

1993 Kentucky Small Grain Variety Trials

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In 1993, Kentucky farmers harvested 22.6 million bushels of soft red winter wheat produced on 470,000 acres. The average yield of 48 bu/a was down 7 bu/a from the yield record of 1992. Barley yields were down 2 bu/a from 1992 levels.

Small grain performance tests were conducted in six of the seven agroclimatic regions of Kentucky (Fig. 1). Agricultural areas within each region are considered to have similar soil types and climatic conditions. Each region having a substantial acreage of a small grain commodity will have a trial conducted in that region for that commodity.

The objective of the Kentucky small grain variety trials is to evaluate varieties of barley and wheat that are commercially available or may soon be available to Kentucky farmers. New varieties are continually being developed by agricultural experiment stations and commercial firms. Annual evaluation of small grain varieties and selections provides seedsmen, farmers, and other agricultural workers with current information to help them select the varieties best adapted to their locality and individual requirements.

Since weather, soil and other environmental factors will alter varietal performance from one location to another, tests are grown in six locations (Fig. 1) in the state.

Table 1—Small Grain Harvested Acreage and Yields in Kentucky, 1991-1993.*

Crop	1993		1992		1991	
	Harvest 1000 A	Yield Bu/A	Harvest 1000 A	Yield Bu/A	Harvest 1000 A	Yield Bu/A
Wheat	470	48	420	55	400	27
Barley	16	64	16	66	22	55

* July 13, 1993, Kentucky Crop and Livestock Reporting Service.

Figure 1—Agro-climatic regions of Kentucky small grain variety trials.

Region	1993 Location	Cooperator	Crop Tested
1. Purchase	Murray	Bobby Wilson	Wheat
2. Western Coal Field	Princeton (Sandstone soil)	Research and Education Center	Barley, Wheat
3. Ohio Valley	Hawesville	Hagman Brothers	Wheat
4. Bluegrass	Lexington	Kentucky Agricultural Experiment Station	Barley, Wheat
5. Southern Tier	Elkton Princeton (Limestone soil)	Andy Gray Research and Education Center	Barley, Wheat Barley, Wheat
6. North Central	Bardstown	Frankie Blanford	Wheat

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Experimental Methods

The plots were planted with a specially built multi-row cone seeder. Each plot consisted of six rows to form a plot 4 feet wide, which was later trimmed to 10 feet in length. Each variety was grown in four replications, and the data presented are the average response from the four replications of 40 square feet harvested with a small plot combine. Planting dates of all trials for the past 3 years are listed in Table 2.

In some instances, uncontrollable factors — such as excessive rainfall, winter killing, high winds, hail, grazing cattle, etc.—adversely affected an experiment so that the results were judged unreliable. When this occurred, results are not given for that location and year. Data averaged over a period of years gives a more accurate picture of varietal performance than does annual data.

Results and Discussion

Since genetic expression of a variety is greatly influenced by environmental conditions, it is best to have several years' data from which to draw conclusions. Performance of a variety tested for only one year should not be compared with a 3-year average of another variety,

since it is possible that results in one of the other years were extremely good or poor, and thus not comparable.

The yield of a variety is relative and should be compared with the yields of the other varieties in the same experiment and at the same location. Small differences in yield of only a few bushels per acre between two varieties from an individual test should not be interpreted to indicate the superiority of one variety over another. However, if one variety consistently out-yields another over a period of several years, the chances are that the differences are real.

Lodging data are very difficult to interpret. A high-yielding variety should not necessarily be down-graded because of a high percentage of lodging for a given year at a given location. Local weather conditions, such as wind and rain, may cause a variety to lodge much more than it normally does. Variety trials normally have a greater degree of lodging than do farmer fields. It should also be emphasized that a variety reported to be 50% lodged does not imply that only 50% of the grain could be harvested. With good equipment, almost all of the grain can often be saved. Lodging data for a period of years should receive more consideration than annual lodging data since they will give a more accurate picture of varietal performance.

Table 2—Region, Location, Preceding Crop and Planting Dates of Kentucky Small Grain Trials, 1991-1993.

Region	Location	Year	Preceding Crop		Planting Date		
			Crop	Crop	1993	1992	1991
Purchase	Bardwell	1991	Corn	Wheat	10/20	10/18	11/1
	Murray	1992-93	Corn				
Western Coal Field	Princeton (Sandstone soil)		Fallow	Barley	10/12	10/22	11/1
				Wheat	10/12	10/22	11/1
Ohio Valley	Hawesville	1991-93	Corn	Wheat	10/14	10/21	10/29
Bluegrass	Lexington		Fallow	Barley	10/12	10/14	10/16
				Wheat	10/21	10/16	10/16
Southern Tier	Bowling Green	1991	Corn	Barley	10/15	10/17	10/31
	Elkton	1992-93	Corn	Wheat	10/15	10/17	10/31
	Princeton (Limestone soil)		Fallow	Barley	10/13	10/24	11/2
				Wheat	10/13	10/24	11/2
North Central	Bardstown	1991-93	Corn	Wheat	10/21	10/16	10/30

1993 Test Conditions

Favorable weather in early October allowed timely seeding of the wheat and barley variety trials. Mild temperatures and adequate moisture throughout the fall led to good stand establishment prior to the winter. Mild winter temperatures and continued moisture often precede heavy fungal disease pressure. This year, however, cool temperatures through May resulted in minimal fungal disease pressure. Viral disease levels, especially barley yellow dwarf virus, were quite high this year. The locations most affected by BYDV were Princeton limestone (Table 8), and Todd County (Table 8a). The Princeton limestone and the Lexington (Table 7) trials were treated with fungicides to control fungal diseases. Tests at all other locations were untreated.

Small Grain Varieties for 1994

Varieties eligible for certification include (1) varieties that may have potential for Kentucky and (2) older varieties that are still acceptable for production in Kentucky. The characteristics of the small grain varieties are summarized in Tables 3 and 11.

Soft Red Winter Wheat Varieties

Kentucky's climate and soils are well suited for the production of high quality soft red winter wheat. No single variety has all the desirable characteristics, but each has certain advantages. Yielding ability, straw strength, height, earliness, grain quality, and disease resistance are important in choosing a variety. Varietal performance is presented in Tables 4-9.

