

Wheat Varietal Surveys

North Dakota - 1949

By J. Allen Clark¹

The North Dakota Agricultural Experiment Station is especially pleased to print this contribution from Mr. J. Allen Clark. Mr. Clark graduated from the North Dakota Agricultural College in 1910. He served as a scientific assistant at the Dickinson Substation from 1911 to 1914 and since 1914 has successively been assistant agronomist and senior agronomist in charge of Western Wheat Investigations in the Division of Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture.

He is the senior author of several important national publications on varieties of wheat, published by the U. S. Department of Agriculture, among which are the following:

- U.S.D.A. Bulletin 1074 "Classification of American Wheat Varieties" (with J. H. Martin and C. R. Ball) 1922.
- Tech. Bulletin No. 459 "Classification of Wheat Varieties Grown in the United States" (with B. B. Bayles) 1935.
- Tech. Bulletin No. 795 "Classification of Wheat Varieties Grown in the United States in 1939" (with B. B. Bayles).
- U.S.D.A. Circ. 424 "Distribution of the Varieties of and Classes of Wheat in the United States in 1934" (with K. S. Quisenberry).

This contribution to the Bimonthly Bulletin brings the variety survey down to 1949, it being the seventh such national survey conducted. Mr. Clark has been active in the promotion of the national plan for the registration of standard varieties ever since the cooperative plan between the American Society of Agronomy and the Bureau of Plant Industry was adopted in 1923. His contributions on the Registration of Improved Wheat Varieties have appeared annually in the Journal of the American Society of Agronomy.—(H. L. Walster, Director).

The United States Department of Agriculture has made wheat varietal surveys at five-year intervals in census years starting with the 1919 crop. The harvested acreages, as reported by the regular and special agricultural census, were used for the first four surveys, but for the last three the preliminary seeded wheat acreage estimates of the Crop Reporting Board, Bureau of Agricultural Economics were used. The 1949 survey is the seventh and most recent one made.²

Questionnaires were sent from the state offices of the Division of Agricultural Statistics of the Bureau of Agricultural Economics to wheat growing farmers. About 100,000 questionnaires listing

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²Dr. L. R. Waldron, Experiment Station wheat breeder, has analyzed the nearly 18 million acres of hard red spring wheat grown in the nation in 1949, as shown in J. Allen Clark's survey. Dr. Waldron, breaking down this acreage according to variety and source, notes that 1 per cent of that vast acreage represents varieties developed in Wisconsin, 1 per cent miscellaneous, 7 per cent USDA, 14 per cent Canadian, 21 per cent Minnesota, and 56 per cent of that acreage in varieties developed at the North Dakota station. This 56 per cent includes Ceres, Komar, Vesta, Premier, Rival and Mida.

Table 1. ESTIMATED PERCENTAGE OF THE WHEAT ACREAGE OCCUPIED BY THE CLASSES AND VARIETIES OF WHEAT GROWN IN NORTH DAKOTA AT 5-YEAR INTERVALS SINCE 1919 AND THE ACREAGE IN 1944 AND 1949.

State, Class and Variety	Percentage							Acreage	
	1919	1924	1929	1934	1939	1944	1949	1944	1949
North Dakota.....								(715)	(1627)
Hard Red Spring	69.8	67.5	60.1	77.9	68.9	82.3	72.1	8,361,179	7,679,229
Mida.....						2	31.8	18,425	3,387,294
Thatcher.....				(*)	41.6	26.4	14.0	2,680,753	1,493,560
Rival.....					(*)	25.8	9.9	2,617,083	1,054,033
Cadet.....							5.1		542,997
Regent.....						9.8	2.3	995,776	248,100
Rescue.....							2.0		218,129
Pilot.....					(*)	7.0	1.8	708,130	187,422
Newthatch.....							1.5		156,344
Premier.....						.3	1.2	25,833	121,920
Vesta.....						3.7	.6	373,795	67,158
Ceres.....			3.0	34.0	20.3	2.7	.6	275,773	59,893
Redman.....							.5		47,095
Henry.....							.2		24,865
Supreme.....							.2		21,044
Marquis.....	47.0	52.9	52.6	39.4	3.0	.1	.2	11,480	20,921
Renown.....					.6	4.5	.1	456,497	10,523
Reward.....			(*)	1.5	1.2	.9	.1	89,496	9,644
Apex.....					(*)	.2	(*)	21,145	5,155
Rushmore.....							(*)		2,088
Carleeds.....					1.0	.2	(*)	23,912	1,044
Great Northern.....					.1	.2		23,047	
Marvel.....			(*)	.1	.3	(*)		1,620	
Progress.....			.1	.2	.1	(*)		1,504	
Marquillo.....				(*)	.2	(*)		1,414	
Preston.....	8.4	2.7	1.4	.9	.1	(*)		1,100	
Kota.....		4.9	.8	.4		(*)		825	
Durum & Red Durum	29.8	32.3	39.0	21.7	31.0	17.7	27.8	1,797,409	2,953,869
Stewart.....						2	10.4	12,389	1,107,441
Mindum.....			3.0	4.0	8.2	6.0	8.0	612,189	852,497
Carleton.....						.1	4.4	6,113	467,264
Kubanka.....	.3	5.3	6.9	6.9	5.0	1.6	2.3	163,435	240,719
Pentad (Red Durum).....	.4	2.7	4.3	1.7	4.1	1.5	2.1	148,958	220,932
(Varieties not reported).....	28.7	22.5	23.3	8.9	13.5	8.3	.5	846,267	50,097
Vernum.....							.1		10,983
Arnautka.....			.1	(*)	.1		(*)		3,936
Acme.....	(*)	.1	.1	(*)		(*)	(*)	436	
Hard Red Winter4	.2	.2	.2	.1	(*)	.1	2,566	7,314
Turkey.....	.4	.2	.2	.1	.1	(*)	.1	2,552	6,270
Marmin.....							(*)		1,044
White.....		(*)	.7	.2	(*)	(*)		846	
Florence.....		(*)	.7	.2	(*)	(*)		840	
Others and not reported.....	14.8	8.7	3.5	1.7	.5	.3	(*)	41,213	2,588
TOTAL								10,162,000	10,643,000

