

# Oklahoma Corn Performance Tests; Summary: 1946, 1947, and 1948.

By JAMES S. BROOKS, ROY CHESSMORE, and HARTWILL PASS\*

\*Respectively: Associate Agronomist, Corn; and Assistants in Agronomy.

Many different names and numbers of hybrid corn are being distributed in Oklahoma, and new ones are added every year. This makes it increasingly difficult for a grower to select the hybrid best suited to his farm. The Oklahoma Corn Performance Tests were set up by the Experiment Station to test as many hybrids as possible, and thus supply information on the ones likely to give the best performance year after year.

Results of the Station's corn performance tests are reported annually. But only by combining results of several years can one determine which hybrids are most likely to give superior performance year after year. This publication therefore summarizes the performance of hybrids tested in the years 1946, 1947 and 1948.

Hybrid corn was included in Oklahoma yield trials as early as 1930; but, because of the many new hybrids on the market, a summary covering more than the past three years would leave out many of the newer and higher yielding strains.

### General Performance of Hybrids

All hybrids entered in the 1948 Oklahoma Corn Performance Tests produced yields averaging 36 per cent more than the openpollinated varieties included in the same tests. Slightly more than 55 per cent of all corn planted in Oklahoma in 1948 was planted with hybrid seed (as compared to 5 per cent in 1943). The State's total of 1,336,000 acres in corn in 1948 made an estimated yield of 25 bushels an acre. Using these figures, it is estimated that Oklahoma farmers gained 5,564,000 bushels by planting hybrid corn in 1948. If only the best adapted hybrids had been planted on the hybrid acreage, total production would have been increased by another 134 million bushels.

### Test Procedure and Results

The sources of seed and methods used in conducting the tests are described in the reports published each year. The yield, per cent lodged and per cent stand reported for each hybrid are an average of the results of the tests for the years indicated.\*

### Yield and Maturity

The yield for each strain is reported in the maturity group in which that strain was tested in 1948. The hybrids in the early maturity group will average about two weeks earlier in maturity than those in the late maturity group. The earliest hybrid in the early group is ready for harvest about three weeks earlier than the latest hybrid in the late group. There is no sharp line between the different maturity groups; some "border line" hybrids have been included in one maturity group one season and, for convenience, shifted to another group another season.

In the past three years' tests, late maturing hybrids produced yields equal to the early maturing hybrids at many locations. In tests prior to 1946, the earlier maturing hybrids were generally the best producers. The better performance of late hybrids during recent years may be the result of more favorable seasons, or it may be due to the development of late hybrids better adapted to Oklahoma conditions.

### Lodging

Plants reported as lodged are those likely to be missed by a mechanical picker. If the crop is to be mechanically harvested, the amount of lodging may decrease the actual yield reported in the tables by nearly as large a percentage as the amount of lodging.

The most severe lodging has usually occurred among the late maturing strains on upland soils. The longer the mature crop is left in the field, the more severe the lodging.

#### Per Cent Stand

The per cent stand figures indicate the average number of mature plants obtained from each 100 grains planted. Data from all tests over a three-year period indicate that each 100 grains

<sup>\*</sup>Annual reports were given in the following publications, all carrying the title "Oklahoma Corn Performance Tests": 1946, Bul. B-306; 1947, Bul. B-317; and 1948, Mimeo. Cir. M-177.

planted will produce an average of 75 mature plants. Good quality seed planted in a well prepared seedbed with favorable season will produce 90 or more mature plants from each 100 grains planted.

Mechanical injury to the seed, which may occur during processing, makes the seed much more susceptible to environmental influences at planting time. Mechanical injury so slight that it can be seen only with a microscope may reduce germination under field conditions. Seed lots containing broken or chipped grain are likely to contain more seed with invisible injury than seed lots in which the more severe types of damage have been kept to a minimum

### Quality

The quality rating reported in the tables is based on observations on the 1947 and 1948 tests. The amount of insect and disease damage and the number of nubbins were given the greatest weight in rating quality. At least two samples of each variety at each test location were examined to obtain the quality rating given in the tables. Ratings used were: Poor, medium poor, medium, medium good, and good. For the list of recommended hybrids and varieties see page 15.

