UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION

****

COMPARISON OF WINTER WHEAT VARIETIES GROWN IN COOPERATIVE PLOT AND NURSERY EXPERIMENTS IN THE HARD RED WINTER WHEAT REGION IN 1958

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Preliminary report not for publication[1/]

1/ This is a progress report of cooperative investigations containing data, the interpretation of which may be modified with additional experimentation. Therefore, publication, display, or distribution of any data or any statements herein should not be made without prior written approval of the Crops Research Division, ARS, USDA, and the cooperating agency or agencies concerned.

Nebraska Agricultural Experiment Station
Lincoln, Nebraska
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By

V. A. Johnson[1]/

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1/ The writer expresses appreciation to Dorothy M. Wilson and Alfred Haunold for their assistance in preparing this report.

ORGANIZATION OF THE 1958 REPORT

This report, in its major aspects, follows the organization of previous reports. Minor changes appear, which for the most part are associated with recommendations of the Eighth Hard Red Winter Wheat Workers' Conference regarding regional reporting. Data from the uniform varieties in field plots or advanced nurseries and from the uniform yield nursery are again presented and summarized in a manner familiar to the cooperators. Reporting of data from the uniform winter-hardiness nursery differs from that of past years only to the extent necessary to establish uniformity with the method of reporting followed for the uniform yield nursery.

CHANGES IN THE REGIONAL NURSERIES FOR 1959

Several important changes in the organization of the hard red winter wheat nurseries were instituted for 1959 in compliance with recommendations from the Eighth Hard Red Winter Wheat Workers' Conference held at Stillwater, Oklahoma, in February 1958. They can be enumerated as follows:

1. The field plot or advanced variety nursery has been discontinued as a regional nursery. Therefore, the plot data contained in this report are the last that will appear.

2. The Conference recommended the initiation of a uniform quality series for each district from which 10-lb. samples of grain of each variety are to be submitted annually to the Hard Winter Wheat Quality Laboratory for evaluation. This was done with the following varieties designated for 1959.

Southern		Central		Northern	
Pawnee*	11669	Pawnee*	11669	Minter*	12138
Comanche*	11673	Comanche*	11673	Yogo*	8033
Concho	12517	Concho	12517	Nebred*	10094
Crockett	12702	Bison	12518		
Aztec	13016	EB-Tm x Oro-Mi-Hp	12871		
EB-Tm x Oro-Mi-Hp	12871	Mi-Hp-Pn x Oro-Ill-Cm	12804		
Tascosa	13023	Pawnee x Nebred	13015		

3. The Uniform Yield Nursery is renamed the "Southern Regional Performance Nursery." Testing locations remain the same as in the past.

4. The Uniform Winter-Hardiness Nursery is redesignated the "Northern Regional Performance Nursery." North Platte, Nebraska, is added as a new testing location. Observation plots of each entry in the nursery are being grown on a trial basis at Colby, Kansas, and Clovis, New Mexico, in 1959.

5. The Supplementary Winter-Hardiness Nursery is renamed the "Uniform Winter-Hardiness Nursery." Testing locations for the nursery are Alliance, Nebr.; Brookings and Watertown, South Dakota; St. Paul, Minn.; Fargo, North Dakota; Laramie, Wyoming; and Moccasin, Montana.

6. Spring Hill, Montana, is discontinued as a Uniform Bunt Nursery

* Permanent check variety.

testing site. New entries in the Nursery will be sent to the Regional Smut Laboratory at Pullman, Washington, for evaluation of resistance to dwarf bunt.

VARIETAL ABBREVIATIONS

Varietal abbreviations appearing in this report differ from those of previous reports. The abbreviations follow a system based on syllables developed by a subcommittee on wheat abbreviations appointed by the Chairman of the Hard Red Winter Wheat Improvement Committee. The system has been adopted by all 4 of the wheat regions in the United States. Its use by all wheat workers in the hard red winter wheat region is urged. The system is based on the following 8 rules.

1) Use the first letter of the name and the consonant of the second syllable (Comanche = Cm, Apache = Ap).

2) When the second syllable is composed of a vowel only, it should be used (Mayo = Mo).

3) In the case of one-syllable names, the final consonant sound is used with the first letter (Baart = Bt).

4) When abbreviations of two names are the same, the consonant of the third syllable or final consonant sound is used in one case (Brevit = Bv, Brevor = Bvr). When one-syllable names have the same two-letter abbreviations, the consonant preceding the final one is used in one case (Baart = Bt, Burt = Brt). In either case, the variety with the lowest C. I. number will take preference for the two-letter abbreviation.

5) Three-letter names are not abbreviated (Oro = Oro).

6) When a name is compound, use the first letter of each word, capitalizing both letters (American Banner = AB).

7) Do not use periods following the abbreviations.

8) Underline the first letters of generic and specific names (Aegilops umbellulata = Au).

THE NATIONAL WHEAT IMPROVEMENT COMMITTEE

One of the recommendations of the Committee on Wheat Nomenclature and Symbols at a meeting in Stillwater, Oklahoma, during the Hard Red Winter Wheat Conference was that a National Wheat Improvement Committee be organized to coordinate the over-all activities of the 4 designated wheat regions. The committee would be composed of 2 members from each of the 4 regions with the Head of the Wheat Section of the U.S.D.A. permanent secretary of the group. It was further recommended that the representatives of each region be the secretary and chairman of the regional committee. The national committee would appoint such subcommittees as might be needed to carry out effectively the needs of the national wheat program.

The above recommendation was adopted by all 4 regional groups, and the first informal meeting of the committee was held at Fargo, North Dakota, on January 22, 1959. A. M. Schlehuber was elected Chairman of the Committee,

which will meet annually. Committee membership is as follows: A. M. Schlehuber, Chairman (Hard Red Winter Wheat Region), L. P. Reitz, Secretary (U.S.D.A.), V. A. Dirks and E. R. Ausemus (Spring Wheat Region), Wilson Foote and E. R. Hehn (Western Wheat Region), Fred Patterson and Lee Briggle (Eastern Soft Wheat Region), and V. A. Johnson (Hard Red Winter Wheat Region).

RANDOM NOTES FROM THE REGION

Several changes have occurred in the membership of the Hard Red Winter Wheat Improvement Committee since the last conference at Stillwater. One of the recommendations of the committee at its last meeting was to increase the membership to include various disciplines not heretofore represented. Some new members have been added and there have been some replacements for former members. Present membership is as follows:

A. M. Schlehuber (Chairman)	Agronomy	Okla.	E. G. Heyne	Agronomy	Kansas
V. A. Johnson (Secretary)	Agronomy	Nebr.	Leonard Schruben	Ag Econ.	Kansas
I. M. Atkins	Agronomy	Texas	R. W. Livers	Agronomy	N. M.
K. B Porter	Agronomy	Texas	J. W. Schmidt	Agronomy	Nebr.
Elmer Hudspeth	Ag.Engng.	Texas	B. J. Kolp	Agronomy	Wyoming
M. C. Futrell	Pathology	Texas	D. W. Robertson	Agronomy	Colorado
N. E. Daniels	Entom.	Texas	R. E. Atkins	Agronomy	Iowa
C. A. Moore	Ag.Econ.	Texas	V. A. Dirks	Agronomy	S. Dak.
H. C. Young, Jr.	Pathology	Oklahoma	E. R. Ausemus	Agronomy	Minn.
B. B. Tucker	Soils	Oklahoma	W. F. Geddes	Cer.Chem.	Minn.
C. F. Henderson	Entom.	Oklahoma	E. R. Hehn	Agronomy	Mont.
R. H. Painter	Entom.	Kansas	F. H. McNeal	Agronomy	Mont.
J. A. Shellenberger	Cer.Chem.	Kansas	W. J. Ewasiuk	Ag Econ.	Mont.
C. O. Johnston	Pathology	Kansas			

Winter wheat field plots formerly located at the Experimental Farm near Perkins, Oklahoma, were discontinued in 1958 in favor of a new testing site on the Experiment Station at Stillwater. A very low coefficient of variation of only 6.5 percent for plot yields in 1958 indicates the high degree of uniformity and excellence of the new site.

Colorado State University has acquired a new Agronomy Farm site near Fort Collins. The former Agronomy Farm on the east edge of Fort Collins will be released for private development. The date of transfer of the small-grain nurseries to the new location will depend on the development of an irrigation system.

The National Seed Storage Facility on the campus at Fort Collins is now fully completed and in operation. Edwin James is the officer in charge.

New quarters for the Hard Red Winter Wheat Quality Laboratory on the Kansas State College campus will be ready by spring. The former Meat Laboratory adjacent to Waters Hall will house the Quality Laboratory.

The new Cereal Quality Laboratory at Montana State College in Bozeman has published its first annual progress report. The Laboratory conducts both wheat and barley quality investigations. C. A. Watson, R. K. Bequette, and R. B. Potts are the cereal chemists at the laboratory.

The Agronomy Department of the University of Nebraska has received funds

from the Nebraska Wheat Commission to equip and staff a wheat quality laboratory on the College of Agriculture campus. The amount of the grant is $49,050.00 for a 3-year period. The Commission administers funds received from a 1/4-cent-per-bushel tax on wheat produced in Nebraska.

Four all-metal, fully equipped, walk-in refrigerators have been acquired by the Wheat Project at the Nebraska Experiment Station. Plans are under way to install lights and convert the boxes to growth chambers for rust and cytogenetic studies.

An appropriation for the construction of the first unit of a large and complete agricultural research center to be located on the St. Paul campus is under consideration by the Minnesota Legislature. Total cost of the research center, to be constructed over a 4-year period, is an estimated $6,400,000.00.

PERSONNEL

This year saw the passing of two agronomists of long standing in the southwestern plains area. John Carter, for many years superintendent of the Plains Substation, Clovis, New Mexico, died in early May. Alvin Lowe, agronomist at the Garden City Experiment Station, Garden City, Kansas, passed away in July. Both men were recognized for their understanding and appreciation of the agronomic problems of the southwestern plains and were enthusiastic cooperators in the hard red winter wheat regional program. They will be greatly missed by their many friends and co-workers. Ronald Livers is the new superintendent of the Clovis substation, and William D. Stegmeier fills the vacancy at Garden City.

Several other personnel changes occured in the region in 1958. Dale Weibel, formerly agronomist in charge of wheat work at Denton, Texas, accepted a poistion in sorghum research at Oklahoma State University. The vacancy at Denton has not been filled. Floyd Frazier, formerly of Oklahoma, is the new agronomist at the U. S. Dryland Field Station at Akron, Colorado. Paul Nordquist was appointed to the agronomist position at North Platte formerly held by the late Milton Greenwood. Alvin Gale has replaced O. K. Barnes at Sheridan, Wyoming. Mr. Barnes is now an extension agronomist at Laramie. G. E. Geeseman is the new agronomist in charge of crops work at Havre, Montana. O. G. Bentley has been appointed Dean and Director of the Experiment Station at South Dakota State College, and L. O. Fine replaces W. W. Worzella as Chairman of the Agronomy Department.

COOPERATING AGENCIES, STATIONS, AND PERSONNEL

CROPS RESEARCH DIVISION:	
Cereal Crops Research Branch	L. A. Tatum*
Wheat Section	L. P. Reitz*
Hard Red Winter Wheat	V. A. Johnson*
Rust, Smut, Mosaic	C. O. Johnston*
	Lewis Browder*
	W. Q Loegering*
	H. H. McKinney*
	W. Bever
Wheat Quality	J. A. Shellenberger
	K. F. Finney*

TEXAS AGRICULTURAL EXPERIMENT STATION:		
Agronomy		J. S. Rogers
College Station,	Texas A. & M. College	I. M. Atkins* (State Leader)
		M. C. Futrell*
Denton	Substation No. 6	I. M. Atkins,*J.H. Gardenhire
Chillicothe	Substation No. 12	Keith Lahr
Bushland	Amarillo Exp. Station	K. B. Porter
NEW MEXICO AGRICULTURAL EXPERIMENT STATION:		
Clovis	Plains Substation	R. W. Livers
OKLAHOMA AGRICULTURAL EXPERIMENT STATION:		
Field Crops and Soils		M. D. Thorne
Stillwater	Oklahoma State University	A. M. Schlehuber (State Leader)
		H. C. Young
		R. C. Bellingham*
		B. Curtis
Cherokee	Wheatland Conservation Station	A. A. Garrett
Woodward	Southern Plains Field Station	R. A. Hunter
Goodwell	Panhandle Agr. Exp. Station	R. A. Peck
KANSAS AGRICULTURAL EXPERIMENT STATION:		
Agronomy		R. V. Olson
Manhattan,	Kansas State College	E. G. Heyne
		A. W. Pauli
		R. H. Painter
		E. D. Hansing
		W. H. Sill
		H. Fellows*
Hays	Ft. Hays Branch Station	W. M. Ross*
		J. A. Wilson
Garden City	Garden City Agr. Exp. Station	W. D. Stegmeier
		A. B. Erhart
Colby	Colby Branch Station	T. E. Walter
		E. Banbury
COLORADO AGRICULTURAL EXPERIMENT STATION:		
Agronomy		D. W. Robertson
Ft. Collins,	Colorado State University	T. E. Haus
		N. R. Gerhold
Akron	U. S. Dryland Field Station	C. E. Johnson*
		Floyd Frazier
Hesperus	Fort Lewis Substation	W. H. Paulson
Springfield	Southeastern Colo. Br.Exp.Sta.	H. O. Mann
IOWA AGRICULTURAL EXPERIMENT STATION:		
Ames	Iowa State College	R. E. Atkins
NEBRASKA AGRICULTURAL EXPERIMENT STATION:		
Agronomy		D. G. Hanway
Lincoln	University of Nebraska	V. A. Johnson*
		J. W. Schmidt
North Platte	Agricultural Exp. Station	Paul Nordquist
Alliance	Box Butte Exp. Farm	P. L.Ehlers

WYOMING AGRICULTURAL EXPERIMENT STATION:		
Agronomy		D. E. Bohmont
Laramie	University of Wyoming	B. J. Kolp
		G. H. Bridgmon
Archer	Archer Substation	T. L. Birch
Sheridan	U. S. Dryland Field Station	Alvin Gale
Gillette	Gillette Substation	L. R. Landers
SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION:		
Agronomy		L. O. Fine
Brookings	South Dakota State College	Victor Dirks
MINNESOTA AGRICULTURAL EXPERIMENT STATION:		
Agronomy and Plant Genetics		W. M. Meyers
St. Paul	Institute of Agriculture	E. R. Ausemus*
Waseca	Southeast Experiment Station	R. E. Hodgson
Grand Rapids	North Central Exp. Station	E. R. Ausemus*
NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION:		
Agronomy		T. E. Stoa
Dickinson	Dickinson Substation	T. J. Conlon
MONTANA AGRICULTURAL EXPERIMENT STATION:		
Agronomy		A. H. Post
Bozeman	Monatan State College	E. R. Hehn (State Leader)
Moccasin	Central Montana Branch Station	J. L. Krall
		A. L. Dubbs
Havre	North Montana Branch Station	G. E. Geeseman
Huntley	Huntley Branch Station	D. E. Baldridge
CANADA DEPARTMENT OF AGRICULTURE:		
Lethbridge	Alberta Agr. Exp. Station	J. E. Andrews

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* Denotes Federal employees, full-time or part-time.

