Kentucky Small Grain Variety Trials–1972

By Charles R. Tutt, Morris J. Bitzer, Verne C. Finkner, D. L. Davis, James Herbek and Harold Vaught

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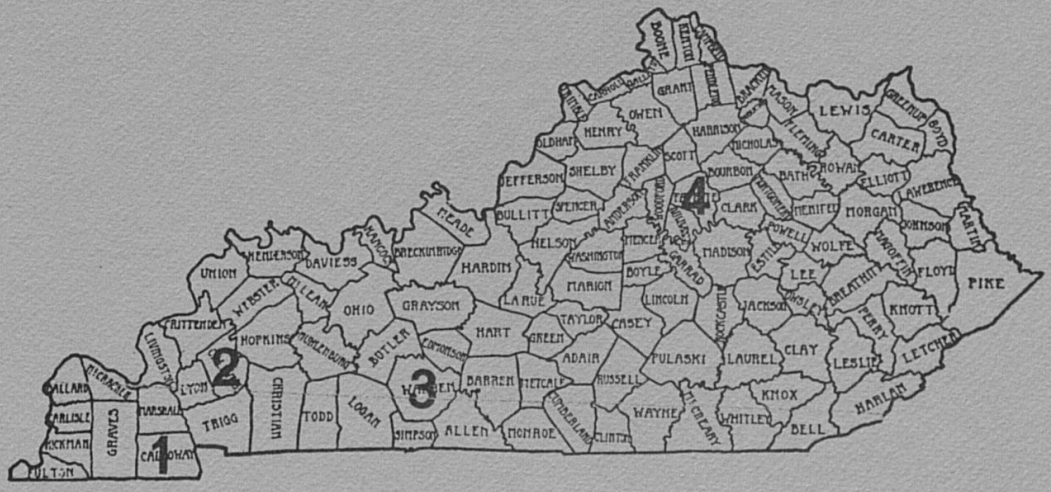

Location	*Cooperator*
1. Murray	Murray State University Agriculture Department
2. Princeton	West Kentucky Substation
3. Bowling Green	Western Kentucky University Agriculture Department
4. Lexington	Kentucky Agricultural Experiment Station

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Small grains are an important agronomic crop in Kentucky, both in respect to acreage and in dollar value contributed to Kentucky agricultural income. Two important factors responsible for the increase in small grain acreage in recent years are the increased utilization of double cropping and the demand for more feed grain. Total small grain acreage harvested for grain increased from 270,000 acres in 1971 to 328,000 acres in 1972. Wheat acreage increased from 190,000 to 234,000 acres; barley went from 60,000 to 80,000 acres. Oats decreased, however, from 20,000 to 14,000 acres in 1972 as compared with 1971.

TEST OBJECTIVES

Purpose of the Kentucky small grain variety trials is to evaluate varieties of barley, wheat and oats 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. Continued testing and evaluation of small grain varieties and selections are essential if farmers, seedsmen and other agricultural workers are to be provided 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 four locations in the state (Lexington, Bowling Green, Princeton, and Murray) as shown on page 2.

Recommendations are revised each year because of the availability of new varieties, improvements in production practices, and continually changing disease and insect hazards.

1972 CROP CONDITIONS

Conditions during the growing season of the 1972 small grain crop were very unfavorable and, as a result, small grain yields throughout the state were disappointingly low. The state average yields per acre were 39 bushels for barley, 32 for wheat and 40 for oats. The two most important factors contributing to the low yields were winterkilling and the presence of barley yellow dwarf disease. Oats were winterkilled extensively in 1972, and winterkilling of wheat and barley was more severe than had been anticipated, with barley incurring the most damage. Barley yellow dwarf disease was more widespread in 1972 than in 1971. This disease inflicted the most damage on barley and oats, but wheat was also affected in some areas. Prolonged abnormal cool weather in March and April held back the growth of small grains, and fields headed out shorter than normal.

PERFORMANCE DATA

As previously mentioned, the 1972 small grain variety trials were conducted at Murray, Bowling Green, Princeton and Lexington. Data are available also for a period of years at each of these locations. Since results vary from year to year, two-, three-, four- and five-year results give a more accurate picture of varietal performance than do annual data.

EXPERIMENTAL METHODS

Each experimental plot consisted of four rows 1 foot apart and 13 feet long. Each variety was grown in four plots placed at random over the test area, and the results presented in the table are the average response of the four plots. The plots were planted with a specially built four-row seeder, and the data were taken from a 10-foot section of the two center rows of each plot.

DATA COLLECTED

It is important to consider characteristics other than grain yield when selecting a variety.

Grain yield was taken by cutting the two center rows of each plot and threshing the grain through a stationary plot thresher. The weights of each plot were recorded in grams and converted to bushels per acre.

Test weight, or the weight of a bushel of grain, is a measure of the quality of grain. The higher the test weight, the higher the quality and market value, unless the grain has been downgraded because of another quality factor.

Lodging was recorded as the percentage of the total plants lying on the ground or leaning at a 45-degree angle from the vertical when the grain was mature. The term "maturity" as used in this report refers to the date the grain was ready to be combine-harvested.

Plant height was reported as the number of inches from the ground to the tip of the upright grain head.

Survival was recorded as the percentage of plants estimated to have survived the winter. This is a measure of winterhardiness and is an important factor to consider when selecting a variety.

Date headed was reported as the number of days after March 31 when 50 percent of the heads had emerged from the plants in each plot. This is a measure of maturity and is important when selecting a variety for use in a double-cropping system.

RESULTS AND DISCUSSION

The performance of varieties in the 1972 trials and in trials of the previous 5 years is presented by crop and location in a tabular form. 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 that has been tested for only one year should not be compared against a 4- or 5-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 and should be considered important.

