

OKLAHOMA

288  
Collection

STATE-WIDE  
VARIETY  
TESTS  
OF  
WHEAT  
OATS AND  
BARLEY

1947-1950

By Roy M. Oswalt and A. M. Schlehuber

OKLAHOMA AGRICULTURAL  
EXPERIMENT STATION

in cooperation with

UNITED STATES

DEPARTMENT

OF AGRICULTURE

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**OKLAHOMA AGRICULTURAL EXPERIMENT STATION**

**Oklahoma A. & M. College, Stillwater**

**W. L. Blizzard, Director**

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**in cooperation with**

**Division of Cereal Crops and Diseases**

**Bureau of Plant Industry, Soils, and Agricultural Engineering**

**Agricultural Research Administration**

**UNITED STATES DEPARTMENT OF AGRICULTURE**

# Recommended Varieties

## And How They Are Chosen.

This bulletin reports results of the Oklahoma State-wide Small Grain Variety Tests for the four years, 1947 to 1950. These state-wide tests are the final step in the Experiment Station's small grain testing program.

Varieties recommended for planting in Oklahoma must show definite superiority in yield or some other useful characteristic, and also must prove themselves adapted to at least one section of the State.

The varieties currently recommended on the basis of their performance in Station tests are listed below.

### Recommended Varieties

of

Wheat, Oats, and Barley

Varietal Name	C.I. No.*
<b>Hard Wheat</b>	
Cheyenne	8885
Comanche	11673
Pawnee	11669
Tenmarq	6936
Triumph	12132
Westar	12110
Wichita	11952
<b>Soft Wheat</b>	
Clarkan	8858
<b>Fall-sown Oats</b>	
Forkedeer	3170
Stanton Str. 1	3855
Tennex	3169
Traveler	4206
Wintok	3424
**DeSoto	3923

(Varieties continued on next page.)

\* C. I. refers to the accession number of the Division of Cereal Crops and Diseases, U.S.D.A.

\*\*For Southeast Oklahoma.

(Recommended Varieties, continued.)

Winter Barley

Harbine	7524
Tenkow	646
Ward	6007

In selecting a variety, average yield over a period of years is an important consideration. Performance of crop varieties varies so much from year to year that one year's results are a poor basis for comparison among varieties. Therefore the number of years each variety was tested is included in the data presented in this bulletin.

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# Oklahoma State-wide Variety Tests of Wheat, Oats, and Barley; 1947-1950

By ROY M. OSWALT and A. M. SCHLEHUBER\*

This bulletin reports the performance of nine varieties of hard red winter wheat, three of soft red winter wheat, seven of fall-sown oats, and five of fall-sown barley in the Oklahoma State-wide Small Grain Variety Tests for the years 1947 to 1950, inclusive. It also reports protein comparisons for the winter wheat varieties.

Varieties grown in these tests are those recommended for Oklahoma, plus two or three others commonly grown in the State. The tests also include, each year, several new varieties and unnamed crosses, as well as a few varieties that are not commercially important in the State. In all, about 24 to 30 strains are grown at each location each year. This report includes only the recommended varieties and those commonly grown in Oklahoma at the present time.

This bulletin also describes the Experiment Station's over-all small grain variety testing program, of which the state-wide tests are an important part.

## THE OKLAHOMA SMALL GRAIN TESTING PROGRAM

The Oklahoma State-wide Small Grain Variety Tests reported in this bulletin are the final step in a variety testing program which reaches from the breeding plots where new strains originate to the final recommendation of a new variety for growing on Oklahoma farms. Most varieties included in the state-wide tests have first gone through a "weeding out" process in preliminary tests conducted at a smaller number of locations within the State, usually on Experiment Station land.

The entire small grain breeding and variety testing program in Oklahoma is a joint enterprise of the Oklahoma Agricultural Experiment Station and the Division of Cereal Crops and Diseases of the U. S. Department of Agriculture. The work is supervised by the junior

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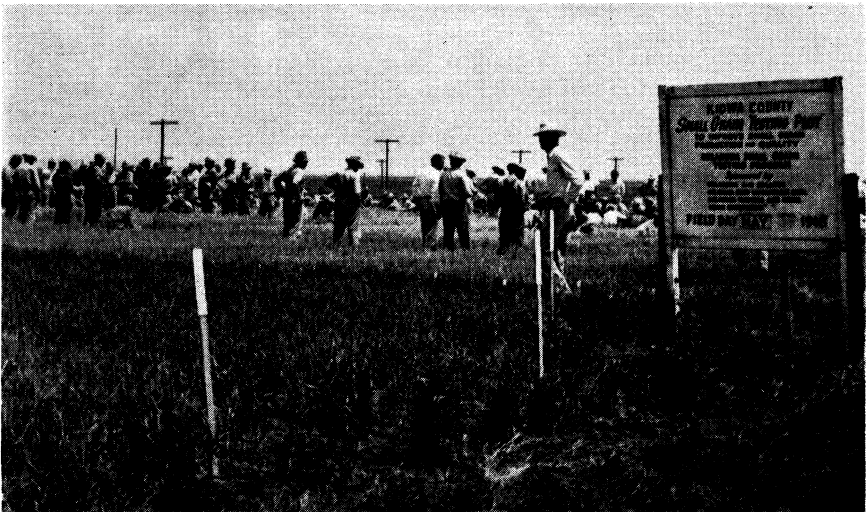
author of this bulletin, with headquarters at Stillwater. By this plan, duplication of work at state and federal experiment stations is avoided, and the facilities and staffs of each state and federal station are used for the parts of the work each is best fitted to perform.

## Tests at Experiment Stations

The preliminary testing program through which most strains pass before reaching the state-wide tests are outlined in Table I. This table also shows the number of strains tested in 1949-50, thereby indicating the strict process of selection and elimination which precedes state-wide testing.

