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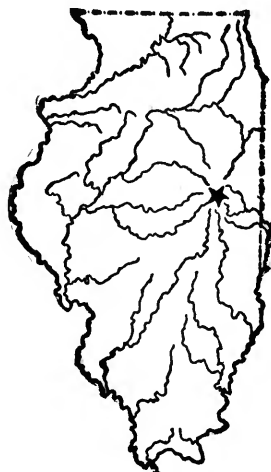
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UNIVERSITY OF ILLINOIS
Agricultural Experiment Station

BULLETIN No. 201

YIELDS OF WINTER GRAINS IN ILLINOIS

BY W. L. BURLISON AND O. M. ALLYN



URBANA, ILLINOIS, JUNE, 1917

SUMMARY OF BULLETIN No. 201

NORTHERN ILLINOIS.—Continued tests have shown that Turkey Red is the highest-yielding variety of wheat for northern Illinois. The other high-yielding varieties which have been grown for a minimum of three years are Turkey 9-233, Malakoff 5-458, Minnesota Reliable, Kharkof, Wheedling 5-464, and Malakoff.

Pages 97-99

Winter rye has yielded more than winter wheat in northern Illinois. Winter barley has not withstood winter-killing.

Pages 99, 101

CENTRAL ILLINOIS.—Thirteen varieties of wheat have been grown for five or more years at Urbana. The leading varieties are Turkey Red, Malakoff, Fultz, Hungarian, Pesterboden, Beloglina, Kharkof, and Dawson's Golden Chaff. Other promising varieties are Turkey Hybrid 509 and Dawson's Golden Chaff 9-225.

Pages 101-104

SOUTHERN ILLINOIS.—Of the varieties of wheat which have been tested for a minimum of three years, Fulcaster has been the highest-yielding variety. Varieties yielding next in order and which have been tested for a minimum of three years are Economy, Wheedling, Indiana Swamp, Harvest King, Missouri Pride, Rudy, and Poole. Fulcaster was outyielded several years by Economy, Wheedling, Missouri Pride, and Harvest King. The hard wheats are not adapted to conditions in southern Illinois.

Pages 104-108

One-year tests with rye, barley, and emmer as winter crops show promising results, but winter oats failed.

Pages 106-108

CHARACTERISTICS OF VARIETIES OF WINTER WHEAT.

Pages 109-110

YIELDS OF WINTER GRAINS IN ILLINOIS

BY W. L. BURLISON, ASSOCIATE CHIEF IN CROP PRODUCTION, AND
O. M. ALLYN, FIRST ASSISTANT IN CROP PRODUCTION

Winter wheat ranks third among the most important grain crops grown in Illinois. There are numerous varieties of wheat raised in the state, some of which are unsatisfactory, while others are superior strains.

Changing seed wheat is not advisable unless the performance records of the new varieties are thoroly demonstrated in the region in which they are to be used. During late years many varieties of wheat of unknown value have been widely advertised. Notable among these are Alaska, Marvelous, and Miracle. Yields obtained by this station and reports by other investigators prove that mis-statements have been printed in advertisements regarding these wheats.

Illinois possesses marked climatic and soil differences, and varieties of wheat suited to one locality are not necessarily the most desirable for another part of the state. The Illinois Experiment Station has conducted experiments with winter grains, not only at Urbana in the central part of the state, but also on crop experiment fields at DeKalb, in northern Illinois, and at Fairfield, in southern Illinois.

The soil on which the experiments at DeKalb and Urbana have been conducted is, for the most part, brown silt loam; at Fairfield, gray silt loam on tight clay. These are the common prairie soils in these regions. The experiment fields have been regularly supplied with phosphate rock and either farm manure or crop residues. Limestone has also been applied at Fairfield and to some extent at Urbana. The aim has been to keep the land in a good state of fertility but not to produce abnormal conditions. It is believed that these fields are such as any progressive Illinois farmer would maintain. Methods of culture which have been followed are comparable to those practiced by leading grain growers of this state. Thus the yields reported are no larger than may well be expected from the respective sections of Illinois. The wheat yields are calculated on the basis of 60 pounds per bushel; rye, 56; barley, 48; and emmer, 30.

NORTHERN ILLINOIS

TESTS AT DEKALB, IN DEKALB COUNTY

Wheat.—Variety tests of wheat at the DeKalb experiment field were begun in 1907, and have been conducted in a rotation of corn, oats, wheat, and clover.

Since the varieties have not all been grown for the same number of years, the highest average yield of a variety does not always indicate the best variety, and in order to establish more definitely the relation of the different varieties with respect to yield, all are compared on the same basis, with Dawson's Golden Chaff as a standard. This at once gives a definite rating of the different varieties when compared with a standard variety.

A summary of the varieties tested at DeKalb from 1907 to 1916 appears in Tables 1 and 2. In 1909 and 1912 the winter wheat was a failure as a result of winter-killing.

TABLE 1.—AVERAGE YIELDS OF VARIETIES OF WINTER WHEAT GROWN AT DEKALB, AND PERCENTAGE RATING USING DAWSON'S GOLDEN CHAFF AS A STANDARD (Bushels per acre)

