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University of Tennessee Agricultural Experiment Station

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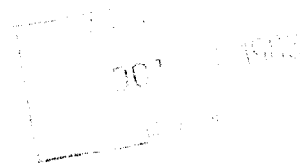
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PERFORMANCE OF WHEAT, BARLEY, OATS, AND RYE VARIETIES IN 1982

RR No. 82-10

August 1982

Charles R. Graves



**Department of
Plant and Soil Science**

Performance of Wheat, Barley, Oats and Rye Varieties in 1982^{1/}

Charles R. Graves^{2/}

Wheat

Twenty-five soft red winter wheat varieties were evaluated at eight locations in 1982. The leading varieties in yield were Fillmore, Hunter, Coker 916, McNair 1003 and Caldwell (Table 1). Yields of many varieties were reduced due to the late spring freeze when the wheat was in the boot stage or early heading. Mildew reduced yields of susceptible varieties at Springfield, Jackson and Milan. There was some mildew at the other locations but to a lesser extent than at these three locations. Leaf rust was severe at Jackson and some leaf rust was observed at Milan. Wheat varieties at the other locations were not affected by leaf rust.

Southern Belle, Coker 762, HW-3005, Doublecrop and HW-3006 seemed to be affected the most by the late spring freeze (Table 7). Southern Belle did not perform as well in 1982 as it had the two previous years due to the late freeze. Abe, Hart, Tyler and McNair 1003 had high ratings^{3/} for leaf rust at Jackson. The varieties that showed the highest mildew ratings^{3/} at several locations were Rosen, Roy, Pike, HW-3005, Doublecrop and HW-3006. Varieties that showed tolerance to mildew were Fillmore, Hunter, McNair 1003, Stacy, Tyler and Coker 762. The varieties that showed the most tolerance to leaf rust were Fillmore, Hunter, Coker 916, Caldwell, Pioneer brand 2550, Coker 762, Auburn, Rosen, HW-3005, Doublecrop and HW-3006.

^{1/} These results will be included in the "1982 Performance Trials of Field Crop Varieties" bulletin.

^{2/} Professor of Plant and Soil Science, The University of Tennessee, Knoxville.

^{3/} Ratings based on a scale of 0 to 5 with 0 having no rust or mildew and 5 being severe.

The varieties that showed tolerance to both mildew and rust were Fillmore, Hunter and Coker 762 (Table 2).

Fillmore yielded well and showed disease resistance but it is late maturing. Hunter, Coker 916, McNair 1003 and Caldwell yielded well at most locations. Auburn, Roland and Titan were among the latest maturing varieties.

The recommended varieties for 1982-83 are Abe,^{4/} Caldwell, Coker 747, Coker 916, Pioneer brand S76, McNair 1003, Hart and Southern Belle.

Barley

The leading varieties in yield for 1982 were Volbar, Maury and Henry (Table 13). Maury performed better in 1981 and 1982 than it had in previous years. All varieties showed some lodging but Red Hill lodged the least (Table 13). The recommended barley varieties for 1982-83 are Volbar, Henry and Surry.

Fall Seeded Oats

Five oat varieties were evaluated in 1982. Southern States 70-30 and Coker 716 produced the highest average yield (Table 16). All varieties winter killed at Greeneville. Cumberland, Norris 81-29, and Brooks winter killed at Crossville. The recommended fall-seeded oat varieties for 1982-83 are Coker 716 and Cumberland.

Spring Oats

Eleven spring oat varieties were evaluated for grain and forage at Knoxville in 1982. Bates produced the highest grain yield whereas Dal and Larry produced the highest forage yields (Table 20).

^{4/} Present plans indicate this variety will not be recommended after this year.

Rye

Six rye varieties were evaluated at Knoxville in 1982. Wintergrazer 80 produced the highest grain yield and Wintergrazer 70 produced the highest forage yields (Table 21).

All varieties were harvested at heading and forage yields reported as oven dry forage. Most varieties lodged but Forager and Vita Graze had the least amount of lodging.