Strains entered in the over-all small grain testing program include those developed by private breeders and breeders at other experiment stations, as well as those developed by Oklahoma Station breeders. Every strain, regardless of its origin, is moved from preliminary to more advanced tests as rapidly as its performance warrants. Generally speaking, no strain advances from a lower to a higher test unless its performance is as good as, or better than, the best varieties already available from seed dealers.

The final evaluation of strains before they are released or recommended is done in the Oklahoma State-wide Small Grain Variety Tests.



The Oklahoma State-wide Small Grain Variety Tests, grown at 30 or more locations each year, give farmers and other interested persons in the vicinity of each test an opportunity to observe and compare the recommended varieties, and other varieties, growing side by side. The picture shows a group of visitors at one of these field days.

Occasionally, varieties that are products of private plant breeders or commercial firms come into the State directly to growers before the Experiment Station has had an opportunity to evaluate them. Such varieties may immediately be entered into the state-wide tests, depending upon their apparent value or importance, before they are entered



### A "Thank You" to Those Who Helped

The authors of this bulletin, and the Oklahoma Agricultural Experiment Station, join in acknowledging the aid given by farmer cooperators, county agricultural agents, vocational agriculture instructors and others who assisted in conducting the tests reported in this bulletin. Acknowledgment is also made to the Enid Board of Trade Laboratory for determining protein in the wheat samples.



into the series of tests at experiment stations. At other times, such varieties are entered simultaneously into the state-wide and experiment station tests. This procedure is followed in order to obtain as much information as rapidly as possible, so that growers and seed dealers can be informed concerning the local adaptation of such varieties.

The regional tests mentioned in Table I are made in cooperation with the experiment stations of land-grant colleges in surrounding or nearby states. The same uniform list of varieties is planted at one or more locations in each state, and results are reported annually to all other states in the region. Thus Oklahoma gets the benefit of tests made over a wide area.

## The State-wide Tests

The Oklahoma State-wide Small Grain Variety Tests serve two purposes:

1. They give farmers and other interested persons in each locality an opportunity to see and compare the recommended varieties, and other varieties, growing side by side in planned competitive tests. Field days are held each year, just before harvest, at most of the locations included in the state-wide tests.

2. They give the Station's small grain breeders an opportunity to

observe the performance of a new variety in all parts of the State, before recommending it. This "on-the-spot" research is extremely valuable in indicating local adaptation.

The state-wide testing program includes two types of tests: "Experiment Station Supervised Tests" and "Observational Tests."

TABLE I.—LOCATION AND TYPE OF SMALL GRAIN VARIETY TESTS GROWN AT EXPERIMENT STATIONS IN OKLAHOMA; AND NUMBER OF STRAINS TESTED IN THE CROP YEAR 1949-50.

	Name of Test*			
	Stillwater	Woodward	Cherokee	Goodwell
<b>Wheat</b>				
(1) Winter wheat triplicate yield nursery	55	--	--	--
(2) Four-station winter wheat yield nursery	20	20	20	20
(3) Uniform (Regional) hard red winter wheat yield nursery	27	27	27	--
(4) Winter wheat variety tests	18	15	15	15
Total .....	120			
<b>Fall-sown Oats</b>				
(1) Triplicate yield nursery	17	--	--	--
(2) Intermediate yield nursery	16	--	--	--
(3) Uniform (Regional) special winter oat yield nursery	16	--	--	--
(4) Winter oat variety tests	10	15	15	12
Total .....	59			
<b>Spring-sown Oats</b>				
(1) Uniform (Regional) red oat yield nursery	35	--	35	--
(2) Variety tests	16	--	--	--
Total .....	51			
<b>Winter Barley</b>				
(1) Triplicate yield nursery	19	--	--	--
(2) Uniform (Regional) semi-hardy varieties yield nursery	20	--	--	--
(3) Uniform (Regional) hardy varieties yield nursery	22	--	22	--
(4) Winter barley variety tests	9	17	17	13
Total .....	60			
Grand Total .....	290			

\* Listed in order of sequence of the tests; that is, a new strain normally is first included in the type of test marked "(1)," and then is graduated to (2), etc., if it continues to show promise.

\*\* These stations are:

Stillwater—Oklahoma Agricultural Experiment Station, Main Station.

Woodward—Southern Great Plains Field Station (cooperative with U. S. Department of Agriculture).

Cherokee—Wheat Land Conservation Experiment Station (cooperative with U. S. Department of Agriculture).

Goodwell—Panhandle Experiment Station (cooperative with Panhandle A. & M. College and U. S. Department of Agriculture).



The Experiment Station Supervised Tests are seeded, cared for, harvested and threshed by Station personnel. Land for these tests is secured by the county agent, vocational agricultural instructor, or other person in charge, and the seedbed is prepared by the farmer on whose land the test is located.

For the Observational Tests the Experiment Station supplies the seed and plans for seeding and harvesting. All other work connected with the tests is supervised by the county agricultural agent, vocational agricultural instructor, or others in charge of the test.

Figure 1 shows the Supervised and Observational test locations for 1950-51. Test locations vary from year to year, but are always equally well distributed throughout the State.

## RESULTS OF STATE-WIDE TESTS, 1947-1950

Results of the Oklahoma State-wide Small Grain Variety Tests for the four years 1947 to 1950 are reported in Tables I to VII, and in Figure 2. Average annual yields are reported for each location, and the locations are grouped by areas to obtain more general data. The boundaries of the different areas are not exact, of course; but they nevertheless are helpful in indicating the parts of the State where different varieties are best adapted.

For wheat, the protein content is reported in the same manner as yields.