Variety	1907	1908	1910	1911	1913	1914	1915	1916	Per-centage rating
Dawson's Golden Chaff.....	17.6	40.8	27.0	29.1	34.7	35.5	38.3	23.7	100.0
Turkey Red.....	24.3	...	37.4	33.9	36.7	39.2	41.6	34.9	120.4
Indiana Swamp.....	20.3	39.3	27.7	26.0	33.2	29.7	...	...	95.4
Wheedling.....	17.8	38.1	25.4	25.6	30.1	31.3	...	...	91.1
Kharkof.....	29.5	...	...	...	32.6	34.0	33.5	33.2	108.7
Minnesota Reliable.....	...	...	35.7	31.4	33.6	39.6	40.1	...	109.6
Malakoff.....	22.1	37.8	...	...	34.2	...	...	...	101.1
Turkey 9-233.....	...	...	...	...	...	35.8	40.8	34.9	114.4
Malakoff 5-458.....	...	...	...	...	...	34.3	41.5	34.4	113.0
Wheedling 5-464.....	...	...	...	...	...	38.0	35.9	31.6	108.2
Padi.....	18.6	26.2	...	...	...	...	...	...	76.7
Native Wheat.....	...	27.6	29.5	...	...	...	...	...	84.2
Red Hussar.....	...	...	...	...	34.2	32.5	...	...	95.0
Hungarian.....	...	...	...	...	34.3	30.1	...	...	91.7
World's Champion.....	...	...	...	...	...	...	39.8	34.7	120.2
Red Cross.....	...	...	...	...	...	...	38.8	34.7	118.5
Wisconsin 18.....	...	...	...	...	...	...	38.0	25.2	101.9
Gypsy.....	...	...	...	...	...	...	27.9	24.7	84.8
Mediterranean.....	...	...	...	...	...	...	25.0	25.2	81.0
Miracle.....	...	...	...	...	...	...	27.9	9.2	59.8
K. B. 2.....	21.8	...	...	...	...	...	...	...	...
Turkey Red (native).....	...	...	...	30.1	...	...	...	...	...
Pesterboden.....	...	...	...	...	31.1	...	...	...	...
Beloglina.....	...	...	...	...	29.4	...	...	...	...
Fultz.....	...	...	...	...	...	30.6	...	...	...
Gold Coin.....	...	...	...	...	...	32.5	...	...	...
Dawson's Golden Chaff 9-211..	...	...	...	...	...	22.6	...	...	...
Salzer's Hardy Northern.....	...	...	...	...	...	...	...	40.1	...
Red Russian.....	...	...	...	...	...	...	...	38.6	...
Canadian Hybrid.....	...	...	...	...	...	...	...	36.8	...
Turkey Hybrid 509.....	...	...	...	...	...	...	...	36.2	...
Early Red Clawson.....	...	...	...	...	...	...	...	29.9	...
Rudy.....	...	...	...	...	...	...	...	26.5	...
Prize Taker.....	...	...	...	...	...	...	...	23.3	...
Marvelous.....	...	...	...	...	...	...	...	15.3	...

On an equal basis of comparison with respect to the years tested, Turkey Red has never been out-yielded at DeKalb, as may be seen by looking over Tables 1 and 2. The principal high-yielding varieties which have been grown for a minimum of three years are Turkey Red, Turkey 9-233, Malakoff 5-458, Minnesota Reliable, Kharkof, Wheedling 5-464, and Malakoff. Of the varieties tested for only two years, Red Cross and World's Champion have given good results. Salzer's Hardy Northern, Red Russian, Canadian Hybrid, and Turkey Hybrid 509 have all yielded well for one year, but further tests may prove that they are not so valuable. Considering all the tests up to the present time, Turkey Red and Turkey 9-233 may be regarded as the best-yielding varieties for northern Illinois.

Eye and Barley.—Tests with winter rye and winter barley were begun in 1915. The barley all winter-killed, but the rye made large

TABLE 2.—COMPARABLE AVERAGE YIELDS OF VARIETIES OF WINTER WHEAT GROWN AT DEKALB USING DAWSON'S GOLDEN CHAFF AS A STANDARD
(Bushels per acre)

Variety	Total No. of tests	No. of years compared	Years on which comparison is based	Average yield
Dawson's Golden Chaff.	15	7	1907, 1910, 1911, 1913-1916	29.4
Turkey Red.....	29	7	" " " " "	35.4
Dawson's Golden Chaff.	11	6	1907, 1908, 1910, 1911, 1913, 1914	30.8
Indiana Swamp.....	14	6	" " " " " "	29.4
Wheedling.....	11	6	" " " " " "	28.1
Dawson's Golden Chaff.	13	5	1907, 1913-1916	30.0
Kharkof.....	13	5	" " "	32.6
Dawson's Golden Chaff.	12	5	1910, 1911, 1913, 1915, 1916	32.9
Minnesota Reliable....	12	5	" " " " "	36.1
Dawson's Golden Chaff.	5	3	1907, 1908, 1913	31.0
Malakoff.....	7	3	" " "	31.4
Dawson's Golden Chaff.	8	3	1914-1916	32.5
Turkey 9-233.....	8	3	" "	37.2
Malakoff 5-458.....	8	3	" "	36.7
Wheedling 5-464.....	8	3	" "	35.2
Dawson's Golden Chaff.	3	2	1907, 1908	29.2
Padi.....	3	2	" "	22.4
Dawson's Golden Chaff.	4	2	1908, 1910	33.9
Native Wheat.....	4	2	" "	28.6
Dawson's Golden Chaff.	4	2	1913, 1914	35.1
Red Hussar.....	4	2	" "	33.3
Hungarian.....	4	2	" "	32.2
Dawson's Golden Chaff.	6	2	1915, 1916	31.0
World's Champion....	6	2	" "	37.3
Red Cross.....	6	2	" "	36.8
Wisconsin 18.....	6	2	" "	31.6
Gypsy.....	6	2	" "	26.3
Mediterranean.....	6	2	" "	25.1
Miracle.....	6	2	" "	18.6

