will not be recommended after this year if its performance does not improve in 1987-88.

Spring Oats

No spring oats data are reported because the yields for all varieties were very low. These low yields were due to dry weather during the growing period.

Rye

The rye yields were reduced by the dry spring weather, but the late spring snow reduced yields the most by causing severe lodging.

³Present plans indicate that this variety will not be recommended after 1987.

Table 1. Wheat: Yield of soft red winter wheat varieties evaluated at eight locations in 1987.

Brand	Variety	Avg.	1/ Greene- ville	1/ Knox- ville	2/ Spring- field	3/ Spring Hill	4/ Jackson	5/ Milan	6/ Cross- ville	7/ Martin
Bushels per acre										
	Saluda	61	63	58	56	75	71	80	20	68
	HW 3021	59	53	46	69	76	60	80	25	63
	Cardinal	58	55	45	64	72	61	73	25	66
	EH 8504	56	56	51	59	67	65	70	22	62
Coker	9323	56	55	50	55	64	66	71	23	61
	HW 3015	55	46	44	67	61	69	74	21	60
Coker	84-33	54	46	43	60	64	69	67	29	57
Pioneer	2550	54	59	48	60	63	52	69	19	62
Coker	747	54	52	50	55	67	55	70	22	59
	Caldwell	53	61	48	47	67	54	67	24	60
Coker	916	53	44	47	62	62	64	69	19	57
	Massey	52	47	44	64	54	52	72	25	63
Coker	983	52	54	49	59	57	56	68	17	56
	Scotty	52	48	49	52	61	53	71	24	58
NASW	Exp 76-59	52	47	47	55	62	54	66	28	56
	Compton	52	48	42	53	70	54	71	20	54
	Lincoln	51	44	43	58	62	54	71	24	57
Clemson	Exp 5011	51	45	45	61	54	54	63	21	63
Pioneer	2551	51	48	46	54	60	57	67	18	55
	Magnum	50	43	41	68	55	54	66	20	51
	Tyler	50	51	35	62	57	43	70	24	56
Coker	84-27	49	39	39	58	61	51	62	26	56
Coker	9227	49	44	36	57	43	70	63	21	55
	Nelson	48	42	42	51	49	54	63	22	58
	Fillmore	47	52	44	51	55	49	63	13	49
	Twain	47	38	33	57	60	42	63	20	61
	Auburn	44	49	45	42	58	46	55	16	38
	Newton	36	38	33	37	38	27	55	14	49
L.S.D.		3.4	6.8	5.4	7.6	12.1	9.8	8.0	4.8	9.1
C.V.		13.2	9.9	8.6	9.5	14.2	12.6	8.4	15.9	11.2
Avg.		51.6	48.7	44.4	56.9	60.5	55.5	67.9	21.4	57.5

1/Cumberland silt loam (2% to 5% slopes).

2/Dickson silt loam (2% to 5% slopes).

3/Maury silt loam (2% to 5% slopes).

4/Lexington silt loam (2% to 5% slopes).

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

6/Hartsell's loam (2% to 5% slopes).

7/Falaya-Henry silt loam (2% to 5% slopes).

Table 2. Wheat: Yield and other characteristics of soft red winter wheat varieties evaluated at eight locations in 1987.