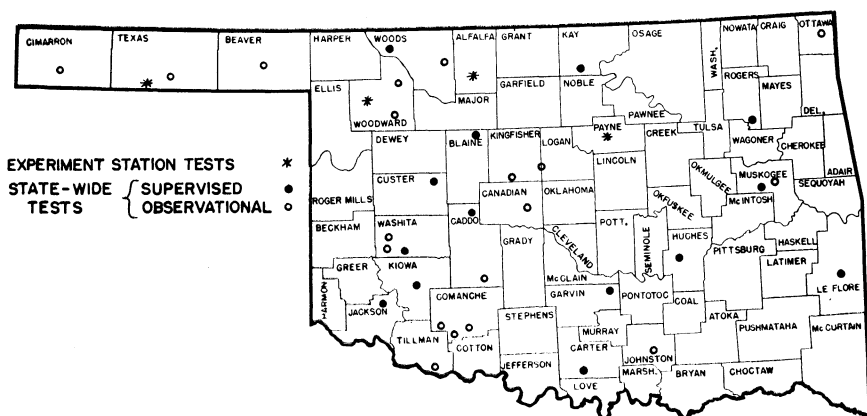


Fig. 1.—Location of Plots in the 1950-51 State-wide Variety Tests.

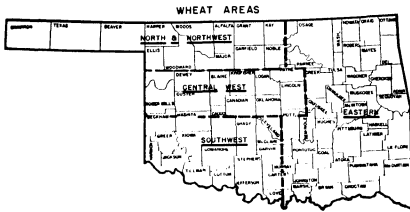
Test plots are scattered over the State so that the adaptation of new varieties to various parts of Oklahoma can be quickly determined. Locations vary from year to year, but the number of plots is about the same as shown here.

# Wheat YIELDS

## Western and Central Oklahoma

Yield data for tests in western and central Oklahoma are shown in Table II. The approximate boundaries of the different areas are shown in the map on this page.

**NORTH AND NORTHWEST.**—Westar slightly outyielded Comanche in 13 tests in the north and northwest area of the State. Westar outyielded Comanche by 0.5 bushel, while Pawnee and Red Chief yielded about 0.5 bushel less than Comanche. Wichita and Triumph, both early-maturing varieties, yielded as much as Comanche, but about 2.5 bushels higher than Early Blackhull.



**Wheat Areas**

This map shows the four areas into which Oklahoma is divided for reporting results of wheat variety tests.

**CENTRAL WEST.**—Westar, Triumph, and Wichita, outyielded Comanche by 1.7, 1.1, and 0.3 bushels per acre, respectively. Pawnee has yielded 0.2 bushel less

than Comanche. Red Chief has yielded the same as Comanche but 1.7 bushels less than Westar in the 14 tests conducted. Early Blackhull and Cheyenne yielded 1.0 and 2.0 bushels, respectively, below Comanche.

**SOUTHWEST.**—In the southwest area, Westar outyielded Comanche by 2.5 bushels and Pawnee by 2.0 bushels in the 18 tests conducted. Comanche yielded 1.7 bushels more than Cheyenne and Red Chief for the southwest area of the State. Triumph yielded 0.2 bushels more than Comanche, while Wichita yielded the same as Comanche. Triumph and Wichita yielded 1.1 and 0.9 bushels, respectively, more than Early Blackhull.

**SUMMARY.**—The relative yields of nine varieties for the 46 test years in the hard red winter wheat area of Oklahoma are shown at the bottom of Table II. Westar ranked first, with Comanche, Pawnee, Wichita and Triumph yielding from 1.6 to 1.2 bushels below. Red Chief, Tenmarq, and Cheyenne yielded from 2.6 to 3.3 bushels below Westar. Comanche yielded 1.0 bushel per acre more than Red Chief

WHEAT YIELDS  
Western and Central Oklahoma

TABLE II.—AVERAGE YIELD OF NINE VARIETIES OF HARD RED WINTER WHEAT TESTED AT 16 LOCATIONS IN WESTERN AND CENTRAL OKLAHOMA, 1947-1950; BY TEST LOCATIONS, AND BY AREAS.  
(Bushels per Acre)

County Location*	No. Yrs. Grown	Cheyenne	Comanche	Early Blackhull	Pawnee	Red Chief	Tenmarq	Triumph	Westar	Wichita
<b>North and Northwest Oklahoma</b>										
Kay (S) (Ponca City)	4	23.4	22.0	21.1	22.5	21.9	21.9	22.2	23.7	22.5
Woods (S) (Freedom)	3	28.1	34.1	30.0	30.4	31.5	30.0	31.6	34.8	29.3
Woodward (O) (Mutual)	3	19.1	19.9	16.4	21.0	20.6	17.7	20.5	18.9	21.5
Woodward (O) (Mooreland)	3	19.7	20.8	18.9	21.0	20.7	20.4	22.2	21.0	23.8
Av., 13 test yrs.		22.6	24.0	21.6	23.6	23.5	22.4	24.0	24.5	24.1
<b>Central West Oklahoma</b>										
Blaine (S) (Okeene)	4	20.3	21.6	20.9	21.8	21.6	19.7	23.6	23.2	23.1
Blaine (S) (Watonga)	3	21.2	23.6	21.6	22.4	25.3	21.0	23.3	26.5	22.6
Caddo (S) (Hinton)	3	25.1	28.7	26.1	27.7	27.9	26.8	28.2	29.4	26.5
Canadian (O) (Yukon)	1	12.0	10.5	9.9	11.0	10.9	9.7	10.2	9.7	9.7
Custer (S) (Thomas)	3	19.1	20.4	21.1	21.0	19.3	18.1	22.8	22.2	22.4
Av., 14 test yrs.		22.0	23.9	22.9	23.7	23.9	21.7	25.0	25.6	24.2
<b>Southwest Oklahoma</b>										
Carter (S) (Lone Grove)	3	6.0	7.6	6.1	5.0	5.7	5.7	3.8	7.3	5.6

Variety Tests of Wheat, Oats, and Barley

CONTINUED ON PAGE 12

(Table II, continued.)