ACCESSION NUMBERS ASSIGNED

Several new hard red winter wheats were assigned C. I. numbers in 1958. When a number is assigned, seed of that variety is added to the permanent collection maintained by the Cereal Crops Research Branch at Beltsville, Md. C. I. numbers take precedence over State and local numbers in this report, and their use by wheat workers in published reports and correspondence is urged. Because of its value to all wheat workers, the list of new accession numbers assigned in 1958 presented here includes all wheats in the United States. If the cooperators find such a listing useful as a part of this report, it will be continued in future years.

C. I. No.	Designation	State No.	Source	Habit	Color	Type
13191	Ca-Hp-Cn x Cm	275-51-A37	Texas	W	R	Common
13192	Cheyenne Selection	432	Wyoming	W	R	"
13193	Cheyenne Selection	318	"	W	R	"
13199	South Dakota Sel.	56-45	S. Dak.	W	R	"
13339	Ld 379 x Ld 357	Ld 407	N. Dak.	S	W	Durum
13340	Nugget x Ld 371	Ld 408	N. Dak.	S	W	"
13342	Ld 357^4 x (Stew. x P.I.192179-Ld 357)	Ld 409	N. Dak.	S	W	"
13343	Ld 357^4 x St 464-Ld 357	Ld 410	N. Dak.	S	W	"
13344	Rescue x Chinook	4352-123	Canada	S	R	Common
13345	Thatcher x Kenya Farmer	2911	"	S	R	"
13346	Overby's wheat	2912	S. Dak.	S	R	"
13347	Karnvor	2913	N. Dak.	S	R	"
13348	Thatcher x K338AC	N.D. 38	"	S	R	"
13349	N.D. 81 x Lee	N.D. 137	"	S	R	"
13350	K338AA x N. 2350	N.D. 140	"	S	R	"
13369	Bowie x Lee	Texas 14853-1C	Texas	W	R	"
13396	Enigma	---	Penn.	W	R	"
13397	Kelo	---	Okla.	W	R	"
13398	M1	---	Germany	S	R	"
13399	S 571-29	---	Miss.	W	R	"
13400	W 6696	---	Missouri	W	R	"
13408	II-44-29 x Lee^3	II-53-546	Minn.	S	R	"
13409	Rescue-N.1315 x Golden Ball	B57-94	Mont.	S	R	"
13410	Rescue-N.1315 x Golden Ball	B57-128	Mont.	S	R	"
13411	$Thatcher^2$ x Rescue	B57-193	Mont.	S	R	"
13412	$Thatcher^4$ x Rescue	B57-212	"	S	R	"
13435	Kenya x $Lemhi^6$	52Ab 9702	Idaho	S	W	"
13436	(14 x 50-3) x Burt	Sel. 1	Wash.	W	W	"
13437	14 x 53	Sel. 33	"	W	W	"
13438	14 x 53	Sel. 101	"	W	W	"
13439	Martin Sel.	1208	Oregon	W	W	"
13440	Orfed-Elgin x Elmar	422	"	W	W	"
13441	Yogo x 112a-520-6-1	225a-15-6	Utah	W	R	"
13442	Brevor x Utah Kanred	208-63-2-1	"	W	R	"
13476	W 6703	---	Missouri	W	R	"
13477	Avon	---	N. Y.	W	W	"
13478	Purdue 4746A2-10-1-1-10	---	Ind.	W	R	"
13479	H 513a-3-2	---	Wis.	W	R	"
13480	TN 1317	---	Ohio	W	R	"
13481	TN 1340	---	"	W	R	"

C. I. numbers assigned in 1958 (Concluded).

C. I. No.	Designation	State No.	Source	Habit	Color	Type
13482	TN 1345	---	Ohio	W	R	Common
13483	Transfer	---	Mo.	S	R	"
13484	Kenhi	---	Canada	S	W	"
13512	N.D. 1 x K338AA	N.D. 121	N. Dak.	S	R	"
13513		---	Ind.	W	R	"
13514		---	"	W	R	"
13515	Mqo-Oro-Pn x Ft	Tex.4411-6	Texas	W	R	"
13516	Nt-Ft x Rn-Ky	Tex. 55C1311	"	W	R	"
13517	Mi-Hp-Pn-Oro-Ill-Cm x Pn	Kans. 57709	Kansas	W	R	"
13518	Cm x Fd	Kans. 55807	"	W	R	"
13519	Pn-Mi-Hp x Cm-Oro-Tk-Fn	Kans. 53422	"	W	R	"
13520	Oro-Mi-Hp-Ky R.L.1373 x Pn-Cn	Kans. 9001-278	"	W	R	"
13521	Ft x Mi-Hp-Pn	Kans. 55734	"	W	R	"
13522	Concho x Triumph	Stw.57R6636	Okla.	W	R	"
13523	Tmh x T-Ae	Stw. 554494	"	W	R	"
13524	Tmh x T-Ae	Stw. 554475	"	W	R	"
13525	Md-Ky 117A x Nbd	Nebr. 57407	Nebr.	W	R	"
13526	South Dakota Selection	56-53	S. Dak.	W	R	"
13527	do.	56-281	"	W	R	"
13528	do.	56-514	"	W	R	"
13529	do.	56-825	"	W	R	"
13551	Md-Ky 117A x Hp-Tk^2	Nebr. 55322 and Nebr.57838	Nebr.	W	R	"
13552	H255-49-5-1-4 x Bh	III-54-10	Minn.	W	R	"
13553	CVL-22-1	---	U.S.D.A.	W	R	"
13554	CVL-22-4	---	"	W	R	"
13555	CVL-24-6	---	"	W	R	"
13556	Colotana 266/51	P.I. 214392	Canada (Brazil)	S	R	"

NEW VARIETIES

The wheat strain C. I. 13023 (Kr-HF-Tm-Mi-Hp) x Ca was given the name Tascosa by the Texas Experiment Station and will be released to certified growers after the 1959 harvest. Approximately 100 acres of Tascosa were grown on the Experiment Stations in Texas in 1958, and the variety is under further increase this year. Tascosa has had an excellent record in the Texas and regional performance trials (see yield summaries for southern district plots and the uniform yield nursery). Among its outstanding characteristics are high yield and bushel weight, excellent quality, and some resistance to Septoria tritici, stripe rust, and soilborne mosaic. It carries the Hope resistance to leaf and stem rust, which is not effective in the presence of race 15B of stem rust and the races of leaf rust that attack Westar and Concho. C. I. 13023 is one day earlier than Concho and has moderate height, good straw strength, and tenaceous glumes that resist shattering. It has bronze glume coloration.

The Plains Substation at Clovis, New Mexico, distributed to growers this year seed of Red Chief x Cheyenne (C. I. 13016) under the name Aztec. Aztec's performance record at Clovis has been equal to or better than the commercially grown varieties in the area, but the greatest justification for its release probably is its long mixing requirement and overall excellent milling and baking quality. An acreage of Aztec in eastern New Mexico unquestionably will improve the quality of wheat from that area. Aztec produces grain of high test weight. It is like Blackhull in maturity and height but has stronger straw. It is highly resistant to stripe rust.

The 1958 Kansas Cereal Conference voted to further increase 27 bushels of C. I. 12871 (EB-Tm x Oro-Mi-Hp) in 1959. Testing of C. I. 12871 in plots and collaborators' milling and baking trials also will be continued.

C. I. 12804 (Mi-Hp-Pn x Oro-Ill-Cm) also was considered by the Kansas Conference. A motion to not approve C. I. 12804 for distribution was defeated as was a later motion for its approval. The variety will be continued in plot tests in Kansas as well as in the collaborators' series in 1959. About 44 bushels of seed was produced in 1958.

A second seed increase to two Nebraska experimental varieties will be made in 1959. They are C. I. 13015 (Pawnee x Nebred) and C. I. 13190 (Pawnee x Cheyenne). About 15 bushels of breeders' seed of each was produced on the Agronomy Farm at Lincoln in 1958. Release action has not yet been taken on either variety. Both varieties were described briefly in the 1957 regional report. Testing in plots and milling and baking trials will be continued.

WEATHER AND CROP HIGHLIGHTS

Crop production in the United States reached an all-time high in 1958. Winter wheat was no exception. A crop totaling 1,180 million bushels was 11 percent above the previous record crop of 1952. The average acre yield of winter wheat was 28.4 bushels, the highest of record and 6 bushels above the previous record made last year.

Near-ideal conditions for wheat prevailed in all parts of the hard red winter wheat region from planting to harvest. The excessive rainfall that occurred in the late spring and summer of 1957 throughout all of the southern Plains and most of the central Plains replenished depleted subsoil moisture and created unusually good conditions for the establishment of the 1958 winter wheat

crop. A mild winter allowed fall-sown wheat to come through with little or no killing in even the northern fringes of the Winter Wheat Belt. Acreage abandonment was the smallest of recent times. Soil moisture and temperatures continued favorable throughout the spring to harvest time, with the exception of some areas of the Texas and Oklahoma Panhandle where the crop ran out of water before harvest and in northern Kansas and Nebraska where late heavy rains caused severe lodging and delayed the harvest for several weeks in some localities. Test weights were average or above, but protein content was low in most parts of the region. Wheat production data for the States in the hard red winter wheat region are compiled below.

State	Acres Planted[1]/	Acres harvested[2]/	Abandonment	1958 production[1]/	1958 average acre yields[2]/	1947-56 average acre yields[2]/
			%	Bu.	Bu.	Bu.
Texas	3,696	3,320	10.2	73,040	22.0	11.0
Oklahoma	4,661	4,440	4.7	115,440	26.0	13.1
New Mexico	217	191	12.0	3,726	19.5	7.6
Kansas	10,870	10,591	2.6	291,252	27.5	15.7
Nebraska	3,612	3,435	4.9	113,355	33.0	20.1
Colorado	3,071	2,715	11.6	69,232	25.5	15.6
Wyoming	289	260	10.0	7,280	28.0	17.9
Montana	2,413	2,347	2.7	63,369	27.0	21.0
South Dakota	534	500	6.4	17,250	34.5	15.2
Iowa	156	150	3.8	5,250	35.0	20.8
Minnesota	33	31	6.1	961	31.0	20.2
United States	44,088	41,539	5.8	1,179,924	28.4	22.4

1/ In thousands.

2/ Based on harvested acres. Data taken from the 1958 Annual Summary of Crop Production, U. S. Dept. of Agriculture, Agr. Marketing Service, Crop Reporting Board.

Diseases generally were not a problem in 1958, although stripe rust (Puccinia glumarum) reoccurred for the second consecutive year. The disease became epidemic in parts of north-central Texas where locally heavy losses were sustained, in the Texas Panhandle, and in eastern New Mexico. Its northward movement reached as far as Wyoming and the Dakotas.

Soilborne mosaic was again prevalent in eastern Kansas and southeastern Nebraska. Some locally heavy occurrences of western wheat streak mosaic were observed in northeastern Colorado, northwestern Kansas, western Nebraska, and eastern Wyoming.

Widespread but generally light infestations of hessian fly were noted in the northern half of Kansas and throughout Nebraska. The buildup is the heaviest and most widespread in recent years and constitutes a potentially dangerous sitation for 1959.

UNIFORM VARIETIES IN FIELD PLOTS OR IN ADVANCED NURSERIES

The field-plot series has been discontinued in the region following the 1958 crop. Thus plot data will not be a part of future reports.

Varieties grown uniformly in each district in 1958 are listed in the tabulation below. Most stations grow varieties of local interest in addition to the uniform set. Data on all varieties reported by the cooperators have been included in this report.

Variety	C. I. No.	South	Central	North-west	North-east
Kharkof	1442	x	x	x	
Early Blackhull	8856	x			
Comanche	11673	x	x		
Concho	12517	x	x		
Crockett	12702	x			
Kr-HF-Tm-Mi-Hp x Ca	13023	x			
EB-Tm x Oro-Mi-Hp	12871	x	x		
Pawnee	11669		x		
Bison	12518		x		
Minter	12138			x	x
Yogo	8033			x	
Minturki	6155				x
Nebred	10094				x

PLOT DATA

Data received from each station are reported in table 1. Brief comments are included concerning local conditions and performance of varieties at each station.

The variety test at Chillicothe was seeded on October 28 in good soil moisture, and uniformly full stands were obtained. The coldest March since 1915 retarded growth. Only one clear day was recorded for the month. Cold wet weather continued into May, followed by hot dry weather ideal for ripening. However, yields probably were decreased by a severe epidemic of stripe rust and Septoria tritici. Leaf rust became prevalent during April, and traces of stem rust were observed. Apple grain and english aphids became numerous in April and May, as did grasshoppers in June. A strain of Triumph identified as New Triumph was the highest yielding variety. Bushel weights were very high, with only Concho and Westar weighing less than 60 pounds. Several strains exhibited excellent resistance to stripe rust.

Growing conditions were near-ideal throughout the season at Denton but leaf rust became damaging in early April and produced delayed heading and substantial yield reductions in susceptible varieties. Stripe rust was present but did not cause appreciable damage. Stem rust came in late and was not a yield factor. Septoria was present throughout the season. Insects were unimportant at Denton. Only C. I. 12871 and Knox produced more than 30 bushels per acre but Tenmarq, C. I. 13022, and Concho yielded less than 10 bushels. Surprisingly, C. I. 12871

was one of the least lodged varieties. It had the highest test weight and was highly resistant to leaf rust at Denton. Excellent strength of straw and leaf-rust resistance were shown by several of the Texas experimentals.

At Bushland, Texas, the variety test was grown under irrigation as well as on dryland. Data for the 7 uniform plot varieties are reported for both series. Only the dryland yield data were used to calculate the period-of-years averages. Good fall stands, no winterkilling, and only slight damage from rust made for good yields. The crop was damaged by hail just prior to heading, but the hail is not believed to have been a factor in yield differences noted. The dryland test suffered from drought during the fruiting period. Yields and bushel seights probably were reduced by the drought. Stored moisture carried the crop to maturity. The performance of Tascosa was outstanding in the dryland series, where it was high in both yield and test weight. The irrigated test received 100 pounds of nitrogen and 10 inches of irrigation water during the growing season. Stripe rust became heavy and lodging was excessive. The latter condition, together with 2 days of heavy rain on the bundles after harvest, contributed to the low test weights recorded. C. I. 12871 and Early Blackhull yielded the most in the test. C. I. 12871 was the least lodged, and Early Blackhull exhibited high resistance to stripe rust.