Winter Barley Varieties

Winter barleys are less winterhardy than winter wheat but more hardy than winter oats. The degree of winterhardiness, straw strength, and maturity are important characteristics when choosing a variety. Varietal performance data are presented in Tables 12-14A.

Certified Seed

Planting certified seed is one of the first steps in ensuring a good small grain crop. The extra cost of certified seed is justified in view of the high quality of seed obtained. Certified seed is seed which has been grown in such a way as to ensure the genetic identity and purity of a variety. Certified seed also helps to maintain freedom from weed and other crop seed and, in some cases, freedom from disease. The Kentucky Agricultural Experiment Station recommends that Kentucky-certified seed be used whenever possible for growing commercial crops of small grains.

Table 3—Characteristics of Wheat Varieties Tested in 1993.

VARIETY	PROTECTED	SOURCE	RELEASE DATE (YEAR)	YIELD (BU/A)	TEST WEIGHT (LB/BU)	LODGING (%)	HEIGHT (IN.)	SURVIVAL (%)	HEADING DATE (D/M/YR)
COKER 9803	YES	NORTHRUP KING	1990	66.4	58.5	5	34	90	5-May-93
FFR 555W	YES	NORTHRUP KING	1990	66.2	53.5	1	34	90	9-May-93
XW 514	YES	PIONEER HI BRED INT.	1993	65.9	57.6	3	34	91	4-May-93
JACKSON	YES	VIRGINIA	1993	64.8	56.5	6	35	90	9-May-93
2510	YES	PIONEER HI BRED INT.	1991	64.7	55.6	1	34	92	12-May-93
WAKEFIELD	YES	VIRGINIA	1990	64.0	54.7	5	37	91	10-May-93
MADISON	YES	VIRGINIA	1990	63.8	55.3	3	36	92	6-May-93
VERNE	YES	KENTUCKY	1990	62.3	56.0	2	40	91	9-May-93
2545	YES	PIONEER HI BRED INT.	1991	60.9	54.2	1	34	88	11-May-93
2580	YES	PIONEER HI BRED INT.	1992	60.0	55.6	4	34	84	6-May-93
COKER 9543	YES	NORTHRUP KING	1990	59.6	55.5	8	33	85	6-May-93
2548	YES	PIONEER HI BRED INT.	1989	59.1	54.7	3	33	87	9-May-93
COKER 9835	YES	NORTHRUP KING	1991	58.1	54.6	2	30	84	9-May-93
FFR 511W	YES	SOUTHERN STATES COOP	1991	57.5	55.2	2	35	86	6-May-93
AGRIPRO MALLARD	YES	AGRIPRO BIOSCIENCES	1990	56.8	53.3	5	34	88	8-May-93
CLARK	YES	INDIANA	1988	56.8	55.6	1	35	89	6-May-93
AGRIPRO PONTIAC	YES	AGRIPRO BIOSCIENCES	1993	56.6	56.1	3	34	88	10-May-93
AGRIPRO SAWYER	YES	AGRIPRO BIOSCIENCES	1991	56.3	54.2	7	34	88	8-May-93
FREEDOM	YES	OHIO	1991	56.2	53.6	4	36	87	11-May-93
FFR 568W	YES	NORTHRUP KING	1990	56.0	55.7	2	36	90	10-May-93
TYLER	NO	VIRGINIA	1980	54.9	54.6	2	40	87	11-May-93
SALUDA	NO	VIRGINIA	1983	53.1	56.0	3	33	87	9-May-93
COKER 9474	YES	NORTHRUP KING	1993	52.5	58.4	2	33	85	7-May-93
CARDINAL	YES	OHIO	1986	51.8	53.5	1	38	82	12-May-93
ARTHUR	NO	INDIANA	1968	51.7	54.4	6	38	85	8-May-93
HOWELL	YES	ILLINOIS	1990	51.4	56.8	4	39	88	12-May-93
AGRIPRO MAGNUM	YES	AGRIPRO BIOSCIENCES	1983	49.0	55.4	6	34	87	8-May-93
CALDWELL	YES	INDIANA	1980	45.0	53.1	1	35	76	10-May-93

CV = 10.2% 1
LSD(0.05)=3.1 BU/A 2

1 The CV is a measure of experimental error. The lower the CV the more reliable the results.

2 The LSD (Least Significant Difference) is the minimum difference required for two varieties to be significantly different from one another.

3 "Unauthorized propagation prohibited". Seed of these varieties must be sold by variety name only as a class of certified seed. This includes varieties for which protection has been applied and those for which protection has been granted.

Table 3a—Average Performance of Wheat Varieties Tested in 1992-1993.

VARIETY	YIELD (BU/A)	TEST WEIGHT (LB/BU)	LODGING (%)	PLANT HEIGHT (IN)	SURVIVAL (%)	HEADING DATE
FFR 555W	63.8	53.3	3.1	34.0	82.1	08MAY
2510	62.2	54.8	3.7	33.7	86.0	11MAY
MADISON	61.9	55.3	7.3	36.0	83.4	05MAY
WAKEFIELD	60.7	53.9	5.6	37.3	81.1	10MAY
2545	60.5	54.0	0.4	34.3	82.7	09MAY
COKER 9803	59.1	57.6	4.1	32.8	78.2	05MAY
2548	58.7	54.2	2.2	33.0	81.3	08MAY
VERNE	58.7	54.8	1.2	39.1	80.0	08MAY
FFR 511W	56.3	54.6	1.3	34.8	80.8	05MAY
CLARK	56.3	55.0	0.8	35.4	84.3	04MAY
AGRIPRO SAMYER	55.5	54.0	9.7	35.0	82.9	07MAY
FREEDOM	54.6	52.9	1.9	35.9	77.9	09MAY
COKER 9543	53.8	53.9	8.8	32.3	78.9	05MAY
FFR 568W	53.3	54.8	5.2	36.6	82.2	09MAY
TYLER	52.9	53.4	8.7	39.9	78.4	11MAY
AGRIPRO MALLARD	52.9	53.0	2.8	33.8	77.5	07MAY
HOWELL	52.6	56.7	3.5	39.1	80.9	11MAY
CARDINAL	51.2	53.3	1.2	38.9	73.2	11MAY
SALUDA	48.6	54.2	1.7	32.5	73.4	09MAY
AGRIPRO MAGNUM	48.6	54.8	7.1	34.2	79.7	07MAY
ARTHUR	46.1	54.8	5.2	38.2	72.9	07MAY
CALDWELL	44.6	52.7	1.3	35.7	70.2	08MAY

Table 3b—Average Performance of Wheat Varieties Tested in 1991-1993.