Table 1. Wheat: Grain yield of soft red winter wheat varieties evaluated in 1982 at eight locations.

Variety	Avg.	Greene- ^{1/}	Knox- ^{2/}	Cross- ^{3/}	Spring- ^{4/}	Spring ^{5/}	Jackson ^{6/}	Martin ^{7/}	Milan ^{8/}
		ville	ville	ville	field	Hill			
Bushels per acre									
Fillmore ^{9/}	49	54	52	32	42	52	50	56	55
Hunter ^{10/}	46	28	40	25	35	48	70	65	54
Coker 916 ^{11/}	45	38	42	25	35	42	66	49	59
McNair 1003	44	44	47	22	37	40	52	59	51
Caldwell	44	46	43	25	29	39	49	62	56
Stacy	43	37	38	24	37	39	78	49	44
Pioneer brand 2550	43	54	45	26	33	34	46	52	55
Tyler	42	40	48	30	42	37	40	54	49
Pioneer brand S76	42	43	46	27	32	42	42	50	52
Coker 747	40	47	41	32	29	34	46	39	55
Wheeler	40	40	41	32	26	40	39	48	54
Coker 762	39	32	36	31	24	36	71	41	37
Auburn	38	51	50	27	25	31	35	46	44
Rosen	37	42	35	24	27	27	36	51	52
Roland	36	44	37	26	30	28	30	46	46
Titan	36	45	43	33	23	31	26	43	42
Hart	35	40	35	25	28	31	32	44	43
Abe	34	40	38	21	23	31	37	38	44
Arthur	34	35	31	23	22	32	34	45	48
Roy	33	41	36	27	18	25	35	45	40
Pike	33	30	33	19	20	33	39	44	44
Southern Belle	31	30	24	21	16	27	48	45	36
HW-3005	29	27	25	22	18	25	33	43	40
Doublecrop	29	30	29	24	20	33	20	40	37
HW-3006	28	27	26	18	14	20	33	44	46
L.S.D. (.05)	-	5.8	5.2	5.1	5.5	6.4	11.6	8.1	8.1
C.V. %	-	10.5	9.7	14.2	14.3	13.1	18.9	12.0	12.1
Avg.	-	39.4	38.4	25.5	27.4	34.4	43.5	47.9	47.3

- ^{1/} Waynesboro loam (2% to 5% slopes).
^{2/} Decatur silt loam (2% to 5% slopes).
^{3/} Hartsells loam (2% to 5% slopes).
^{4/} Dickson silt loam (2% to 5% slopes).
^{5/} Maury silt loam (2% to 5% slopes).
^{6/} Grenada and Calloway silt loam (0% to 2% slopes).
^{7/} Collins silt loam (2% to 5% slopes).
^{8/} Collins silt loam (2% to 5% slopes).
^{9/} Tested in 1982 as experimental Al-9-7.
^{10/} Tested in 1982 as experimental NAPB 81014.
^{11/} Tested in 1982 as experimental Coker 79-16.

Table 2. Yield and other characteristics of soft red winter wheat varieties evaluated at eight locations in 1982.