An advanced nursery in which the southern district uniform plot varieties were included was grown at Stratford, Texas. Data for the uniform varieties are reported. Severe drought from heading to maturity accounted for the low yields and bushel weights recorded. The earliest maturing varieties were the least affected and therefore the most productive in the test.

Soil moisture to the depth of 2 to 3 feet existed at Clovis at seeding time. Moisture and temperatures continued excellent throughout the fall, winter, and spring. October through June precipitation was 11.45 inches. No insects were noted, but stripe rust became heavy on some varieties. Wheat yields reported from New Mexico in 1958 were 3 times the most recent 10-year average. None of the 15 varieties in the plots at Clovis yielded less than 35 bushels, and 7 exceeded 40 bushels per acre. Cheyenne, Kiowa, and Westar in that order were the most productive. Bushel weights ranged from 62.6 pounds for Cheyenne down to 58.5 pounds for Kharkof. Early Blackhull and Wichita lodged partially.

The most favorable moisture conditions for the production of wheat in the memory of most observers were experienced in Oklahoma in the 1957-58 season. The bulk of the crop was seeded in excellent soil moisture. Conditions throughout the winter and spring remained favorable, and the largest crop on record was produced. The State average yield of 26 bushels was twice the 10-year average. The occurrence of stripe rust was statewide. Leaf rust also was present but developed late, so only minor damage resulted. The biggest problem at harvest time was excessive lodging in many localities resulting from the rank growth and heavy grain production. High winds and high temperatures in early June caused some reduction of test weight in some sections of the State.

A 24-bushel spread in yields occurred among 14 varieties in field plots at Stillwater, with C. I. 12871 making 50.6 bushels per acre for the high yield honors. The same variety also produced grain with the heaviest test weight and had the lowest leaf-rust infection. However, it lodged 35 percent. Only Crockett and Concho lodged more.

All entries in the variety test at Woodward produced more than 20 bushels per acre; and Crockett, Comanche, and Concho in that order exceeded 30 bushels.

Test weights were high, with only Kharkof falling below 60 pounds.

Triumph, Early Blackhull, and Tascosa in that order were the most productive varieties at Cherokee. All yielded 43 bushels or more per acre. Six out of 14 varieties had test weights of 60 pounds or greater. Stem breakage occurred through-out the test. The condition was most severe in C. I. 13187 and Concho.

Both an irrigated and dryland variety series were grown at Goodwell. Very low yields (4.0-15.8 bushels) were recorded for the dryland test. Three applications of irrigation water in the fall and spring nearly doubled yields but had little effect on test weights, which were abnormally low in both tests. Triumph was the highest yielding variety in both tests.

Sixteen varieties were evaluated in the variety test at Manhattan, Kansas. All varieties except Turkey yielded more than 30 bushels per acre, with Quivira Hybrid, C. I. 13285, the most productive. The heaviest test weight was recorded for C. I. 12871. All varieties were susceptible to stem rust; but C. I. 12804, C. I. 12871, and Crockett were resistant to leaf rust. Several varieties exhibited combined resistance to bunt and loose smut. Turkey and Crockett lodged the most. C. I. 13285, C. I. 12804, Ponca, and C. I. 13015 gave zero readings to hessian fly in the greenhouse.

Winter wheat varieties were grown in 1/50-acre plots at Hays, Kansas, in 1958. For the first time in several years soil moisture was good at seeding time, and consistently good fall stands were obtained. Moisture in the spring continued adequate until heading time. Heavy rain in late June delayed harvest considerably, and some shattering occurred. Leaf rust became moderately heavy late in the growing season, as did stripe rust earlier. Only Turkey failed to yield more than 30 bushels per acre, while Kharkof was the only variety with a test weight less than 60 pounds. Combined resistance to both leaf and stripe rust was exhibited by C. I. 13285. It shattered worse than other varieties in the test except Turkey. Concho and Turkey were the most severely lodged.

At Garden City, the field plots were grown on fallowed ground as well as under irrigation. Consistently low test weights were recorded for the dryland plots, and the test weights under irrigation were only slightly better. Comanche and Concho produced the most grain in the dryland test, while C. I. 13285 and Triumph were most productive under irrigation. Lodging was excessive in all varieties in both tests.

Near-ideal conditions prevailed in the fall and winter at Colby. Snow cover persisted until the middle of April. Several days of heat and low humidity at heading time caused some damage. Subsoil moisture was mostly exhausted, and some leaf burning and sterility occurred. Stripe rust became prevalent, and leaf rust was noted late in the season. Stem rust occurred in traces only. Both irrigated and dryland plots were grown and harvested. The irrigated series had only a slight yield advantage over the dryland plots. Hail on July 3 destroyed 4 unharvested varieties in the irrigated test. C. I. 13285 was highest yielding in the dryland test and ranked second under irrigation. Kiowa ranked first on dryland and third under irrigation. Wichita was the most heavily lodged in both tests.

The variety test was irrigated following seeding at Fort Collins. Prompt emergence to good stands occurred. Lodging was noted early in the spring, and by harvest time all varieties were completely lodged and tangled. Over 5 inches of rain in May and 2 inches in June contributed to the lodging. A Colorado experi-

mental, F. C. 1262, and Bison in that order were highest yielding in the nursery. C. I. 12871 had the highest test weight and ranked fourth in yield.

Cheyenne was highest yielding among 15 varieties grown in 1/40-acre plots at Akron. C. I. 12871 took test weight honors with 61.0 pounds per bushel.

Early and severe lodging associated with a cool wet spring and rank growth was the situation at Lincoln. C. I. 12804 exhibited outstanding straw strength and lodged only 4 percent. This was undoubtedly a major reason for its 4.4-bushel yield advantage over the second most productive variety in the test. C. I. 12871 had the highest test weight despite being 78 percent lodged by harvest time.

The highest plot yields of record were reported from North Platte. Three experimentals, Wichita x Nebred (531538), C. I. 13190, and C. I. 12804, averaged more than 70 bushels per acre. Kharkof, the least productive variety, made a 59.7-bushel yield. Despite the high yields the grain stood well in the field and lodging was not reported.

Yields from the variety test at Alliance averaged 10 bushels less than at North Platte. Nebr. 531538 and C. I. 13190, the first-and second-ranked varieties in the North Platte field plots, ranked first and third, respectively, at Alliance. All varieties produced grain weighing 60 pounds or more. Lodging was the most severe in Kharkof, followed by 531538 and Comanche in that order. Heavy shattering was recorded for Nebr. 47NP1689 and Concho.

No winterkilling occurred in 9 varieties grown in field plots at Brookings. Yields of grain and test weights were very high. Light to moderately heavy lodging occurred. All varieties were susceptible to leaf rust, and only Minter had a low stem-rust reading.

Yields of grain were high at Highmore also, but test weights were 2 to 3 pounds lower than at Brookings. The degree of lodging was similar to that noted at Brookings. Leaf-rust infection was heavy but stem rust was light. Highest yield was made by Cheyenne, and Wichita had the best test weight.

Grain yields at Cottonwood ranged downward from 26.3 bushels for Pawnee. Wichita again had the highest test weight. Winterkilling occurred in all varieties. Survivals ranged from 72 percent for Cheyenne to 45 percent for Wichita.

Winter wheat plots 1/40-acre in size were grown at St. Paul, Waseca, and Grand Rapids in Minnesota. Yields of grain were high at all locations, particularly Waseca, where the highest was 72.6 bushels per acre. Some lodging occurred at St. Paul and Waseca, and some winterkilling was recorded at Waseca and Grand Rapids. Below-normal bushel weights were reported for the varieties at Grand Rapids. Racine was outstanding in performance at all 3 Minnesota locations. It ranked first in yield at Grand Rapids and second at each of the other two locations.

Data for the 3 northeastern districts uniform plot varieties only are reported from Ames. Minter was slightly superior to Minturki and Nebred in yield but lodged the most. All 3 varieties yielded more than 60 bushels per acre.

Yield of grain only was reported for varieties grown at 4 locations in Wyoming. Two selections from Cheyenne, W.S. 318 and W.S. 432, in that order, had the highest 4-station average yields. Cheyenne and Nebred were 3rd and 4th, respectively.

Plot data were reported from only the Havre station in Montana where the northwestern uniform plot varieties were grown as a part of the Montana winter wheat intrastate nursery. Yields of grain at Havre ranged from 25.4 bushels for a Montana experimental up to 32.8 and 32.7 bushels for Westmont and Cheyenne. All varieties produced grain weighing 60 pounds or more.

Table 1. Yields and other data for varieties of winter wheat grown in replicated plots in cooperative experiments at stations in the region in 1958, with period average yields.

Chillicothe, Texas
Eight replications, rodrows

Variety	C.I. or Sel. No.	Date Headed	Date Ripe	Plant height	Stripe rust	Septoria tritici 1/	Weight per bushel	Av. acre yield 1958	Av. acre yield 1957-1958	Av. acre yield 1955-1958	No. years grown	Percent of Kharkof
		May	June	In.	%		Lb.	Bu.	Bu.	Bu.		
New Triumph	---	4-23	5-30	35	10 R	M	63.5	38.2	----	----	1	----
Ca-Hp-Cn x Cm	13024	1	4	37	Tr R	M	63.0	34.6	30.9	24.2	4	130.1
do	275-51-A34	2	4	35	Tr R	L	62.5	33.5	----	----	1	----
Triumph	12132	4-25	5-31	35	25 MS	H	63.0	33.4	30.8	28.8	12	101.1
Tascosa	13023	3	4	33	15 R	L	63.5	33.4	33.2	26.7	4	143.5
Wi x Mqo-Oro	218-53-13	1	5	36	10 R	L	64.5	33.3	----	----	1	----
Kr-HF-Tm-Mi-Hp x Ca	274-52-A16	4-28	3	34	30 MS	H	62.5	33.1	----	----	1	----
Ca-Hp-Cn x Cm	13191	3	6	35	5 R	M	62.0	33.0	----	----	1	----
Comanche	11673	2	4	37	30 MS	L	60.5	32.8	31.8	23.9	21	114.0
Ponca	12128	3	4	37	10 R	M	61.5	32.7	34.0	26.1	11	113.9
Rc-Oro-Tk-Fn x Mqo-Oro	240-51-A2	8	8	36	15 MR	M	61.5	31.4	----	----	1	----
Kr-HF-Tm x Mi-Hp	255-48-9	6	7	34	10 R	L	61.5	31.3	28.4	----	2	116.4
Crockett	12702	2	2	38	40 MS	Tr	62.0	31.3	33.0	27.0	10	120.6
Early Blackhull	8856	4-26	1	39	40 S	L	64.5	30.3	28.6	23.9	21	106.4
Kr-HF-Tm-Mi-Hp x Ca	13189	3	5	36	35 MS	M	62.0	30.2	30.5	----	2	125.0
Ca x Hp-Cn	13022	3	5	33	25 MR	L	64.0	29.6	30.7	23.4	4	125.9
Concho	12517	3	4	36	60 S	L	59.0	29.2	28.9	23.6	7	118.3
EB-Tm x Oro-Mi-Hp	12871	4-29	3	35	60 S	L	63.0	29.1	31.5	----	2	128.9
Bison	12518	2	4	38	65 S	Tr	61.0	29.0	30.1	----	2	123.4
Kharkof	1442	9	8	39	15 MR	L	60.0	28.6	24.4	18.6	21	100.0
Blackhull	6251	7	7	38	25 MR	L	63.0	28.4	25.3	21.0	20	105.4
Tenmarq	6936	7	7	37	50 S	L	60.0	28.2	27.0	22.1	21	107.3
Wichita	11952	4-27	3	38	60 S	M	60.0	27.2	27.0	22.7	17	111.2
Red Chief	12109	7	8	40	20 R	Tr	64.5	26.2	28.7	22.7	17	105.8
Westar	12110	7	7	36	75 S	H	57.5	21.9	24.9	22.2	14	113.4

1/ L = light, M = medium, and H = heavy infection.
Standard error of a difference = 2.64 bushel.

Denton, Texas
Eight replications, rodrows

Variety	C.I. or Sel. No.	Date headed	Plant height	Rust Leaf[1]	Rust Leaf[2]	Rust Stem[2]	Bunt	Lodging	Weight per bushel	Av. acre yield 1958	Av. acre yield 1955-1958[3]	No. Years grown	Percent of Kharkof
		May	In.	%	%	%	%	%	Lb.	Bu.	Bu.		
EB-Tm x Oro-Mi-Hp	12871	3	41	T HR	25 MR	30 S	5	3	62.7	33.3	--	1	---
Knox	12798	3	41	20 MR	10 MR	60 S	80	8	59.5	30.2	--	2	191.7
Mqo-Oro x Wi	218-53-13	6	43	0	5 R	30 S	70	0	61.7	29.5	--	1	---
Frisco	13106	7	42	T MS	T	30 S	90	13	59.2	27.8	-- [4]	4	118.3
Ponca	12128	8	45	10 HR	5 R	30 S	20	20	59.2	25.7	15.9	8	114.7
Mqo-Oro x Wi	218-49-11	13	47	5 HR	5 S	20 S	50	0	58.2	25.7	--	1	---
Ca x Hp-Cn x Cm	13191	8	44	30 MS	5 R	10 S	90	T	57.7	24.3	--	1	---
do	275-51-A34	8	46	20 MR	10 S	10 S	T	5	59.0	24.2	--	1	---
Quanah	12145	9	47	0	T	20 S	T	T	59.0	23.7	14.4	9	108.0
Rc-Oro-Tk-Fn x Mqo-Oro	240-49-7	9	43	0	T	20 S	50	T	61.0	22.5	--	2	150.4
Kr-HF-Tm x Mi-Hp	255-48-9	13	48	T HR	5	20 S	60	40	56.5	21.7	--	1	---
Rc-Oro-Tk-Fn x Mqo-Oro	240-51-A2	11	47	T HR	T	30 S	90	8	60.2	21.5	--	1	---
Crockett	12702	7	44	20 MR	15 MR	40 S	80	13	60.5	17.9	14.6	7	119.0
Early Blackhull	8856	4-30	43	60 S	95	10 S	90	48	59.0	17.0	13.8	22	118.3
Red May	7250-1	8	40	10 MS	5	20 S	90	13	59.5	16.7	-- [4]	13	105.6
Mediterranean Sel. 40	524180	14	47	10 MR	5 R	10 S	50	95	56.0	15.7	--	1	---
Comanche	11673	10	47	50 S	20 MR	40 S	T	8	57.2	15.7	12.6	17	126.2
Denton	8265	13	52	10 MS	5 S	20 S	60	95	54.5	15.4	12.7	24	104.9
Ca-Hp-Cn x Cm	13024	8	45	30 MS	20 MS	10 S	0	30	56.7	14.1	12.5	3	105.9
Kr-HF-Tm-Mi-Hp x Ca	13189	7	43	50 S	60	20 S	60	28	53.5	13.9	--	1	---
do	274-52-A16	6	39	50 S	40 MS	10 S	40	10	51.5	13.2	--	1	---
Blackhull	6251	13	48	70 S	60	40 S	80	20	59.5	12.3	13.0	24	109.6
Kharkof	1442	15	46	60 S	60	20 S	40	13	55.0	12.2	11.8	24	100.0
Kr-Hf-Tm-Mi-Hp x Ca	13023	7	41	60 S	30 MS	10 S	80	10	54.2	12.0	13.0	3	110.5
Triumph	12132	4-30	42	80 S	95	5	90	45	55.5	11.3	11.8	10	106.5
Concho	12517	11	43	70 S	60	30 S	40	10	55.0	9.6	11.9	6	115.9
Ca x Hp-Cn	13022	6	41	70 S	60	10	90	93	53.0	8.8	11.3	3	95.8
Tenmarq	6936	12	45	80 S	80	20 S	60	10	56.0	7.7	9.4	24	114.8

1/ May 13 readings, Denton. 2/ April 18 and May 21 respectively, College Station. 3/ No crop in 1957. 4/ No data available in 1955.
Standard error of a difference = 1.83 bushels.