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 and at a given location. Local weather conditions, such as heavy wind and rain, may cause a variety to lodge much more than it normally does. It should also be emphasized that a report that a variety was 50 percent lodged does not imply that only 50 percent of the grain could be harvested. With good equipment, it may be expected that almost all of the grain could 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.

Barley Yellow Dwarf Disease was very severe this year at the Murray and Princeton locations. This disease, in conjunction with winterkilling, was primarily responsible for the low yields of wheat, oats and barley at those locations. Barley yellow dwarf is a virus disease transmitted by aphids. The symptoms induced by the virus are similar to those caused by nonparasitic factors and an excess of soil water, drought, a shortage of nitrogen, and low-temperature injury. Leaves of infected plants rapidly turn light green and yellow, beginning at the tips. In oats the tips of the leaves turn red. Compared with normal plants, the infected plants are dwarfed, mature early, produce seed low in test weight, and have very low yields. Plants become infected at all stages, and young plants are frequently killed. Stunting gradually decreases with advancing age of the plants. As with other virus diseases, the yield of grain shows the greatest reduction when plants are infected early. Early fall plantings and prolonged warm weather in the fall provide opportunity for aphid buildup and an increase in the incidence of the disease. At present there are no resistant varieties; the only control available is to plant as late as possible in the fall and control aphid buildup. Disease ratings were made on all the barley varieties grown at Princeton and Murray this year.

These ratings are given under the heading BYD Ratings in Tables 2 and 4. Although there was some difference in the ratings among varieties it should be kept in mind that these ratings are for one year only and several years' data will need to be taken in order to establish if there are any real differences among varieties.

The 1972 performance data are presented in Tables 1 to 11. Comparisons for date of heading for the recommended and certified varieties are presented in Table 12. These comparisons are important for selecting varieties for a double-cropping system. A summary of the small grain recommendations for 1973 is presented in Table 13.

RECOMMENDATIONS FOR 1973

In Table 13, varieties are labeled as recommended and/or certified. The varieties recommended are those which are superior in one or more characteristics important for the crop and have been tested by the Kentucky Agricultural Experiment Station for 3 or more years. Varieties that have been recommended for Kentucky, recently certified in another state, or approved by an appropriate National Varietal Review Board may be certified for production. The certified list will include, in addition to the recommended varieties, (1) varieties that may have potential for Kentucky and (2) older varieties that are still acceptable for production in Kentucky but are not as good as the recommended varieties.

A description of the varietal recommendations for 1973 follows:

WINTER BARLEY VARIETIES

Recommended winter barleys are less winter-hardy than winter wheat, but more hardy than winter oats. Winterhardiness, straw strength, and maturity are important characteristics when choosing a variety. Barley performs best on good, well-drained soil and is not a poor land crop. It is an excellent feed grain for livestock when fed with the other grain crops. The varietal performance data are presented in Tables 1 through 4.

Table 1.—Results of Barley Performance Trials at Lexington, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Survival	Date Headed *
	Bu.	Lb./Bu.	%	In.	%	
			Five Year Average 1967-71			
Barsoy	82.5	50.0	16.9	34.9	99.4	27.0
Dayton	54.5	43.6	57.5	39.0	76.6	32.7
Harrison	85.7	48.2	15.6	40.9	99.7	35.9
Jefferson	66.8	45.5	21.3	42.4	99.7	36.3
Knob	66.9	45.9	25.6	34.6	92.8	31.5
Schuyler	86.7	44.7	43.8	36.9	99.4	42.1
			Four Year Average 1968-71			
Barsoy	90.9	50.1	20.0	35.3	99.4	29.6
Dayton	61.7	43.8	57.5	39.4	76.6	34.9
Harrison	87.2	48.0	20.0	40.9	99.7	37.2
Jefferson	74.8	45.6	27.5	42.2	99.7	37.4
Knob	78.2	45.9	31.7	34.5	92.8	33.9
Lakeland	91.2	47.2	10.8	39.3	100.0	40.7
Paoli	77.2	45.7	40.8	32.9	100.0	33.6
Schuyler	88.6	44.7	52.5	37.3	99.4	42.7
			Three Year Average 1969-71			
Barsoy	99.0	50.2	20.0	35.3	50.2	30.3
Dayton	63.8	43.6	57.5	39.2	71.3	36.0
Harrison	94.9	47.8	20.0	41.1	47.8	38.8
Jefferson	83.7	45.5	27.5	41.9	45.5	38.9
Knob	82.2	45.9	31.7	33.3	45.9	34.8
Lakeland	94.7	47.0	10.8	38.8	47.0	42.3
Paoli	82.3	45.6	40.8	32.8	45.6	34.2
Schuyler	89.2	44.4	52.5	37.3	44.4	43.8
			Two Year Average 1970-71			
Barsoy	106.6	51.0	30.0	36.8	98.8	28.4
Dayton	69.1	44.8	43.8	39.8	61.3	44.8
Harrison	95.7	47.7	30.0	41.5	99.4	38.0
Jefferson	83.1	45.1	41.3	42.4	99.4	45.1
Knob	80.5	46.6	45.0	33.6	88.1	33.9
Lakeland	92.4	47.3	16.3	39.5	100.0	47.3
McNair 601	71.0	46.1	37.5	36.4	78.8	46.1
Schuyler	95.0	44.0	47.5	37.8	98.8	44.0
Paoli	83.4	45.9	50.0	33.9	100.0	45.9

* No. days after March 31.