Variety	Yield Bu/A	Date headed	Date mature	Plant height In.	Lodging %	Mildew ^{1/} rating (0-5) ^{3/}	Rust ^{2/} rating (0-5)
Fillmore	49	5-17	6-10	42	15	0.4	0.0
Hunter	46	4-29	6-7	30	2	0.4	0.1
Coker 916	45	4-29	6-5	34	41	1.0	0.1
McNair 1003	44	5-2	6-8	36	24	0.2	4.0
Caldwell	44	5-3	6-8	35	27	1.1	0.2
Stacy	43	5-2	6-6	37	62	0.1	1.1
Pioneer brand 2550	43	5-3	6-7	36	29	1.2	0.4
Tyler	42	5-4	6-9	40	38	0.1	4.0
Pioneer brand S76	42	5-5	6-7	37	2	2.6	2.2
Coker 747	40	5-3	6-8	34	53	1.9	1.8
Wheeler	40	5-5	6-9	39	28	2.2	2.4
Coker 762	39	5-5	6-9	30	67	0.1	0.0
Auburn	38	5-8	6-11	39	21	1.9	0.0
Rosen	37	5-2	6-5	34	18	4.3	0.6
Roland	36	5-8	6-11	35	13	2.3	1.6
Titan	36	5-10	6-13	40	32	2.4	1.0
Hart	35	5-3	6-7	37	18	3.3	4.7
Abe	34	5-2	6-5	36	46	3.0	4.4
Arthur	34	5-2	6-6	38	33	3.0	2.9
Roy	33	5-2	6-9	36	38	4.2	0.7
Pike	33	5-3	6-9	37	24	3.8	3.0
Southern Belle	31	4-28	6-7	30	2	3.1	1.8
HW-3005	29	5-1	6-5	37	12	3.9	0.6
Doublecrop	29	5-27	6-4	36	8	3.9	0.4
HW-3006	28	5-3	6-9	37	34	4.7	0.3

^{1/} Average of six locations.

^{2/} Average of Milan and Jackson.

^{3/} 0 is no disease and 5 is severe.

Table 3. Wheat: Yield of soft red winter wheat varieties evaluated at eight locations for two years (1981 and 82).

Variety	Avg.	Knox-ville	Spring-field	Jackson	Greene-ville	Spring Hill	Martin	Milan	Cross-ville
Bushels per acre									
Coker 916	55	52	61	55	57	57	54	65	37
McNair 1003	54	57	62	46	56	54	63	60	32
Caldwell	49	46	46	42	59	51	57	60	32
Coker 747	48	42	50	39	57	49	47	58	40
Coker 762	47	43	50	54	48	50	42	51	37
Southern Belle	46	42	48	44	50	50	54	46	39
Pioneer brand S76	46	47	46	40	51	50	50	53	28
Roland	45	44	47	32	56	47	48	55	34
Hart	44	40	47	37	50	47	47	51	31
Rosen	44	39	43	32	55	43	51	60	27
Auburn	43	50	46	29	54	42	47	47	31
Roy	43	45	38	33	52	42	48	51	32
Titan	42	46	43	28	53	46	39	48	35
Abe	41	43	39	33	47	45	40	51	32
Arthur	41	37	38	33	49	46	40	55	30
Doublecrop	39	37	38	28	42	48	42	44	30

Table 4. Wheat: Yield and other characteristics of soft red winter wheat varieties evaluated for two years (1981-82).

Variety	Yield Bu/A	Date headed	Date mature	Plant ht. In.	Lodging %
Coker 916	55	4-28	6-6	35	40
McNair 1003	54	5-1	6-9	38	31
Caldwell	49	5-2	6-8	37	33
Coker 747	48	5-2	6-9	36	49
Coker 762	47	5-4	6-10	33	67
Southern Belle	46	4-28	6-8	33	15
Pioneer brand S76	46	5-4	6-8	38	10
Roland	45	5-2	6-8	37	23
Hart	44	5-2	6-7	39	16
Rosen	44	5-1	6-6	36	19
Auburn	43	5-7	6-12	40	25
Roy	43	5-2	6-9	39	35
Titan	42	5-8	6-13	41	28
Abe	41	5-1	6-6	37	48
Arthur	41	5-2	6-6	40	42
Doublecrop	39	4-26	6-5	38	19

Table 5. Wheat: Yield of soft red winter wheat varieties evaluated at eight locations for three years (1980-82).