Bushland, Texas
Four replications, dryland
8-row plots, 50 feet long[1]

Variety	C.I. No.	Date		Plant height	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
		Headed	Ripe			1958	1957-1958	1954-1958		
		May	June	In.	Lb.	Bu.	Bu.	Bu.		
Tascosa	13023	11	23	37	59.4	36.8	--	--	1	--
Early Blackhull	8856	5	18	40	57.7	29.9	20.8	23.5	21	96.4
Concho	12517	12	23	38	57.0	28.2	19.4	29.5	8	107.7
Kharkof	1442	17	26	40	55.3	25.9	16.4	24.1	22	100.0
Comanche	11673	13	23	35	56.8	24.4	16.9	25.7	19	109.8
Crockett	12702	11	21	38	57.8	22.5	17.4	25.9	5	107.3
EB-Tm x Oro-Mi-Hp	12871	10	21	36	58.5	22.4	16.5	--	2	100.6

1/ Two center rows harvested for yield.
Standard error of a difference = 2.59 bushels.

Bushland, Texas
Four replications, irrigated
4-row plots, 20 feet long[1/],

Variety	C.I. No.	Date		Plant height	Stripe rust	Lodging	Weight per bushel	Average acre yield
		Headed	Ripe					
		May	June	In.	%	%	Lb.	Bu.
EB-Tm x Oro-Mi-Hp	12871	13	24	48	50	5	57.9	43.0
Early Blackhull	8856	10	22	48	T	90	56.1	41.3
Tascosa	13023	14	25	46	40	60	53.6	39.5
Concho	12517	14	25	45	50	35	52.6	38.6
Comanche	11673	18	27	48	50	10	49.8	35.8
Crockett	12702	15	25	50	50	20	53.4	32.5
Kharkof	1442	21	29	48	50	50	47.9	27.4

1/ Two center rows of each plot harvested for yield.
Standard error of a difference = 4.00 bushels.

Stratford, Texas
Four replications
4-row plots 25 feet long[1/]

Variety	C.I. No.	Plant height	Weight per bushel	Average acre yield
		In.	Lb.	Bu.
Early Blackhull	8856	36	53.2	18.2
EB-Tm x Oro-Mi-Hp	12871	35	52.2	18.1
Tascosa	13023	30	49.9	15.6
Crockett	12702	36	48.9	15.2
Concho	12517	33	46.2	14.1
Comanche	11673	34	47.5	13.2
Kharkof	1442	31	49.4	10.1

1/ Two center rows of each plot harvested for yield.
Standard error of a difference = 0.57 bushels.

Clovis, New Mexico
Six replications, 1/40 acre plots

Variety	C.I. No.	Date headed	Plant height	Lodging	Shattering Score 1/	Weight per bushel	Av. acre yield 1958	Av. acre yield 1957-1958	Av. acre yield 1953-1958 2/	No. years grown	Percent of Kharkof
		May	In.	%		Lb.	Bu.	Bu.	Bu.		
Tascosa	13023	9	31	0	2.0	62.6	46.8	---	---	1	---
Cheyenne	8885	15	33	0	1.3	60.0	44.8	35.2	23.6	6	116.7
Kiowa	12133	11	32	0	2.0	59.9	43.7	32.6	20.8	4	102.8
Westar	12110	13	37	0	3.0	59.3	42.8	33.7	22.1	6	109.2
Tenmarq	6936	14	34	0	2.8	59.4	41.8	32.8	21.7	6	107.4
Early Blackhull	8856	5	33	20	2.0	60.1	41.6	30.2	18.9	4	93.3
Concho	12517	11	32	10	2.7	60.6	41.1	31.1	20.7	4	102.5
Apache	12122	9	30	5	2.2	60.9	40.7	32.1	21.4	6	105.7
Wichita	11952	8	32	25	4.0	59.6	38.1	27.6	18.8	6	92.8
Crockett	12702	9	34	5	2.7	61.2	38.0	29.3	---	3	95.4
Aztec	13016	13	33	0	1.3	62.0	37.4	29.0	---	2	97.8
EB-Tm x Oro-Mi-Hp	12871	8	30	T	2.3	62.3	37.2	28.6	---	2	96.6
Kharkof	1442	18	37	0	2.0	58.5	36.8	29.6	20.2	4	100.0
Blackhull	6251	12	34	0	2.0	59.9	36.7	30.9	20.3	5	100.2
Comanche	11673	12	31	T	2.0	60.3	35.8	28.2	18.3	6	90.5
Turkey	1558	16	34	T	2.0	59.0	35.3	29.9	19.1	6	94.7

1/ Shattering score based on 1-5 scale; 1 best, 5 poorest.
2/ No crop in 1954 and 1956.
Standard error of a difference = 2.44 bushels.

Stillwater, Oklahoma
Four replications, 1/77 acre plots

Variety	C.I. No.	Date headed	Plant height	Lodging	Leaf rust		Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
					Sev.	Type		1958	1957-1958	1954-1958		
		May	In.	%	%		Lb.	Bu.	Bu.	Bu.		
EB-Tm x Oro-Mi-Hp	12871	6	50	35	4	0:-4	63.7	50.6	41.8	----	2	174.7
Crockett	12702	6	53	41	20	0:-4	61.4	48.7	39.3	24.4	5	146.8
Early Blackhull	8856	3	52	31	48	4	61.9	47.8	37.7	22.5	26	99.8
Kr-HF-Tm-Mi-Hp x Ca	13023	9	49	4	33	4	61.2	46.6	----	----	1	---
Triumph	12132	4	50	3	63	4	61.5	44.2	36.0	20.8	16	107.3
Ponca	12128	10	51	10	25	2	58.8	42.7	34.1	21.4	11	112.6
Pawnee	11669	8	52	5	40	4	59.0	40.7	34.0	21.0	18	113.4
Comanche	11673	8	51	19	43	4	58.0	40.2	33.8	21.5	18	113.0
Concho	12517	9	50	61	45	4	58.8	39.4	32.5	22.2	9	128.4
Wichita	11952	6	50	24	68	4	60.0	39.3	33.8	21.0	14	102.8
Bh-Oro x Pn	13187	10	49	29	48	4	59.1	36.7	32.0	----	3	132.2
Westar	12110	10	53	10	53	4	58.1	35.7	29.7	21.0	13	115.8
Imp. BJ x Cm	13185	11	52	2	70	4	60.6	32.5	32.0	----	2	133.9
Kharkof	1442	13	51	15	70	4	59.1	26.9	23.9	16.6	26	100.0

Standard error of a difference = 1.87 bushels.

Woodward, Oklahoma
Five replications, rodrows

Variety	C.I. No.	Date headed	Plant height	Weight per bushel	Av. acre yield			No years grown	Percent of Kharkof
					1958	1957-1958	1954-1958		
		May	In.	Lb.	Bu.	Bu.	Bu.		
Crockett	12702	9	40	61.8	31.0	36.6	25.5	5	124.4
Comanche	11673	10	40	60.8	30.6	32.4	24.6	21	117.0
Concho	12517	10	40	61.8	30.5	31.4	24.0	9	121.4
Kr-HF-Tm-Mi-Hp x Ca	13023	9	37	62.8	29.1	----	----	1	-----
Wichita	11952	8	40	62.5	27.9	33.9	23.0	17	117.5
Triumph	12132	7	37	62.2	27.7	34.3	22.4	14	109.1
EB-Tm x Oro-Mi-Hp 1/	12871	9	40	63.4	27.5	35.8	----	2	146.7
Bh-Oro x Pn	13187	9	39	62.0	27.4	32.5	----	3	131.8
Westar	12110	11	41	60.2	26.9	30.0	23.4	15	111.6
Ponca	12128	10	39	60.2	26.8	33.9	24.6	11	112.0
Pawnee	11669	10	40	60.5	26.0	31.4	24.1	21	122.0
Early Blackhull	8856	6	40	63.8	25.3	30.5	21.4	27	99.9
Kharkof	1442	14	40	59.4	25.0	23.3	----	2	100.0
Imp. BJ x Cm	13185	12	40	62.8	23.3	24.4	20.5	27	95.3

1/Some loose smut observed in CI 12871.
Standard error of a difference = 1.90 bushels.

Cherokee, Oklahoma
Five replications, rodrows

Variety	C.I. No.	Date headed	Plant height	Broken stems (6-13)	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
						1958	1957-1958	1954-1958[1]		
		May	In.	%	Lb.	Bu.	Bu.	Bu.		
Triumph	12132	9	50	7	61.5	44.2	33.1	28.3	12	129.2
Early Blackhull	8856	9	54	8	61.2	43.6	28.7	26.0	12	122.9
Kr-HF-Tm-Mi-Hp x Ca(Tascosa)	13023	13	51	5	60.3	43.5	--	--	1	--
EB-Tm x Oro-Mi-Hp	12871	13	51	17	62.0	40.6	33.1	--	2	250.4
Crockett	12702	13	52	17	60.0	40.6	30.2	26.2	4	148.1
Comanche	11673	15	51	9	56.0	40.5	24.2	23.0	12	118.9
Ponca	12128[2]	14	52	13	58.0	36.6	23.5	22.6	10	108.8
Pawnee	11669	15	52	8	56.0	36.4	22.6	22.3	12	113.0
Concho	12517	13	51	40	57.0	35.0	24.5	25.7	8	142.1
Bh-Oro x Pn	13187	14	50	65[3]	59.0	34.7	26.0	--	3	162.4
Westar	12110	14	53	23	55.9	34.1	19.9	20.9	12	112.9
Wichita	11952	12	53	11	60.0	33.4	23.1	22.8	12	122.5
Imp. BJ x Cm	13185	16	56	5	59.0	31.2	18.9	--	2	143.2
Kharkof	1442[2]	18	51	20	54.5	22.9	13.2	17.7	12	100.0

1/ No crop in 1955.
2/ Worms cut off an estimated 9% of the spikes of Kharkof and 11% of Ponca.
3/ Stem breakage severe.
Standard error of a difference = 2.52 bushels.

Goodwell, Oklahoma
Four replications, rodrows, dryland

Variety	C.I. No.	Date		Plant height	Spring stand	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
		Headed	Ripe				1958	1957-1958	1953-1958		
		May	June	In.	%	Lb.	Bu.	Bu.	Bu.		
Triumph	12132	23	11	28	97	52.5	15.8	29.4	28.9	10	150.7
Early Blackhull	8856	24	12	29	70	54.8	11.4	26.2	26.5	18	113.1
Wichita	11952	23	12	30	91	50.0	10.9	23.0	25.8	12	150.0
EB-Tm x Oro-Mi-Hp	12871	24	11	31	81	49.2	10.6	23.9	----	2	200.4
Concho	12517	22	11	29	100	47.2	9.6	23.4	28.2	6	201.0
Kr-HF-Tm-Mi-Hp x Ca	13023	23	12	29	92	48.4	9.3	----	----	1	-----
Imp. BJ x Cm	13185	25	11	32	88	50.2	8.1	17.4	----	2	146.2
Crockett	12702	23	12	28	99	48.0	6.9	19.0	21.3	6	151.8
Westar	12110	25	12	31	81	45.5	6.8	15.8	20.9	12	133.9
Comanche	11673	24	12	29	93	45.0	6.5	19.4	24.5	14	140.7
Bh-Oro x Pn	13187	22	11	27	94	45.2	6.0	19.5	----	3	253.2
Pawnee	11669	24	12	30	85	42.8	5.6	17.4	21.5	14	123.7
Ponca	12128	23	12	30	92	44.0	4.3	18.7	23.2	9	135.4
Kharkof	1442	25	12	28	95	47.3	4.0	11.9	14.0	18	100.0

Standard error of a difference = 1.95 bushels.

Goodwell, Oklahoma
Five replications, rodrows, irrigated[1/]

Variety	C.I. No.	Date		Plant height	Spring stand	Weight per bushel	Average acre yield
		Headed	Ripe				
		May	June	In.	%	Lb.	Bu.
Triumph	12132	23	18	45	85	50.8	27.4
Kr-HT-Tq-Mi-Hp x Ca	13023	25	20	44	89	52.8	23.4
Early Blackhull	8856	23	19	49	92	50.8	23.3
EB-Tm x Oro-Mi-Hp	12871	26	19	46	85	49.5	16.4
Imp. BJ x Cm	13185	30	20	46	90	52.8	15.2
Ponca	12128	27	20	44	87	46.2	14.8
Comanche	11673	28	20	45	85	45.8	14.4
Concho	12517	26	20	47	88	45.3	13.6
Kharkof	1442	31	21	45	89	48.4	12.6
Pawnee	11669	28	20	46	86	44.0	12.4
Wichita	11952	25	18	47	88	46.8	12.3
Westar	12110	28	20	46	85	43.2	9.6
Crockett	12702	25	20	48	88	44.8	9.5
Bh-Oro x Pn	13187	27	20	44	88	48.4	8.6

1/ Nursery received one pre-planting fall irrigation and two spring irrigations. Forty pounds of nitrogen applied on April 1.
Standard error of a difference = 2.40 bushels.