Lexington
1972 Winter Survival

Variety	Survival	Variety	Survival
	%		%
Barsoy	13.8	Knob	2.5
Dayton	3.8	Lakeland	62.5
Harrison	62.5	McNair 601	0.0
Jefferson	57.5	Paoli	47.5
Keowee	1.3	Schuyler	36.3

Table 2.—Results of Barley Performance Trials at Princeton, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Survival	Date Headed *	BYD Rating **
	Bu.	Lb./Bu.	%	In.	%		
			Five Year Average 1968-72				
Barsoy	69.0	49.1	8.5	33.1	93.3	21.9	---
Dayton	55.6	43.6	53.0	38.6	92.5	27.6	---
Harrison	68.0	48.7	20.3	40.6	98.5	32.7	---
Jefferson	70.9	44.6	21.8	42.4	98.8	32.8	---
Knob	65.4	44.7	35.0	35.5	96.5	29.3	---
Lakeland	69.0	46.8	14.5	39.1	96.5	35.5	---
Paoli	71.2	46.2	20.8	32.3	97.8	29.8	---
Schuyler	65.3	42.7	31.5	36.2	99.0	37.6	---
			Four Year Average 1969-72				
Barsoy	71.5	49.1	4.4	32.6	91.6	21.6	---
Dayton	58.5	43.9	41.9	37.5	90.6	27.6	---
Harrison	72.1	48.7	12.8	39.9	98.1	32.8	---
Jefferson	78.0	45.1	10.9	41.8	98.4	32.8	---
Knob	69.7	44.7	33.4	34.9	95.6	29.6	---
Lakeland	73.1	46.9	6.9	38.3	95.6	35.6	---
Paoli	71.5	46.2	20.0	31.8	97.2	30.1	---
Schuyler	68.0	42.8	26.3	35.9	98.8	37.9	---
			Three Year Average 1970-72				
Barsoy	64.6	48.7	5.0	31.3	88.8	21.1	---
Dayton	55.5	43.8	30.0	35.7	87.5	27.8	---
Harrison	70.9	48.5	6.3	38.5	97.5	32.8	---
Jefferson	74.4	44.8	7.9	40.4	97.9	32.7	---
Knob	70.5	44.9	29.6	33.3	94.2	29.4	---
Lakeland	68.6	46.9	7.9	37.2	94.2	35.6	---
McNair 601	62.1	44.6	24.6	34.3	90.0	29.8	---
Paoli	65.0	46.0	19.2	31.3	96.3	30.6	---
Schuyler	63.5	42.5	26.3	35.3	98.3	38.6	---
			Two Year Average 1971-72				
Barsoy	58.7	48.2	7.5	31.3	91.3	21.6	---
Dayton	39.9	41.9	41.3	35.4	81.3	29.4	---
Harrison	63.9	48.4	9.4	39.1	98.8	33.9	---
Jefferson	67.5	44.8	11.9	40.5	97.5	34.1	---
Keowee	48.7	46.6	50.0	35.1	95.0	34.0	---
Knob	63.6	42.8	44.4	33.1	95.0	30.6	---
Lakeland	59.0	46.0	11.9	37.6	98.1	35.8	---
McNair 601	54.4	43.0	34.4	34.3	87.5	31.6	---
Paoli	63.4	45.6	28.8	32.3	97.5	30.9	---
Schuyler	55.9	40.1	39.4	36.3	99.4	38.9	---
			1972 Results				
Barsoy	44.4	46.0	0.0	26.8	97.5	19.8	2.3
Dayton	21.6	40.2	0.0	31.3	66.3	27.0	4.5
Harrison	46.4	45.6	0.0	37.0	100.0	29.8	3.3
Jefferson	46.0	41.8	0.0	37.8	100.0	30.0	2.8
Keowee	38.0	44.4	0.0	30.8	90.0	31.5	3.5
Knob	53.9	41.4	0.0	30.0	90.0	27.8	3.0
Lakeland	51.1	44.5	0.0	34.8	100.0	31.8	2.0
McNair	45.5	40.6	0.0	31.8	80.0	28.3	3.3
Paoli	53.3	44.9	0.0	29.5	100.0	26.0	2.0
Schuyler	58.6	40.5	0.0	33.5	100.0	36.0	2.0

* No. days after March 31.

** Visual Plant Ratings: 1, No BYD; 5, Very Severe BYD.

Table 3.—Results of Barley Performance Trials at Bowling Green, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Headed *
	Bu.	Lb./Bu.	%	In.	
		Five Year Average 1968-72			
Barsoy	52.4	48.3	1.0	29.8	----
Dayton	49.7	45.4	23.5	33.4	----
Harrison	46.1	47.5	4.8	33.5	----
Jefferson	49.2	45.5	0.0	35.8	----
Knob	47.8	45.2	11.5	31.3	----
Lakeland	49.6	47.1	0.0	33.0	----
Paoli	46.5	45.6	0.0	26.5	----
Schuyler	45.8	45.8	10.0	28.3	----
		Four Year Average 1969-72			
Barsoy	48.3	48.1	1.3	28.1	----
Dayton	47.3	45.7	6.9	31.9	----
Harrison	44.5	47.4	0.0	31.9	----
Jefferson	47.8	45.5	0.0	33.9	----
Knob	44.5	45.3	4.4	29.6	----
Lakeland	46.5	46.9	0.0	31.4	----
Paoli	41.2	45.3	0.0	24.7	----
Schuyler	45.7	46.0	0.0	26.8	----
		Three Year Average 1970-72			
Barsoy	39.8	47.8	1.7	26.8	----
Dayton	39.0	45.7	9.2	29.4	----
Harrison	40.4	47.0	0.0	29.8	----
Jefferson	43.1	45.2	0.0	32.3	----
Knob	38.1	45.1	5.8	27.7	----
Lakeland	36.5	46.5	0.0	29.3	----
McNair 601	38.0	44.5	0.0	27.4	----
Paoli	33.4	45.1	0.0	23.3	----
Schuyler	35.7	46.3	0.0	24.3	----
		Two Year Average 1971-72			
Barsoy	38.9	46.5	2.5	26.4	21.0
Dayton	34.4	44.0	13.8	28.5	26.0
Harrison	41.3	45.1	0.0	30.5	32.4
Jefferson	41.0	44.6	0.0	32.6	32.3
Keowee	39.6	45.6	2.5	28.6	31.8
Knob	41.8	42.3	8.8	27.8	27.1
Lakeland	37.8	44.4	0.0	30.8	33.3
McNair 601	41.1	43.7	0.0	27.9	27.8
Paoli	35.2	44.3	0.0	24.3	27.4
Schuyler	37.3	44.4	0.0	25.9	37.0
		1972 Results			
Barsoy	43.3	43.2	0.0	23.8	18.5
Dayton	38.6	40.7	0.0	26.3	23.8
Harrison	55.7	45.4	0.0	33.0	29.3
Jefferson	46.7	44.4	0.0	33.5	29.5
Keowee	40.6	42.4	5.0	28.8	30.8
Knob	48.8	41.1	0.0	28.3	25.5
Lakeland	47.1	43.0	0.0	31.5	29.0
McNair 601	46.4	41.6	0.0	27.8	25.8
Paoli	37.5	44.0	0.0	25.0	23.8
Schuyler	38.3	42.7	0.0	27.3	36.0