Variety	Avg.	Knox-	Spring-	Jackson	Greene-	Spring	Martin	Milan	Cross-
		ville	field		ville	Hill			ville
Bushels per acre									
McNair 1003	54	59	59	47	52	52	69	58	36
Coker 747	51	48	52	42	52	50	55	60	46
Southern Belle	50	50	48	46	49	49	58	50	42
Rosen	47	46	45	34	52	46	59	61	34
Roy	47	52	43	40	52	45	53	51	39
Hart	46	46	48	42	51	48	51	50	35
Pioneer brand S76	46	50	44	43	47	49	55	50	34
Abe	43	45	40	38	43	46	46	52	35
Arthur	43	40	41	38	47	45	46	53	33
Doublecrop	40	40	42	28	39	45	45	46	34

Table 6. Wheat: Yield and other characteristics of soft red winter wheat varieties evaluated for three years (1980-82).

Variety	Yield Bu/A	Date	Date	Plant	Lodging %
		headed	mature	ht. In.	
McNair 1003	54	5-3	6-10	39	21
Coker 747	51	5-4	6-10	37	36
Southern Belle	50	4-30	6-8	34	10
Rosen	47	5-3	6-8	37	14
Roy	47	5-4	6-10	39	24
Hart	46	5-4	6-9	40	12
Pioneer brand S76	46	5-6	6-9	38	8
Abe	43	5-3	6-7	38	38
Arthur	43	5-3	6-8	41	34
Doublecrop	40	4-29	6-6	40	17

Table 7. Wheat: Cold injury (tip damage) of wheat varieties evaluated at Knoxville and Greeneville.

Variety	Avg.	Location	
		Knoxville	Greeneville
		Rating (0-10) ^{1/}	
Auburn	0.5	0.0	1.0
Fillmore (Al-9-7)	0.6	0.1	1.0
Pioneer brand S76	0.9	0.1	1.8
Caldwell	1.0	0.2	1.8
Titan	1.0	0.4	1.5
Pioneer brand 2550	1.2	0.2	2.2
Hart	1.5	1.0	2.0
Rosen	1.8	0.4	3.2
Abe	2.0	0.9	3.2
Tyler	2.3	0.6	4.0
Roland	2.5	1.0	4.0
Roy	2.6	1.1	4.2
Coker 747	3.0	2.0	4.0
McNair 1003	3.2	0.6	5.8
Coker 916	3.6	1.3	5.8
Arthur	3.8	2.5	5.0
Pike	4.1	2.0	6.2
Stacy	4.6	2.0	7.2
Hunter (NAPB 81014)	5.8	2.2	9.5
Wheeler	6.0	4.5	7.5
Doublecrop	6.2	5.5	6.8
Coker 762	6.4	4.8	8.0
HW-3006	6.6	4.2	9.0
HW-3005	6.9	5.0	8.8
Southern Belle	9.3	8.8	9.8

^{1/} 0= no injury, 10= severe injury.

Table 8. Wheat: Yield and other characteristics of five varieties evaluated at Milan in 1982.^{1/}

Variety	Yield Bu/A	Date headed	Date mature	Plant height In.	Lodging %
McNair 1003	53	4-24	6-6	40	0
RAX 48 ^{2/}	52	4-26	6-6	45	0
Coker 747	48	4-26	6-6	38	85
RAX 54 ^{2/}	46	4-24	6-6	40	60
Southern Belle	36	4-24	6-2	32	20
L.S.D. (.05)	10.3	-	-	-	-
C.V. %	14.3	-	-	-	-
Avg.	46.9	-	-	-	-

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

^{2/} Ring Around Experimentals.

Table 9. Wheat: Yield and other characteristics of three varieties evaluated at Knoxville in 1982.^{1/}

Variety	Yield Bu/A	Date headed	Date mature	Plant ht. In.	Lodging %	Leaf ^{2/} rust rating (0-5)
RAX 48 ^{3/}	48	5-10	6-11	37	36	4.1
RAX 54 ^{3/}	40	5-12	6-12	39	10	3.5
Arthur	38	5-6	6-10	34	12	2.8
L.S.D. (.05)	2.4	-	-	-	-	-
C.V. %	3.3	-	-	-	-	-
Avg.	42.1	-	-	-	-	-

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

^{2/} Rating based on a scale of 0 to 5 with 0 having no rust and 5 very severe.