Manhattan, Kansas
Six replications, rodrows

Variety	C.I. No.	Date headed	Plant height	Lodging	Hessian fly 1/	Disease				Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
						Loose smut 2/	Bunt 3/	Leaf rust	Stem rust		1958	1957-1958	1955-1958		
		May	In.	%	%		%	%	%	Lb.	Bu.	Bu.	Bu.		
Quivira Hybrid	13285	20	39	0	0	0	65	30MR	60S	60.4	37.3	----	----	1	-----
EB-Tm x Oro-Mi-Hp	12871	20	42	0	15	0	2	10R	80S	62.5	36.3	38.7	----	3	114.6
Bison	12518	22	41	0	100	T	2	70S	70S	60.2	35.2	36.3	32.8	7	125.0
Mi-Hp-Pn x Oro-Ill-Cm	12804	21	40	0	0	0	50	TR	80S	60.2	34.2	37.9	32.9	5	113.1
Kiowa	12133	21	41	0	50	8	5	80S	70S	60.7	34.0	36.1	31.8	13	127.5
Crockett	12702	22	43	11	25	0	85	15S	60S	60.4	33.9	35.6	----	2	118.1
Kharkof	1442	25	43	0	50	0	85	60S	70S	59.4	33.0	30.2	29.8	27	100.0
Ponca	12128	21	40	0	0	0	78	20MR	60S	60.9	32.9	35.9	31.5	14	132.8
Concho	12517	21	40	8	85	1	8	40MS	80S	59.8	32.9	35.1	32.2	7	120.5
Triumph	12132	17	40	0	40	0	82	60S	80S	60.5	32.6	34.8	30.2	13	128.2
Comanche	11673	21	41	0	60	0	1	40MS	80S	58.7	32.4	33.6	29.7	21	128.3
Cheyenne	8885	24	39	T	30	0	71	60S	80S	59.8	31.9	31.6	28.9	21	119.6
Wichita	11952	19	40	0	85	0	85	50S	70S	60.3	31.1	36.0	31.2	19	128.4
Pawnee	11669	21	41	3	10	0	16	50S	80S	59.3	31.0	33.2	31.1	21	139.2
Pawnee x Nebred	13015	21	41	5	0	1	2	70S	80S	60.0	30.1	----	----	1	-----
Turkey	1558	25	41	16	40	69	92	60S	60S	59.8	26.8	29.9	28.8	27	103.5

1/ Greenhouse test. 2/ Number of heads per 32 square feet 3/ Data from E.D. Hansing.
Standard error of a difference = 1.70 bushels.

Hays, Kansas
Three replications, 1/50 acre plots

Variety	C.I. No.	Date headed	Plant height	Lodging	Shattering	Rust		Weight per bushel	Av. acre yield		No. years grown	Percent of Kharkof
						Stripe	Leaf		1958	1952-1958[1]		
		May	In.	%	%			Lb.	Bu.	Bu.		
Kiowa	12133	26	48	15	7	S+++	S+++	60.0	37.4	34.8	10	112.0
Comanche	11673	26	49	35	8	R	S+	60.5	36.9	32.7	18	113.8
Quivira Hybrid	13285	23	46	5	20	R++	R++	62.5	36.3	--	1	---
Bison	12518	26	48	35	3	S+++	S+++	61.5	36.2	33.1	6	107.6
Mi-Hp-Pn x Oro-Ill-Cm	12804	25	50	10	12	S+++	R+	62.0	36.1	--	2	99.2
EB-Tm x Oro-Mi-Hp	12871	25	49	25	15	S+++	R+	63.0	35.4	--	2	110.8
Concho	12517	26	47	60	7	S++	S++	60.0	35.2	33.9	3	109.5
Ponca	12128	26	50	35	8	S	R+	60.5	34.4	31.8	9	99.9
Pawnee x Nebred	13015	26	46	20	8	S	S+	60.0	33.8	--	1	---
Wichita	11952	24	48	40	7	S+++	S+++	61.0	33.1	34.6	14	111.3
Cheyenne	8885	28	48	5	15	R	S+	60.0	32.2	33.7[2]	19	105.1
Kharkof	1442	28	48	40	7	R	S++	59.0	31.5	30.9	23	100.0
Pawnee	11669	26	49	10	8	S++	S	60.5	30.0	28.0	17	116.0
Turkey	1558	28	47	65	25	R	S+	60.0	28.3	29.6	23	98.2

1/ No crop 1953 - 1955 and in 1957.
2/ Cheyenne not grown 1949 - 1955.
Standard error of a difference = 2.13 bushels.

Garden City, Kansas
Four replications, 1/50 acre plots, dryland

Variety	C.I. No.	Date		Plant height	Lodging	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
		Headed	Ripe				1958	1957-1958	1955-1958		
		May	June	In.	%	Lb.	Bu.	Bu.	Bu.		
Comanche	11673	25	25	43	93	55.2	36.5	22.1	25.9	18	129.2
Concho	12517	24	24	42	96	54.8	36.1	23.4	27.3	6	134.8
Triumph	12132	21	21	41	91	56.7	34.6	21.9	23.8	11	118.9
Rodco	---	25	25	43	94	55.2	34.5	--	--	1	---
Pawnee x Nebred	13015	26	26	41	91	55.3	33.7	--	--	1	---
Kiowa	12133	24	24	44	79	55.2	33.0	19.6	24.9	11	127.4
Bison	12518	24	24	43	73	56.3	32.6	20.5	25.4	4	129.5
Crockett	12702	24	24	46	94	56.9	32.6	22.2	--	2	167.5
Quivira Hybrid	13285	22	22	41	95	56.9	32.4	--	--	1	---
Ponca	12128	24	24	43	94	55.3	32.0	20.4	22.3	10	109.5
Wichita	11952	22	22	44	94	55.3	31.8	18.7	23.3	16	116.9
Pawnee	11669	25	25	41	83	55.3	31.4	16.4	21.0	18	106.2
Mi-Hp-Pn x Oro-Ill-Cm	12804	24	24	45	68	56.0	30.4	19.2	23.8	5	120.0
EB-Tm x Oro-Mi-Hp	12871	23	23	41	70	58.8	30.0	21.1	24.6	4	125.5
Cheyenne	8885	29	29	42	94	54.6	26.2	14.9	19.5	4	99.7
Turkey	1558	29	29	41	95	54.2	23.8	14.5	20.4	18	103.3
Kharkof	1442	29	29	44	89	53.0	23.6	13.3	19.6	5	100.0

Standard error of a difference = 1.85 bushels.

Garden City, Kansas
Four replications, 1/50 acre plots, irrigated

Variety	C.I. No.	Date headed	Plant height	Lodging	Weight per bushel	Average acre yield
		May	In.	%	Lb.	Bu.
Quivira Hybrid	13285	23	38	64	58.8	65.2
Triumph	12132	21	37	73	58.2	55.9
Mi-Hp-Pn x Oro-Ill-Cm	12804	24	39	56	57.6	52.0
Pawnee x Nebred	13015	24	36	64	56.7	49.4
Pawnee	11669	26	38	66	56.6	48.8
Rodco	---	26	38	74	56.9	48.4
Bison	12518	25	40	63	57.0	47.9
EB-Tm x Oro-Mi-Hp	12871	24	39	81	59.4	47.0
Kiowa	12133	25	39	60	57.5	46.7
Wichita	11952	22	37	94	57.4	44.8
Ponca	12128	26	38	71	57.2	44.4
Comanche	11673	26	38	90	55.6	41.7
Concho	12517	24	38	93	56.2	40.9
Cheyenne	8885	30	39	63	56.2	39.3

Standard error of a difference = 3.10 bushels.

Colby, Kansas
Three replications, 1/50 acre plots, dryland

Variety	C.I. No.	Date headed	Plant height	Lodging 6-30	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
						1958	1957-1958	1955-1958		
		May	In.	%	Lb.	Bu.	Bu.	Bu.		
Quivira Hybrid	13285	25	42	2	59.0	46.8	--	--	1	---
Comanche	11673	27	43	0	58.5	46.5	39.1	29.7	16	107.2
Kiowa	12133	25	44	0	59.7	45.3	38.3	29.3	10	109.2
Mi-Hp-Pn x Oro-Ill-Cm	12804	25	43	0	60.7	45.0	42.4	30.7	5	111.3
Cheyenne	8885	31	41	0	58.2	44.1	37.2	29.3	19	107.4
Ponca	12128	25	43	7	58.5	43.9	41.6	31.0	10	112.6
Pawnee x Nebred	13015	26	42	0	60.3	43.4	--	--	1	---
Concho	12517	25	41	8	58.3	42.5	38.2	44.9	6	157.4
Kharkof	1442	31	41	0	56.0	42.1	34.6	27.0	12	100.0
EB-Tm x Oro-Mi-Hp	12871	25	44	8	61.7	41.6	37.0	--	3	110.9
Pawnee	11669	26	41	0	58.5	40.4	37.9	29.0	15	109.8
Wichita	11952	25	41	15	59.3	40.3	39.0	29.2	15	109.2
Turkey	1558	30	41	7	59.5	40.3	33.0	26.7	19	98.3
Bison	12518	26	44	0	59.0	40.0	36.0	28.5	4	105.5

Standard error of a difference = 3.06 bushels.

Colby, Kansas
Three replications, 1/68 acre plots, irrigated

Variety	C.I. No.	Date headed	Plant height	Lodging 6-30	Weight per bushel	Average acre yield
		May	In.	%	Lb.	Bu.
Kiowa	12133	28	45	0	61.0	51.6
Quivira Hybrid	13285	26	44	2	61.2	50.7
Bison	12518	28	45	1	60.3	50.2
Mi-Hp-Pn x Oro-Ill-Cm	12804	27	45	1	60.8	50.0
Concho	12517	27	44	1	60.5	49.4
Comanche	11673	28	44	2	59.2	49.2
Ponca	12128	28	44	1	60.3	46.2
Pawnee	11669	27	44	0	60.7	43.5
EB-Tm x Oro-Mi-Hp	12871	26	44	2	62.3	42.2
Wichita	11952	26	44	13	60.7	41.6
Pawnee x Nebred	13015 1/	27	43	0	----	----
Cheyenne	8885 1/	6-2	42	2	----	----
Turkey	1558 1/	6-2	42	5	----	----
Kharkof	1442 1/	6-2	43	5	----	----

1/ Destroyed by hail July 3. Other varieties harvested on July 2.
Standard error of a difference = 1.38 bushels.

Ft. Collins, Colorado
Seven replications, rodrows, fall irrigated

Variety	C.I. or Sel. No.	Date headed	Lodging 1/ (5-20)	Weight per bushel	Av. acre yield			No years grown	Percent of Kharkof
					1958	1957-1958	1954-1958		
		June	%	Lb.	Bu.	Bu.	Bu.		
Mqo-Oro-Oro-Tm x Mi-Hp-Pn	FC1262	1	0	61.3	58.4	63.1	----	3	167.5
Bison	12518	1	1	61.6	56.7	56.6	61.5	5	130.7
Comanche	11673	2	0	60.2	52.9	52.0	56.1	13	109.2
EB-Tm x Oro-Mi-Hp	12871	1	0	62.6	52.5	55.8	----	2	139.4
Mqo-Oro-Oro-Tm x Mi-Hp-Pn	FC1264	2	0	60.6	52.5	57.9	----	3	140.9
Concho	12517	1	0	61.8	51.0	57.4	60.8	5	129.2
Cheyenne Sel.	WS536	6	0	60.6	50.5	----	----	1	-----
do	WS660	6	0	58.2	50.2	----	----	1	-----
Pawnee	11669	2	0	61.9	48.7	51.1	55.2	13	109.2
Cheyenne Sel.	WS354	7	9	60.4	48.4	----	----	1	-----
do	WS432	5	1	60.3	47.8	----	----	1	-----
Wichita	11952	1	29	62.1	47.3	51.0	50.4	13	104.9
Ponca	12128	2	10	60.0	42.4	49.8	52.0	9	102.3
Cheyenne Sel.	WS349	7	0	58.2	40.5	----	----	1	-----
do	WS624	7	14	59.6	36.7	----	----	1	-----
do	WS663	6	22	58.8	36.2	----	----	1	-----
Kharkof	1442	5	26	58.7	32.4	40.0	47.1	11	100.0

1/ All varieties completely lodged at harvest.
Standard error or a difference = 4.95 bushels.

Akron, Colorado
Four replications, 1/40 acre plots

Variety	C.I. or Sel. No.	Date headed	Plant height	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
					1958	1957-1958	1954-1958		
		June	In.	Lb.	Bu.	Bu.	Bu.		
Cheyenne	8885	7-3	38	58.5	40.6	31.3	20.1	27	107.7
Nebred	10094	7-2	34	59.0	39.4	--	--	--	---
Comanche	11673	31	37	58.5	39.1	28.5	19.9	20	109.4
Concho	12517	30	40	59.0	38.8	28.1	19.1	6	104.4
Bison	12518	31	38	58.5	38.4	28.8	19.1	6	114.2
Ponca	12128	31	37	57.0	36.4	27.1	18.4	11	99.4
Cheyenne Sel.	WS660	7-3	37	58.0	35.9	--	--	1	---
Pawnee	11669	31	38	58.0	35.3	26.3	18.7	20	106.0
Early Colorado	---	29	38	58.0	34.6	26.9	--	3	107.2
EB-Tm x Oro-Mi-Hp	12871	28	39	61.0	34.2	26.3	--	2	105.4
Tenmarq	6936	7-2	39	57.0	33.7	25.5	17.8	27	105.9
Wichita	11952	27	38	58.5	33.5	25.6	18.3	18	104.6
Cheyenne Sel.	WS432	7-4	34	58.5	33.3	--	--	1	---
Kharkof	1442	7-4	37	57.5	30.9	25.0	18.2	27	100.0
Alton	1438	7-4	33	58.0	29.5	23.5	15.7	27	83.0

Standard error of a difference = 3.44 bushels.