Brand	Variety	YIELD	Date Headed	Date Mature	Plant Ht	LODG ¹	BUWT	Leaf ² RUST	Mildew ² Rating
		bu/A		in.	%			(0-5)	(0-5)
	Saluda	61	4-30	6-1	35	28	55.8	2.6	0.8
	HW 3021	59	5-1	6-2	40	22	50.6	5.0	1.1
	Cardinal	58	5-6	6-2	40	5	50.4	2.6	2.1
	EH 8504	56	4-30	6-3	37	8	55.2	1.4	0.1
Coker	9323	56	4-20	6-2	35	36	53.9	0.4	2.4
	HW 3014	55	4-29	6-2	40	19	52.7	1.6	1.7
Coker	84-33	54	4-29	6-3	39	28	55.4	0.1	0.0
Pioneer	2550	54	5-1	6-3	37	11	54.3	1.1	0.9
Coker	747	54	5-4	6-2	35	30	55.4	2.5	1.4
	Caldwell	53	5-1	6-1	37	16	54.6	0.8	1.7
Coker	916	53	5-1	6-1	34	29	55.0	0.4	0.7
	Massey	52	4-28	5-31	38	31	54.4	4.1	0.1
Coker	983	52	4-29	6-2	33	14	55.3	0.9	0.3
	Scotty	52	4-30	6-2	37	8	54.7	0.8	1.5
NASW	Exp 76-59	52	4-30	6-2	36	3	50.6	1.2	3.4
	Compton	52	4-30	6-1	36	6	57.1	0.0	2.0
	Lincoln	51	5-2	6-1	38	16	54.7	1.4	1.1
Clemson	Exp 5011	51	5-2	5-31	38	19	52.0	0.3	0.8
Pioneer	2551	51	5-1	6-2	35	12	51.9	2.2	0.4
	Magnum	50	5-1	6-2	34	9	55.5	3.5	0.9
	Tyler	50	4-29	5-31	40	11	50.1	5.0	1.6
Coker	84-27	49	5-3	6-2	36	46	50.3	0.0	0.2
Coker	9227	49	5-4	6-5	34	26	58.0	0.6	1.0
	Nelson	48	4-27	6-1	40	16	55.5	0.3	1.9
	Fillmore	47	4-27	6-1	40	18	47.1	0.1	0.8
	Twain	47	5-6	6-5	39	42	54.0	0.8	0.0
	Auburn	44	4-29	6-1	37	5	50.3	0.0	0.8
	Newton	36	5-6	6-4	36	28	52.9	3.1	2.9

1/ Only where lodging or disease occurred.

2/ Rating based on a scale of 0 to 5 with 0 being no-disease and 5 being severe.

Table 3. Wheat: Yields of soft red winter wheat varieties evaluated at six locations for two years (1986-87).

Brand	Variety	Yield	Greene- ville	Knox- ville	Spring- Hill	Spring- field	Jackson	Milan
Bushels per acre								
	Saluda	53	58	42	43	53	57	64
	HW 3021	52	53	37	53	54	50	66
	HW 3015	50	49	36	49	48	52	63
Pioneer	2550	48	53	38	44	48	46	59
Coker	747	48	51	40	45	47	47	56
Coker	9323	46	49	37	43	45	53	51
Coker	916	46	44	33	46	46	49	56
	Caldwell	45	52	38	37	48	43	
Pioneer	2551	44	42	35	38	47	48	55
	Scotty	44	49	37	40	42	44	54
	Tyler	44	49	28	46	43	41	57
	Compton	44	46	37	35	49	44	53
	Massey	44	46	30	46	40	43	57
	Fillmore	44	48	39	39	44	42	49
Coker	983	43	45	33	43	38	46	51
	Magnum	42	42	33	49	41	39	49
	Auburn	40	42	35	32	41	44	45
	Newton	33	37	26	29	29	32	44
L.S.D.		2.6	6.3	4.3	5.9	6.3	5.7	6.5
C.V.		15.5	13.3	12.3	14.2	14.2	12.7	12.0
Avg.		44.9	47.6	35.2	42.1	44.7	45.6	54.4

Table 4. Characteristics of soft red winter wheat varieties evaluated at six locations for two years (1986-87).

Brand	Variety	Yield	Date Headed	Date Mature	Plant		BUWT	Leaf ¹	Mildew ¹
					Ht	LODG		Rust	Rating
		bu/A			in.	%	(0-5)		(0-5)
	Saluda	53	4-29	5-31	31	24.2	56.3	1.6	0.8
	HW 3021	52	4-29	6-1	36	19.1	52.7	3.6	1.1
	HW 3015	50	4-28	6-1	37	16.7	53.6	1.0	1.0
Pioneer	2550	48	5-1	6-2	34	10.2	55.0	0.7	1.1
Coker	747	48	4-29	6-1	32	25.8	56.4	1.8	1.3
Coker	9323	46	4-28	6-1	31	30.8	54.2	0.4	1.3
Coker	916	46	4-27	5-30	31	26.6	55.4	0.3	0.7
	Caldwell	45	4-29	5-31	34	14.2	54.1	0.4	1.4
Pioneer	2551	44	4-30	6-1	32	10.4	53.3	1.5	0.4
	Scotty	44	4-28	6-1	34	7.1	54.8	0.5	1.4
	Tyler	44	5-2	6-2	36	10.1	51.3	4.9	1.6
	Compton	44	4-40	5-31	33	5.5	56.3	0.0	1.4
	Massey	44	4-28	6-1	34	26.8	54.7	4.2	0.1
	Fillmore	44	5-5	6-5	38	15.9	48.6	0.1	0.5
Coker	983	43	4-29	6-2	30	12.1	55.3	0.7	0.2
	Magnum	42	4-27	5-30	31	7.7	55.0	2.3	1.1
	Auburn	40	5-5	6-4	34	4.5	51.8	0.0	0.9
	Newton	33	5-3	6-1	33	23.7	53.4	2.0	2.4