^{3/} Ring Around Experimentals.

Table 10. Wheat: Yield and other characteristics of four varieties evaluated at Knoxville in 1982.^{1/}

Variety	Yield Bu/A	Date headed	Date mature	Plant ht. In.	Lodging %
Massey	40	5-10	6-11	34	48
Arthur (Purdue) ^{2/}	34	5-6	6-9	35	18
Arthur (Tenn.) ^{3/}	30	5-6	6-8	36	32
Severn	20	5-14	6-13	33	8
L.S.D. (.05)	4.6	-	-	-	-
C.V. %	9.2	-	-	-	-
Avg.	30.8	-	-	-	-

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

^{2/} Purdue seed source.

^{3/} Tennessee seed source.

Table 11. Wheat: Yield and other characteristics of hard red winter varieties evaluated at Springfield in 1982.^{1/}

Variety	Yield Bu/A	Date	Plant	Lodging %
		headed	height In.	
Vona	18	5-7	34	74
Centurk 78	15	5-10	39	78
Agate	12	5-20	42	40
Parker 76	12	5-10	39	75
Larned	12	5-15	42	61
Sage	12	5-15	41	58
L.S.D. (.05)	3.5	-	-	-
C.V. %	17.4	-	-	-
Avg.	13.6	-	-	-

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

Table 12. Barley: Grain yield of varieties evaluated in 1982 at six locations.

Variety	Avg.	Greene- ^{1/}	Knox- ^{2/}	Cross- ^{3/}	Spring- ^{4/}	Spring- ^{5/}	Jackson ^{6/}
		ville	ville	ville	Hill	field	
Bushels per acre							
Volbar	72	50	70	57	74	99	80
Maury	61	39	65	52	60	89	61
Henry	61	35	62	42	62	90	72
Surry	56	26	51	45	59	80	75
Red Hill	52	33	30	34	70	69	74
L.S.D. (.05)	-	7.1	7.8	13.1	70.3	5.4	N.S.
C.V. %	-	12.6	9.1	18.5	11.8	4.1	14.6
Avg.	-	36.6	55.6	46.2	65.0	85.5	52.6

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

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

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

^{4/} Dickson silt loam (2% to 5% slopes).

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

^{6/} Grenada silt loam (0% to 2% slopes).

Table 13. Barley: Grain yield and other characteristics of varieties evaluated in 1982 at six locations.

Variety	Yield Bu/A	Date	Date	Plant	Lodging %
		headed	mature	height In.	
Volbar	72	4-29	6-5	38	44
Maury	61	5-1	6-3	36	54
Henry	61	4-29	6-3	35	42
Surry	56	4-28	6-2	34	61
Red Hill	52	4-29	6-4	35	28

Table 14. Barley: Yield of varieties evaluated at six locations for three years (1980-82).

Variety	Avg.	Greeneville	Knoxville	Crossville	Spring Hill	Springfield	Jackson
Bushels per acre							
Volbar	74	63	73	72	75	88	75
Maury	64	62	68	67	61	73	54
Henry	64	60	67	65	62	70	59
Surry	63	61	60	65	61	71	63

Table 15. Barley: Yield and other characteristics of varieties evaluated at six locations for three years (1980-82).

Variety	Avg. Bu/A	Date headed	Date mature	Plant height In.	Lodging %
Volbar	74	4-28	6-6	42	64
Maury	64	4-30	6-2	37	61
Henry	64	4-27	6-1	37	51
Surry	63	4-26	6-1	36	70

Table 16. Fall seeded oats: Yield of varieties evaluated at six locations in 1982.^{1/}

Variety	Avg.	Knoxville ^{2/}	Crossville ^{3/}	Springfield ^{4/}	Spring Hill ^{5/}	Jackson ^{6/}
Bushels per acre						
Southern States 70-30	88	86	65	107	94	87
Coker 716	78	61	61	103	90	77
Cumberland	53	26	--- ^{7/}	82	44	112
Norris 81-29	46	39	--- ^{7/}	42	77	75
Brooks	32	28	--- ^{7/}	16	48	70
L.S.D. (.05)	--	21.7	--	18.0	15.5	N.S.
C.V. %	--	29.4	--	16.7	14.3	34.6
Avg.	--	47.9	--	70.0	70.5	84.2

^{1/} All varieties winter killed at Greeneville in 1982.