VARIETY	YIELD (BU/A)	TEST WEIGHT (LB/BU)	LODGING (%)	PLANT HEIGHT (IN)	SURVIVAL (%)	HEADING DATE
MADISON	51.8	53.3	4.8	36.4	80.4	03MAY
FFR 555W	50.8	51.4	2.0	34.6	77.0	06MAY
VERNE	49.4	52.8	0.8	39.4	78.9	06MAY
WAKEFIELD	48.9	51.9	3.6	37.5	76.6	08MAY
COKER 9803	48.8	55.9	2.7	33.1	71.7	03MAY
CLARK	47.5	53.2	0.5	35.9	82.6	02MAY
2548	47.1	51.9	1.4	33.1	78.6	06MAY
AGRIPRO SAWYER	45.1	51.8	6.3	35.4	80.3	05MAY
FFR 511W	44.8	52.2	0.9	34.9	71.9	03MAY
COKER 9543	44.6	52.6	5.7	32.6	76.4	03MAY
FFR 568W	43.9	52.9	3.4	37.1	80.8	07MAY
TYLER	42.7	51.1	5.6	40.0	76.7	09MAY
AGRIPRO MALLARD	42.3	50.7	1.8	34.1	74.9	06MAY
HOWELL	42.1	55.0	2.3	39.4	77.7	09MAY
CARDINAL	40.7	51.0	0.8	38.7	71.0	10MAY
SALUDA	39.5	51.9	1.1	33.0	70.5	07MAY
ARTHUR	38.7	53.9	3.6	38.8	69.6	05MAY
CALDWELL	34.5	50.6	0.9	36.1	67.3	07MAY

Table 4—Wheat Performance Trials for Purchase Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---		--TEST WT (LB/BU)--		----PCT LODGED----		---PCT SURVIVAL---		PLANT HEIGHT (IN)		HEADING DATE				
	1993	1992	1991	MEAN	1993	1992	1991	MEAN	1993	1992		1991	MEAN		
2545	65	73	69	55.5	54.4	55.0	0	0	0	96	100	98	37	08-May	
VERNE	65	72	49	56.6	56.9	43.8	52.4	0	0	0	99	98	91	42	07-May
JACKSON	65	65	65	56.3	56.3	56.3	0	0	0	100	100	100	36	06-May	
WAKEFIELD	64	70	49	54.7	55.4	44.5	51.5	0	0	0	100	96	71	39	07-May
COKER 9803	64	73	50	59.0	60.2	49.6	56.3	0	0	0	100	93	49	35	02-May
FFR 555W	61	70	47	54.8	56.7	43.2	51.6	0	0	0	100	94	64	34	06-May
AGRIPRO PONTIAC	61	61	61	57.3	57.3	57.3	0	0	0	100	100	100	36	07-May	
2510	60	68	64	56.1	56.0	56.1	0	0	0	99	100	99	34	09-May	
XW 514	59	59	59	57.6	57.6	57.6	0	0	0	100	100	100	35	29-Apr	
COKER 9543	59	69	48	57.9	55.0	48.0	53.6	0	0	0	100	94	80	33	02-May
TYLER	59	58	42	55.7	52.3	40.5	49.5	0	0	0	98	90	74	42	07-May
AGRIPRO SAWYER	58	68	47	54.0	54.4	44.6	51.0	0	0	0	100	100	78	37	07-May
MADISON	57	72	49	56.0	57.7	45.0	52.9	0	0	0	100	100	74	37	01-May
2548	57	77	47	55.7	58.8	43.5	52.7	0	0	0	100	100	76	34	06-May
CLARK	56	72	51	54.8	57.3	46.9	53.0	0	0	0	99	100	85	35	03-May
2580	55	55	55	55.1	55.1	55.1	0	0	0	100	100	100	37	03-May	
FREEDOM	55	66	61	54.0	55.5	54.8	0	0	0	98	90	94	37	07-May	
AGRIPRO MALLARD	55	64	43	55.9	56.7	41.3	51.3	0	0	0	98	95	74	35	05-May
CARDINAL	54	75	46	54.3	56.0	45.0	51.8	0	0	0	98	91	64	40	08-May
COKER 9474	54	54	54	58.8	58.8	58.8	0	0	0	96	96	96	34	04-May	
COKER 9835	53	53	53	54.7	54.7	54.7	0	0	0	100	100	100	32	05-May	
FFR 511W	53	66	44	54.8	56.7	43.9	51.8	0	0	0	100	100	60	36	02-May
SALUDA	53	55	39	55.0	56.0	44.0	51.7	0	0	0	100	76	55	35	07-May
HOWELL	52	73	44	57.4	60.9	47.2	55.2	0	0	0	95	100	71	41	09-May
ARTHUR	51	61	42	55.2	59.4	50.4	55.0	0	0	0	100	95	65	38	05-May
FFR 568W	50	70	43	55.4	59.5	45.0	53.3	0	0	0	100	100	73	36	06-May
AGRIPRO MAGNUM	50	63	56	57.4	58.5	58.0	0	0	0	99	100	99	35	04-May	
CALDWELL	46	57	36	55.7	54.6	50.0	53.4	0	0	0	93	85	73	35	07-May
MEAN	55	68	45	56.3	57.0	45.6	52.9	0	0	0	99	97	68	36	