# In the Tables:

(w) - White Corn.

\* — Open-pollinated variety (all others are hybrids).

TABLE I.—BRYAN COUNTY (Red River Bottom); George Lemons Farm; Yuba, 2½ miles south, 1 west; 2-Year Average: 1946, 1948.

Strain	Yield	Pct. Lodged	Pct. Stand	Quality
Early	Maturity			
P. A. G. 170 U. S. 13 Ohio C-38 Razorback U. S. 13 Keystone 38 Indiana 610B Embro 36 Iowealth 29A Funk G-94 Missouri 313 Funk G-53 Ward 120A Embro 95 Shannon 1300	99.9 99.5 98.9 97.8 97.4 97.2 95.0 94.9 91.0 90.8 90.6 89.5 88.4	1 1 2 1 1 2 2 2 1 1 2 2 2 2 1 2 2 2 2 2	84 85 84 83 81 78 85 81 81 83 75 69 75 80	Med. Good Med. Good Med. Good Med. Good Medium Med. Good Medium
Mediun	n Maturit	y		
Ohio C-12 Indiana 818 Pioneer 332 Crost Rite Mo. 148 Illinois 200 Embro 49 Ward 125 Keystone 40 *Midland Yellow Dent Shannon 1500	101.9 101.5 100.4 98.5 97.1 96.1 95.7 94.0 87.4 83.2	1 0 2 2 1 2 2 3 2 2 2 2 2 2 2 2	89 81 88 84 83 82 83 84 85 82 68 83	Good Medium Med. Good Med. Good Med. Good Med. Good Medium Medium Med. Good Med. Good
Late 1	Maturity			
Keystone 222 Texas 18 Texas 12 Tennessee 10 (w) Ward 135W (w) Texas 20 Keystone 106W (w) Kansas 1583 Funk G-716 Texas 9W (w) Kansas 1585 *Reid Yellow Dent *Ferguson Yellow Dent *Oklahoma Silvermine	97.7 97.4 92.5 91.2 89.7 88.6 87.5 86.8 83.3 83.1 78.7 72.8 67.2	7 5 9 8 5 2 15 1 2 4 8 3 8 6 5 5	94 87 79 88 89 80 87 92 89 79 85 77 83	Good Good Med. Good Med. Good Medium Med. Good Good Med. Good
	Keystone 39	Keystone 39	Naturity   Naturity	Name

# TABLE II.—GARVIN COUNTY (Washita River Bottom); D. J. Butler Farm; Pauls Valley, 1 mile west; 3-Year Average: 1946, 1947, 1948.

Rank	Strain	Yield	Pct. Lodged	Pct. Stand	Quality
	Early M	laturity			
1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15	Missouri 313 Embro 36 Funk G-94 U. S. 13 Keystone 38 Razorback U. S. 13 Ohio C-38 Iowealth 29A P. A. G. 170 Keystone 39 Indiana 610B Shannon 1300 Funk G-53 Ward 120A Embro 95 Average	98.8 97.7 96.9 95.5 95.0 94.1 93.9 93.7 92.5 91.0 90.8 90.2 88.7 82.2	3 2 2 1 2 3 1 2 3 4 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	81 74 79 82 75 72 88 85 75 69 73 81 74 73 71	Medium Med. Good Medium Med. Good Medium
	Medium 1	Maturity	y		
1 2 3 4 5 6 7 8 9 10	Pioneer 332 Indiana 818 Illinois 200 Crost-Rite Mo. 148 Kansas 2234 (w) Ohio C-12 Keystone 40 Embro 49 Shannon 1500 Ward 125 *Midland Yellow Dent Average	98.2 92.7 91.7 91.4 90.7 87.3 85.6 80.6 80.5 76.7	1 1 3 5 3 2 3 3 3 4 11 3	86 87 80 83 82 77 85 77 76 73 81	Medium Medium Medium Med. Good Med. Good Medium Medium Medium Medium Medium Medium Medium Medium
	Late Ma	aturity			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Funk G-711 Tennessee 10 (w) Texas 12 Keystone 222 Ward 135W (w) Kansas 1583 Texas 20 Funk G-716 Texas 18 Kansas 1585 *Oklahoma Silvermine (w) Texas 9W (w) Keystone 106W (w) *Reid Yellow Dent *Ferguson Yellow Dent Average	107.7 103.9 99.9 99.6 96.5 95.2 92.3 90.7 90.2 88.9 87.9 85.2 80.8 64.7	7 15 14 7 13 4 12 9 19 6 11 7 4 19 15	93 91 79 86 80 89 82 86 79 91 85 89 82 50 84	Good Med. Good Good Medium Medium Med. Good Good Med. Good Med. Good Med. Good Med. Good