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

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

^{4/} Dickson silt loam (2% to 5% slopes).

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

^{6/} Loring silt loam (0% to 2% slopes).

^{7/} Winter killed.

Table 17. Fall seed oats: Yield and other characteristics of varieties evaluated at six locations in 1982.

Variety	Yield Bu/A	Date headed	Date mature	Plant height In.	Lodging %
Southern States 70-30	88	5-10	6-14	41	58
Coker 716	78	5-13	6-15	39	47
Cumberland	53	5-17	6-16	40	29
Norris 81-29	46	5-13	6-16	39	17
Brooks	32	5-15	6-16	39	10

Table 18. Fall seeded oats: Yield of varieties evaluated at six locations for two years (1981-82).

Variety	Avg.	Greene- ville	Knox- ville	Cross- ville	Spring- field	Spring Hill	Jackson
Bushels per acre							
Southern States 70-30	82	48	86	79	122	88	70
Coker 716	77	46	72	87	112	84	61
Cumberland	67	35	51	59	106	70	83
Brooks	61	52	57	57	74	70	58

Table 19. Fall seeded oats: Yield and other characteristics of varieties evaluated at six locations for two years (1981-82).

Variety	Yield Bu/A	Date headed	Date mature	Plant height In.	Lodging %
Southern States 70-30	82	5-6	6-12	42	69
Coker 716	77	5-9	6-14	40	62
Cumberland	67	5-14	6-14	41	63
Brooks	61	5-10	6-13	40	54

Table 20. Spring oats: Yield and other characteristics of varieties evaluated at Knoxville in 1982.^{1/}

Variety	Yield		Date	Date	Plant	Lodging	Test weight
	Bu/A	T/A ^{2/}	headed	mature	ht. in.		
Bates	71	1.90	5-25	7-8	36	18	33.9
Ogle	59	1.80	5-26	7-8	37	12	35.2
Dal	55	2.08	5-31	7-12	39	21	35.2
Larry	54	2.02	5-24	7-3	32	26	36.2
Grundy	51	1.76	5-24	7-3	37	35	34.0
Otee	47	1.69	5-25	7-3	38	32	34.8
Lodi	44	1.78	6-4	7-12	44	55	31.0
Marathon	41	1.55	6-5	7-8	46	68	30.5
Noble	41	1.69	5-26	7-8	35	9	34.2
Clintford	40	1.88	5-24	7-7	33	2	35.9
Holden	34	1.76	5-28	7-5	39	31	34.3
L.S.D. (.05)	9.4	0.29	-	-	-	-	-
C.V. %	13.4	11.0	-	-	-	-	-
Avg.	48.9	1.81	-	-	-	-	-

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

^{2/} Yield based on oven dry weights.

Table 21. Rye: Yield and other characteristics of varieties evaluated at Knoxville in 1982. ^{1/}

Variety	Yield		Date	Date	Plant	Lodging
	Bu/A	T/A ^{2/}	headed	mature	height in.	
Wintergrazer 80	34	4.78	4-22	6-25	61	75
Winter King	32	4.54	4-21	6-25	61	62
Wintergrazer 70	32	4.81	4-23	6-25	62	75
Wintergrazer 70-B	31	4.68	4-22	6-25	62	68
Forager	27	4.63	4-18	6-25	62	18
Vita Graze	21	4.77	4-17	6-25	58	20
L.S.D. (.05)	5.1	N.S.	-	-	-	-
C.V. %	11.6	6.6	-	-	-	-
Avg.	29.4	4.7	-	-	-	-

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

^{2/} Yield based on oven dry weights.