County Location*	No. Yrs. Grown	Cheyenne	Comanche	Early Blackhull	Pawnee	Red Chief	Tenmarq	Triumph	Westar	Wichita
Comanche (O) (Cameron Jr. College)	2	12.2	15.3	13.9	13.9	12.8	11.0	12.3	13.5	13.1
Jackson (S) (Blair)	3	15.6	13.7	11.7	13.1	13.5	11.9	12.2	13.7	11.9
Kiowa (S) (Hobart)	1	16.4	21.0	19.6	23.1	16.0	14.2	20.2	20.0	18.6
Tillman (O) (Grandfield)	3	29.8	33.8	30.7	32.9	25.4	32.1	36.5	43.9	33.0
Washita (O) (Port School)	3	20.2	19.6	20.0	22.1	18.5	19.5	22.3	23.5	22.5
Washita (S) (Rocky)	3	15.6	19.2	21.1	23.9	23.8	21.1	22.7	21.9	23.4
Av., 18 test yrs.		16.8	18.5	17.6	19.0	16.8	17.1	18.7	21.0	18.5
<b>Western and Central Oklahoma; Average</b>										
West Okla. Av., 46 test yrs.		19.7	21.3	19.7	21.3	20.3	19.6	21.7	22.9	21.4
Rank		7	4	7	4	6	9	2	1	3

\* (S) = Supervised Tests, (O) = Observational Tests. (See explanation on page 9.)

and 1.6 bushels more than Early Blackhull. Triumph yielded 2.0 bushels more and Wichita 1.7 bushels more than Early Blackhull for the 46 tests.

### Eastern Oklahoma

In the eastern part of Oklahoma, both hard red winter and soft red winter wheat varieties were grown for 24 test years (Table III). Denton, a soft variety, outyielded Comanche by 0.8 bushel and outyielded Moking and Clarkan each by approximately 4.0 bushels. Comanche outyielded Wichita by 1.6 bushels, Cheyenne by 2.6 bushels and Pawnee, Tenmarq and Triumph by 2.7 bushels for the 24 tests. The average yield for the six hard red winter wheat varieties is 21.2 bushels, while the average for the three soft red winter varieties is 21.5 bushels.

### PROTEIN CONTENT

Protein analyses were made on the wheat varieties for three years, and the data are shown in percent in Tables IV and V. The same four State areas used for reporting yields are also used for protein content.

#### Western and Central Oklahoma

Table IV presents data on the protein content of wheat varieties grown in these tests in the Western and Central parts of Oklahoma during the three years 1948, 1949 and 1950.

**NORTH AND NORTHWEST.**—Comanche with 13.50%, Early Blackhull with 13.31%, and Pawnee with 13.13% rank first, second, and third, respectively, in protein in the 10 tests in this area. Comanche was 0.19% higher than Early Blackhull and 0.27% higher than Pawnee. On the other hand, Red Chief had 0.49% less protein than Comanche. Triumph ranks fourth with 13.11% protein. Cheyenne, Westar, and Wichita rank seventh, eighth, and ninth, respectively, with 12.75%, 12.74%, and 12.62% for the north and northwest area.

**CENTRAL WEST.**—Comanche with 14.31% also ranked first in protein content in the Central West area. Pawnee with 13.72% ranked second, 0.59% below Comanche. Comanche was 1.06% higher in protein than Red Chief, and 0.98% higher than Triumph, while Triumph was 0.01% and 0.29% higher than Early Blackhull and Wichita, respectively.

## WHEAT YIELDS

## Eastern Oklahoma

TABLE III.—AVERAGE YIELD OF SIX VARIETIES OF HARD RED WINTER WHEAT AND THREE OF SOFT RED WINTER WHEAT TESTED AT EIGHT LOCATIONS IN EASTERN OKLAHOMA, 1947-1950; BY TEST LOCATIONS.  
(Bushels per Acre)

County Location*	No. Yrs. Grown	Hard Red Winter						Soft Red Winter		
		Cheyenne	Comanche	Pawnee	Tenmarq	Triumph	Wichita	Clarkan	Denton	Moking
<b>Eastern Oklahoma</b>										
Bryan (S) (Achille)	2	5.9	7.2	6.2	7.2	3.2	4.8	5.1	7.0	4.8
Garvin (S) (Stratford)	1	12.7	14.3	13.3	13.1	14.4	13.7	13.6	13.6	12.8
Hughes (S) (Holdenville)	3	29.4	29.3	28.7	28.2	27.5	28.6	27.9	31.1	28.3
Johnston (O) (Murray Jr. College)	4	25.8	29.5	24.7	24.7	22.4	28.5	26.0	30.3	23.2
LeFlore (S) (Heavener)	4	18.0	21.1	17.2	18.3	19.9	18.2	20.2	21.9	17.7
Muskogee (S) (Muskogee & Beland)	4	24.3	29.9	25.6	25.6	31.0	28.3	23.4	30.8	25.7
Ottawa (O) (N. E. A. & M. Jr. College)	3	15.9	16.3	14.9	13.5	13.0	13.5	15.2	16.8	15.0
Rogers (S) (Chelsea & Inola)	3	21.2	23.5	22.3	22.8	19.7	23.3	20.1	25.1	20.5
Av., 24 test yrs.		20.7	23.3	20.6	20.6	20.6	21.7	20.5	24.1	20.0
<b>Hard Red Winter</b>						<b>Soft Red Winter</b>				
<b>Av. = 21.2</b>						<b>Av. = 21.5</b>				

\* (S) = Supervised Tests, (O) = Observational Tests. (See explanation on page 9.)