## TABLE III.—McCLAIN COUNTY (Upland); Clifton Brown Farm; Purcell, 5 miles north, 5 west; 2-Year Average: 1947, 1948.

Rank	Strain	Yield	Pct. Lodged	Pct. Stand	Quality
	Early N	<b>I</b> aturity			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Missouri 313 Keystone 38 U. S. 13 Iowealth 29A Funk G-94 Razorback U. S. 13 Shannon 1300 Keystone 39 Indiana 610B Ward 120A P. A. G. 170 Funk G-53 Embro 36 Ohio C-38 Embro 95 Average	44.3 42.8 42.4 41.1 41.0 40.9 40.9 39.5 39.5 38.9 38.8 38.3 36.3	10 10 9 12 10 9 11 9 14 5 7 9 8 6 7	89 84 86 82 76 82 87 76 88 67 83 81 87 89 77	Med. Poor Medium Poor Med. Poor Med. Poor
	Medium	Maturit	y		
1 2 3 4 5 6 7 8 9 10	Kansas 2234 (w) Crost-Rite Mo. 148 Embro 49 Illinois 200 Indiana 818 Ohio C-12 Ward 125 Pioneer 332 Keystone 40 Shannon 1500 *Midland Yellow Dent Average	48.3 43.8 42.3 41.4 40.5 39.1 38.7 38.7 37.3 33.6	12 12 10 11 8 3 8 5 8 7 14	89 85 82 79 87 75 77 86 88 73 85 82	Good Medium Med. Poor Med. Poor Med. Poor Medium Medium Med. Poor Med. Poor Medium Medium
	Late M	<b>Taturity</b>			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Texas 18 Keystone 222 Keystone 106W (w) Texas 12 Ward 135W (w) Tennessee 10 (w) Texas 9W (w) Funk G-716 Texas 20 Funk G-711 Kansas 1583 Kansas 1585 *Reid Yellow Dent *Oklahoma Silvermine *Ferguson Yellow Dent Average	49.2 49.0 48.9 48.5 47.1 46.3 43.7 43.5 42.9 41.5 40.7 35.9 32.1 29.9	27 17 5 16 17 17 15 19 25 15 11 16 24 25 26	80 95 94 83 94 95 94 87 80 95 94 81 94 81	Med. Good Med. Good Med. Good Med. Good Medium Medium Med. Good