CV =8.97%

LSD(0.05) =7.0 BU/A

* LOCATION: Calloway county

Table 5—Wheat Performance Trials for Western Coal Field Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---			--TEST WT (LB/BU)--			----PCT LODGED----			---PCT SURVIVAL---			PLANT HEIGHT (IN)	HEADING DATE
	1993	1992	1991	MEAN	1993	1992	1991	MEAN	1993	1992	1991	MEAN		
XW 514	52	32	12	52	56.2	0	0	0	88	30	06-May			
COKER 9803	51	32	12	32	55.0	0	0	0	86	30	06-May			
2580	46	46	46	46	51.3	0	0	0	73	29	08-May			
2510	46	52	49	49	51.9	0	0	0	88	28	14-May			
AGRIPRO MALLARD	45	26	15	29	47.6	0	0	0	79	29	10-May			
VERNE	43	44	21	36	54.6	0	0	0	80	33	12-May			
FFR 568W	43	42	21	35	54.2	0	0	0	84	32	12-May			
COKER 9835	43	43	43	43	52.4	0	0	0	76	27	10-May			
FFR 555W	43	60	13	38	48.9	0	0	0	83	29	10-May			
JACKSON	43	43	43	43	53.1	0	0	0	76	29	12-May			
FFR 511W	42	43	15	33	52.2	0	0	0	79	30	08-May			
MADISON	41	53	26	40	53.7	0	0	0	84	32	08-May			
2548	41	48	17	35	51.2	0	0	0	74	27	11-May			
WAKEFIELD	40	56	11	36	53.9	0	0	0	80	32	14-May			
COKER 9543	39	36	11	29	52.5	0	0	0	68	28	09-May			
FREEDOM	38	44	41	41	49.4	0	0	0	81	30	13-May			
AGRIPRO PONTIAC	38	38	38	38	55.9	0	0	0	79	28	13-May			
HOWELL	37	42	16	32	54.6	0	0	0	85	36	13-May			
COKER 9474	35	35	35	35	52.8	0	0	0	73	26	09-May			
AGRIPRO MAGNUM	35	35	35	35	52.7	0	0	0	79	28	10-May			
SALUDA	35	19	8	21	55.0	0	0	0	75	28	12-May			
2545	34	40	37	37	48.8	0	0	0	78	29	14-May			
AGRIPRO SAWYER	33	41	19	31	51.2	0	0	0	78	28	09-May			
ARTHUR	31	15	17	21	50.9	0	0	0	71	31	10-May			
CLARK	31	50	16	32	51.9	0	0	0	81	29	07-May			
CALDWELL	30	22	6	19	52.2	0	0	0	63	30	12-May			
TYLER	28	47	17	31	49.4	0	0	0	69	35	16-May			
CARDINAL	27	36	11	24	50.5	0	0	0	65	33	18-May			
MEAN	39	36	14	30	52.6	0	0	0	78	30				

CV =15.3%

LSD(0.05) =8.4 BU/A

* LOCATION: Princeton, sandstone soil

Table 6—Wheat Performance Trials for Ohio Valley Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---		---TEST WT (LB/BU)---		----PCT LODGED----		---PCT SURVIVAL---		PLANT HEIGHT (IN) 1993	HEADING DATE 1993								
	1993	1992	1991	1992	1991	1992	1991	1992			1991	1992						
WAKEFIELD	72	65	32	56	54.0	56.4	52.6	54.3	8	0	0	3	100	80	83	88	43	10-May
2545	72	65		69	56.3	56.4	56.4		0	0	0	0	100	90	95		38	12-May
XV 514	72			72	58.6		58.6		8	0	0	3	100		100		39	07-May
MADISON	71	59	32	54	57.5	54.6	52.0	54.7	6	0	0	2	100	90	79	90	41	08-May
COKER 9803	71	60	34	55	59.8	56.6	55.9	57.4	10	0	0	3	100	83	74	85	37	09-May
FFR 555W	71	70	36	59	55.5	56.0	53.5	55.0	0	0	0	0	100	94	75	90	39	12-May
CLARK	69	44	31	48	57.4	53.4	50.3	53.7	0	0	0	0	100	98	83	93	40	08-May
VERNE	68	50	37	52	56.6	55.5	52.5	54.9	3	0	0	1	100	86	85	90	46	10-May
JACKSON	68			68	57.2		57.2		9	0	0	3	98		98		38	10-May
TYLER	66	56	30	50	55.8	53.8	50.5	53.4	4	0	0	1	98	76	79	85	46	12-May
AGRIPRO SAWYER	65	58	26	50	55.2	55.2	47.3	52.6	9	0	0	3	100	89	81	90	39	09-May
2580	64			64	57.5		57.5		0	0	0	0	99		99		39	08-May
COKER 9543	63	52	31	49	57.0	51.6	52.6	53.7	3	0	0	1	100	91	81	91	36	08-May
COKER 9474	63			63	61.2		61.2		3	0	0	1	100		100		39	09-May
SALUDA	62	50	31	48	59.1	56.6	50.0	55.2	9	0	0	3	100	73	73	82	39	10-May
FFR 511W	62	52	23	46	56.2	54.1	50.8	53.7	4	0	0	1	100	90	54	81	41	09-May
AGRIPRO PONTIAC	61			61	57.8		57.8		13	0	0	4	100		100		40	10-May
COKER 9835	61			61	55.3		55.3		0	0	0	0	100		100		34	11-May
AGRIPRO MALLARD	61	54	24	46	56.0	54.1	50.2	53.4	13	0	0	4	98	83	78	86	39	10-May
2510	61	63		62	54.3	56.1	55.2		0	0	0	0	100	95	98		37	13-May
2548	60	60	23	48	56.8	54.7	50.5	54.0	5	0	0	2	100	94	76	90	39	10-May
HOWELL	59	56	28	47	58.4	58.0	52.8	56.4	9	0	0	3	100	93	81	91	45	13-May
ARTHUR	57	39	31	42	56.7	55.2	55.1	55.7	13	0	0	4	100	65	74	80	45	09-May
CARDINAL	57	49	21	42	53.5	54.4	48.4	52.1	0	0	0	0	96	81	70	83	43	13-May
FFR 568W	56	50	29	45	55.9	54.7	51.0	53.9	6	0	0	2	98	91	84	91	41	10-May
FREEDOM	55	65		60	52.4	54.1	53.3		14	0	0	5	100	86	93		40	12-May
AGRIPRO MAGNUM	51	51		51	57.4	54.7	56.1		6	0	0	2	100	93	96		39	09-May
CALDWELL	49	48	20	39	53.1	54.0	47.1	51.4	5	0	0	2	91	86	68	82	41	10-May
MEAN	62	53	28	48	56.9	54.8	51.9	54.5	3	0	0	1	99	87	75	87	40	

CV = 8.23%

LSD(0.05) = 7.2 BU/A

* LOCATION: Hancock County

Table 7---Wheat Performance Trials for Bluegrass Region*, 1990, 1991, 1993.