* No. days after March 31.

** All varieties survived 100%.

Table 4.—Results of Barley Performance Trials at Murray, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Survival	Date Headed *	BYD Rating**
	Bu.	Lb./Bu.	%	In.	%		
			Four Year Average 1968, 1969, 1970 & 1972				
Barsoy	44.2	48.0	0.0	25.9	90.9	17.3	---
Dayton	47.7	45.5	0.9	32.0	91.3	22.8	---
Harrison	42.7	47.9	0.0	31.7	96.3	29.3	---
Jefferson	42.9	44.3	0.0	34.5	95.3	27.9	---
Knob	44.5	44.4	0.0	28.8	95.6	24.7	---
Lakeland	43.7	46.4	0.0	30.2	95.3	29.8	---
Paoli	41.8	45.5	0.3	25.4	96.6	26.7	---
Schuyler	36.4	44.9	0.0	25.8	94.7	34.2	---
			Three Year Average 1969, 1970 & 1972				
Barsoy	41.7	47.6	0.0	23.5	87.9	17.0	---
Dayton	46.1	45.8	0.0	28.4	88.3	22.8	---
Harrison	36.0	47.5	0.0	28.1	95.0	30.0	---
Jefferson	39.5	44.0	0.0	31.9	93.8	28.3	---
Knob	43.0	44.5	0.0	26.5	94.2	25.0	---
Lakeland	40.4	45.8	0.0	28.2	93.8	30.3	---
Paoli	37.8	45.5	0.0	23.8	95.4	26.9	---
Schuyler	30.5	44.6	0.0	22.9	92.9	35.0	---
			Two Year Average 1970 & 1972				
Barsoy	44.6	47.4	0.0	23.6	81.9	16.4	---
Dayton	44.7	45.4	0.0	28.9	82.5	22.1	---
Harrison	40.9	47.0	0.0	28.0	92.5	28.0	---
Jefferson	42.2	43.3	0.0	31.3	90.6	27.0	---
Knob	45.3	44.2	0.0	26.4	91.3	23.5	---
Lakeland	44.5	45.4	0.0	28.4	90.6	28.6	---
McNair 601	56.5	43.1	0.0	28.1	92.5	20.3	---
Paoli	40.4	44.7	0.0	23.5	93.1	25.1	---
Schuyler	29.0	44.2	0.0	23.8	89.4	34.1	---
			1972 Results				
Barsoy	31.1	44.0	0.0	18.8	92.5	15.3	3.0
Dayton	30.2	44.1	0.0	22.3	78.8	22.0	3.8
Harrison	23.8	47.4	0.0	23.5	96.3	28.3	4.3
Jefferson	34.1	40.1	0.0	26.3	97.5	27.8	3.8
Keowee	24.6	46.8	0.0	23.7	93.8	29.5	4.5
Knob	30.1	41.6	0.0	19.5	97.5	23.8	3.8
Lakeland	29.6	43.8	0.0	25.0	97.5	26.5	3.0
McNair 601	41.0	41.5	0.0	22.5	93.8	20.8	3.3
Paoli	24.4	40.9	0.0	19.5	97.5	22.5	3.8
Schuyler	17.4	43.2	0.0	21.0	97.5	36.8	4.3

* No. days after March 31.