# TABLE IV.—PAYNE COUNTY (Creek Bottom); 3-Year Average: 1946, 1947, 1948.

Rank	Strain	Yield	Pct. Lodged	Pct. Stand	Quality
	Early M	aturity			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	U. S. 13 Embro 36 Keystone 38 Funk G-94 Iowealth 29A Razorback U. S. 13 Missouri 313 Shannon 1300 Indiana 610B Funk G-53 Ward 120A P. A. G. 170 Ohio C-38 Keystone 39 Embro 95 Average	62.3 61.3 60.5 60.0 59.3 58.8 57.7 55.9 54.0 53.7 53.7 51.8 47.1 56.5	26 17 25 26 24 23 26 27 28 25 27 25 26 23 22 23	76 81 86 81 79 77 75 79 83 72 82 79 66 73 78	Medium Medium Medium Medium Med. Poor Medium Med. Poor Medium Med. Poor Medium
	Medium M	<b>I</b> aturity	7		
1 2 3 4 5 6 7 8 9 10	Kansas 2234 (w) Embro 49 Pioneer 332 Illinois 200 Crost-Rite Mo. 148 Keystone 40 Ward 125 Indiana 818 Ohio C-12 Shannon 1500 *Midland Yellow Dent Average	63.4 62.4 56.3 55.1 54.3 54.1 53.9 53.8 49.6 43.4 54.5	38 28 24 32 28 25 28 20 15 36 42 29	84 83 80 80 70 77 75 83 78 69 84 78	Med. Good Medium Medium Medium Medium Med. Poor Medium Med. Poor Med. Poor Med. Poor Med. Poor Medium Med. Poor
	Late Ma	turity			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Tennessee 10 (w) Keystone 222 Ward 135W (w) Funk G-711 Kansas 1583 Texas 20 Texas 9W (w) Keystone 106W (w) Kansas 1585 Texas 12 Texas 18 Funk G-716 *Reid Yellow Dent *Oklahoma Silvermine *Ferguson Yellow Dent Average	54.4 53.9 53.7 53.3 52.3 51.8 51.6 49.7 49.6 46.0 38.9 36.5 32.0 48.5	42 49 32 34 28 40 40 30 25 46 47 44 42 41 51 39	89 85 85 85 85 87 84 96 80 78 81 78 61 83	Medium Medium Med. Good Med. Good Medium Medium Medium Medium Medium Medium Medium Medium Medium Med. Good Medium Med. Good Medium Med. Good Medium Med. Good

## TABLE V.—PAYNE COUNTY (Upland);

## Oklahoma Agricultural Experiment Station Farm;

Perkins, 1 mile north, 1 mile west; 3-Year Average: 1946, 1947, 1948.

Rank	Strain	Yield	Pct. Lodged	Pct. Stand	Quality
Early Maturity					
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	U. S. 13 Ohio C-38 Keystone 38 Embro 36 P. A. G. 170 Missouri 313 Razorback U. S. 13 Funk G-94 Iowealth 29A Funk G-53 Keystone 39 Embro 95 Indiana 610B Shannon 1300 Ward 120A Average	44.1 43.2 41.4 41.2 41.0 40.8 39.6 38.7 38.2 38.1 36.6 36.2	16 22 17 20 23 18 18 17 16 18 20 16 25 16 19	89 92 88 84 89 88 80 90 85 75 81 82 78	Medium Medium Medium Med. Poor Med. Poor Med. Poor Medium Medium Medium Medium Medium Med. Poor Medium Med. Poor Medium Medium Medium Medium Medium Medium Medium Medium
	Medium	Maturit	y		
1 2 3 4 5 6 7 8 9 10 11	Pioneer 332 Indiana 818 Embro 49 Ohio C-12 Illinois 200 Kansas 2234 (w) Keystone 40 Crost-Rite Mo. 148 Ward 125 Shannon 1500 *Midland Yellow Dent Average	43.5 41.8 40.6 40.3 37.6 37.4 37.4 34.4 31.9 29.3 38.0	15 13 18 14 14 47 20 20 23 15 44 22	95 91 93 84 91 90 89 83 72 88 88	Med. Good Med. Good Medium Medium Good Medium Medium Medium Medium Medium Medium Medium Medium
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Kansas 1585 Funk G-711 Keystone 222 Tennessee 10 (w) Kansas 1583 Texas 20 Texas 18 Texas 9W (w) Ward 135W (w) Keystone 106W (w) Texas 12 Funk G-716 *Reid Yellow Dent *Ferguson Yellow Dent *Oklahoma Silvermine Average	37.1 36.7 34.5 34.2 32.8 32.8 32.8 32.4 32.0 32.0 30.5 25.3 22.1 21.5	40 55 51 47 47 54 59 62 41 19 56 51 40 51 47	89 90 85 85 89 76 72 83 88 78 83 78 92 72 89 83	Med. Good Medium Medium Med. Good Med. Good Medium Medium Medium Medium