VARIETY	---YIELD (BU/AC)---		--TEST WT (LB/BU)--			----PCT LODGED----			---PCT SURVIVAL---			PLANT HEIGHT (IN)	HEADING DATE					
	1993	1991	1990	1990	1990	1993	1991	1990	1993	1991	1990			1990	1993			
FFR 555W	98	46	33	59	58.1	54.1	52.8	55.0	9	0	10	6	100	100	99	100	38	16-May
2510	98			98	60.2		60.2		8	0	0	3	100	100			38	18-May
2545	93			93	58.4		58.4		5	0	0	2	99	99			37	16-May
2548	91	38	40	56	58.7	52.8	56.8	56.1	19	0	5	8	96	100	100	99	36	16-May
2580	90			90	59.6		59.6		28	0	0	9	94	94			38	13-May
COKER 9835	89			89	59.4		59.4		8	0	0	3	95	95			33	16-May
TYLER	89	31	36	52	59.3	53.6	56.8	56.6	8	0	31	13	98	100	99	99	45	16-May
FREEDOM	88			88	58.1		58.1		11	0	0	4	96	96			40	16-May
XW 514	87			87	59.4		59.4		10	0	0	3	99	99			37	11-May
COKER 9803	87	37	44	56	60.9	57.0	61.6	59.8	21	0	13	11	98	100	99	99	37	11-May
COKER 9543	87	36		61	60.9	52.5	56.7		33	0	0	11	99	100	99	99	37	12-May
WAKEFIELD	86	43	51	60	58.9	54.6	56.6	56.7	21	0	55	25	98	98	99	98	40	14-May
FFR 568W	85	22	46	51	59.7	53.0	57.0	56.6	8	0	11	6	99	100	100	100	41	16-May
JACKSON	84			84	60.0		60.0		28	0	0	9	100	100			39	14-May
AGRIPRO SAWYER	83	31	43	52	57.6	52.4	53.2	54.4	28	0	55	28	99	100	100	100	38	13-May
MADISON	83	35	43	53	58.8	53.0	57.6	56.5	11	0	40	17	99	99	99	99	41	13-May
FFR 511W	83	33		58	57.5	53.0	55.3		11	0	0	4	98	95	96	96	39	13-May
CLARK	81	39	34	51	58.9	53.8	54.4	55.7	10	0	23	11	98	100	99	99	39	11-May
VERNE	81	41	42	55	59.0	54.8	59.2	57.7	10	0	20	10	100	100	99	100	44	14-May
AGRIPRO MALLARD	79	32		56	56.8	51.4	54.1		24	0	0	8	98	100	99	99	37	14-May
HOWELL	79	33	35	49	61.9	56.8	58.8	59.2	19	0	9	9	99	99	100	99	42	19-May
ARTHUR	77	21	32	43	60.2	53.2	57.6	57.0	30	3	33	22	99	99	98	98	43	14-May
CARDINAL	76	32	35	48	59.0	51.1	54.0	54.7	10	0	50	20	95	99	100	98	42	18-May
AGRIPRO PONTIAC	76			76	59.0		59.0		8	0	0	3	98	98			37	15-May
SALUDA	74	29	38	47	60.7	54.4	59.0	58.0	11	0	36	16	94	100	98	97	36	14-May
COKER 9474	73			73	61.6		61.6		11	0	0	4	95	95			38	14-May
AGRIPRO MAGNUM	70			70	60.0		60.0		23	0	0	8	98	98			37	15-May
CALDWELL	61	28	29	39	57.4	50.2	52.0	53.2	4	0	18	7	90	99	96	95	38	16-May
MEAN	79	32	36	49	59.5	53.7	55.9	56.4	13	0	11	8	97	99	98	98	39	

CV = 7.6%

LSD(0.05) = 8.5 BU/A

* LOCATION: Lexington, Spindletop farm

The 1992 test was discarded due to winterkill.

The 1993 test at this location was treated with fungicides at growth stages 8 and 10.5.

Table 8—Wheat Performance Trials for Southern Tier Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---		---TEST WT (LB/BU)---		----PCT LODGED----			---PCT SURVIVAL---			PLANT HEIGHT (IN) 1993	HEADING DATE 1993						
	1993	1992	1991	MEAN	1993	1992	1991	MEAN	1993	1992			1991	MEAN				
JACKSON	81		81	58.6	58.6	0	0	0	85	85	36	09-May						
WAKEFIELD	78	67	24	56	53.8	51.0	49.2	51.3	0	28	0	9	84	96	80	87	37	10-May
XW 514	78		78	58.7	58.7	0	0	0	81	81	34	04-May						
2510	76	72	74	74	57.5	54.1	55.8	0	0	0	0	0	86	95	91	34	12-May	
FFR 555W	75	75	24	58	53.0	52.3	46.3	50.5	0	5	0	2	83	100	85	89	33	08-May
COKER 9803	74	61	32	56	58.3	58.6	53.0	56.6	0	3	0	1	75	86	71	78	35	06-May
MADISON	73	81	37	64	53.1	57.6	48.8	53.2	0	3	0	1	84	99	91	91	36	06-May
VERNE	70	69	39	59	53.3	54.1	49.5	52.3	0	0	0	0	83	91	94	89	41	09-May
COKER 9543	70	55	29	51	52.4	53.4	51.5	52.4	0	0	0	0	74	93	93	86	32	06-May
AGRIPRO MALLARD	69	63	24	52	56.0	52.8	46.6	51.8	0	0	0	0	80	93	85	86	33	08-May
2545	68	66	67	67	54.8	52.5	53.7	0	0	0	0	0	75	88	81	33	11-May	
AGRIPRO PONTIAC	67		67	56.3	56.3	0	0	0	79	79	35	09-May						
AGRIPRO SAWYER	66	62	26	51	56.5	57.8	48.6	54.3	0	26	0	9	75	90	90	85	33	07-May
2580	66		66	57.0	57.0	0	0	0	69	69	34	06-May						
COKER 9835	66		66	55.6	55.6	0	0	0	69	69	31	09-May						
CLARK	65	75	31	57	54.1	56.4	50.2	53.6	0	0	0	0	71	99	91	87	35	05-May
2548	65	67	26	53	57.6	54.2	48.1	53.3	0	0	0	0	71	91	88	83	33	10-May
CARDINAL	64	62	17	48	52.1	54.8	46.2	51.0	0	0	0	0	71	76	78	75	38	11-May
TYLER	64	58	24	49	57.4	54.2	47.6	53.1	0	30	0	10	74	95	93	87	40	09-May
FREEDOM	63	62	63	63	55.4	53.1	54.3	0	0	0	0	0	78	96	87	35	10-May	
FFR 568W	63	59	31	51	53.3	53.6	50.5	52.5	0	14	0	5	74	95	93	87	35	09-May
ARTHUR	62	57	30	50	53.9	57.0	52.8	54.6	0	0	0	0	76	74	78	76	38	07-May
FFR 511W	62	68	26	52	55.8	54.4	45.2	51.8	0	0	0	0	68	95	71	78	34	06-May
SALUDA	60	62	25	49	53.1	52.3	48.5	51.3	0	0	0	0	78	84	80	80	33	09-May
HOWELL	58	64	22	48	55.9	57.5	53.2	55.5	0	0	0	0	70	90	89	83	38	12-May
CALDWELL	57	66	14	45	51.4	54.4	40.5	48.8	0	0	0	0	65	78	69	70	35	10-May
AGRIPRO MAGNUM	57	60	58	58	54.6	54.3	54.5	0	21	0	7	74	99	86	34	07-May		
COKER 9474	56		56	59.7	59.7	0	0	0	76	76	33	07-May						
MEAN	65	64	26	52	55.4	54.3	48.3	52.7	0	2	0	1	77	91	85	84	35	
CV =8.0%																		