** Visual Plant Ratings: 1, No BYD; 5, Very Severe BYD.

Table 5.—Results of Wheat Performance Trials at Lexington, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Survival	Date Headed *
	Bu.	Lb./Bu.	%	In.	%	
		Five Year Average 1968-72				
Arthur	62.1	60.4	36.8	43.3	100.0	42.8
Benhur	48.9	60.7	13.5	43.8	98.0	42.2
Blueboy	62.2	54.6	11.0	41.9	88.5	46.8
Knox 62	44.5	60.1	66.5	45.0	95.0	43.4
Monon	49.9	59.1	47.0	44.5	96.5	42.8
Redcoat	52.1	59.3	23.5	49.9	96.0	48.8
		Four Year Average 1969-72				
Arthur	64.4	60.5	28.4	42.2	100.0	43.4
Benhur	51.1	60.7	8.8	42.9	97.5	43.0
Blueboy	57.4	54.5	12.5	41.4	85.6	47.9
Knox 62	47.2	60.2	60.6	44.3	93.8	44.3
Monon	52.7	59.0	41.9	43.7	95.6	43.7
Redcoat	56.9	59.4	14.4	49.4	95.0	49.4
		Three Year Average 1970-72				
Arthur	64.9	60.8	32.1	43.0	100.0	43.1
Benhur	51.8	61.3	8.3	44.2	96.7	42.7
Blueboy	53.0	53.9	16.7	42.3	80.8	47.6
Knox 62	48.2	60.9	55.8	45.5	91.7	43.9
McNair 2203	48.3	58.0	35.8	38.4	73.8	44.8
McNair 4823	60.7	60.7	0.8	38.4	91.7	46.3
Monon	53.2	59.2	35.8	45.1	94.2	43.4
Redcoat	56.4	59.2	18.3	50.3	93.3	49.4
		Two Year Average 1971-72				
Arthur	63.2	60.0	33.1	44.3	100.0	45.5
Arthur 71	61.4	59.9	41.3	42.3	100.0	45.3
Benhur	51.8	61.4	10.0	46.0	95.0	45.5
Blueboy	46.2	52.4	23.8	43.9	71.3	50.6
Knox 62	44.5	60.1	45.0	47.0	87.5	46.8
McNair 2203	42.4	58.4	27.5	38.4	60.6	47.8
McNair 4823	58.6	61.3	1.3	39.0	87.5	49.6
Monon	51.1	59.6	41.3	46.8	91.3	46.4
Redcoat	57.1	58.6	27.5	51.6	90.0	52.6
		1972 Results				
Abe	48.7	58.0	12.5	38.3	100.0	43.0
Arthur	62.6	59.1	1.3	42.5	100.0	43.5
Arthur 71	57.1	58.8	12.5	39.8	100.0	43.0
Benhur	47.9	60.3	0.0	45.0	90.0	44.5
Blueboy	30.8	52.6	0.0	44.0	42.5	49.3
Blueboy II	37.9	59.8	0.0	41.0	50.0	49.0
Coker 68-15	10.8	59.8	0.0	32.8	5.0	49.0
Knox 62	44.7	60.0	0.0	46.0	75.0	46.0
McNair 701	12.1	55.8	0.0	36.5	8.8	48.0
McNair 2203	19.6	57.2	0.0	35.8	21.3	47.8
McNair 4823	46.8	61.8	0.0	37.8	75.0	49.3
Monon	45.2	59.8	0.0	45.8	82.5	45.8
Redcoat	55.7	60.8	0.0	53.0	80.0	53.0

* No. days after March 31.

Table 6.—Results of Wheat Performance Trials at Princeton, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Date Headed *
	Bu.	Lb./Bu.	%	In.	
		Five Year Average 1968-72			
Arthur	50.6	59.4	22.3	41.0	36.5
Benhur	40.0	58.4	23.0	42.5	35.8
Blueboy	47.0	52.5	12.0	41.4	40.8
Knox 62	37.5	59.1	56.0	43.3	36.4
Monon	36.6	57.5	48.0	42.4	35.8
Redcoat	44.2	58.1	10.0	47.4	44.5
		Four Year Average 1969-72			
Arthur	53.9	59.6	10.0	40.4	36.4
Benhur	41.5	58.5	9.7	42.3	35.7
Blueboy	47.6	52.8	7.8	41.3	40.5
Knox 62	39.7	59.2	52.5	42.7	36.6
Monon	38.8	57.7	41.6	42.3	35.6
Redcoat	44.3	58.2	5.9	47.4	44.8
		Three Year Average 1970-72			
Arthur	50.6	59.7	5.4	39.1	36.3
Benhur	38.5	58.6	3.3	40.8	36.2
Blueboy	46.3	53.0	0.0	40.3	39.8
Knox 62	37.6	59.4	37.1	41.3	36.9
McNair 2203	45.9	56.3	6.3	36.8	36.1
McNair 4823	45.4	57.4	0.0	36.2	43.3
Monon	36.3	57.8	25.4	40.9	35.5
Redcoat	45.7	58.5	0.0	46.3	44.8
		Two Year Average 1971-72			
Arthur	51.6	60.1	8.1	39.9	36.3
Arthur 71	42.3	60.2	2.5	38.1	36.5
Benhur	37.4	58.6	5.0	41.5	36.5
Blueboy	44.2	52.8	0.0	40.3	40.1
Knox 62	36.2	60.1	55.6	42.4	36.8
McNair 2203	43.5	56.0	6.3	35.8	36.4
McNair 4823	44.4	57.8	0.0	36.3	44.5
Monon	38.2	58.5	35.6	41.9	35.8
Redcoat	46.9	59.1	0.0	47.8	45.8
		1972 Results			
Abe	38.0	60.4	0.0	34.5	31.5
Arthur	39.4	60.6	0.0	37.8	31.8
Arthur 71	31.8	60.0	2.5	36.0	32.0
Benhur	22.4	59.9	10.0	39.8	32.3
Blueboy	24.7	55.4	0.0	37.5	35.8
Blueboy II	28.3	57.6	0.0	39.8	33.5
Knox 62	20.8	60.5	68.8	39.8	32.8
McNair 701	28.7	55.0	0.0	33.0	30.0
McNair 2203	25.0	55.4	0.0	30.5	31.5
McNair 4823	37.5	60.4	0.0	35.5	41.8
Monon	27.4	59.5	23.8	40.3	31.8
Redcoat	36.0	60.0	0.0	45.3	43.0

* No. days after March 31.