TABLE VI.—SEMINOLE COUNTY (North Canadian Bottom); Ambrose Crain Farm; Prague, 8 miles south and 3 miles west; 3-Year Average: 1946, 1947, 1948.

Rank	Strain	Yield	Pct. Lodged	Pet. Stand	Quality	
Early Maturity						
1 2 3 4 5 6 6 7 8 9 10 11 12 13 14 15	U. S. 13 Keystone 38 Missouri 313 Keystone 39 Funk G-53 Funk G-94 P. A. G. 170 Iowealth 29A Ohio C-38 Shannon 1300 Razorback U. S. 13 Embro 95 Indiana 610B Embro 36 Ward 120A Average	77.1 75.1 73.4 72.5 71.5 71.0 70.8 70.2 69.7 69.1 68.2 67.1 64.6	5466346547447445	78 81 80 72 79 78 76 82 86 77 69 73 79 73	Medium Med. Good Medium Med. Good Med. Good Med. Good Medium	
	Medium I	Maturity	7			
1 2 3 4 5 6 7 8 9 10 11	Ohio C-12 Kansas 2234 (w) Indiana 818 Keystone 40 Illinois 200 Crost-Rite Mo. 148 Embro 49 Pioneer 332 Ward 125 Shannon 1500 *Midland Yellow Dent Average	76.8 75.8 75.1 72.5 71.6 71.5 70.6 66.1 62.8 57.4	3 7 5 7 5 7 7 3 5 6 20 7	81 85 76 73 75 75 79 87 69 71 78	Medium Good Med. Good Medium Medium Med. Good Med. Good Med. Good Med. Poor Med. Good	
	Late Ma	iturity				
14	Funk G-711 Texas 20 Keystone 106W (w) Keystone 222 Funk G-716 Texas 18 Ward 135W (w) Tennessee 10 (w) Texas 9W (w) Kansas 1583 Texas 12 Kansas 1585 *Oklahoma Silvermine (w) *Ferguson Yellow Dent Average	76.1 75.9 74.5 72.6 70.4 69.5 69.0 67.3 54.3 52.1	11 19 6 11 11 15 12 13 19 11 16 9 26 21 19	87 84 75 74 89 64 83 87 80 88 77 81 82 78 56	Good Good Med. Good	

# TABLE VII.—TULSA COUNTY (Arkansas River Bottom) Oklahoma Vegetable Research Station;

Bixby,  $1\frac{1}{2}$  miles northeast (across river);

3-Year Average: 1946, 1947, 1948.