**SOUTHWEST.**—Comanche and Triumph with 14.89% tied for first in protein content for eight test years in southwest Oklahoma. Pawnee and Tenmarq ranked third and fourth, respectively. Comanche was 0.90% higher than Red Chief and Triumph was 0.89% higher than Wichita.

**SUMMARY.**—The five top varieties in protein content for the 29 test years for western Oklahoma were Comanche, Pawnee, Triumph, Early Blackhull and Tenmarq. Comanche was 0.40%, 0.51%, 0.64%, and 0.69% higher than Pawnee, Triumph, Early Blackhull and Tenmarq, respectively. Red Chief, Westar, and Wichita were 0.86%, 0.91%, and 1.05%, respectively, below Comanche for the 29 tests.

### Eastern Oklahoma

Comanche with an average of 12.33% was higher in protein content than any other variety grown in 14 tests in eastern Oklahoma (Table V). Denton, a soft variety, was the lowest of the nine varieties in protein content for this area. Tenmarq with 11.79% protein ranked second, but was 0.54% below Comanche. The six hard red winter wheat varieties averaged 11.81% protein, while the three soft red winter wheat varieties averaged 11.61% protein for the eastern area.

### Relationship of Yield and Protein

Figure 2 shows the relationship between average yield and protein content of nine varieties of hard red winter wheat grown in the hard wheat area of Oklahoma. Westar, the highest yielding variety with an average of 22.9 bushels per acre, had a protein content of only 13.28%; whereas Tenmarq, the lowest yielding variety with 19.6 bushels, produced an average of 13.50% protein. On the other hand, Comanche, one of the better yielding varieties with 21.3 bushels, had the highest protein content (14.19%). Red Chief, which yielded only 20.3 bushels, 1.0 bushel less than Comanche, had an average protein content of only 13.33%. Wichita, with the lowest protein content (13.14%), yielded 21.4 bushels, 1.7 bushels more than Early Blackhull with 13.55% protein. Triumph, which produced a yield of 21.7 bushels, ranked third in protein content with 13.68% following Comanche and Pawnee.

### Per Acre Production of Protein

Total production of protein per acre which is of considerable importance to the producer as well as to the trade, can be calculated from the information given in Figure 2. For example, for Westar the calculation would be as follows:

## WHEAT PROTEIN

## Western and Central Oklahoma

TABLE IV.—AVERAGE PROTEIN CONTENT OF NINE VARIETIES OF HARD RED WINTER WHEAT GROWN AT 14 LOCATIONS IN WESTERN AND CENTRAL OKLAHOMA, 1948-1950; BY TEST LOCATIONS, AND BY AREAS.  
(Percent)

County Location*	No. Yrs. Grown	Cheyenne	Comanche	Early Blackhull	Pawnee	Red Chief	Tenmarq	Triumph	Westar	Wichita
<b>North and Northwest Oklahoma</b>										
Kay (S) (Ponca City)	3	12.58	13.23	13.23	12.82	12.97	12.57	13.28	12.45	12.45
Woods (S) (Freedom)	3	14.27	15.45	14.90	14.72	14.47	14.65	14.80	14.43	14.48
Woodward (O) (Mutual)	2	10.83	11.53	11.48	11.30	11.28	10.95	10.88	10.73	10.38
Woodward (O) (Mooreland)	2	12.65	12.95	12.88	13.03	12.63	12.68	12.53	12.65	12.30
<b>Av., 10 test yrs.</b>		<b>12.75</b>	<b>13.50</b>	<b>13.31</b>	<b>13.13</b>	<b>13.01</b>	<b>12.89</b>	<b>13.11</b>	<b>12.74</b>	<b>12.62</b>
<b>Central West Oklahoma</b>										
Blaine (S) (Okcenc)	3	13.87	15.43	13.95	14.08	13.55	14.22	14.08	13.95	13.47
Blaine (S) (Watonga)	3	12.65	13.08	11.85	12.32	12.03	11.97	11.85	11.72	11.58
Caddo (S) (Hinton)	2	13.05	12.63	12.90	13.08	12.50	12.70	12.73	12.15	12.85
Canadian (O) (Yukon)	1	12.25	12.85	12.10	12.30	12.25	12.65	12.10	12.50	11.80
Custer (S) (Thomas)	2	15.70	16.88	15.63	16.63	15.88	15.63	15.65	15.65	15.38
<b>Av., 11 test yrs.</b>		<b>13.57</b>	<b>14.31</b>	<b>13.32</b>	<b>13.72</b>	<b>13.25</b>	<b>13.44</b>	<b>13.33</b>	<b>13.19</b>	<b>13.04</b>

CONTINUED ON PAGE 17



(Table IV, continued.)

County Location*	No. Yrs. Grown	Cheyenne	Comanche	Early Blackhull	Pawnee	Red Chief	Tenmarq	Triumph	Westar	Wichita
<b>Southwest Oklahoma</b>										
Comanche (O) (Cameron Jr. College)	1	11.55	11.40	12.10	11.70	11.40	12.30	11.75	11.70	11.65
Jackson (S) (Blair)	1	10.75	11.60	11.50	11.30	11.20	11.20	12.10	11.40	11.65
Tillman (O) (Grandfield)	2	16.13	16.30	14.75	15.88	14.93	15.25	14.85	14.20	13.18
Washita (O) (Port School)	2	13.90	14.75	14.45	15.03	14.43	14.70	15.30	14.50	14.73
Washita (S) (Rocky)	2	15.15	17.00	15.75	16.53	14.98	15.68	17.50	16.03	16.23
Av., 8 test yrs.		<b>14.08</b>	<b>14.89</b>	<b>14.19</b>	<b>14.73</b>	<b>13.90</b>	<b>14.34</b>	<b>14.89</b>	<b>14.07</b>	<b>13.94</b>
<b>Western and Central Oklahoma; Average</b>										
Av., 29 test yrs. Rank		<b>13.43</b> 6	<b>14.19</b> 1	<b>13.55</b> 4	<b>13.79</b> 2	<b>13.33</b> 7	<b>13.50</b> 5	<b>13.68</b> 3	<b>13.28</b> 8	<b>13.14</b> 9

\* (S) = Supervised Tests, (O) = Observational Tests. (See explanation on page 9.)