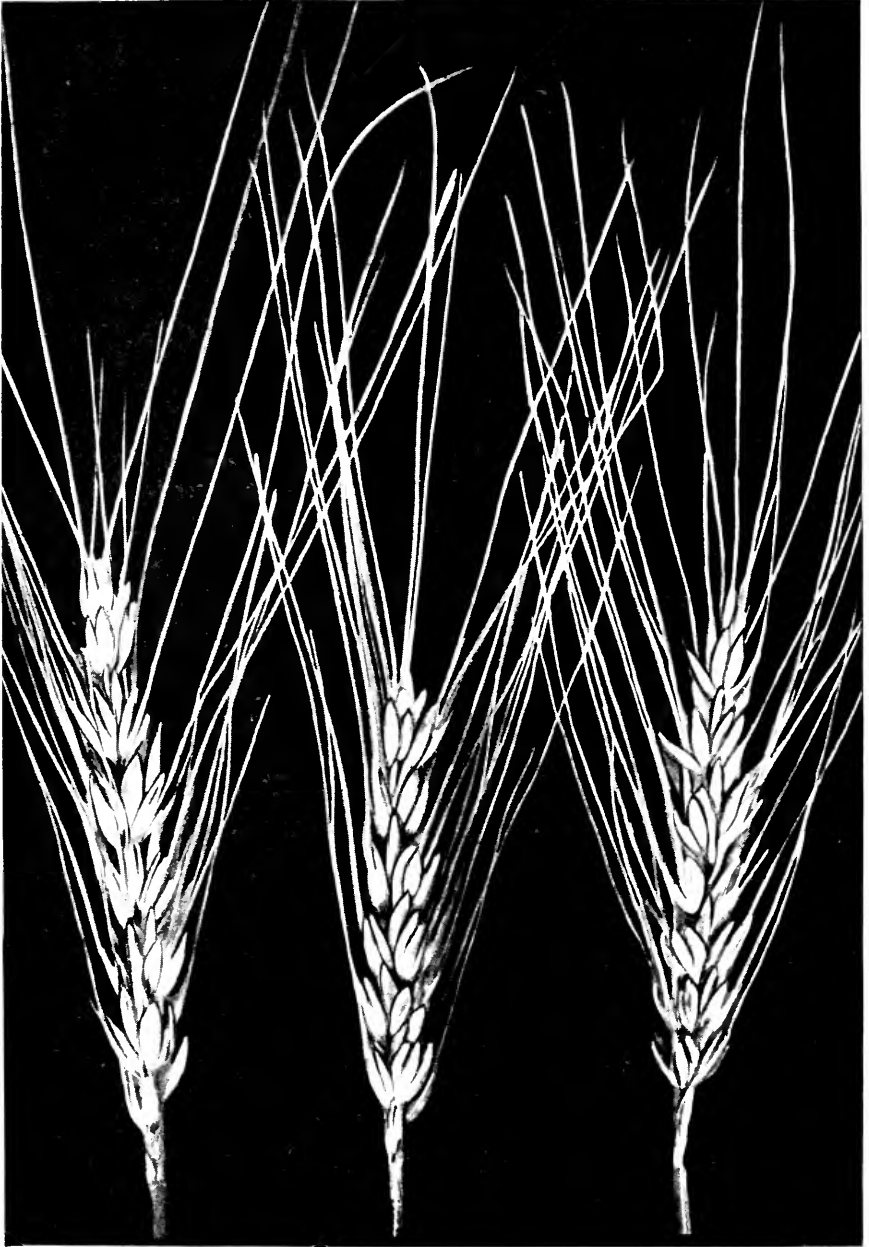


FIG. 1.—TYPICAL HEADS OF TURKEY RED

This type of wheat gave the highest average yield among the varieties tested at Urbana for three or more years

yields. The average yields in bushels per acre of four tests of each variety were as follows:

Petkus winter rye	55.5
Wisconsin Pedigree rye	47.0
Michigan winter barley	0.0

CENTRAL ILLINOIS

TESTS AT URBANA, IN CHAMPAIGN COUNTY

Wheat.—The variety trials of wheat on the Urbana field were begun in 1904. The results reported have been obtained from a rotation of wheat, corn, oats, and clover.



FIG. 2.—DAWSON'S GOLDEN CHAFF
A desirable smooth wheat for central Illinois

TABLE 3.—AVERAGE YIELDS OF WINTER WHEAT GROWN AT URBANA, AND PERCENTAGE RATING USING TURKEY RED AS A STANDARD (Bushels per acre)

Variety	1904	1905	1906	1907	1908	1909	1910	1911	1913	1914	1915	1916	Per-centage rating
Turkey Red.....	32.2	30.0	46.6	49.0	43.8	41.4	42.2	51.1	40.9	39.4	49.6	43.0	100.0
Hungarian.....	18.9	29.0	36.0	43.5	46.0	36.0	38.8	48.6	50.8	34.7	52.8	40.9	93.5
Indiana Swamp.....	12.8	28.7	37.0	45.2	43.2	28.2	32.7	50.4	59.0	36.0	48.1	33.5	89.3
Dawson's Golden Chaff.....	16.5	25.1	36.4	46.8	39.1	36.8	...	50.8	56.0	37.2	52.6	37.2	93.1
Beloglina.....	...	30.8	37.0	39.5	41.4	37.7	44.3	48.4	38.0	43.4	43.8	40.4	93.2
K. B. 2.....	...	22.3	40.5	39.2	36.0	40.3	34.0	44.2	42.3	43.5	44.2	32.5	87.8
Red Hussar.....	...	24.0	40.7	43.7	37.4	40.5	31.8	47.7	36.1	36.9	51.0	26.3	87.2
Wheehling.....	15.2	25.5	40.2	39.0	41.7	35.5	28.8	52.0	52.0	26.6	...	...	85.6
Pesterboden.....	...	...	41.1	43.3	44.2	39.0	31.8	48.8	42.8	44.1	47.6	35.3	93.5
Malakoff.....	31.4	27.7	46.4	45.0	...	...	...	47.3	43.3	44.0	44.4	48.4	99.0
Rudy.....	12.7	27.9	38.2	44.3	45.3	40.5	17.3	...	...	...	...	26.2	76.9
Kharkof (U. S. 11603).....	...	...	39.1	43.5	43.0	37.8	43.0	49.0	51.3	...	...	...	93.2
Fultz.....	...	...	...	...	43.7	40.8	26.2	48.5	43.2	...	...	...	95.9
Gold Coin.....	...	...	...	...	...	...	35.3	43.0	...	33.1	...	...	89.0
Red Cross.....	...	...	...	...	...	...	...	...	...	45.4	42.0	41.2	97.4
Padi.....	...	...	35.2	32.2	29.0	...	...	...	...	...	...	...	69.2
Satisfaction.....	13.8	24.3	...	...	...	...	...	...	...	...	...	...	61.3
Jones Longberry.....	10.4	26.6	...	...	...	...	...	...	...	...	...	...	59.5
Economy.....	...	...	...	...	...	45.2	33.8	...	...	...	...	...	94.5
Turkey Hybrid 509.....	...	...	...	...	...	...	...	...	...	...	57.5	48.9	114.9
Dawson's Golden Chaff 9-225.....	...	...	...	...	...	...	...	...	...	...	54.7	41.2	103.6
Turkey Hybrid 402.....	...	...	...	...	...	...	...	...	...	...	52.5	33.1	92.4
European.....	11.9	...	...	...	...	...	...	...	...	...	...	...	37.0
Poole.....	7.8	...	...	...	...	...	...	...	...	...	...	...	24.2
Minnesota Reliable.....	...	...	...	...	...	...	...	...	...	...	...	44.0	102.3
Wisconsin 18.....	...	...	...	...	...	...	...	...	...	...	...	43.8	101.9
World's Champion.....	...	...	...	...	...	...	...	...	...	...	...	38.6	89.8
Red Wave.....	...	...	...	...	...	...	...	...	...	...	...	38.2	88.8
Gypsy.....	...	...	...	...	...	...	...	...	...	...	...	34.5	80.2
Mediterranean.....	...	...	...	...	...	...	...	...	...	...	...	28.8	67.0
Marvelous.....	...	...	...	...	...	...	...	...	...	...	...	22.8	53.0
Miracle.....	...	...	...	...	...	...	...	...	...	...	...	15.0	34.9