LSD(0.05) =7.4 Bu/A

* LOCATION: Princeton, limestone soil

The 1993 test at this location was treated with fungicides at growth stages 8 and 10.5.

Table 8a—Wheat Performance Trials for Southern Tier Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---			--TEST WT (LB/BU)--			----PCT LODGED----			---PCT SURVIVAL---			PLANT HEIGHT (IN)	HEADING DATE				
	1993	1992	1991	MEAN	1993	1992	1991	MEAN	1993	1992	1991	MEAN						
MADISON	69	62	54	62	55.5	56.5	51.3	54.4	0	0	0	0	91	100	75	89	37	03-May
XW 514	66		86	66	57.5		57.5		0	0	0	0	91			91		01-May
COKER 9803	65	56	49	57	58.6	58.7	51.7	56.3	0	0	0	0	89	100	69	86	33	03-May
VERNE	62	66	47	58	56.2	54.6	48.4	53.1	0	0	0	0	93	100	80	91	38	07-May
FFR 555W	61	70	33	55	53.4	55.0	45.3	51.2	0	0	0	0	91	100	75	89	34	07-May
2510	61	72		66	56.6	56.0	56.3		0	0	0	0	93	100		96	33	10-May
WAKEFIELD	59	64	42	55	54.2	58.0	48.2	53.5	0	0	0	0	94	100	64	86	36	08-May
JACKSON	59			59	56.3		56.3		0	0	0	0	94			94	35	07-May
AGRIPRO PONTIAC	58			58	56.7		56.7		0	0	0	0	89			89	35	08-May
CLARK	57	67	46	57	56.9	54.7	51.7	54.4	0	0	0	0	90	100	79	90	33	04-May
COKER 9543	57	42	44	48	56.4	52.6	52.2	53.7	0	0	0	0	88	100	73	87	33	04-May
2580	57			57	55.3		55.3		0	0	0	0	84			84	34	04-May
2548	56	64	43	55	54.6	57.9	50.2	54.2	0	0	0	0	90	100	76	89	32	06-May
FFR 511W	56	64	35	52	56.3	56.1	49.5	54.0	0	0	0	0	89	100	63	84	35	03-May
AGRIPRO MALLARD	56	60	33	49	53.3	56.1	46.4	51.9	0	0	0	0	95	100	76	90	34	07-May
SALUDA	55	56	33	48	56.8	59.5	48.4	54.9	0	0	0	0	90	100	68	86	32	07-May
2545	53	74		64	54.7	56.3	55.5		0	0	0	0	88	100		94	34	09-May
ARTHUR	52	52	35	46	54.4	59.6	51.8	55.3	0	0	0	0	84	100	60	81	38	07-May
COKER 9835	51			51	55.4		55.4		0	0	0	0	84			84	30	06-May
AGRIPRO SAWYER	50	65	36	50	53.8	54.9	45.5	51.4	0	0	0	0	93	100	81	91	34	06-May
CARDINAL	49	58	30	46	55.3	55.6	45.2	52.0	0	0	0	0	88	100	79	89	38	09-May
COKER 9474	49			49	58.6		58.6		0	0	0	0	89			89	31	05-May
FFR 568W	49	53	47	49	56.4	58.2	48.8	54.5	0	0	0	0	93	100	85	93	35	07-May
FREEDOM	48	61		54	54.4	55.1	54.8		0	0	0	0	88	100		94	37	09-May
AGRIPRO MAGNUM	46	53		49	53.6	56.0	54.8		0	0	0	0	86	100		93	33	07-May
CALDWELL	45	51	20	39	56.2	53.6	42.4	50.7	0	0	0	0	79	100	61	80	36	08-May
HOWELL	42	63	30	45	56.3	61.8	51.0	56.4	0	0	0	0	93	100	79	90	39	10-May
TYLER	41	61	30	44	52.6	56.5	45.3	51.5	0	0	0	0	95	100	78	91	39	09-May
MEAN	55	59	37	50	55.9	56.2	48.6	53.6	0	0	0	0	89	100	71	87	35	