¹/Rating based on a scale of 0 to 5 with 0 being no-disease and 5 being severe.

Table 5. Wheat: Yield of soft red winter wheat varieties evaluated at six locations for three years (1985-87).

Brand	Variety	Yield	Greene-ville	Knox-ville	Spring-field	Spring-Hill	Jackson	Milan
Bushels per acre								
	Saluda	52	63	45	44	50	58	56
	HW 3015	51	54	38	52	48	57	57
	HW 3021	50	54	38	53	51	49	54
Coker	916	48	55	34	47	46	51	56
Pioneer	2550	57	38	46	46	46	47	20
Coker	747	46	53	39	43	44	45	52
	Scotty	46	56	37	42	42	48	48
	Caldwell	45	54	38	41	47	45	44
Coker	983	45	52	35	45	41	49	45
	Compton	44	50	36	37	46	48	47
	Massey	44	51	32	48	41	45	49
	Magnum	44	52	33	47	41	45	45
	Tyler	43	54	31	49	43	37	45
	Fillmore	42	49	39	41	42	43	39
	Auburn	41	49	35	36	39	45	41
L.S.D. (.05)		2.4	5.3	3.6	5.2	5.4	4.9	6.4
C.V. %		15.1	12.3	12.3	14.3	15.1	12.8	16.5
Avg.		45.8	53.6	36.5	44.7	44.5	47.3	48.2

Table 6. Wheat: Yield and other characteristics of soft red winter wheat varieties evaluated at five locations for three years (1985-87).

Brand	Variety	Yield	Date Headed	Date Mature	Plant		BUWT	Leaf Rust	Mildew Rating
					Ht	LODG			
		bu/A			in.	%	lb/bu	(0-5)	(0-5)
	Saluda	52	4-29	5-31	32	31.3	56.8	1.2	0.8
	HW 3015	51	4-28	6-1	36	19.6	54.6	1.0	1.9
	HW 3021	50	4-29	6-1	37	20.6	53.5	2.9	1.3
Coker	916	48	4-26	5-30	31	21.2	55.7	0.3	0.9
Pioneer	2550	47	5-1	6-2	34	21.5	55.4	1.0	1.1
Coker	747	46	4-29	5-31	32	30.7	56.6	2.0	2.0
	Scotty	46	4-29	6-1	34	11.9	55.4	0.4	0.8
	Caldwell	45	4-29	5-31	34	22.4	54.7	0.6	0.9
Coker	983	45	4-28	6-1	30	11.3	56.5	0.5	0.2
	Compton	44	4-30	5-31	33	19.6	56.9	0.0	1.5
	Massey	44	4-27	6-1	34	25.6	55.0	2.7	0.3
	Magnum	44	4-27	5-30	32	11.0	55.9	1.5	1.3
	Tyler	43	5-2	6-2	36	19.0	52.3	4.3	1.0
	Fillmore	42	5-5	6-5	38	22.5	50.8	0.4	0.5
	Auburn	41	5-4	6-4	34	9.2	53.7	0.0	1.1

Table 7. Barley: Yield of varieties evaluated at six locations in 1987.