TABLE 4.—COMPARABLE AVERAGE YIELDS OF VARIETIES OF WINTER WHEAT GROWN AT URBANA USING TURKEY RED AS A STANDARD
(Bushels per acre)

Varieties	Total number of tests	Number of years compared	Years on which comparison is based	Average yields
Turkey Red.....	63	12	1904-1911, 1913-1916	42.4
Hungarian.....	27	12	" " " "	39.7
Indiana Swamp.....	32	12	" " " "	37.9
Turkey Red.....	55	11	1904-1909, 1911, 1913-1916	42.5
Dawson's Golden Chaff.....	28	11	" " " " "	39.5
Turkey Red.....	62	11	1905-1911, 1913-1916	43.4
Beloglina.....	25	11	" " " "	40.4
K. B. 2.....	26	11	" " " "	38.1
Red Hussar.....	25	11	" " " "	37.8
Turkey Red.....	51	10	1904-1911, 1913, 1914	41.7
Wheedling.....	14	10	" " " "	35.6
Turkey Red.....	58	10	1906-1911, 1913-1916	44.7
Pesterboden.....	24	10	" " " "	41.8
Turkey Red.....	47	9	1904-1907, 1911, 1913-1916	42.4
Malakoff.....	26	9	" " " " "	42.0
Turkey Red.....	31	8	1904-1910, 1916	41.0
Rudy.....	15	8	" " " "	31.5
Turkey Red.....	26	6	1906-1911	45.7
Kharkof (U. S. 11603).....	8	6	" "	42.6
Turkey Red.....	32	5	1908-1911, 1913	43.9
Fultz.....	8	5	" " "	42.1
Turkey Red.....	32	4	1910, 1911, 1913, 1914	43.4
Gold Coin.....	8	4	" " " "	38.6
Turkey Red.....	24	3	1914-1916	44.0
Red Cross.....	14	3	" "	42.9
Turkey Red.....	6	3	1906-1908	46.5
Padi.....	3	3	" "	32.1
Turkey Red.....	5	2	1904, 1905	31.1
Satisfaction.....	2	2	" "	19.0
Jones Longberry.....	2	2	" "	18.5
Turkey Red.....	12	2	1909, 1910	41.8
Economy.....	3	2	" "	39.5
Turkey Red.....	16	2	1915, 1916	46.3
Turkey Hybrid 509.....	12	2	" "	53.2
Dawson's Golden Chaff 9-225..	12	2	" "	47.9
Turkey Hybrid 402.....	12	2	" "	42.8
Turkey Red.....	1	1	1904	32.2
European.....	1	1	"	11.9
Poole.....	1	1	"	7.8
Turkey Red.....	8	1	1916	43.0
Minnesota Reliable.....	8	1	"	44.0
Wisconsin 18.....	8	1	"	43.8
World's Champion.....	8	1	"	38.6
Red Wave.....	8	1	"	38.2
Gypsy.....	8	1	"	34.5
Mediterranean.....	8	1	"	28.8
Marvelous.....	8	1	"	22.8
Miracle.....	8	1	"	15.0

The complete data are shown in Table 3, and a summary is given in Table 4. There are no data for 1912, as the wheat was winter-killed that year. All varieties are compared with Turkey Red, which has been in the trials from the beginning of these studies. This method of tabulation renders it possible to make a direct comparison of any given group of tests.

Turkey Red, Malakoff, Fultz, Hungarian, Pesterboden, Beloglina, Kharkof, and Dawson's Golden Chaff are the leading varieties of wheat for central Illinois. These varieties have been in the trials for five or more years. There are other promising strains which have been under investigation for a shorter period. Turkey Hybrid 509, developed by the division of plant breeding of the Illinois Experiment Station under the direction of Dr. L. H. Smith, is notable among these. Attention is called to Dawson's Golden Chaff 9-225, which was also developed by Dr. Smith. Red Cross is another promising variety.

SOUTHERN ILLINOIS

TESTS AT FAIRFIELD, IN WAYNE COUNTY

Wheat.—Tests with winter wheat were begun on the Fairfield experiment field in southern Illinois in 1906.

A summary of the results of the tests at Fairfield from 1906 to 1916 appears in Tables 5 and 6. There are no data for 1909, when the wheat was winter-killed. The low yields in 1906 are attributed to the low fertility of the soil, and those in 1915 to a severe hail storm which occurred on June 20.