** All varieties survived 100%.

Table 7.—Results of Wheat Performance Trials at Bowling Green, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Date Headed *
	Bu.	Lb./Bu.	%	In.	
		Five Year Average 1968-72			
Arthur	40.5	59.0	0.0	35.0	----
Benhur	33.4	58.4	3.5	36.9	----
Blueboy	37.9	57.5	0.3	36.5	----
Knox 62	36.6	59.4	14.3	40.3	----
Monon	36.7	57.8	1.0	37.9	----
Redcoat	32.8	58.4	1.0	42.1	----
		Four Year Average 1969-72			
Arthur	39.6	58.9	0.0	33.6	----
Benhur	32.6	58.4	1.3	36.1	----
Blueboy	35.4	57.9	0.0	35.4	----
Knox 62	37.3	59.3	5.9	39.6	----
Monon	35.8	57.8	1.3	36.8	----
Redcoat	32.2	58.5	0.6	40.7	----
		Three Year Average 1970-72			
Arthur	37.8	59.0	0.0	33.1	----
Benhur	32.9	58.3	1.7	36.2	----
Blueboy	32.3	58.1	0.0	34.6	----
Knox 62	36.1	59.3	7.9	38.8	----
McNair 2203	34.0	56.9	0.8	31.6	----
McNair 4823	32.5	59.9	0.0	31.5	----
Monon	34.9	57.7	1.7	37.1	----
Redcoat	31.1	58.7	0.8	40.8	----
		Two Year Average 1971-72			
Arthur	39.7	59.3	0.0	35.0	32.1
Arthur 71	38.8	59.9	0.0	34.0	33.4
Benhur	32.7	58.7	2.5	37.4	32.9
Blueboy	29.6	58.0	0.0	35.1	38.1
Knox 62	36.0	59.8	11.9	40.5	32.5
McNair 2203	30.4	56.3	1.3	31.0	33.3
McNair 4823	33.0	59.8	0.0	32.5	40.5
Monon	34.8	57.4	2.5	39.3	32.0
Redcoat	32.8	59.1	1.3	42.9	42.6
		1972 Results			
Abe	51.4	61.6	2.5	35.5	27.8
Arthur	49.2	60.5	0.0	37.0	27.8
Arthur 71	46.3	62.2	0.0	37.3	28.3
Benhur	39.0	60.3	5.0	40.3	26.5
Blueboy	29.4	56.1	0.0	36.0	35.0
Blueboy II	39.8	58.0	2.5	39.3	33.3
Coker 68-15	32.4	61.7	2.5	33.3	27.8
Knox 62	35.7	60.3	23.8	40.3	28.0
McNair 701	37.8	57.2	20.0	31.8	26.0
McNair 2203	32.3	56.1	2.5	32.0	27.3
McNair 4823	34.2	61.4	0.0	33.8	39.0
Monon	38.6	60.5	5.0	41.5	28.0
Redcoat	32.4	59.6	2.5	46.8	41.8

* No. days after March 31.
** All varieties survived 100%.

Table 8.—Results of Winter Oat Performance Trials at Lexington and Princeton, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Survival	Date Headed *
	Bu.	Lb./Bu.	%	In.	%	
LEXINGTON						
Five Year Average 1967-71						
Compact	72.0	33.5	37.5	33.6	69.3	49.3
Norline	76.6	34.6	48.8	46.1	71.5	44.9
Walken	69.3	31.8	35.8	38.8	65.0	54.6
Four Year Average 1968-71						
Compact	65.0	33.1	56.3	33.1	62.8	49.3
Norline	75.2	34.5	68.8	44.7	69.1	43.3
Walken	65.9	31.8	42.5	38.5	58.1	52.9
Three Year Average 1969-71						
Coker 66-22	75.0	33.9	57.5	43.1	60.4	50.4
Compact	71.3	32.9	56.3	35.9	63.8	59.5
Dubois	53.4	35.8	57.5	42.8	57.5	54.5
Norline	78.5	34.2	68.8	46.0	69.2	55.9
Walken	67.4	31.5	42.5	40.4	56.3	63.8
Two Year Average 1970-71						
Coker 66-22	90.0	34.9	57.5	43.1	80.0	50.4
Compact	92.3	34.7	56.3	35.9	90.6	59.5
Dubois	75.3	37.8	57.5	42.8	82.5	54.5
Ky. 63-1935	93.8	34.5	43.8	42.8	98.1	63.6
Norline	81.1	34.4	68.8	46.0	87.5	55.9
Walken	88.0	34.0	42.5	40.4	77.5	63.8
PRINCETON						
Five Year Average 1967-71						
Compact	64.7	31.1	70.3	34.8	93.0	48.7
Norline	52.2	28.7	89.5	43.6	88.5	47.2
Walken	60.8	29.4	57.3	40.8	96.3	53.7
Four Year Average 1968-71						
Compact	63.5	30.5	82.2	35.9	95.6	51.0
Norline	51.6	27.9	92.5	44.5	91.9	49.1
Walken	59.9	28.7	64.1	42.5	98.4	55.2
Three Year Average 1969-71						
Coker 66-22	87.4	33.6	66.7	41.1	82.1	42.1
Compact	62.9	29.8	86.3	34.7	94.2	51.3
Dubois	60.4	32.0	67.9	42.6	83.3	47.6
Norline	48.2	27.2	93.8	44.0	89.2	49.2
Walken	60.1	28.3	68.3	41.5	97.9	55.1
Two Year Average 1970-71						
Coker 66-22	96.6	33.8	50.0	40.5	75.6	42.6
Compact	70.0	30.3	79.4	33.9	93.8	51.3
Dubois	63.2	31.9	51.9	41.9	77.5	47.3
Ky. 63-1935	63.6	28.8	50.6	42.4	91.9	56.1
Norline	50.3	27.2	90.6	43.9	87.5	48.9
Walken	66.0	29.0	52.5	41.3	96.9	56.1

* No. days after March 31.