(Figures in parentheses opposite the name of the state, under "acreage," show the number of reports used in computing the data for each survey. The asterisk (*) indicates a variety reported as grown, but an estimate of acreage either was not given or if given was less than 0.1 per cent of the total acreage of the state. The item "Others and not identified" is included in the total for classes).

Table 2. ESTIMATED PERCENTAGES OF THE WHEAT ACREAGE BY CLASSES AND VARIETIES FOR THE CROP REPORTING DISTRICTS OF NORTH DAKOTA IN 1949.

Class and Variety	Crop Reporting Districts								
	N. W.	N. C.	N. E.	W. C.	C.	E. C.	S. W.	S. C.	S. E.
	1	2	3	4	5	6	7	8	9
Hard Red Spring	86.3	49.0	43.6	92.5	61.4	78.0	97.0	91.1	70.6
Mida	26.8	18.9	24.4	22.9	27.3	62.9	42.4	34.2	39.6
Thatcher	36.3	8.9	2	32.4	1.8	5	17.2	29.3	3
Rival	3.3	13.8	7.9	1.4	25.9	10.9	1.1	5	22.5
Cadet	2.9	1.5	1.5	15.3	4	2.2	14.6	10.1	2.3
Regent	5	4	6.1	1.3	2	5.3	7.2	8	
Rescue	8.8	1.3	1	3.9	9	1.1			
Pilot	1.2	1.6	2.6	9		8.3	1.8	7	
Newthatch	2.2	1.8	7	2.2	1.4	2.4	1.8	7	
Premier	2	5.6		7	4		1	1.0	
Vesta	1.7		1.3			2.3	3		
Ceres	1.2	3	1.1	2	1	1.3	3	6	
Redman	2	9	3	2	5	7	3	8	
Henry			1.5			1	7	2	
Supreme	7	3	3	1					
Marquis	1	2	5	4		1			
Renown	2	2				3	1		
Reward		2	4						2
Apex			5						
Rushmore									2
Carleeds									1
Durum	13.5	50.8	56.4	7.5	38.6	22.0	3.0	8.9	29.0
Stewart	3.4	19.8	21.2	3.3	9.9	15.7	1	3	11.0
Mindum	1.6	17.1	23.5	6	6.9	3.1		1.4	7.7
Carleton	2.4	7.4	6.4	6	10.8	2.2		1.0	6.9
Kubanka	7	2.7	3.3	8	9.4	4		8	1.5
Pentad	4.4	3.1	1.0	2.2	1.6	3	2.9	1.9	4
(Varieties not reported)	3	5	1.0					8	5
Vernum	7								
Arnautka						3			1
Hard Red Winter	2								4
Turkey	2								3
Marmm									1
Acres ¹	1,569	1,294	1,716	1,031	1,071	964	1,061	893	1,044

¹1,000 omitted.

the leading varieties grown in each state or region by commercial classes were sent out and satisfactory returns were received. Space was provided for each grower to report the seeded acreage of each variety of wheat grown on his farm in 1949.

From acreages for each variety reported sown in each county and crop reporting district, the percentages of each variety were determined. The total seeded acreage, as reported by the Bureau of Agricultural Economics, for each crop reporting district was then broken down according to these percentages. The results give the estimated acreage for each variety and class by counties, crop reporting districts, and state.

North Dakota was the second largest wheat growing state with 10,643,000 acres seeded in 1949, being exceeded only by Kansas which had 15,805,000 acres for the same year. The estimated acreage in 1949 and 1944 and the percentage of the total wheat

acreage occupied by each variety at five-year intervals, starting in 1919, are shown for North Dakota in Table 1. The acreages are determined from percentages for each variety and class for the crop reporting districts as shown in Table 2.