Rank	Strain	Yield	Pct. Lodged	Pct. Stand	Quality
	Early M				
1	U. S. 13	90.9	3	87	Medium
2	Missouri 313	90.7	<b>2</b>	89	Medium
3	Indiana 610B	88.5	7	89	Med. Good
4	Keystone 38	88.0	<b>2</b>	88	Medium
5	Keystone 39	87.9	3 .	85	Medium
6	Funk G-94	84.6	2	87	Medium
7	P. A. G. 170	84.6	3	87	Med. Good
8	Shannon 1300	84.6	4	89	Medium
9	Embro 36	84.0	$ar{2}$	91	Medium
10	Ohio C-38	83.4	6	89	Medium
11	Razorback U. S. 13	82.6	ĭ	88	Medium
12	Iowealth 29A	80.3	<b>2</b>	88	Medium
13	Funk G-53	80.3	3	85	Medium
14	Embro 95		$\dot{2}$	87	Medium
15	Ward 120A	76.5	$\bar{3}$	78	Medium
	Average	84.3	3	87	Medium
		01.5	J	٥.	
	Medium I	Maturity	y		
1	Kansas 2234 (w)	100.9	6	93	Good
$\dot{\tilde{2}}$	Crost-Rite Mo. 148	94.5	$\overset{\circ}{2}$	88	Med. Good
3	Illinois 200	90.0	5	87	Medium
$\overset{\circ}{4}$	Embro 49	89.9	$\ddot{3}$	90	Medium
5	Indiana 818		3	86	Medium
6	Keystone 40	86.5	$\ddot{3}$	85	Medium
7		84.1	4	91	Medium
8	Pioneer 332 Ohio C-12	83.4	$ar{4}$	$\tilde{7}\tilde{7}$	Medium
9	Ward 125	78.7	$\overline{4}$	$\dot{7}\dot{7}$	Medium
10	Shannon 1500	69.9	6	81	Medium
îĭ	*Midland Yellow Dent	67.8	16	86	Med. Good
	Average	84.8	5	86	Medium
	Late Ma	tunity			
	Late Ma	turity			
1	Ward 135W (w)	92.9	14	87	Med. Good
2	Keystone 222	90.9	8	93	Good
3	Tennessee 10 (w)	90.6	10	89	Med. Good
4	Funk G-711	90.1	11	94	Med. Good
5	Kansas 1583	86.3	4	90	Med. Good
6	Kansas 1585	84.5	1	94	Med. Good
7	Funk G-716	82.6	8	86	Med. Good
8	Texas 12	80.9	14	81	Good
9	Texas 20	78.9	15	73	Good
10	Keystone 106W (w)	77.6	4	82	Med. Good
11	Texas 18	77.6	$2\overline{4}$	$7\overline{3}$	Med. Good
$\overline{12}$	Texas 9W (w)	74.7	11	81	Good
13	*Oklahoma Silvermine	62.6	20	89	Med. Good
	*Reid Yellow Dent	56.2	14	86	Med. Good
15	*Ferguson Yellow Dent	43.8	18	57	Med. Good
	Average	78.0	12	84	Med. Good

Twenty-eight recommended hybrids and varieties are listed on the following page.

The yields range from 63.0, Kansas 2234 (w), to 36.4, \*Ferguson Yellow Dent.

# Recommended Hybrids and Varieties

The hybrids and open-pollinated varieties listed here have been tested each of the years, 1946, 1947, 1948. Each hybrid or variety was included in 29 tests during the period. The yield and per cent lodged figures are an average of all 29 tests, 15 of which were on bottom land and 14 on upland.

Variety	Yield	Per Cent Lodged	Maturity
Kansas 2234 (w)	63.0	16	Medium
U. S. 13	62.5	11	Early
Funk G-711	62.3	23	Late
Keystone 222	61.2	21	Late
Keystone 38	60.0	9	Early
Tennessee 10 (w)	59.9	23	Late
Missouri 313	59.8	12	Early
Ward 135 (w)	59.2	20	Late
Embro 36	58.7	9	Early
Razorback U. S. 13	58.5	10	Early
Crost Rite Mo. 148	58.5	11	Medium
Funk G-94	58.3	10	Early
Pioneer 332	58.0	10	Medium
Illinois 200	57.7	11	Medium
Texas 12	57.7	25	Late
P. A. G. 170	57.5	9	Early
Keystone 39	57.4	11	Early
Texas 18	57.2	29	Late
Kansas 1583	56.8	16	Late
Texas 20	56.7	26	Late
Keystone 40	55.9	10	Medium
Shannon 1300	54.7	11	Early
Kansas 1585	54.6	14	Late
Ward 120A	54.1	11	Early
*Midland Yellow Dent	47.1	21	Medium
*Reid Yellow Dent	43.2	23	Late
*Oklahoma Silvermine	42.2	24	Late
*Ferguson Yellow Dent	36.4	26	Late