CV =9.93%

LSD(0.05) =7.7 BU/A

* LOCATION: Elkton

Table 9—Wheat Performance Trials for North Central Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---		---TEST WT (LB/BU)---		----PCT LODGED----		----PCT SURVIVAL----		PLANT HEIGHT (IN) 1993				
	1993	1992	1991	MEAN	1993	1992	1991	MEAN					
JACKSON	55	23	24	34	55	53.7	8	0	0	3	74	74	31
FFR 555W	55	23	24	34	55	53.7	8	0	0	3	74	74	31
COKER 9803	54	24	28	35	54	50.8	0	26	0	9	76	10	43
MADISON	53	33	29	38	54	58.1	0	20	0	7	81	16	35
2510	52	30	41	41	52	52.3	0	75	0	25	89	20	60
WAKEFIELD	50	19	25	31	52	47.0	0	40	0	13	79	46	63
FREEDOM	48	18	33	33	53	43.0	3	14	0	5	85	5	51
VERNE	47	26	30	34	51	40.9	0	0	0	0	70	10	40
XW 514	47	26	30	34	55	44.2	0	3	0	1	80	6	56
FFR 568W	46	29	27	34	55	44.2	0	0	0	0	78	78	30
FFR 511W	45	37	20	34	54	41.0	0	40	0	13	80	26	61
2548	45	33	24	34	53	46.7	0	3	0	1	73	34	24
COKER 9835	44	44	44	44	53	46.7	0	5	0	2	75	30	54
COKER 9543	44	29	25	32	48	45.9	5	0	0	2	64	64	27
2580	43	41	42	41	49	42.2	18	61	0	26	70	30	48
2545	41	42	42	41	51	44.9	0	0	0	0	70	70	30
AGRIPRO SAWYER	40	33	30	34	53	46.7	0	0	0	0	78	69	73
CLARK	39	28	32	33	50	48.1	15	49	0	21	74	60	59
TYLER	39	25	25	30	55	48.0	0	0	0	0	81	30	73
COKER 9474	38	38	25	30	51	48.0	0	71	0	24	79	19	44
CARDINAL	36	24	27	29	51	45.2	0	0	0	0	68	68	30
AGRIPRO MAGNUM	36	27	31	31	55	46.4	0	0	0	0	68	68	30
AGRIPRO PONTIAC	35	35	35	35	50	46.7	13	30	0	14	73	23	48
SALUDA	34	18	22	25	52	46.7	0	0	0	0	73	73	31
AGRIPRO MALLARD	34	23	22	26	49	49.9	0	0	0	0	73	73	31
ARTHUR	34	18	22	25	52	46.5	0	3	0	1	71	9	64
HOWELL	33	27	22	27	47	45.3	0	0	0	0	70	14	54
CALDWELL	30	20	18	22	49	45.7	0	26	0	9	66	18	44
MEAN	43	28	24	32	53	50.1	0	18	0	6	75	33	51
					46	45.3	0	9	0	3	53	25	45
					52	46.5	1	9	0	4	74	29	50
					48	48.5							

CV =12.35%

LSD(0.05) =8.6 BU/A

* LOCATION: Nelson County

Table 10—Disease Ratings of Wheat Varieties in 1993¹.

VARIETY ²	LEAF ³		LEAF BLOTCH	GLUME BLOTCH		POWDERY MILDEW		BYDV ⁴	WSSMV ⁵
	RUST	S		S	S	S	S		
ARTHUR	S	S	S	S	VS	VS	VS	S	S
CALDWELL	MS	VS	VS	VS	VS	VS	VS	S	S
TYLER	VS	VS	VS	MS	S	S	S	S	MR
SALUDA	S	S	S	S	S	VS	S	S	VS
VERNE	MS	S	S	S	S	MS	MR*	MR	R
CARDINAL	MS	VS	VS	S	S	VS	S	S	S
AGRIPRO MAGNUM	MS	S	S	MS	S	S	VS	VS	S
HOWELL	S	MS	MS	MS	VS	VS	MS*	MS*	S
CLARK	MS	VS	VS	VS	S	S	VS*	R	MR
MADISON	MS	S	S	MS	S	MS	S*	S	S
WAKEFIELD	S	S	S	S	S	MS	S*	S	S
AGRIPRO SAWYER	MS	S	S	MS	MS	VS	VS*	S	S
FREEDOM	MR	MS	MS	MS	MS	MS	VS*	MS	MS
2548	MS	S	S	MS	MS	S	MS*	VS	VS
COKER 9803	MR	S	S	MR	MR	MR	S	S	S
FFR 555W	S	VS	VS	S	MS	MS	S*	S	MS
FFR 568W	MS	S	S	S	MR	MR	S*	S	MS
AGRIPRO MALLARD	MS	VS	VS	S	S	VS	S*	S	S
FFR 511W	MS	S	S	S	S	MR	MS*	MR	MR
COKER 9543	MR	VS	VS	S	S	S	S*	MS	MS
2510	MR	MS	MS	MS	MS	VS	VS*	MR	MR
2545	S	S	S	MS	MS	S	MS*	MS	MS
2580	MS	S	S	--	--	S	S	VS*	VS
XW-514	MR	MR	MR	--	--	MR	MR	MS*	MR
COKER 9474	MR	MR	MR	--	--	VS	VS	S	S
JACKSON	MS	MR	MR	--	--	MR	MR	VS	S
AGRIPRO PONTIAC	MR	S	S	--	--	VS	VS	VS	S

¹VS=VERY SUSCEPTIBLE; R=RESISTANT; MR=MODERATELY RESISTANT

S=SUSCEPTIBLE; MS=MODERATELY SUSCEPTIBLE;

(--)=INSUFFICIENT OPPORTUNITY TO RATE IN PRESENCE OF DISEASE

In general, varieties with a VS or S reaction to a given disease will not perform well if that disease becomes severe, while varieties rated R or MR will perform well in those situations. Varieties with an MS reaction will have an intermediate response.

²RATINGS OF NEWLY RELEASED VARIETIES BASED ON 1 YR. AND 1 LOCATION

³BASED ON DISEASE PROGRESS AND FINAL DISEASE LEVEL

⁴BARLEY YELLOW DWARF VIRUS. * INDICATES RATINGS BASED ON TWO LOCATIONS.

⁵WHEAT SPINDLE STREAK MOSAIC VIRUS

Table 11—Characteristics of Barley Varieties Tested in 1993.

VARIETY	PROTECTED	SOURCE	RELEASE DATE (YEAR)	YIELD (BU/A)	TEST WEIGHT (LB/BU)	LODGING (%)	HEIGHT (IN.)	SURVIVAL (%)	HEADING DATE (D/M/YR)
PAMUNKEY	YES	VIRGINIA	1993	79.6	48.0	3	35	72	28-Apr-93
NOMINI	YES	VIRGINIA	1992	75.1	43.7	3	36	79	29-Apr-93
WYSOR	NO	VIRGINIA	1985	72.0	44.3	5	36	85	30-Apr-93
STARLING	YES	VIRGINIA	1993	69.9	42.6	2	37	75	2-May-93
SCHOCHOH	NO	KENTUCKY	1989	65.2	47.3	9	34	88	2-May-93
BARSOY	NO	KENTUCKY	1966	59.7	45.6	1	43	75	26-Apr-93
PIKE	YES	INDIANA	1975	52.8	43.2	4	30	83	28-Apr-93

CV = 10.7 %
LSD = 3.6 BU/A

1 2

1 The CV is a measure of experimental error. The lower the CV the more reliable the results.

2 The LSD (Least Significant Difference) is the minimum difference required for two varieties to be significantly different from one another.