Lincoln, Nebraska
Five replications, 1/47 acre plots

Variety	C.I. or Sel. No.	Date headed	Plant height	Lodging	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
						1958	1957-1958	1954-1958		
		May	In.	%	Lb.	Bu.	Bu.	Bu.		
Mi-Hp-Pn x Oro-Ill-Cm	12804	28	45	4	61.1	49.2	----	----	1	-----
Wichita x Nebred	52NP1672	28	44	38	61.2	44.8	----	----	1	-----
Bison	12518	29	45	20	61.5	41.6	40.5	37.9	5	123.5
Comanche	11673	30	44	63	59.2	40.7	38.4	35.1	20	112.7
Ponca	12128	29	45	10	59.6	40.5	39.3	36.1	11	111.7
Pawnee	11669	29	43	23	59.3	40.5	39.7	37.8	22	123.2
EB-Tm x Oro-Mi-Hp	12871	27	41	78	62.5	40.1	40.2	----	2	130.2
Regional Comp.	------	29	44	40	59.4	40.1	----	----	1	-----
Concho	12517	28	41	83	59.5	39.9	39.7	38.9	6	128.1
Nebraska Comp.	-----	29	43	38	58.9	38.7	----	----	1	-----
Pawnee x Nebred	13015	28	43	30	59.0	38.5	38.8	37.5	5	122.4
Pawnee x Cheyenne	13190	31	42	30	58.5	38.5	35.9	----	3	117.6
Turkey x Cheyenne	12711	29	42	50	58.5	38.2	----	38.6 1/	4	122.3
Pawnee x Cheyenne	13007	29	41	33	59.9	37.6	37.6	35.7	6	118.1
Wichita x Nebred	531538	27	43	65	59.3	36.4	36.3	----	2	117.7
Kharkof	1442	6-2	44	48	59.5	34.3	30.9	30.7	27	100.0
Nebred	10094	31	42	55	59.8	33.0	32.2	33.7	27	108.9
Turkey	12137	6-1	43	48	59.9	31.9	29.7	30.6	27	100.1

1/ Two-year average. CI12711 not grown in 1955, 56 and 57.
Standard error of a difference = 3.46 bushels.

North Platte, Nebraska
Five replications, 1/50 acre plots

Variety	C.I. or Sel. No.	Weight per bushel	Average acre yield			No. years grown	Percent of Kharkof
			1958	1957-1958	1955-1958		
		Lb.	Bu.	Bu.	Bu.		
Wichita x Nebred	531538	59.7	73.2	--	--	1	---
Pawnee x Cheyenne	13190	58.6	70.6	57.7	--	3	126.0
Mi-Hp-Pn x Oro-Ill-Cm	12804	60.8	70.3	--	--	1	---
Wichita x Nebred	52NP1672	61.7	69.8	--	--	1	---
Concho	12517	60.5	69.6	52.5	44.4	5	105.6
Nebred x Red chief	533570	60.8	68.1	--	--	1	---
Wichita	11952	59.5	67.0	--	--	10 1/	103.8
Comanche	11673	59.3	66.3	52.8	44.0	19	103.5
Nebred	10094	59.6	65.4	51.6	46.0	23	108.6
Cheyenne	8885	58.8	65.3	51.6	45.6	25	108.2
Bison	12518	60.2	64.1	51.4	44.0	4	104.3
EB-Tm x Oro-Mi-Hp	12871	61.4	63.4	56.6	--	2	126.2
Pawnee	11669	59.6	62.4	55.2	45.7	19	107.7
Pawnee x Nebred	13015	59.8	60.5	50.8	43.0	4	102.0
Pawnee x Cheyenne	47NP1689	60.0	60.0	--	--	1	---
Kharkof	1442	58.9	59.7	44.9	42.2	25	100.0

1/ Wichita not grown 1952-1957.
Standard error of a difference = 1.39 bushels.

Alliance, Nebraska
Three replications, rodrows

Variety	C.I. or Sel. No.	Date headed	Plant height	Shattering 1/	Lodging	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
							1958	1957-1958	1956-1958		
		June	In.		%	Lb.	Bu.	Bu.	Bu.		
Wichita x Nebred	531538	2	43	0	46	62.1	62.6	--	--	1	---
do	52NP1672	2	42	0	38	63.3	62.3	--	--	1	---
Pawnee x Cheyenne	13190	4	41	1	11	61.8	61.4	56.2	46.4	3	111.9
Concho	12517	2	42	3	32	62.2	60.5	60.0	49.6	5	110.7
Wichita	11952	2	43	1	6	61.7	60.3	--	--	10 2/	95.3
Cheyenne	8885	6	42	1	15	62.2	58.6	52.1	45.0	20	109.8
EB-Tm x Oro-Mi-Hp	12871	2	43	0	9	63.1	55.9	55.0	46.7	3	112.6
Comanche	11673	2	42	1	41	61.3	54.8	53.5	45.4	17	103.3
Nebred	10094	5	41	1	13	62.0	54.4	49.3	41.7	18	105.0
Bison	12518	1	43	0	5	62.3	53.6	52.3	44.8	4	106.8
Mi-Hp-Pn x Oro-Ill-Cm	12804	1	42	0	6	61.9	53.3	--	--	1	---
Pawnee	11669	1	42	2	1	60.9	52.5	55.5	46.3	17	105.7
Nebred x Red Chief	533570	4	44	0	0	63.4	52.4	--	--	1	---
Kharkof	1442	6	43	0	56	60.7	51.6	49.7	41.5	20	100.0
Pawnee x Nebred	13015	3	40	0	9	60.7	50.4	47.1	--	2	94.7
Pawnee x Cheyenne	47NP1689	3	42	4	20	62.1	49.3	--	--	1	---

1/ 0-5 scoring system used; 0 = no shattering, 1 = trace, 2 = 5%, 3 = 10%, 4 = 15%, 5 = 25% or more.
2/ Wichita not grown 1952-1957.
Standard error of a difference = 3.15 bushels.

Brookings, South Dakota
Two replications, 1/50 acre plots

Variety	C.I. No.	Date		Plant height	Rust		Lodging 1/	Weight per bushel	Av. acre yield			No. years grown	Percent of Minturki
		Headed	Ripe		Stem	Leaf			1958	1957-1958	1955-1958		
		June	July	In.	%	%	%	Lb.	Bu.	Bu.	Bu.		
Kharkof MC22	6938	13	24	38	50	60	3.0	61.5	56.3	43.1	----	3	94.7
Cheyenne	8885	9	19	30	30	60	0.0	63.0	54.8	----	----	1	----
Yogo	8033	12	22	34	40	60	5.0	63.0	53.4	43.9	----	3	97.6
Nebred	10094	7	19	29	25	70	1.0	63.5	51.5	45.9	29.4	12	100.7
Minturki	6155	10	22	39	32	60	3.0	63.0	50.9	43.9	28.4	12	100.0
Minter	12138	11	22	38	8	60	3.0	64.0	50.7	47.4	31.4	12	111.4
Pawnee	11669	6	20	28	20	50	1.0	63.5	48.5	44.8	27.0	10	93.2
Marmin	11502	9	21	34	40	60	2.0	62.5	48.2	44.7	30.5	10	103.2
Wichita	11952	4	18	25	40	60	0.0	63.5	44.1	40.9	24.0	4	84.3

1/ Lodging score based on 0-10 scale; 0=no lodging, 10=completely lodged.
Standard error of a difference = 0.95 bushels

Highmore, South Dakota
Two replications, 1/50 acre plots

Variety	C.I. No.	Date headed	Winter survival	Plant height	Rust		Lodging 1/	Weight per bushel	Av. acre yield			No. years grown	Percent of Minturki
					Leaf	Stem			1958 2/	1957-1958	1955-1958		
		June	%	In.			%	Lb.	Bu.	Bu.	Bu.		
Cheyenne	8885	18	100	37	60	5	1.0	59.0	54.9	--	--	1	---
Minturki	6155	23	100	40	45	5	3.5	57.8	50.2	50.7	35.7	4	100.0
Wichita	11952	13	95	34	50	10	2.0	59.9	48.7	56.6	36.0	4	100.8
Nebred	10094	17	100	38	50	8	4.0	58.4	48.0	46.8	32.8	4	91.9
Minter	12138	22	100	42	45	T	2.5	59.4	47.6	50.8	36.4	4	102.0
Yogo	8033	24	100	42	45	5	3.0	57.1	47.6	46.9	33.6	4	94.2
Pawnee	11669	15	95	36	60	5	4.0	59.2	45.5	52.1	35.0	4	98.0
Kharkof MC 22	6938	25	95	40	30	10	1.0	58.2	45.2	--	--	2	89.9

1/ Lodging score based on 0-10 scale; 0 = no lodging, 10 = completely lodged.
2/ Yields taken from rodrow nursery instead of plots.
Standard error of a difference = 4.50 bushels.

Cottonwood, South Dakota
Two replications, 1/50 acre plots

Variety	C.I. No.	Date ripe	Winter survival	Plant height	Rust		Leaf kill	Lodging 1/	Weight per bushel	Av. acre yield			No. years grown	Percent of Minturki
					Leaf	Stem				1958	1957-1958	1956-1958		
		June	%	In.				%	Lb.	Bu.	Bu.	Bu.		
Pawnee	11669	16	60	32	55	30	9.5	2.0	62.2	26.3	26.1	21.1	3	134.2
Minter	12138	22	65	42	55	18	8.5	3.0	61.5	24.2	23.3	18.1	3	115.1
Wichita	11952	16	45	32	55	40	9.5	1.0	63.2	23.5	25.7	20.7	3	132.1
Cheyenne	8885	19	72	36	60	45	9.5	1.0	60.5	23.2	--2/	--	2	137.2
Nebred	10094	18	55	32	60	40	8.0	3.0	62.2	21.7	21.7	18.1	3	115.3
Yogo	8033	24	50	42	65	45	9.5	3.0	59.8	19.1	22.8	16.7	3	106.4
Kharkof MC22	6938	24	70	40	65	35	8.5	2.5	57.2	18.8	--2/	--	2	93.7
Minturki	6155	24	58	42	70	28	8.5	3.0	59.2	17.6	19.7	15.7	3	100.0

1/ Lodging score based on 0-10 scale; 0 = no lodging, 10 = completely lodged.
2/ Cheyenne and Kharkof MC22 not grown in 1957.
Standard error of a difference = 2.60 bushels.

St. Paul, Minnesota
Three replications, 1/40 acre plots

Variety	C.I. No.	Date Headed	Date Ripe	Plant height	Lodging 1/	Weight per bushel	Av. acre yield 1958	Av. acre yield 1957-1958	Av. acre yield 1956-1958	No. years grown	Percent of Minturki
		June	July	In.		Lb.	Bu.	Bu.	Bu.		
H227-10-3-1-1xH255-49-5-1-3	III-54-58	4	15	40	1.7	61.1	58.2	47.1	46.4	3	119.8
Racine	Wisc.X-287-1	6	18	46	1.3	59.2	57.8	46.6	--	2	127.1
H255-49-5-1-4xBlackhawk	III-54-26	7	14	42	1.7	60.6	56.7	40.8	--	2	111.3
H255-49-5-1-4xBlackhawk	III-54-60	7	16	41	1.3	59.5	56.3	42.1	43.5	3	112.5
H255-49-5-1-4xBlackhawk	III-54-10	4	15	39	1.0	60.3	54.8	41.8	43.5	3	112.3
H255-49-5-1-4xBlackhawk	III-54-25	7	18	41	1.3	60.4	54.3	--	--	1	---
H255-49-5-1-4xBlackhawk	III-54-17	7	17	42	2.3	60.7	53.0	--	--	1	---
Nebred	10094	3	13	38	2.0	61.5	53.0	43.1	--	2	117.5
H255-49-5-1-4xBlackhawk	III-54-61	8	16	43	1.3	60.3	52.3	40.2	41.0	3	106.0
H255-49-5-1-4xBlackhawk	III-54-9	7	16	42	1.3	59.5	51.7	40.5	43.1	3	111.4
Blackhawk	12218	6	16	44	1.3	60.3	50.8	38.6	40.5	11	103.4
Minter	12138	7	16	43	2.0	62.0	50.6	40.4	41.5	13	106.8
H255-49-5-1-4xBlackhawk	III-54-65	5	14	41	1.0	60.8	50.5	--	--	1	---
H255-49-5-1-4xBlackhawk	III-54-24	7	18	42	1.7	60.5	48.8	--	--	1	---
Minturki	6155	8	18	43	2.7	60.3	46.9	36.7	38.7	18	100.0

1/ Lodging based on 1-5 score; 1= no lodging, 5= flat.
Standard error of a difference = 2.00 bushels.

Waseca, Minnesota
Three replications, 1/40 acre plots

Variety	C.I. No.	Date		Winter survival	Plant height	Lodging1/	Rust		Weight per bushel	Av. acre yield			No. years grown	Percent of Minturki
		Headed	Ripe				Leaf	Stem		1958	1957-1958	1956-1958		
		June	July	%	In.		%	%	Lb.	Bu.	Bu.	Bu.		
H255-49-5-1-4xBlackhawk	III-54-10	5	18	97	43	1.0	T	0	62.3	72.6	60.3	51.0	3	140.7
Racine	Wisc. X-287-1	7	23	87	51	1.5	5	70	60.9	69.1	53.8	----	2	127.8
H227-10-3-1-1xH255-49-5-1-3	III-54-58	3	15	95	43	1.0	T	0	61.0	65.7	59.1	49.0	3	135.2
H255-49-5-1-4xBlackhawk	III-54-17	7	20	95	47	1.5	5	0	61.2	65.3	----	----	1	-----
H255-49-5-1-4xBlackhawk	III-54-60	7	20	95	46	1.8	5	T	61.2	64.5	57.4	48.7	3	134.3
H255-49-5-1-4xBlackhawk	III-54-9	7	19	97	47	1.5	15	T	61.6	63.2	54.0	47.1	3	130.0
H255-49-5-1-4xBlackhawk	III-54-25	7	18	100	46	1.5	15	0	61.7	62.9	----	----	1	-----
H255-49-5-1-4xBlackhawk	III-54-26	6	16	95	46	1.7	T	T	62.2	62.6	55.5	----	2	131.8
Blackhawk	12218	6	20	95	51	1.8	20	40	61.1	60.6	47.4	41.4	13	105.4
H255-49-5-1-4xBlackhawk	III-54-61	7	18	93	46	1.8	5	T	60.5	60.2	53.6	46.3	3	127.8
H255-49-5-1-4xBlackhawk	III-54-24	8	21	97	47	1.3	10	5	61.7	59.9	----	----	1	-----
Minturki	6155	8	20	100	51	2.3	60	50	61.2	58.0	42.1	36.2	24	100.0
Nebred	10094	4	15	92	41	1.0	70	60	62.0	56.2	44.9	----	2	106.5
H255-49-5-1-4xBlackhawk	III-54-65	5	17	93	46	1.3	T	0	61.5	56.0	----	----	1	-----
Minter	12138	6	18	97	49	2.3	30	5	61.9	54.9	47.4	41.7	15	108.3

1/ Lodging based on 1-5 score; 1 = no lodging, 5 = flat.
Standard error of a difference = 3.95 bushels.