On a percentage basis, using Fulcaster as the standard for comparison, the following in the order named, have given the highest yields for a minimum of three years: Fulcaster, Economy, Wheedling, Indiana Swamp, Harvest King, Missouri Pride, Rudy, and Poole. It should be noted, however, that if the extremely variable results of 1916 be discarded, then Economy, Wheedling, and Missouri Pride all rank above Fulcaster, while Harvest King takes nearly equal rank.

It will be observed by looking over Table 5 that the hard wheats, such as Turkey Red, Kharkof, and some other varieties which yield the best in central and northern Illinois, do not yield as well as the softer varieties in southern Illinois. Not only are they lower in yield than the softer varieties, but their quality is very inferior. The kernels are nearly always shrivelled or chaffy, and the poor condition of the plants themselves makes it evident that the hard wheats are not adapted to southern Illinois.



FIG. 3.—HARVEST KING
A leading variety for southern Illinois

TABLE 5.—AVERAGE YIELDS OF VARIETIES OF WINTER WHEAT GROWN AT FAIRFIELD, AND PERCENTAGE RATING USING FULCASTER AS A STANDARD (Bushels per acre)

Variety	1906	1907	1908	1910	1911	1912	1913	1914	1915	1916	Per-centage rating
Fulcaster.....	3.0	16.3	16.2	33.3	15.7	12.4	17.0	17.0	6.3	22.1	100.0
Wheedling.....	6.9	16.1	12.1	30.3	21.6	13.3	21.8	20.7	2.5	0.0	91.2
Harvest King....	3.5	16.8	13.8	33.9	17.7	13.0	18.4	16.0	3.2	6.2	89.9
Dawson's Golden Chaff.....	3.4	13.2	17.0	22.4	11.0	14.1	16.5	15.7	...	...	86.6
Indiana Swamp...	2.2	14.5	...	25.8	17.1	14.8	15.4	14.4	...	...	90.9
Economy.....	..	...	...	35.1	18.2	13.6	19.7	19.6	3.9	8.0	95.5
Missouri Pride....	..	...	...	34.7	20.6	10.5	22.1	20.1	2.8	0.0	89.3
Red Hussar.....	2.6	11.4	...	...	...	19.0	10.7	9.8	...	...	81.7
Fultz.....	..	...	11.5	...	...	11.3	16.5	...	...	...	86.2
Rudy.....	2.9	16.5	...	...	...	...	...	...	...	17.5	89.1
Poole.....	6.2	16.0	...	...	...	...	...	...	...	13.8	87.0
Malakoff.....	2.2	8.5	13.0	...	...	...	...	...	...	...	66.9
Theiss (U.S. 12004)	1.2	6.6	6.3	...	...	...	...	...	...	...	39.8
Hungarian.....	..	...	...	...	...	15.7	12.4	10.4	...	...	82.6
Kharkof.....	..	...	...	...	...	11.2	7.5	8.6	...	...	58.7
Jersey Fultz.....	..	...	...	...	...	...	...	18.6	4.2	9.5	71.5
K. B. 2.....	4.6	10.2	...	...	...	...	...	...	...	...	76.3
Turkey Red.....	1.5	11.0	...	...	...	...	...	...	...	...	64.9
Pesterboden.....	..	...	...	...	...	11.5	10.6	...	...	...	75.5
Beloglina.....	..	...	...	...	...	8.4	8.5	...	...	...	57.8
Nigger.....	..	...	...	...	...	...	...	18.0	5.5	...	100.0
Gypsy.....	..	...	...	...	...	...	...	...	5.4	20.2	90.1
Red Cross.....	..	...	...	...	...	...	...	...	3.9	11.2	53.5
Mediterranean....	..	...	...	...	...	...	...	...	5.9	0.0	21.1
Miracle.....	..	...	...	...	...	...	...	...	5.2	0.0	18.3
Miller's Pride....	7.2	...	...	...	...	...	...	...	...	...	...
Red Wave.....	..	...	...	...	...	...	...	...	2.0	...	...
Harvest Queen....	..	...	...	...	...	...	...	...	...	19.7	...
Early Red Clawson.	..	...	...	...	...	...	...	...	...	12.5	...
Marvelous.....	..	...	...	...	...	...	...	...	...	11.8	...
Turkey Hybrid 509	..	...	...	...	...	...	...	...	...	11.2	...
Worley's Smooth.	..	...	...	...	...	...	...	...	...	0.0	...
St. Louis Prize Winner.....	..	...	...	...	...	...	...	...	1.3	...	...

TESTS AT CUTLER, IN PERRY COUNTY

Wheat.—The earliest variety tests of wheat were started at Cutler, in Perry County, in 1902. In 1907, one year after the regular crop field was started at Fairfield, the Cutler trials were discontinued. The first report of the Cutler variety trials was published in Bulletin 121 of this station. The results are summarized in Tables 7 and 8.

Rye, Barley, Emmer, and Oats.—In the fall of 1915 tests were begun with rye, barley, emmer, and oats, all as winter crops. While these tests have been conducted for only one year, the results are of much interest. Winter rye withstood winter-killing better than

TABLE 6.—COMPARABLE AVERAGE YIELDS OF VARIETIES OF WINTER WHEAT GROWN AT FAIRFIELD USING FULCASTER AS A STANDARD (Bushels per acre)