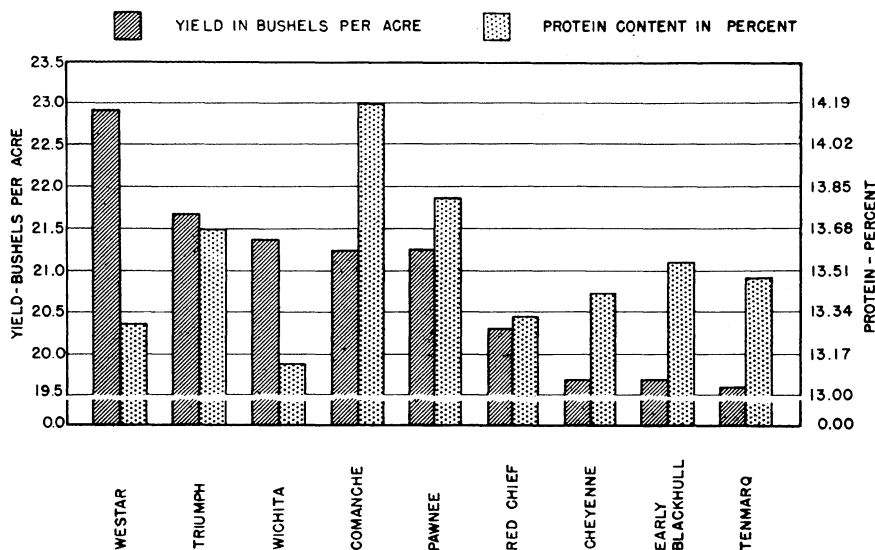


Fig. 2.—Comparison of Yield and Protein Content of Hard Red Winter Wheats.

Total production of protein per acre, as well as yield of grain in bushels per acre, is important to the wheat grower as well as to the wheat trade. The pounds of protein per acre produced by the various varieties can be calculated from the information given in this graph (see page 15). The samples used in getting protein analyses were grown in the hard wheat area of Oklahoma. Note that the varieties are arranged in descending order of grain yield, with the variety having the highest grain yield at the left.

22.9 (bu. per acre) x 60 (lbs. per bu.) = 1,374 lbs. of wheat.

1,374 x 13.28 (% protein content) = 182 lbs. of protein per acre.  
The nine varieties shown in the graph produced the following amounts of protein per acre:

Westar	182 pounds	Red Chief	162 pounds
Comanche	181 pounds	Early Blackhull	160 pounds
Triumph	178 pounds	Cheyenne	159 pounds
Pawnee	176 pounds	Tenmarq	159 pounds
Wichita	169 pounds		

The high total yields of protein per acre of the five top varieties can be attributed primarily to the following reasons:

WESTAR. Exceptionally good yield.

COMANCHE. Exceptionally high protein content and good yield.

TRIUMPH. Good yield and good protein content.

PAWNEE. Good protein content and good yield.

WICHITA. Good yield.

**WHEAT PROTEIN**  
Eastern Oklahoma

TABLE V.—AVERAGE PROTEIN CONTENT OF SIX VARIETIES OF HARD RED WINTER WHEAT AND THREE OF SOFT RED WINTER WHEAT GROWN AT SEVEN LOCATIONS IN EASTERN OKLAHOMA, 1948-1950; BY TEST LOCATIONS.  
(Percent)

County Location	No. Yrs. Grown	Hard Red Winter						Soft Red Winter		
		Cheyenne	Comanche	Pawnee	Tenmarq	Triumph	Wichita	Clarkan	Denton	Moking
<b>Eastern Oklahoma</b>										
Garvin (Stratford)	1	12.00	12.00	11.40	12.10	11.30	11.50	12.10	12.50	12.60
Hughes (Holdenville)	2	10.90	11.40	11.00	11.02	10.55	10.68	11.23	10.60	11.43
Johnston (Murray Jr. College)	3	12.48	13.57	12.50	12.78	13.00	13.80	12.37	12.58	12.32
LeFlore (Heavener)	2	9.10	9.95	9.68	9.30	9.35	9.28	9.18	9.05	9.23
Muskogee (Muskogee & Beland)	3	13.58	13.72	13.07	13.30	12.33	12.48	13.13	12.82	12.90
Ottawa (N. E. A. & M. Jr. College)	1	11.10	10.80	11.25	11.15	11.30	10.70	11.00	10.75	10.75
Rogers (Chelsea & Inola)	2	11.55	12.63	11.65	11.48	12.15	12.05	11.48	11.08	11.55
<b>Av., 14 test yrs.</b>		<b>11.74</b>	<b>12.33</b>	<b>11.71</b>	<b>11.79</b>	<b>11.62</b>	<b>11.66</b>	<b>11.67</b>	<b>11.49</b>	<b>11.67</b>
<b>Hard Red Winter</b>								<b>Soft Red Winter</b>		
<b>Av. = 11.81</b>								<b>Av. = 11.61</b>		

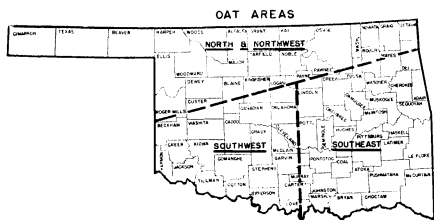
Among the medium-maturing varieties, the choice for the grower is between Westar and Comanche. The high yield of Westar plus the fair to good quality of its protein is definitely in its favor. Comanche, on the other hand, produces a good yield in every locality and ranks first in protein content in all areas of the State. In addition, the *quality* of protein produced by Comanche is exceptionally good. In many respects, Comanche is the most desirable wheat grown in Oklahoma today.