Table 9.—Results of Winter Oat Performance Trials at Bowling Green, Ky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Survival	Date Headed *
	Bu.	Lb./Bu.	%	In.	%	
		Five Year Average 1968-72				
Compact	65.1	38.1	19.8	30.0	98.5	----
Norline	66.4	35.8	20.8	40.0	98.8	----
Walken	61.7	35.3	17.5	34.7	94.3	----
		Four Year Average 1969-72				
Coker 66-22	69.4	37.5	1.9	35.4	97.5	----
Compact	69.3	38.4	0.0	28.0	98.1	----
Dubois	56.1	37.6	5.3	35.8	96.6	----
Norline	67.2	36.0	1.3	39.3	98.4	----
Walken	61.3	35.5	0.0	32.8	92.8	----
		Three Year Average 1970-72				
Coker 66-22	71.3	37.6	0.0	34.1	96.7	----
Compact	72.9	38.5	0.0	28.3	97.5	----
Dubois	56.7	37.7	0.0	35.4	95.4	----
Ky 63-1935	58.0	34.2	0.0	31.1	99.2	----
Norline	72.2	36.2	0.0	39.6	97.9	----
Walken	63.1	35.5	0.0	32.3	90.4	----
		Two Year Average 1971-72				
Coker 66-22	65.4	37.8	0.0	34.3	95.0	38.5
Compact	57.7	39.9	0.0	27.0	96.3	48.4
Dubois	47.8	37.9	0.0	34.6	93.1	44.0
Ky 63-1935	47.0	34.9	0.0	30.8	98.8	54.1
Norline	63.6	36.8	0.0	38.6	96.9	46.4
Walken	49.3	37.8	0.0	31.8	85.6	52.8
		1972 Results				
Coker 66-22	59.2	36.3	0.0	37.8	90.0	37.0
Coker 70-16	68.1	36.2	0.0	39.3	87.5	39.0
Compact	54.1	38.1	0.0	30.3	92.5	48.5
Dubois	39.2	38.3	0.0	38.8	86.3	41.5
Ky 63-1935	38.6	33.6	0.0	31.5	97.5	53.3
Norline	50.9	36.2	0.0	41.5	93.8	44.0
Walken	38.5	35.4	0.0	34.5	71.3	52.3

* No. days after March 31.

Table 10.—1972 Winter Oat Survival at all Locations.

Variety	Lexington	Princeton	Murray	Bowling Green
Coker 66-22	0.0	28.8	80.0	90.0
Coker 70-16	0.0	48.8	92.5	87.5
Compact	0.0	46.3	95.0	92.5
Dubois	0.0	31.3	87.5	86.3
Norline	0.0	72.5	95.0	93.8
Walken	0.0	23.8	82.5	71.3

Table 11.—Results of Spring Oat Performance Trials in Kentucky.

Variety	Acre Yield	Test Weight	Lodging	Plant Height	Date Headed*
	Bu.	Lb./Bu.	%	In.	
		Two Year Average 1969-70 at Princeton			
Andrew	30.3	24.6	73.1	35.9	60.4
Brave	24.8	22.4	78.1	34.3	60.9
Clintford	34.6	25.5	57.5	31.3	60.8
Diana	38.8	26.5	30.5	32.1	61.1
Grundy	30.9	23.7	70.0	31.8	59.8
Jaycee	30.3	21.2	71.3	32.0	60.4
		1970 Results at Princeton			
Andrew	23.5	24.3	48.8	29.8	63.5
Brave	20.7	21.6	56.3	29.3	63.8
Clintford	27.7	25.0	22.5	27.8	63.5
Diana	38.1	26.4	5.0	26.8	64.5
Grundy	24.0	22.8	55.0	27.5	62.3
Jaycee	26.3	20.4	42.5	26.3	63.5
		Two Year Average 1968-1971 at Lexington			
Andrew	59.6	29.7	22.5	37.8	72.6
Brave	61.3	31.4	31.2	36.5	73.2
Clintford	53.6	32.3	12.5	33.8	72.9
Jaycee	54.6	31.7	41.2	34.6	72.2
		1971 Results at Lexington			
Andrew	32.0	28.1	0.0	37.5	75.8
Brave	34.5	29.2	0.0	34.0	77.5
Clintford	32.0	28.7	0.0	32.5	76.8
Diana	32.4	27.0	0.0	32.5	77.0
Grundy	27.6	28.1	0.0	32.5	76.5
Jaycee	34.4	28.3	0.0	33.8	76.5

* No. days after March 31.

Table 12.—Comparisons for Date of Heading for Recommended and Certified Small Grain Varieties in Kentucky.

	Date Headed *		
	Lexington	Bowling Green **	Princeton
Barley Varieties			
Barsoy	27.0	21.0	21.9
Harrison	35.9	32.4	32.7
Jefferson	36.3	32.3	32.8
Knob	31.5	27.1	29.3
Wheat Varieties			
Abe	43.0 ***	27.8 ***	31.5 ***
Arthur	42.8	32.1	36.5
Arthur 71	45.3 **	33.4	36.5 **
Benhur	42.2	32.9	35.8
Blueboy	46.8	38.1	40.8
Knox 62	43.4	32.5	35.8
McNair 4823	49.6 **	40.5	43.3 **
Monon	42.8	32.0	35.8
Redcoat	48.8	42.6	44.5
Oat Varieties			
Coker 66-22	50.4 **	38.5	42.1 **
Compact	49.3	48.4	48.7
Dubois	54.5 **	44.0	47.6 **
Norline	44.9	46.4	47.2
Walken	54.6	52.8	53.7

* Five-year average, no. days after March 31.
** Averaged from less than five years' data.
*** 1972 Heading dates only.

Table 13.—Summary of Small Grain Recommendations for 1973.

Winter Barley	Winter Wheat	Winter Oats
Recommended	Recommended	Recommended
Barsoy	Arthur	Coker 66-22
Harrison	Arthur 71	Compact
Jefferson	Blueboy	Dubois
Knob	McNair 4823	Norline
		Walken
Certified	Certified	Certified
Barsoy	Abe	Coker 66-22
Harrison	Arthur	Compact
Jefferson	Arthur 71	Dubois
Knob	Benhur	Norline
	Blueboy	Walken
	Blueboy II	
	Knox 62	
	McNair 4823	
	Monon	

Barsoy, a Kentucky-released variety, is very early maturing and is excellent for double-cropping. It has good lodging resistance, is short of stature, and is high yielding. It has medium-length awns which break off readily during threshing. Barsoy is susceptible to loose smut, but its earliness of maturity has permitted it to escape damage from most diseases. It has good winterhardiness and performs well in most areas in the state.