Variety	Total No. of tests	No. of years compared	Years on which comparison is based	Average yield
Fulcaster.....	76	10	1906-1916, except 1909	15.9
Wheedling.....	40	10	" " " "	14.5
Harvest King.....	40	10	" " " "	14.3
Fulcaster.....	52	8	1906-1914, except 1909	16.4
Dawson's Golden Chaff.....	28	8	" " " "	14.2
Fulcaster.....	44	7	1906-1914, except 1908, 1909	16.4
Indiana Swamp.....	24	7	" " " "	14.9
Fulcaster.....	64	7	1910-1916	17.7
Economy.....	32	7	" "	16.9
Missouri Pride.....	32	7	" "	15.8
Fulcaster.....	28	5	1906, 1907, 1912, 1913, 1914	13.1
Red Hussar.....	16	5	" " " " " "	10.7
Fulcaster.....	24	3	1908, 1912, 1913	15.2
Fultz.....	12	3	" " "	13.1
Fulcaster.....	20	3	1906, 1907, 1916	13.8
Rudy.....	12	3	" " "	12.3
Poole.....	12	3	" " "	12.0
Fulcaster.....	12	3	1906, 1907, 1908	11.8
Malakoff.....	8	3	" " "	7.9
Theiss (U. S. 12004).....	8	3	" " "	4.7
Fulcaster.....	24	3	1912, 1913, 1914	15.5
Hungarian.....	12	3	" " "	12.8
Kharkof.....	10	3	" " "	9.1
Fulcaster.....	32	3	1914, 1915, 1916	15.1
Jersey Fultz.....	16	3	" " "	10.8
Fulcaster.....	4	2	1906, 1907	9.7
K. B. 2.....	4	2	" "	7.4
Turkey Red.....	4	2	" "	6.3
Fulcaster.....	16	2	1912, 1913	14.7
Pesterboden.....	8	2	" "	11.1
Beloglina.....	8	2	" "	8.5
Fulcaster.....	16	2	1914, 1915	11.7
Nigger.....	8	2	" "	11.8
Fulcaster.....	24	2	1915, 1916	14.2
Gypsy.....	12	2	" "	12.8
Red Cross.....	12	2	" "	7.6
Mediterranean.....	12	2	" "	3.0
Miracle.....	12	2	" "	2.6

winter wheat, and yielded much more per acre. Winter oats did not survive the winter of 1915-1916. No indication of winter-killing was observed with the winter barley.

Winter emmer produced, during this one-year test, 52 bushels per acre. Since emmer is valuable as a feeding crop, it would seem that there may be a place for it in southern Illinois. In a number of feeding tests emmer has been found nearly, if not quite, equal to barley and oats for sheep and cattle,

TABLE 7.—AVERAGE YIELDS OF VARIETIES OF WINTER WHEAT GROWN AT CUTLER, AND PERCENTAGE RATING USING FULCASTER AS A STANDARD (Bushels per acre)

Variety	1902	1903	1904	1905	1906	1907	Per-centage rating
Fulcaster (home-grown).....	16.4	9.0	15.0	12.8	21.9	23.7	100.0
Harvest King (home-grown).....	16.3	14.8	15.6	11.5	20.6	17.7	97.7
Red Fultz (home-grown).....	15.3	7.7	15.3	12.6	21.9	18.3	92.2
Eclipse (home-grown).....	16.8	5.4	13.7	10.7	22.9	20.2	90.8
Harvest King (Indiana).....	10.9	10.5	13.8	11.6	22.5	18.5	88.9
Hybrid Beechwood.....	11.9	9.0	12.8	11.0	22.7	18.3	86.7
European.....	11.6	6.4	13.3	11.0	19.2	20.4	82.9
Harvest King (Michigan).....	14.3	5.5	12.7	...	...	...	80.4
Poole.....	12.1	5.2	13.6	...	...	...	76.5
Jones Longberry (home-grown)	16.0	4.3	10.3	...	...	...	75.7
Dawson's Golden Chaff (Michigan)...	11.4	6.3	11.2	...	...	...	71.5
Fultz (Tennessee).....	10.2	4.0	11.8	...	...	...	64.3
Fultzo-Mediterranean.....	12.5	1.7	11.4	...	...	...	63.4
Indiana Swamp.....	11.0	3.2	11.3	...	...	...	63.1
Jones Longberry (Indiana).....	6.0	3.5	8.8	...	...	...	45.3
Beardless Rural New Yorker.....	...	...	...	9.3	18.2	18.0	77.9
K. B. 2.....	...	...	...	8.7	15.6	16.8	70.4
Turkey Red.....	...	...	11.4	9.0	13.8	...	68.8

TABLE 8.—COMPARABLE AVERAGE YIELDS OF VARIETIES OF WINTER WHEAT GROWN AT CUTLER USING FULCASTER AS A STANDARD (Bushels per acre)

Variety	Number of years compared	Years on which comparison is based	Average yield
Fulcaster (home-grown).....	6	1902-1907	16.5
Harvest King (home-grown).....	6	" "	16.1
Red Fultz (home grown).....	6	" "	15.2
Eclipse (home-grown).....	6	" "	14.9
Harvest King (Indiana).....	6	" "	14.6
Hybrid Beechwood	6	" "	14.3
European.....	6	" "	13.6
Fulcaster (home-grown).....	3	1902-1904	13.5
Harvest King (Michigan).....	3	" "	10.8
Poole.....	3	" "	10.3
Jones Longberry (home-grown).....	3	" "	10.2
Dawson's Golden Chaff (Michigan)...	3	" "	9.6
Fultz (Tennessee).....	3	" "	8.7
Fultzo-Mediterranean.....	3	" "	8.5
Indiana Swamp.....	3	" "	8.5
Jones Longberry (Indiana).....	3	" "	6.3
Fulcaster (home-grown).....	3	1905-1907	19.5
Beardless Rural New Yorker.....	3	" "	15.2
K. B. 2.....	3	" "	13.7
Fulcaster (home-grown).....	3	1904-1906	16.6
Turkey Red.....	3	" "	11.4

The yields of these winter grains in 1916 were as follows:

Wisconsin Pedigree rye	43.4	Michigan winter barley	17.5
Wing's Black rye	46.8	Winter emmer	52.0 ¹
Salzer's winter barley	22.7	Winter oats	0.0