As shown in Table 1 almost all of the wheat grown in North Dakota is spring wheat. The hard red spring class occupied 72.1 per cent of the state acreage and Durum and Red Durum 27.8 per cent. There was an increase of more than 10 per cent in the acreage of Durum as compared with 1944.

The five leading hard red spring varieties in North Dakota for 1949 were Mida, Thatcher, Rival, Cadet and Regent in the order listed. They occupied 63.2 per cent of the wheat acreage of the state. For many years Marquis was the leading variety and in 1924 it occupied 52.9 per cent of the total acreage. Since 1929 its acreage has decreased sharply due to losses from stem rust, and in 1949 it occupied only 0.2 per cent of the acreage, and this mostly for hay. In 1934 Ceres occupied 34.0 per cent of the acreage and in 1939 Thatcher was the leading variety with 41.6 per cent. By 1944 the acreage of Thatcher was almost equaled by Rival and in 1949 Mida was the most widely grown variety, having been distributed in 1944.

This shift emphasizes the change that is taking place in the varietal picture in North Dakota as well as in the United States. Of about 220 varieties grown in the United States only 30 were grown in North Dakota, two more than were grown in 1944. These include nine new varieties not previously reported grown, while eight old varieties reported in 1944 or before were not reported grown in 1949.

The newer varieties of hard red spring wheat, all resistant to stem rust, have and should cause rapid changes in the varieties grown in 1950 and future years. Those approved for quality are Cadet, Mida, Newthatch, Pilot, Redman, Regent, Rival, Rushmore and Thatcher.

North Dakota led all states in the growing of durum wheat with 2,953,869 acres of 27.8 per cent of the total wheat acreage in 1949. This is an increase from 1944 of 1,156,460 acres. Formerly much of the durum acreage was unidentified by varieties, but Kubanka and Mindum were the first leading varieties. Stewart, distributed in 1943, was the leading durum variety in 1949, occupying more than a million acres or 10.4 per cent for the state. Pentad or the red durum class increased from 148,958 to 220,932 acres or 0.6 per cent which is less than the increase for all durums. This old and first rust resistant variety is still grown from late seeding, now largely as a smother crop for weed control. With the distribution of the new rust resistant durum varieties Stewart, Carleton, and Venum, the acreage of Pentad and the older susceptible varieties should gradually be reduced.

New varieties are continually being developed by state, federal and private breeders and in other countries, particularly Canada.

Of the 30 varieties grown in North Dakota in 1949, 16 were produced by cooperating state and federal workers in the United States and these occupied 9,536,803 acres or 89.6 per cent of the acreage. Seven of the others were produced at experiment stations in Canada and were grown on 559,567 acres or 5.3 per cent of the 1949 acreage. Most of the others are foreign wheats introduced by the United States Department of Agriculture or distributed by the state stations. Two were produced by private breeders in the United States and Canada and these occupied only 0.2 per cent of the acreage.

These varietal surveys furnish a historical record of the growing of new varieties and form a guide for further wheat improvement.

ABOUT INDUSTRIAL ALCOHOL

"Industrial Alcohol: A Study of the Technology, Production and Uses of Alcohol in Relation to Agriculture" is the title of Bulletin M695 by P. Burke Jacobs of the Bureau of Agricultural and Industrial Chemistry of the United States Department of Agriculture. A copy of the bulletin may be had by sending 30 cents to the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Wanted—

Single copies of North Dakota Agricultural Experiment Station printed Press Bulletins Nos. 5, 6, 7, 8, 12, 13, 16, 17, 19, 20, 21, 24, and 45. These were printed between 1905 and 1913. They are desired for use in compiling a complete history of the scientific contributions of early members of the staff. If printed copies of Nos. 14, 15, and 32 are available, please furnish also because the Station has only typed copies.

FOR BETTER BEEF

The first major effort to coordinate beef cattle research on a national scale was initiated at a meeting of research workers from 38 States and the U. S. Department of Agriculture at the U. S. Range Livestock Experiment Station at Miles City, Mont. Beef cattle producers are vitally interested in the program, which is seeking methods by which more and better beef cattle can be produced.

ROP (Record of Performance) studies with beef cattle under range conditions have been carried on at the station for about 25 years. Rapidity of growth and good carcass quality are the criteria by which calves are judged in "proving" their sires as good or poor.

At the meeting, technical problems of evaluating meat quality, using body measurements as indices, methods of measuring performance, and ways and means of establishing lines of breeding were discussed—USDA.

SINGLE GERM SUGAR BEET SEED

Plant breeders who have been searching for 50 years to find sugar beet plants that produce seeds with single germs have finally found what they were looking for. If this trait can be bred into commercial varieties it will be a big step toward mechanization of sugar beet growing. Sugar beets normally produce seed in a cluster, which means that several plants come up where a seed ball is planted. This requires thinning, which normally calls for hand labor.—USDA