Grand Rapids, Minnesota
Three replications, 1/40 acre plots

Variety	C.I. No.	Date Headed	Date Ripe	Winter survival	Plant height	Weight per bushel	Av. acre yield 1958	Av. acre yield 1957-1958	Av. acre yield 1956-1958	No. years grown	Percent of Minturki
		June	July		In.	Lb.	Bu.	Bu.	Bu.		
Racine	Wisc.X-287-1	16	28	95	42	58.0	44.9	53.7	--	2	149.2
H255-49-5-1-4xBlackhawk	III-54-26	16	27	98	38	57.8	41.5	46.2	--	2	128.4
H255-49-5-1-4xBlackhawk	III-54-65	16	29	98	34	59.3	39.2	--	--	1	---
H255-49-5-1-4xBlackhawk	III-54-25	18	28	100	36	56.7	39.0	--	--	1	---
H255-49-5-1-4xBlackhawk	III-54-9	17	29	97	39	57.6	38.3	54.9	43.1	3	143.1
Blackhawk	12218	18	30	98	38	57.7	37.8	51.8	41.0	11	107.5
H255-49-5-1-4xBlackhawk	III-54-24	16	29	95	37	57.7	37.0	--	--	1	---
H255-49-5-1-4xBlackhawk	III-54-17	16	28	93	36	55.6	36.2	--	--	1	---
H255-49-5-1-4xBlackhawk	III-54-61	18	30	100	40	57.1	35.9	54.9	43.2	3	143.6
H255-49-5-1-4xBlackhawk	III-54-60	17	30	100	36	55.3	34.5	54.4	42.3	3	140.6
Minturki	6155	18	31	97	40	57.8	30.7	36.0	30.1	16	100.0
Nebred	10094	16	25	97	32	56.8	29.9	38.9	--	2	108.2
H255-49-5-1-4xBlackhawk	III-54-10	16	25	98	33	55.8	29.4	54.7	42.6	3	141.4
H227-10-3-1-1xH255-49-5-1-3	III-54-58	16	24	98	35	55.0	29.0	51.0	41.5	3	137.8
Minter	12138	17	28	98	38	57.2	28.3	41.0	34.0	11	120.9

Standard error of a difference = 5.10 bushels.

Ames, Iowa
Three replications, rodrows

Variety	C.I. No.	Date		Plant height	Lodging	Weight per bushel	Av. acre yield			No. years grown	Percent of Minter
		Headed	Ripe				1958	1957-1958	1954-1958		
		May	July	In.	%	Lb.	Bu.	Bu.	Bu.		
Minter	12138	30	5	38	68	61.0	65.7	43.2	38.1	9	100.0
Minturki	6155	30	8	39	65	61.5	63.7	40.8	31.5	8	89.8
Nebred	10094	28	3	35	53	60.0	63.1	38.5	----	2	89.0

Standard error of a difference = 3.23 bushels.

Wyoming Stations
Four replications, rodrows, at each location

Variety	C.I. or Sel. No.	Average acre yield at ------				4-station average yield
		Albin(E) 1/	Albin(H) 1/	La Grange	Gillette	
		Bu.	Bu.	Bu.	Bu.	Bu.
Cheyenne Selection	W.S.318	42.7	49.1	56.1	18.8	41.7
do	W.S.432	42.7	48.5	46.9	17.8	39.0
Cheyenne	8885	43.1	44.3	47.2	19.3	38.5
Nebred	10094	45.6	42.8	47.0	17.4	38.2
Concho	12517	42.9	50.6	46.1	12.6	38.0
Cheyenne Selection	W.S.676	42.4	46.2	43.4	18.5	37.6
Cn-RC x Pn-Mqo-Oro	13008	38.7	42.4	43.8	16.3	35.3
Yogo	8033	39.1	39.5	42.5	19.4	35.1
Kharkof	1442	39.2	42.0	41.9	17.2	35.1
Minter	12138	39.6	42.4	38.8	18.4	34.8
Kharkof MC22	6938	35.6	39.0	29.8	21.6	31.5

1/ (E) and (H) designate different testing locations in the Albin area. Standard error of a difference = 2.40 bushels at Albin(E) and Albin(H), 3.05 bushels at La Grange, and 1.15 bushels at Gillette.

Havre, Montana
Six replications, rodrows

Variety	C.I. No.	Date headed	Plant height	Weight per bushel	Average acre yield	No. years grown	Percent of Kharkof
		June	In.	Lb.	Bu.		
Westmont	12930	5-28	19	61.9	32.8	1	---
Cheyenne	8885	1	21	62.5	32.7	2	101.5
Newturk	6935	1	22	62.5	32.1	16	98.7
Mt x Tt-Tv	12806	9	30	61.4	31.4	1	---
Yg x Tk-Oro-66	13427	2	24	60.7	31.2	1	---
Burt	12696	2	20	61.8	30.9	1	---
Yg x Tk-Oro-88	13428	2	24	60.0	30.7	1	---
Kharkof	1442	2	23	61.9	30.5	22	100.0
Karmont	6700	2	23	62.0	30.4	22	103.4
Rego	13181	1	24	60.1	30.0	2	95.2
Yogo	8033	3	26	61.0	30.0	22	109.5
Kharkof M.C.22	6938	4	26	60.0	29.8	2	96.2
Yg x Tk-Oro-121	13429	2	23	61.0	29.7	1	---
Yg x Yg-Rc-5-1519	---	2	23	60.7	29.6	1	---
Cheyenne 57	13426	1	20	62.3	28.5	1	---
Columbia	12928	5-29	20	62.3	27.8	1	---
Wasatch	11925	5-31	22	61.3	26.6	5	78.5
Minter	12138	2	23	61.4	26.3	11	97.2
Itana	12933	5-31	19	61.4	25.6	3	93.3
Yg x Yg-Rc-5-1612	---	2	25	60.5	25.4	1	---

Standard error of a difference = 2.03 bushels.

STANDARD ERRORS

The standard errors calculated for the field-plot yield data in 1958 are reported in table 2. Number of replications and mean yields also are reported in table 2. In most instances the standard errors were calculated by the cooperators. If only an L.S.D. was reported, it was used to calculate the other error terms.

From 30 reporting stations in 1958, mean test yields of less than 20 bushels per acre occurred at only 5 stations and mean test yields of less than 15 bushels at only 2 locations. Mean yields higher than 30 bushels per acre were reported from 25 stations and mean test yields above 40 bushels from 16 stations. Further indication of the excellent conditions that prevailed throughout the region during the year can be found in the coefficients of variability. In general, winter wheat yield coefficients tend to become larger with the severity of environmental adversities. Twenty-eight stations reported coefficients of less than 15 per cent, and 18 had coefficients of less than 10 per cent. Coefficients of variability less than 5 per cent were reported from 5 stations.

SUMMARY OF PLOT DATA

Summaries of average yields and other agronomic data by districts are reported in tables 3 through 12. Two-year as well as 1958 yield data have been summarized.

Yields by Districts

In the sourthern district, the new Texas variety Tascosa had slightly the highest average yield in 1958. C. I. 12871 was a close second and Early Blackhull third. On a 2-year basis C. I. 12871 and Crockett in that order made the best yield records. The average performance of Concho dropped off to fourth place in the 2-year averages.

Concho continues to maintain its number one yield position in the central district. It slightly outyielded Comanche in 1958 and is 1/2 bushel superior to second place C. I. 12871 in the central district 2-year averages.

The northeastern district yield summaries include the 3 uniform varieties only. Nebred was slightly higher in yield than Minter in 1958 but has been nearly 2 bushels less productive than Minter on a 2-year basis.

Five varieties are compared in the northwestern district. In the 1958 average from 4 Wyoming stations and 1 Montana station, Cheyenne has a 3-bushel superiority over second place Kharkof.

Summary of Agronomic Data

A summarization of agronomic data other than yield for the southern district uniform varieties appears in table 10. C. I. 12871 and Early Blackhull in that order showed considerable superiority over other varieties in test weight. Crockett had the lowest average leaf-rust readings, and Early Blackhull showed the lowest average stripe-rust infection. Comanche was the least lodged and Tascosa had slightly the shortest straw.

In the central district, C. I. 12871 and Bison were the only varieties with average test weights above 60 pounds (table 11). Pawnee and Bison in that order had the least amount of lodging.

Minter has the highest average test weight in the northeastern district as wellas the lowest stem-and leaf-rust readings and the highest winter survival (table 12).

Agronomic data from the northwestern district were insufficient for summarization

Table 2. Number of replications, average yields and standard errors for the variety tests at the cooperating stations in 1958.

State and Station	No. replication	No. varieties	Av. yield all varieties	Standard error of a		Coefficient of variability
				Difference in means	Mean	
			Bu.	Bu.	Bu.	%
TEXAS						
Denton	8*	28	18.7	1.83	1.30	19.6
Chillicothe	8*	25	30.8	2.64	1.86	17.1
Bushland (dryland)	4*	7	27.1	2.59	1.83	13.5
do (irrigated)	3*	7	36.9	4.00	2.83	13.3
Stratford	3*	7	14.9	0.57	0.40	4.7
NEW MEXICO						
Clovis	5	16	39.9	2.44	1.73	9.7
OKLAHOMA						
Stillwater	4	14	40.9	1.87	1.32	6.5
Woodward	5*	14	27.5	1.90	1.35	11.0
Cherokee	5*	14	37.0	2.52	1.78	10.8
Goodwell (dryland)	4*	14	8.3	1.95	1.38	33.4
do (irrigated)	5*	14	15.3	2.40	1.70	24.9
KANSAS						
Manhattan	6*	16	60.2	1.70	1.20	4.9
Hays	3	14	34.1	2.13	1.50	7.7
Garden City (dryland)	4	17	31.5	1.85	1.31	8.3
do (irrigated)	4	14	48.0	3.10	2.19	9.1
Colby (dryland)	3	14	43.0	N.S.	2.16	8.7
do (irrigated)	3	10	47.5	1.38	0.98	3.6
COLORADO						
Ft. Collins	7*	17	47.4	4.95	3.50	19.6
Akron	4	15	35.6	3.44	2.44	13.7
NEBRASKA						
Lincoln	5	18	39.2	3.46	2.44	14.0
North Platte	5	16	66.0	1.39	0.98	3.3
Alliance	3*	16	55.9	3.15	2.23	6.9
IOWA						
Ames	3*	3	64.8	3.23	2.28	6.1
SOUTH DAKOTA						
Brookings	2	9	50.9	0.95	0.67	1.9
Highmore	3*	25	48.4	4.50	3.18	11.4
Cottonwood	2	8	21.8	2.60	1.84	11.9
MINNESOTA						
St. Paul	3	15	53.1	2.00	1.41	4.6
Waseca	3	15	62.1	3.95	2.79	7.8
Grand Rapids	3	15	35.4	5.10	3.61	17.6
WYOMING						
Albin (E)	4*	11	41.1	2.40	1.70	8.3
do (H)	4*	11	44.3	2.40	1.70	7.7
La Grange	4*	11	44.0	3.05	2.16	9.8
Gillette	4*	11	17.9	1.15	0.81	9.1
MONTANA						
Havre	6*	20	29.6	2.03	1.44	11.9

Table 3. Summary of average yields of varieties grown uniformly at 9 stations in the southern district in 1958.

Variety	C.I. No.	Average yield in bushels per acre at - - -									Nine station average
		Denton	Chilli-cothe	Bush-land	Strat-ford	Clovis	Still-water	Wood-ward	Chero-kee	Good-well	
Tascosa	13023	12.0	33.4	36.8	15.6	46.8	46.6	29.1	43.5	9.3	30.3
EB-Tm x Oro-Mi-Hp	12871	33.3	29.1	22.4	18.1	37.2	50.6	27.5	40.6	10.6	29.9
Early Blackhull	8856	17.0	30.3	29.9	18.2	41.6	47.8	25.3	43.6	11.4	29.5
Crockett	12702	17.9	31.3	22.5	15.2	38.0	48.7	31.0	40.6	6.9	28.0
Comanche	11673	15.7	32.8	24.4	13.2	35.8	40.2	30.6	40.5	6.5	26.6
Concho	12517	9.6	29.2	28.2	14.1	41.1	39.4	30.5	35.0	9.6	26.3
Kharkof	1442	12.2	28.6	25.9	10.1	36.8	26.9	25.0	22.9	4.0	21.4

Table 4. Two-year summary of average yields of varieties grown uniformly in the southern district in 1957 and 1958.

Variety	C.I. No.	Average yield in bushels per acre at - - - -							Two-year average
		Chilli-cothe	Bush-land	Clovis	Still-water	Wood-ward	Chero-kee	Good-well	
EB-Tm x Oro-Mi-Hp	12871	31.5	16.5	28.6	41.8	35.8	33.1	23.9	30.2
Crockett	12702	33.0	17.4	29.3	39.3	36.6	30.2	19.0	29.3
Early Blackhull	8856	28.6	20.8	30.2	37.7	30.5	28.7	26.2	29.0
Concho	12517	28.9	19.4	31.1	32.5	31.4	24.5	23.4	27.3
Comanche	11673	31.8	16.9	28.2	33.8	32.4	24.2	19.4	26.7
Kharkof	1442	24.4	16.4	29.6	23.9	23.3	13.2	11.9	20.4

Table 5. Summary of average yields of varieties grown uniformly at 9 stations in the central district in 1958.

Variety	C.I. No.	Average yield in bushels per acre at -----									Nine-station average
		Man-hattan	Hays	Garden City	Colby	Ft. Collins	Akron	Lincoln	North Platte	Alliance	
Concho	12517	32.9	35.2	36.1	42.5	51.0	38.8	39.9	69.6	60.5	45.2
Comanche	11673	32.4	36.9	36.5	46.5	52.9	39.1	40.7	66.3	54.8	45.1
Bison	12518	35.2	36.2	32.6	40.0	56.7	38.4	41.6	64.1	53.6	44.3
EB-Tm x Oro-Mi-Hp	12871	36.3	35.4	30.0	41.6	52.5	34.2	40.1	63.5	55.9	43.3
Pawnee	11669	31.0	30.0	31.4	40.4	48.7	35.3	40.5	62.4	52.5	41.4
Kharkof	1442	33.0	31.5	23.6	42.1	32.4	30.9	34.3	59.7	51.6	37.7

Table 6. Two-year summary of average yields of varieties grown uniformly in the central district in 1957 and 1958.

Variety	C.I. No.	Average yield in bushels per acre at ----								Two-year av.
		Man-hattan	Garden City	Colby	Ft. Collins	Akron	Lincoln	North Platte	Alliance	
Concho	12517	35.1	23.4	38.2	57.4	28.1	39.7	52.5	60.0	41.8
EB-tm x Oro-Mi-Hp	12871	38.7	21.1	37.0	55.8	26.3	40.2	56.6	55.0	41.3
Bison	12518	36.3	20.5	36.0	56.6	28.8	40.5	51.4	52.3	40.3
Comanche	11673	33.6	22.1	39.1	52.0	28.5	38.4	52.8	53.5	40.0
Pawnee	11669	33.2	16.4	37.9	51.1	26.3	39.7	55.2	55.5	39.4
Kharkof	1442	30.2	13.3	34.6	40.0	25.0	30.9	44.9	49.7	33.6

Table 7. Summary of average yields of varieties grown uniformly at 7 stations in the northeastern district in 1958.