## Oats

Grain yields of fall-sown oat varieties tested from one to four years at 23 locations are shown in Table VI. In using this table, the difference in the extent to which the different varieties have been tested in Oklahoma must be considered. The first five varieties listed in the table have been grown a total of 62 test years, and Forkeddeer 47 and DeSoto only 15.

Areas mentioned are shown in the map on this page.

### NORTH AND NORTHEAST



Oat Areas

This map shows the three areas into which Oklahoma is divided for reporting results of oat variety tests.

Of the five varieties grown for 21 test years in the north and northeast area, Tennex and Wintok were clearly superior to Traveler, Stanton Strain 1, and Letoria. Tennex yielded 49.3 bushels and Wintok 46.2 bushels, whereas the yields of Traveler and Stanton Strain 1 were only 35.8 and 33.8 bushels, respectively.

Forkeddeer, less winterhardy than Wintok and only slightly less winterhardy than Tennex, has a 16-test year average of 49.8 bushels compared to 51.4 bushels for Tennex for the same 16 years. Forkeddeer has somewhat better straw than Wintok and Tennex, but will not stand up well for combining.

TABLE VI.—AVERAGE GRAIN YIELDS OF SEVEN VARIETIES OF FALL-SOWN OATS TESTED AT 23 LOCATIONS IN OKLAHOMA, 1947-1950; BY TEST LOCATIONS, AND BY AREAS.

(Bushels per acre)

County Location	No. Yrs. Grown	Letoria	Stanton Str. 1	Tennex	Traveler	Wintok	Forkedeer	DeSoto
<b>North and Northeastern Oklahoma</b>								
Blaine (Okene)	4	26.4	28.2	43.6	29.2	45.0	44.1***	0.0*
Custer (Thomas)	3	22.2	22.8	46.7	24.8	44.7	39.7	---
Kay (Ponca City)	4	19.3	20.8	58.4	28.8	49.1	55.1***	0.0*
Woodward (Mutual)	1	40.3	55.5	50.3	31.9	52.3	45.0	---
Woodward (Mooreland)	2	28.6	32.6	40.1	28.3	32.6	41.9	---
Woods (Freedom)	2	50.4	46.7	52.7	50.1	45.5	97.7*	0.0*
Rogers (Chelsea & Inola)	3	64.3	59.6	61.7	57.4	61.8	61.2**	66.6*
Ottawa (N. E. A. & M. Jr. College) Av., 21 test yrs.	2	24.2	26.7	33.7	42.5	32.9	30.8*	39.0*
		32.8	33.8	49.3	35.8	46.2	49.8 (16)†	21.1 (5)†
<b>South and Southwestern Oklahoma</b>								
Blaine (Watonga)	3	50.8	52.4	46.8	53.0	43.4	58.3**	15.0*
Caddo (Hinton)	3	56.1	54.4	59.9	59.8	54.8	60.5	---
Carter (Lone Grove)	4	28.1	28.1	23.3	25.0	23.4	19.7***	38.6*
Canadian (Yukon)	1	21.8	18.6	18.6	15.6	15.8	---	18.8

CONTINUED ON PAGE 22

(Table VI, continued.)

County Location	No. Yrs. Grown	Letoria	Stanton Str. 1	Tennex	Traveler	Wintok	Forkedeer	DeSoto
Comanche (Cameron Jr. College)	1	20.4	20.6	22.5	19.1	12.9	21.0	---
Jackson (Blair)	4	38.8	36.8	33.7	35.4	29.9	29.9***	36.0*
Kiowa (Hobart)	1	51.6	52.5	47.1	54.8	41.8	42.2	---
Tillman (Grandfield)	3	50.5	54.2	55.0	54.6	51.2	54.9**	20.3*
Washita (Rocky)	3	41.3	51.1	46.9	45.6	46.3	37.4**	58.3*
Av., 23 test yrs.		41.6	43.0	41.0	42.1	37.9	40.8 (17)†	31.2 (6)†
<b>Eastern Oklahoma</b>								
Bryan (Achille)	2	21.2	18.3	15.1	17.6	11.8	17.6	---
Garvin (Stratford)	2	51.6	52.7	63.7	44.2	56.5	86.7*	27.7*
Hughes (Holdenville)	3	61.7	60.3	54.4	58.3	44.9	54.8	---
Johnston (Murray Jr. College)	3	39.3	41.9	39.5	45.1	35.7	31.2**	56.6*
LeFlore (Heavener)	4	50.3	49.6	41.9	39.6	36.8	46.5***	37.5*
Muskogee (Muskogee & Beland)	4	59.3	64.9	69.0	78.8	68.4	70.7***	71.6*
Av., 18 test yrs.		49.3	50.4	49.0	50.4	44.3	51.3 (14)†	48.2 (4)†

\* = one year.

\*\* = two years.

\*\*\* = three years.

† = number in parentheses equals number of test years.

Traveler, Stanton Strain 1, and Letoria winterkilled 100 percent in three or four locations in the north and northeast area in 1947 and 1950. DeSoto is not winterhardy enough for this part of the State.

### SOUTH AND SOUTHWEST

At nine locations for 23 test years, Stanton Strain 1 ranked first with a 43.0 bushel average and Traveler ranked second with 42.1 bushels. Letoria produced 41.6 bushels, 1.4 bushels below Stanton Strain 1. The yields of Tennex and Wintok were 2.0 bushels and 5.1 bushels, respectively, below Stanton Strain 1. Forkedeer yielded 40.8 bushels in 17 tests, but Tennex yielded 42.1 bushels for the same 17 tests in this area. DeSoto has yielded 31.2 bushels for six tests but Stanton Strain 1 has yielded 37.1 bushels for the same six tests.