Dayton is an older barley variety released by the Ohio Agricultural Experiment Station that has consistently yielded well in Kentucky. It is later maturing and not as high yielding as Barsoy.

Harrison is an awned variety developed by Purdue University. It has performed well in Kentucky but is later maturing than Barsoy. It has better winterhardiness than Barsoy and Knob and is resistant to most of the barley diseases except loose smut.

Jefferson is quite similar to Harrison, but awnless.

Knob is a recently released variety from the Kentucky Agricultural Experiment Station. It is a few days earlier in maturity than Harrison, but later than Barsoy; however, it matures faster after heading than the other varieties. It is a short, stiff-strawed, beardless variety with disease resistance similar to Barsoy. Knob is easily threshed and has good winterhardiness.

SOFT RED WINTER WHEAT VARIETIES

Kentucky's climate and soils are well suited for the production of high quality soft red winter wheat. No one variety has all the desirable characteristics; each has certain advantages. Yielding ability, straw strength, height, earliness, grain quality and disease resistance are important in choosing a variety. Wheat is an excellent feed grain for livestock. Varietal performance is presented in Tables 5 through 7.

Abe is a new high-yielding variety released by Purdue University in 1972 which has a high tillering capacity. It has been shown to be comparable to Arthur and Arthur 71 in quality. Generally, Abe has been shorter in height, better standing and higher in yield than Arthur 71. It may be distinguished from Arthur 71 by its blue-green foliage compared with light green for Arthur 71 and by the longer awnletts of Abe. It has excellent resistance to stem rust and to powdery mildew, loose smut and soil-borne mosaic.

Arthur is a high quality variety released by Purdue University in 1968. It is a short, early, high-yielding variety that is the best wheat variety for double-cropping. Arthur has good straw strength, high-tillering ability and excellent winterhardiness. It is resistant to loose smut, powdery mildew, and moderately resistant to leaf rust. It is susceptible to the most common race of Hessian fly, race B.

Arthur 71 has just been released from Purdue University. It is very similar to Arthur but has added resistance to leaf rust and Hessian fly, race B. Certified seed will be available in 1973.

Benhur is an early-maturing variety with good resistance to most wheat diseases. It has not yielded so well as Arthur in Kentucky but is shorter and stiffer-strawed. Benhur was released by Purdue University in 1966.

Blueboy is a highly productive, short, medium-to-late maturing, stiff-strawed variety that was released in 1967 by North Carolina State University. It responds well to high levels of fertilization but matures slower after heading than other varieties. It has a good soft wheat milling grain quality but has a relatively low test weight with a high flour yield. Blueboy is susceptible to leaf rust, powdery mildew, and the common races of Hessian fly.

Blueboy II has the same characteristics as Blueboy except that it is resistant to leaf rust and has a slightly higher test weight.

Knox 62, released by Purdue University, has resistance to race B of Hessian fly and is slightly earlier maturing than Arthur.

McNair 4823 is a new late-maturing soft red winter wheat developed by the McNair Seed Company in South Carolina. It is a short, high-yielding variety having excellent straw strength and a high test weight of the grain. It is resistant to leaf rust and to some races of stem rust but is susceptible to some races of mildew. The heads are long, awnless, with white chaff color.

Monon is the earliest maturing wheat in Kentucky, released by Purdue University, but has not yielded as well as Arthur. It has exceptional winterhardiness and is a short, stiff-strawed variety.

WINTER OAT VARIETIES

Winter oats are the least winterhardy of the winter grains. Early seeding, good fertilization practices, and planting on well-drained soils are recommended to minimize winter killing. Most winter oats are susceptible to the crown rusts so must be selected for maturity, lodging resistance, and yielding ability. Winter oats are excellent also for fall grazing and silage. The performance of the winter oat varieties is presented in Tables 8 through 11.

Coker 66-22 is a newly recommended oat variety developed by Coker's Pedigreed Seed Company in South Carolina. It is a very early maturing oat with excellent straw strength and grain yield. The grain is of high test weight and quality. It has not survived as well at Lexington, however, as other varieties.

Compact is a Kentucky-developed winter oat variety that combines excellent lodging resistance and high test weight with good winter survival and high yield. It is shorter than Norline, equal in winter survival, and is 2 days later in heading.

Dubois is an older Purdue University-developed variety but has had a good performance record in Kentucky. Lodging resistance is not so good as that of Compact and Walken. It matures a few days earlier than Compact.

Norline is an older Indiana oat variety that has yielded well in Kentucky. It has slightly more disease resistance than the other oat varieties.

Walken is a short-statured, stiff-strawed, later maturing variety that has excellent winterhardiness. It was released in Kentucky to provide a winter oat with potential for high forage and grain yields.

SPRING OATS FOR KENTUCKY

The University of Kentucky will not make any recommendations for spring oat varieties. The spring oat varieties tested in Kentucky are not superior or equal to any of the recommended winter oat varieties. Also, there are no certified seed growers of spring oats in Kentucky. However, since approximately one-third of the oat acreage in Kentucky is of the spring-type, test data on spring oat varieties released in neighboring states are presented in Table 11. Spring oat varieties were tested at Lexington in 1968 and 1971 and at Princeton in 1969 and 1970.

The spring oat variety trial was grown at Princeton in 1972, but owing to a very wet location yields were extremely low and unreliable and no data are presented for 1972.

The varieties listed in Table 11 were released by the following states: Andrew - Minnesota; Brave and Jaycee - Illinois; Clintford and Diana - Indiana; and Grundy - Iowa. Probably the most common variety grown by name in Kentucky is Brave. However, any of these varieties is acceptable. An important point to remember is that winter oat varieties are not acceptable for spring planting.

CERTIFIED SEED

Planting certified seed is one of the first steps in insuring a good small grain crop. The extra cost of certified seed is quite economical in view of the high quality of seed obtained. Certified seed is seed which has been grown in such a way as to insure 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.

6M–2-73