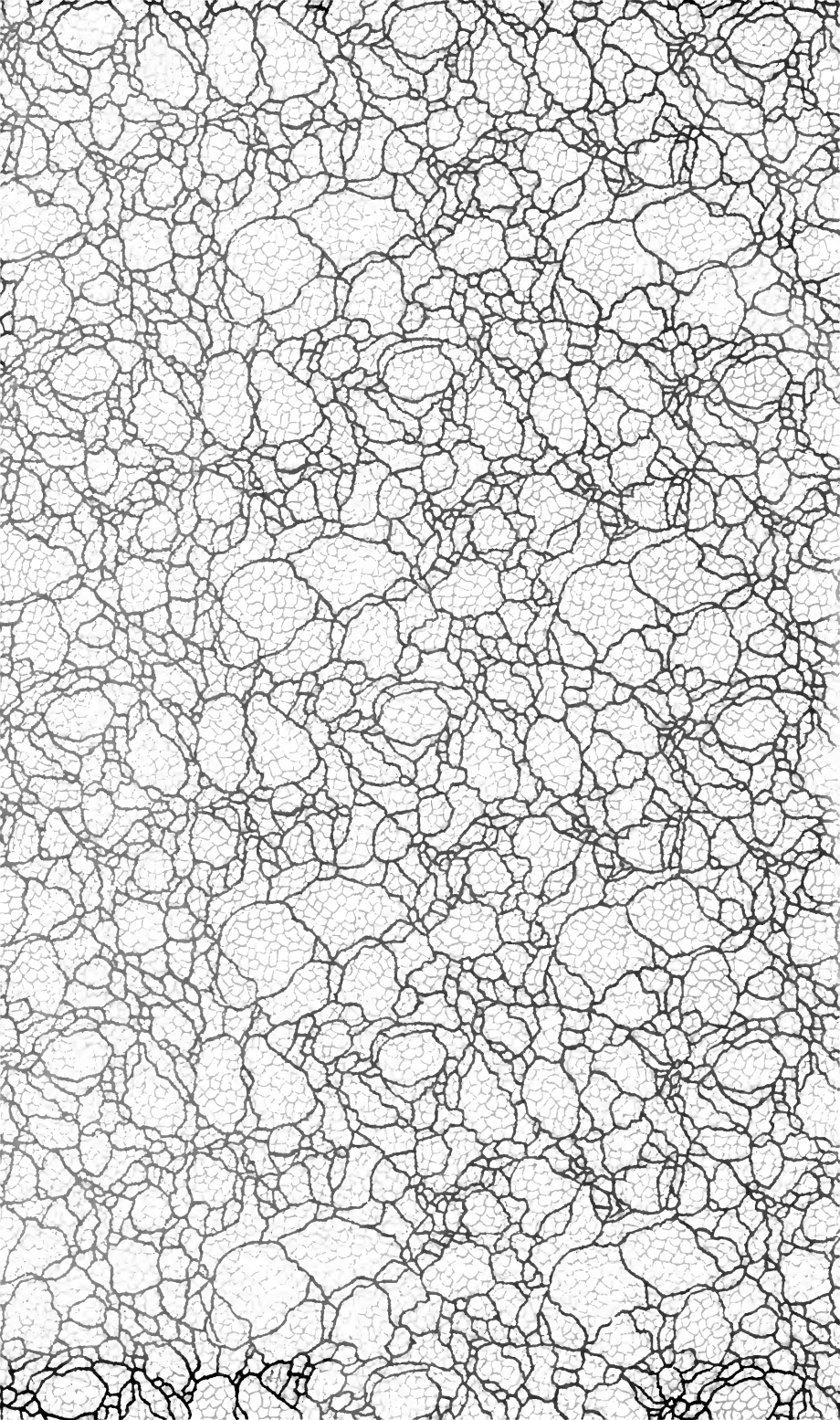
¹Based on 30 pounds to the bushel (see U. S. Farmers' Bulletin 466, page 12).

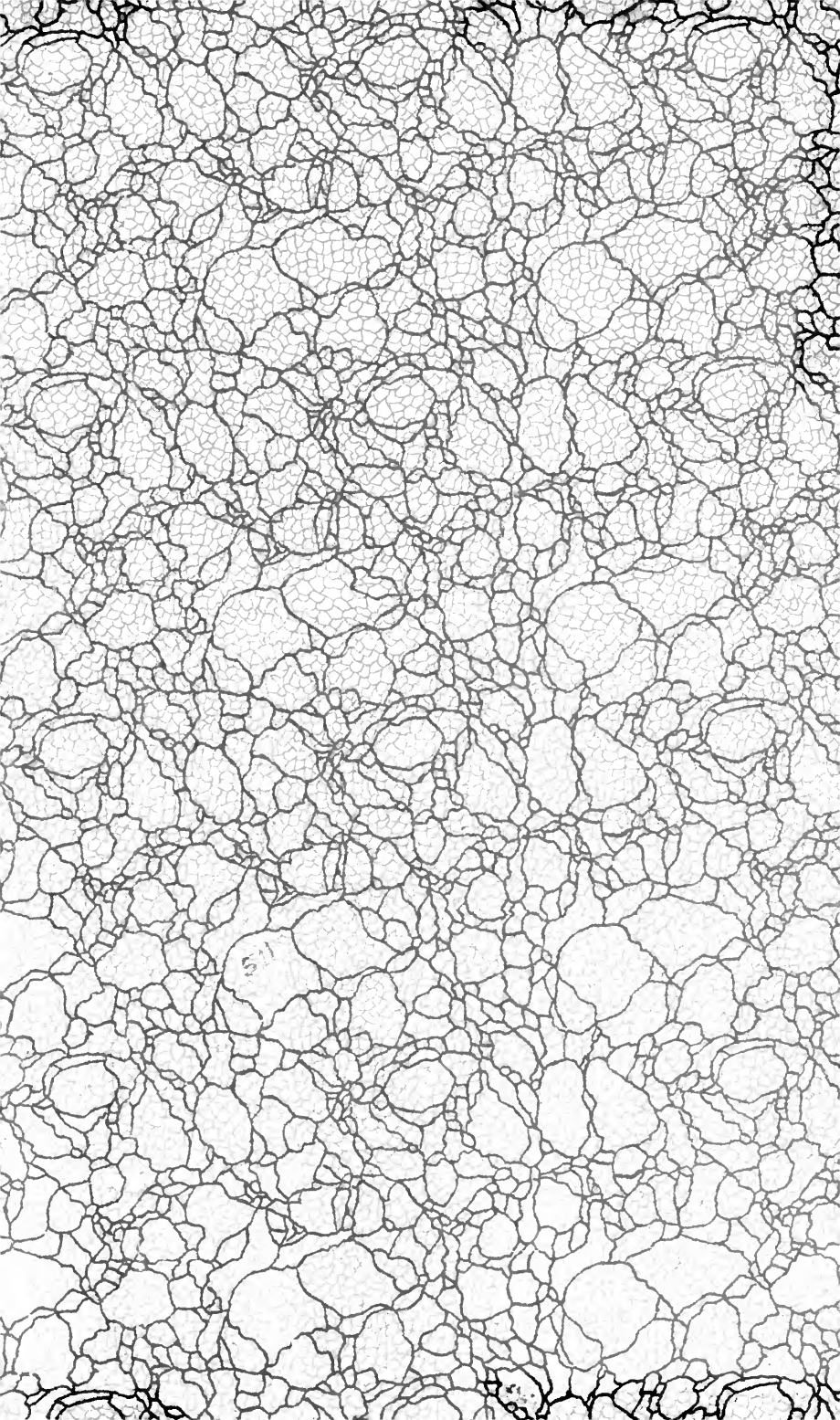
TABLE 9.—CHARACTERISTICS OF VARIETIES OF WINTER WHEAT TESTED AT DEKALB, URBANA, AND FAIRFIELD