The higher yield averages of Stanton Strain 1 and Traveler are probably due to their crown (leaf) rust resistance. Wintok, Tennex, and Forkedeer are susceptible to crown rust.

### EASTERN OKLAHOMA

Traveler and Stanton Strain 1 tied for first place in the eastern area, each variety yielding 50.4 bushels, for 18 test years. Letoria ranked third with 49.3 bushels and Tennex ranked fourth with 49.0 bushels. Wintok yielded 6.1 bushels below Traveler and Stanton Strain 1. Forkedeer in 14 tests yielded 51.3 bushels, while Traveler yielded 49.2 bushels and Tennex yielded 47.1 bushels in the same 14 tests.

DeSoto was grown in only four tests in eastern Oklahoma. It has an average yield of 48.2 bushels, while Traveler yielded 54.6 bushels and Stanton Strain 1 yielded 53.9 bushels in the same four tests.

DeSoto has become quite popular in one or two southeast Oklahoma areas, primarily because of its grazing possibilities. It also produces fair to good yields, has a relatively stiff straw, and considerable disease resistance.

## Barley

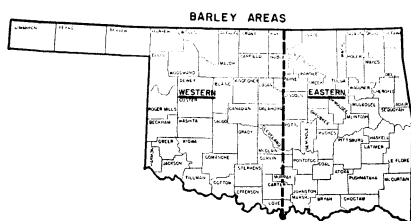
Barley variety yield data are reported by locations and areas in Table VII. The locations are divided into two areas, western and eastern Oklahoma as shown in the map on page 25.

TABLE VII.—AVERAGE GRAIN YIELDS OF FIVE VARIETIES OF FALL-SOWN BARLEY TESTED AT 21 LOCATIONS IN OKLAHOMA, 1948-1950; BY TEST LOCATION, AND BY AREAS.  
(Bushels per Acre)

County Location	No. Yrs. Grown	Fayette	Michigan Winter	Harbine	Tenkow	Ward
<b>Western Oklahoma</b>						
Blaine (Okeene)	2	35.7	33.6	31.3	33.3	35.6
Blaine (Watonga)	2	42.7	36.4	37.6	48.6	42.6
Caddo (Hinton)	3	34.7	36.3	39.4	39.4	39.8
Canadian (Yukon)	1	8.0	10.3	11.9	9.6	12.9
Carter (Lone Grove)	1	8.9	9.0	8.3	9.0	10.9
Comanche (Cameron Jr. College)	1	6.9	9.8	8.4	7.8	9.4
Custer (Thomas)	2	24.4	25.7	25.9	27.2	24.9
Jackson (Blair)	2	14.7	18.8	18.6	14.7	14.3
Kay (Ponca City)	2	27.2	28.0	23.4	29.2	26.9
Kiowa (Hobart)	2	32.4	31.2	25.0	37.1	27.6
Tillman (Grandfield)	1	51.8	28.4	41.4	50.6	29.4
Washita (Rocky)	2	31.7	33.6	43.2	45.7	40.4
Woods (Freedom)	3	38.8	34.7	29.6	37.5	29.1
<b>Av., 24 test yrs.</b>		<b>29.7</b>	<b>28.5</b>	<b>28.6</b>	<b>32.5</b>	<b>28.9</b>
<b>Rank</b>		<b>2</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>3</b>
<b>Eastern Oklahoma</b>						
Bryan (Achille)	1	9.1	11.1	10.8	9.6	12.1
Garvin (Stratford)	2	43.4	35.6	42.5	44.0	38.5
Hughes (Holdenville)	2	37.4	35.1	35.3	50.5	38.3
Johnston (Murray Jr. College)	3	20.4	18.7	19.7	20.9	20.7
LeFlore (Heavener)	2	35.6	28.4	33.6	33.8	32.8
Muskogee (Muskogee & Beland)	3	48.4	36.5	44.6	46.5	40.8
Ottawa (N. E. A. & M. Jr. College)	1	33.9	31.3	36.5	38.4	40.6
Rogers (Chelsea & Inola)	2	36.7	33.7	29.5	40.1	33.2
<b>Av., 16 test yrs.</b>		<b>34.7</b>	<b>29.6</b>	<b>32.6</b>	<b>36.7</b>	<b>32.7</b>
<b>Rank</b>		<b>2</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>3</b>



Harbine, a new variety recently named and released by the Oklahoma Agricultural Experiment Station, is an early maturing variety with fair to good yields and a high test weight. Harbine also has a short stiff straw that stands well for combining, and it threshes free of its awns or beards. Harbine has been carried in these tests as Okla. No. 1004.



**Barley Areas**

This map shows the approximate dividing line between Eastern Oklahoma and Western Oklahoma as used in reporting results of barley variety tests.

**WESTERN OKLAHOMA**

Tenkow has slightly out-yielded the other four barley varieties tested in western Oklahoma for 24 test years. Tenkow ranked first with 32.5 bushels, exceeding Fayette by 2.8 bushels, Ward by 3.6 bushels, Harbine by 3.9 bushels and Michigan Winter by 4.0 bushels for the 24 test years. In 1949, a late spring freeze reduced the yield of Harbine in the Woods County test from 8 to 12 bushels in comparison with the other four varieties.

**EASTERN OKLAHOMA**

Tenkow ranked first with 36.7 bushels, Fayette second with 34.7 bushels, Ward third with 32.7 bushels, Harbine fourth with 32.6 bushels, and Michigan Winter fifth with 29.6 bushels in eastern Oklahoma for 16 test years at eight locations. Barley yields, as shown in Table VII, have been good in eastern Oklahoma for the past three years; and this crop could be utilized to advantage as a pasture and grain crop in some areas.