3 "Unauthorized propagation prohibited". Seed of these varieties must be sold by variety name only as a class of certified seed. This includes varieties for which protection has been applied and those for which protection has been granted.

Table 12—Barley Performance Trials for Western Coal Field Region*, 1990, 1991, 1993.

VARIETY	---YIELD (BU/AC)---			--TEST WT (LB/BU)--			----PCT LODGED-----			---PCT SURVIVAL----			PLANT HEIGHT (IN)	HEADING DATE				
	1993	1991	1990	MEAN	1993	1991	1990	MEAN	1993	1991	1990	MEAN			1993			
SCHOCHOH	44	30	45	40	46.3	37.0	41.3	41.5	0	5	18	8	73	36	100	70	24	07-May
WYSOR	23	45	66	44	43.2	37.0	42.7	41.0	0	0	10	3	74	28	100	67	24	04-May
BARSOY	20	28	34	27	44.2	36.0	41.4	40.5	0	8	25	11	49	29	100	59	24	29-Apr
NOMINI	20			20	41.2			41.2	0	0	0	0	53			53	25	03-May
PIKE	17	34	35	28	42.7	36.0	39.8	39.5	0	8	60	23	68	53	100	73	22	30-Apr
STARLING	14			14	37.5			37.5	0	0	0	0	46			46	27	05-May
MEAN	26	33	43	34	43.1	36.6	41.4	40.4	0	3	22	8	57	40	100	66	24	

CV =22.9%

LSD(0.05) =6.7 bu/A

* LOCATION: Princeton, Sandstone soil

The 1992 trial was discarded due to winterkill.

Table 13—Barley Performance Trials for Bluegrass Region*, 1990, 1991, 1993.

VARIETY	---YIELD (BU/AC)---			--TEST WT (LB/BU)--			----PCT LODGED----			---PCT SURVIVAL---			PLANT HEIGHT (IN)	HEADING DATE				
	1993	1991	1990	MEAN	1993	1991	1990	MEAN	1993	1991	1990	MEAN			1993			
STARLING	98	98	98	44.1	44.1	44.1	44.1	89	0	0	30	100	100	44	05-May			
PAMUNKEY	98	98	98	48.6	48.6	48.6	48.6	74	0	0	25	100	100	42	02-May			
NOMINI	98	98	98	45.0	45.0	45.0	45.0	85	0	0	28	100	100	43	02-May			
WYSOR	93	69	83	82	45.4	40.7	39.4	41.8	89	96	0	62	100	95	100	98	43	03-May
BARSOY	84	43	41	56	48.2	51.6	36.7	45.5	89	65	0	51	100	89	100	96	40	30-Apr
PIKE	76	31	49	52	45.4	42.6	35.8	41.3	95	96	0	64	100	86	100	95	37	03-May
SCHOCHDH	69	48	57	58	47.6	44.9	39.7	44.1	91	65	-2	51	100	90	100	97	42	05-May
MEAN	88	41	51	60	46.3	39.1	37.8	41.1	56	44	0	33	100	80	100	93	41	

CV =11.4%

LSD(0.05) =14.1 BU/A

* LOCATION: Lexington, Spindletop farm

1992 test was discarded due to winterkill

Table 14—Barley Performance Trials for Southern Tier Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---			--TEST WT (LB/BU)--			----PCT LODGED----			---PCT SURVIVAL---			PLANT HEIGHT (IN)	HEADING DATE				
	1993	1992	1991	MEAN	1993	1992	1991	MEAN	1993	1992	1991	MEAN			1993			
NOMINI	93	89	91	45.9	40.8	43.4	0	20	0	7	81	68	74	38	28-Apr			
PAMUNKEY	93		93	48.8		48.8	0	0	0	0	73		73	37	27-Apr			
WYSOR	88	90	61	80	46.0	41.7	38.0	41.9	0	0	33	11	81	100	85	89	38	29-Apr
STARLING	83		83	45.3		45.3	0	0	0	0	71		71	40				01-May
BARSOY	68	62	42	57	47.0	42.3	41.0	43.4	0	10	11	7	78	68	65	70	33	24-Apr
SCHOCHOH	67	58	46	57	49.3	38.2	42.0	43.2	0	84	54	46	90	74	100	88	35	01-May
PIKE	59	85	43	62	46.1	46.1	39.0	43.7	0	0	30	10	83	83	95	87	29	27-Apr
MEAN	79	77	47	68	46.9	41.8	39.4	42.7	0	11	24	12	79	78	85	81	36	

CV =7.8%

LSD(0.05) =8.6 BU/A

* LOCATION: Princeton, Limestone soil

Table 14a—Barley Performance Trials for Southern Tier Region*, 1991-1993.

VARIETY	---YIELD (BU/AC)---			--TEST WT (LB/BU)--			----PCT LODGED----			---PCT SURVIVAL---			PLANT HEIGHT (IN)		HEADING DATE
	1993	1992	1991	MEAN	1993	1992	1991	MEAN	1993	1992	1991	MEAN	1993	1992	1993
NOMINI	91	62	76	42.7	37.4	40.1	45	50	0	32	84	100	92	39	24-Apr
PAMUNKEY	85		85	47.9		47.9	60	0	0	20	78		78	35	24-Apr
STARLING	85		85	43.6		43.6	39	0	0	13	83		83	39	30-Apr
WYSOR	85	67	50	42.8	39.7	41.5	13	50	35	33	89	100	94	39	26-Apr
SCHOCHOH	81	81	32	46.0	42.5	40.0	66	10	81	53	91	100	95	35	30-Apr
BARSOY	67	58	29	43.1	44.8	41.0	35	0	75	37	75	100	96	33	22-Apr
PIKE	60	66	32	38.5	43.0	41.2	80	0	81	54	84	100	95	31	26-Apr
MEAN	79	67	35	43.5	41.5	40.6	34	11	53	33	83	100	95	93	36

CV =7.34%

LSD(0.05) =8.2 BU/A

* LOCATION: Elkton