Variety	Origin of strain	Bearded or smooth	Color of glume	Color of kernel	Hard or soft	Remarks
Beloglina.....	Russia	Bearded	White	Red	Hard	Weak straw
Canadian Hybrid.....	America	Smooth	Silver	Amber	Soft	Coarse straw
Dawson's Golden Chaff.....	Canada	Smooth	Red	White	Soft	Vigorous, stiff straw
Dawson's Golden Chaff 9-211.	Illinois	Smooth	Red	White	Soft	Vigorous, stiff straw
Dawson's Golden Chaff 9-225.	Illinois	Smooth	Red	White	Soft	Fairly stiff straw
Early Red Clawson.....	America	Smooth	Red	Red	Soft	Likely to lodge
Economy.....	America	Smooth	White	Red	Semi-hard	Fairly stiff straw
Fulcaster.....	America	Bearded	White	Red	Soft	Vigorous grower, likely to lodge
Fultz.....	America	Smooth	White	Red	Soft	Medium stiff straw
Gold Coin.....	America	Smooth	Red	White	Soft	Likely to lodge
Gypsy.....	America	Bearded	White	Red	Soft	Strong straw
Harvest King.....	America	Smooth	Red	White	Soft	Weak straw
Harvest Queen.....	Hungary	Smooth	White	Red	Hard	Medium stiff straw
Hungarian.....	America	Bearded	White	Red	Semi-hard	Rather weak straw
Indiana Swamp.....	America	Bearded	White	Red	Soft	Medium stiff straw
Jersey Fultz.....	America	Smooth	White	White	Soft	Rather weak straw
Jones Longberry.....	America	Bearded	Red	White	Soft	Medium stiff straw
K. B. 2.....	America	Smooth	White	Red	Soft	
Kharkof.....	Russia	Bearded	White	Red	Hard	
Kharkof U. S. 11603.....	Kansas	Bearded	White	Red	Hard	
Malakoff.....	Russia	Bearded	White	Red	Hard	Rather short, weak straw, but stronger than Turkey Red
Malakoff 5-458.....	Illinois	Bearded	White	Red	Hard	
Marvelous.....	America	Bearded	White	Red	Hard	
Mediterranean.....	Mediterranean Islands	Bearded	Red	Red	Soft	Rather weak straw
Minnesota Reliable.....	America	Bearded	Red	Red	Hard	Stiff straw
Missouri Pride.....	Illinois	Smooth	White	Red	Soft	Medium stiff straw
Native.....	Illinois	Bearded	White	Red	Soft	
Nigger.....	America	Bearded	White	Amber	Soft	
Padi.....	Russia	Smooth	White	Red	Hard	
Pesterboden.....	Hungary	Bearded	White	Red	Hard	Small straw, rather weak

TABLE 9.—*Concluded*

Variety	Origin of strain	Bearded or smooth	Color of glume	Color of kernel	Hard or soft	Remarks
Poole.....		Smooth	Red	Red	Soft	Likely to lodge
Red Cross.....	America	Smooth	White	Amber	Semi-soft	Medium stiff straw
Red Hussar.....		Bearded	White	Red	Hard	Weak straw
Red Russian.....	America	Smooth	Red	Red	Soft	Fairly stiff straw
Red Wave.....	America	Smooth	Red	Red	Soft	
Rudy.....	America	Bearded	White	Red	Soft	Medium stiff straw
Salzer's Hardy Northern.....	America	Bearded	Red	Red	Hard	
St. Louis Prize Winner.....	America	Smooth	Red	Red	Soft	
Theiss (U. S. 12004).....	Hungary	Bearded	Red	Red	Hard	Lodges
Turkey Hybrid 402.....	Illinois	Bearded	Red	White	Soft	Medium tall, medium stiff straw
Turkey Hybrid 509.....	Illinois	Smooth	White	White	Soft	
Turkey Red.....	Russia	Bearded	White	Red	Hard	Rather small, short, medium stiff straw
Turkey 9-233.....	Illinois	Bearded	White	Red	Hard	Short, fine, weak straw
Turkey Red, Native.....	Illinois	Bearded	White	Red	Hard	
Wheedling.....	America	Smooth	White	Red	Soft	
Wheedling 5-464.....	Illinois	Smooth	White	Red	Soft	
Wisconsin 18.....	America	Bearded	White	Red	Hard	
World's Champion.....	America	Bearded	White	Red	Hard	
Worley's Smooth.....	Illinois	Smooth	White	Red	Hard	





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