Brand-Variety	Avg.	1/	1/	2/	3/	4/	5/
		Greene-ville	Knox-ville	Spring-field	Spring Hill	Jackson	Cross-ville
Bushels per acre							
Anson	78 ^{6/}	50	61	98	91	101	39
Volbar	77	60	63	105	86	89	44
Henry	72	55	61	101	78	87	34
Milton	68	51	51	98	69	90	32
Pennco	-	-	74	-	-	-	-
Wysor	-	-	70	-	-	-	-
Ray	-	-	53	-	-	-	-
L.S.D. (.05)	7.0	4.8	7.4	21.2	9.6	N.S.	9.6
C.V.%	15.7	8.5	8.2	13.2	11.6	12.9	16.2
Avg.	71.3	54.0	61.4	100.6	81.0	91.5	37.3

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

2/Dickson silt loam (2% to 5% slopes).

3/Maury silt loam (2% to 5% slopes).

4/Lexington silt loam (2% to 5% slopes).

5/Hartsell silt loam (2% to 5% slopes).

6/Knoxville data not included in average because all other locations included only four varieties.

Table 8. Barley: Yield and other characteristics of varieties evaluated at six locations in 1987.

Brand-Variety	Yield	Date Headed	Date Mature	Plant Ht	Test Weight	Lodging
	Bu/A			in.	lb/bu.	%
Anson	78	4-28	5-31	42	38.9	52
Volbar	77	4-27	5-31	43	42.9	44
Henry	72	4-27	5-28	37	40.7	45
Milton	68	4-28	5-29	38	42.0	38
Pennco	- ^{1/}	4-30	5-29	41	41.4	75
Wyson	-	4-27	5-28	41	42.0	45
Ray	-	5-1	6-1	45	46.3	54

^{1/}Data from Knoxville only.

Table 9. Fall Seeded Oats: Yield of varieties evaluated at six locations in 1987.

Variety	Yield	1/	1/	2/	3/	4/	5/
		Greene-ville	Knox-ville	Spring Hill	Cross-ville	Spring-field	Jackson
Bushels per acre							
Brooks	80	81	52	118	70	77	115
Coker 227	78	70	46	114	81	--	142
Simpson	77	63	42	114	89	82	112
Madison	76	97	37	116	54	67	132
Coker 716	73	74	34	106	76	72	107
Citation	70	69	41	112	60	78	105
Cumberland	62	57	29	114	49	65	117
L.S.D. (.05)	7.2	15.5	10.8	5.5	20.5		23.5
C.V.%	13.8	14.3	18.2	9.2	20.1		11.2
Avg.	73.8	73.1	40.0	113.4	68.0		118.8

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

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

3/ Hartsells loam (2% to 5% slopes).

4/ Dickson silt loam (2% to 5% slopes) not included in state average due to Coker 227 not being tested at this location in 1987.

5/ Lexington silt loam (2% to 5% slopes). Jackson was not included in average yield because one replication was destroyed by road construction.

Table 10. Fall Seeded Oats: Yield and other characteristics of varieties evaluated at six locations in 1987.

Variety	Yield	Date	Date	Plant	Lodge	Buwt
		Headed	Mature	Ht		
	bu/A			in.	%	lb/Bu.
Brooks	80	4-38	6-2	35	62	25.9
Coker 227	78	4-38	6-2	33	79	28.4
Simpson	77	4-39	6-3	35	72	27.8
Madison	76	4-40	6-2	30	33	26.5
Coker 716	73	4-39	6-2	34	59	27.5
Citation	70	4-36	6-2	33	58	26.0
Cumberland	62	4-43	6-7	34	41	25.3
L.S.D. (.05)	7.2					

Table 11. Rye: Yield and other characteristics of varieties evaluated at Knoxville in 1987.^{1/}

Variety	Yield		Date Headed	Date Mature	Plant Ht	Lodg.	BUWT
	Bu/A	T/A			in.	%	Bu/lbs.
Wyens abrussi	13	2.31	4-24	6-22	50	100	47.1
Maton	13	2.28	4-24	6-20	53	100	46.4
Wintergrazer 70	12	2.65	4-23	6-22	48	100	45.2
Elbon	12	2.57	4-22	6-20	50	100	45.8
NF 142	12	2.18	4-24	6-22	50	100	46.0
Wintermore	11	2.30	4-23	6-22	51	100	46.4
Bonel	11	2.43	4-25	6-19	50	100	45.5
NF 214	11	2.26	4-24	6-19	48	100	45.1
L.S.D.	2.7	0.24					
C.V.	15.2	7.2					
Avg.	12.1	2.37					

^{1/}Decatur silt loam (2% to 5% slopes).