Variety	C.I. No.	Average yield in bushels per acre at - -							Seven-station average
		Ames	Brookings	Highmore	Cottonwood	St. Paul	Waseca	Grand Rapids	
Nebred	10094	63.1	51.5	48.0	21.7	53.0	56.2	29.9	46.2
Minter	12138	65.7	50.7	47.6	24.2	50.6	54.9	28.3	46.0
Minturki	6155	63.7	50.9	50.2	17.6	46.9	58.0	30.7	45.4

Table 8. Two-year summary of average yields of varieties grown uniformly in the northeastern district in 1957 and 1958.

Variety	C.I. No.	Average yield in bushels per acre at - - - - - -							Two-year average
		Ames	Brookings	Highmore	Cottonwood	St. Paul	Waseca	Grand Rapids	
Minter	12138	43.2	47.4	50.8	23.3	40.4	47.4	41.0	41.9
Nebred	10094	38.5	45.9	46.8	21.7	43.1	44.9	38.9	40.0
Minturki	6155	40.8	43.9	50.7	19.7	36.7	42.1	36.0	38.6

Table 9. Summary of average yields of varieties grown uniformly at 5 stations in the northwestern district in 1958.

Variety	C.I. No.	Average yield in bushels per acre at					Five-station average
		Albin(E)	Albin(H)	La Grange	Gillette	Havre	
Cheyenne	8885	43.1	44.3	47.2	19.3	32.7	37.3
Kharkof	1442	39.2	42.0	41.9	17.2	30.5	34.2
Yogo	8033	39.1	39.5	42.5	19.4	30.0	34.1
Minter	12138	39.6	42.4	38.8	18.4	26.3	33.1
Kharkof M.C. 22	6938	35.6	39.0	29.8	21.6	29.8	31.2

Table 10. Agronomic data other than yield summarized from the variety tests grown in the southern district in 1958.

Variety	C.I. No.	Date		Plant height	Lodging	Rust		Bushel weight
		Headed	Ripe			Leaf	Stripe	
		May	June	In	%	%	%	lb.
Number of stations		8	3	9	5	3	2	9
EB-Tm x Oro-Mi-Hp	12871	9	12	39	12	10	55	59.7
Early Blackhull	8856	6	10	41	39	68	20	59.6
Tascosa	13023	11	13	38	16	41	28	58.0
Crockett	12702	10	12	40	19	8	45	58.0
Concho	12517	11	13	39	31	58	55	55.8
Comanche	11673	12	13	39	9	38	40	55.8
Kharkof	1442	16	15	40	20	63	33	55.4

Table 11. Agronomic data other than yield summarized from the variety tests grown in the central district in 1958.

Variety	C.I. No.	Date headed	Plant height	Lodging	Bushel weight
		June	In	%	lb.
Number of stations		8	7	7	9
EB-Tm x Oro-Mi-Hp	12871	5-30	43	27	61.8
Bison	12518	1	43	19	60.1
Concho	12517	5-31	42	41	59.5
Pawnee	11669	1	42	17	59.3
Comanche	11673	1	43	36	59.0
Kharkof	1442	5	43	37	58.1

TABLE 12. Agronomic data other than yield summarized from the variety tests grown in the northeastern district in 1958.

Variety	C.I. No.	Date		Plant height	Winter Survival	Rust		Bushel Weight
		Headed	Ripe			Leaf	Stem	
		June	July	In	%	%	%	lb.
Number of stations----------		6	5	7	4	4	4	7
Minter	12138	10	18	41	90	48	8	61.0
Nebred	10094	7	15	35	86	63	33	60.6
Minturki	6155	11	20	42	89	59	29	60.1

UNIFORM YIELD NURSERY

All 20 stations growing the uniform yield nursery in 1958 reported yield data. The nursery which in 1959 will be designated the southern regional performance nursery contained 18 entries this year, one of which was new. The 1958 entries are listed below.

Entry No.	Variety or cross	C.I. No.
1	Kharkof	1442
2	Blackhull	6251
3	Early Blackhull	8856
4	Pawnee	11669
5	Comanche	11673
6	Concho	12517
7	Pawnee x Nebred	13015
8	Ca x Hp-Cn	13022
9	Tascosa	13023
10	Ca-Hp-Cn x Cm	13024
11	Improved BJ x Cm	13185
12	Improved BJ x Cm	13186
13	Bh-Oro x Pn	13187
14	Aztec	13016
15	Pn x Io-Tt-Wis 5	13279
16	Cm-Mi-Hp x Io	13188
17	Qv Hybrid	13285
18*	Kr-HF-Tm-Mi-Hp x Ca (Tx. 274-51-A4)	13189

* New entry in 1958.

DATA OBTAINED

Data obtained from the 20 cooperating stations appear in table 13. Since the nursery was grown near the uniform plot tests at most stations, comments on weather, etc., concerning the latter are equally applicable to the uniform yield nursery.

The spread in yield among the nursery varieties at Denton was wide, ranging from 29.7 bushels for C. I. 13285 to only 3.1 bushels for C. I. 13185. Aztec made the high test weight of 61 pounds. C. I. 13285 did not lodge, and only a trace of lodging was recorded for C. I. 13279 and C. I. 13186. Zero or trace reactions to bunt were reported for C. I. 13024, Comanche, C. I. 13015, and C. I. 13185. C. I. 13279 and C. I. 13285 were resistant to leaf rust at Denton.

C. I. 13285 also was the most productive at Chillicothe. Aztec was in second place. Only 3 varieties weighed less than 60 pounds, and 4 weighed 63 pounds or more. Highest resistance to stripe rust was shown by Aztec, C. I. 13024, C. I. 13285, and Kharkof.

Both a dryland and an irrigated uniform yield nursery were grown at Bushland. Tascosa yielded 36.2 bushels for first place in the dryland series, but C. I. 13285

produced the most grain under irrigation. Bushel weights ranged from 53.4 to 59.4 pounds on dryland but were very low (38.4 to 56.1 pounds) under irrigation. Lodging and stripe rust occurred in the irrigated test. Several varieties, among which were C. I. 13285, Aztec, and C. I. 13022, did not lodge; but Blackhull, Early Blackhull, and C. I. 13015 lodged 100, 90, and 90 percent, respectively. Aztec, Blackhull, and Early Blackhull had only traces of stripe rust.

The wheat in the northern portion of the Texas Panhandle ran out of water before harvest. The yield and test weight data from the Stratford uniform yield nursery reflect this. The yield made by first-place Early Blackhull was only 18.2 bushels, and test weights ranged downward from 53.4 pounds recorded for C. I. 13185.

Yields of grain were very high at Clovis, but test weights were somewhate below normal. Tascosa was the highest yielding, with 45.9 bushels per acre. Zero ratings for stripe rust were recorded for Aztec and Kharkof. Tascosa was rated the best for shattering resistance.

Nearly 22 bushels per acre separated the lowest from the highest yielding variety in the uniform yield nursery at Stillwater. Kharkof occupied last place, while C. I. 13279 ranked first with a yield of 46.1 bushels. Five varieties had test weights of 60 pounds per bushel or more. Among this group were the two strains of Improved Blue Jacket x Comanche, Aztec, C. I. 13285, and Early Blackhull. All varieties except C. I. 13279 were susceptible to leaf rust. C. I. 13185, C. I. 13186, C. I. 13188, and C. I. 13189 were the only varieties that did not lodge. Some broken stems were observed in all varieties.

At Woodward, C. I. 13187 was highest yielding with 32.4 bushels and Pawnee was the lowest. Only C. I. 13188 and Kharkof failed to make a 60-pound test weight.

Tascosa yielded 45.6 bushels per acre and was the most productive variety at Cherokee. It also had the lowest percentage of broken straw. Test weights were mostly below 60 pounds per bushel. Kharkof, C. I. 13188, and Concho in that order had the greatest amount of broken straw by June 13.

Only a 6.9-bushel-per-acre range in yield was reported at Manhattan. The yield of top-ranked C. I. 13279 was not significantly different from the 13th ranked variety Aztec. Two-thirds of the entries had test-weights of 60 pounds or more. C. I. 13285 and Aztec had the lowest greenhouse hessian-fly infestations, while C. I. 13015 and Comanche were most resistant to bunt.

Yields were somewhat higher at Hays than at Manhattan. Three varieties, C. I. 13285, Tascosa, and C. I. 13015, produced 40 bushels or more per acre. Only 5 varieties failed to make a test weight of 60 pounds. Combined resistance to leaf and stripe rust was reported for C. I. 13285. Pawnee and C. I. 13185 were least lodged among the varieties in the nursery.

Tascosa significantly outyielded all other varieties in the Garden City uniform yield nursery, with a yield of 49.4 bushels as compared with 40.2 bushels for second-ranked C. I. 13285. Bushel weights were low, the best being 56.5 pounds recorded for Tascosa and Early Blackhull. All varieties lodged partially. The least lodged varieties were C. I. 13185 and C. I. 13189.

The uniform yield nursery was grown both on dryland and under irrigation at Colby. Tascosa and C. I. 13285 occupied the 1 and 2 positions yieldwise in the dryland test, as they did under irrigation except with their relative ranks reversed. All test weights were below 59 pounds per bushel under dryland but were 60.5 pounds or above under irrigation.

Forty bushels per acre separated the high and low yielding varieties at Fort Collins. C. I. 13189 produced 71.8 bushels per acre for top rank in the test. All bushel weights were above 60 pounds per bushel.

The uniform yield nursery at Akron was harvested for the first time since 1952. Yields of grain ranged from 19.7 to 27.4 bushels per acre, with Tascosa the high yielder. Bushel weights were near normal, ranging from 57.5 to 61.5 pounds per bushel.

The 1958 uniform yield nursery yields from Hesperus were well below the level of the last several years. The high yielding variety C. I. 13187 produced 52.7 bushels per acre. Tascosa and C. I. 13285 were tied for second place, with 49.2-bushel yields. All varieties produced grain weighing 60 pounds or more.

Exceptional season-long growing conditions prevailed at Springfield, Colorado. Eight varieties exceeded 40 bushels per acre in yield, and 12 varieties in the nursery produced grain weighing more than 60 pounds. C. I. 13022, C. I. 13186, and Tascosa in that order were highest yielding, and C. I. 13186 also produced the heaviest grain in the test.

The highest nursery yields in the region were reported from Ames, Iowa, where C. I. 13279 made 92.6 bushels. C. I. 13188 and Tascosa ranked second and third, with 76.5 and 75.8 bushels per acre, respectively. All test weights were above 60 pounds per bushel. Pawnee and C. I. 13285 in that order were least lodged in the nursery. C. I. 13279 exhibited good combined resistance to leaf rust and mildew. C. I. 13285 was the only other variety rated resistant to leaf rust, and C. I. 13188 the only other variety resistant to mildew.

The yield level and relative yield rank of nursery varieties at Lincoln in 1958 were similar to their ranks in 1957. This becomes evident from the comparison of the 1958 yield with the 1957-1958 2-year average for each variety. C. I. 13279 and C. I. 13188, both from Iowa, were the most productive. Bushel weights were about normal despite early and severe lodging of some varieties. Only C. I. 13185 did not lodge. C. I. 13186 and Aztec lodged 5 and 10 percent. Thirteen varieties lodged 50 percent or more. C. I. 13279 had no leaf rust, and C. I. 13285 was rated 5 MR. C. I. 13015, Comanche, and Concho were resistant to bunt.

Four varieties produced more than 60 bushels per acre at North Platte. These were C. I. 13285, C. I. 13189, Tascosa, and C. I. 13279. Kharkof, the least productive variety, yielded 46.9 bushels per acre. Bushel weights were exceptionally high, with all varieties weighing 61 pounds per bushel or more.

Eight varieties exceeded 50 bushels per acre at Alliance, and all varieties except two were above 60 pounds per bushel in test weight. C. I. 13279 and 13188 ranked 1 and 2 in yield as they did at Lincoln. Some light lodging occurred in 5 varieties. A tendency to shatter was also noted in 5 varieties, the worst being Pawnee.

Table 13. Yield and other data for varieties grown in the uniform yield nursery in cooperative experiments at 20 stations in the hard red winter wheat region in 1958, and period averages.

Denton, Texas
Four replications

C.I. No.	Date headed	Plant height	Rust			Bunt	Lodging	Weight per bushel	Av. acre yield		No years grown	Per cent of Kharkof
			Leaf[1/]	Leaf[2/]	Stem[2/]				1958	1955-[3/] 1958		
	May	In.	%	%	%	%	%	Lb.	Bu.	Bu.		
13285	4	39	5-HR	5S	30S	60	0	59.0	29.7	----	1	----
13279	7	47	0	10MR	20S	70	T	57.0	29.5	----	1	----
13188	8	46	30MS	10MS	20S	20	15	55.0	19.3	----	1	----
8856	4-30	43	60S	95	10S	90	70	60.0	18.3	13.9	22	133.1
11673	10	47	50S	20MR	40S	T	8	57.5	16.0	11.8	18	136.0
1442	13	46	60S	60	20S	40	13	56.0	15.2	11.9	22	100.0
13024	8	45	30MS	20MS	10S	0	30	56.5	14.7	11.4	3	95.8
13189	6	43	50S	60	20S	60	28	53.0	14.4	----	1	----
13186	11	46	60S	40	30S	15	T	61.0	13.5	----	1	----
6251	12	48	70S	60	40S	80	20	59.5	13.1	13.4	22	110.0
11669	9	44	70S	30MS	20S	5	5	58.5	12.0	11.4	19	128.1
13023	7	41	60S	30MS	10S	80	10	53.5	11.6	12.1	3	101.7
13016	11	48	50MS	20	40S	60	5	61.0	10.0	----	1	----
12517	12	43	70S	60	30S	40	10	54.0	9.2	11.3	7	115.6
13022	6	41	70S	60	10E	90	93	52.5	8.6	10.2	3	85.4
13015	11	40	70S	60	10S	T	8	59.0	7.3	8.8	3	74.2
13187	11	41	80S	60	40S	50	13	59.0	5.9	----	1	----
13185	13	46	70S	80	20S	0	3	56.0	3.1	----	1	----

1/ Leaf rust at Denton, Texas
2/ Leaf and stem rust at College Station, Texas
3/ No crop in 1957
Standard error of a difference = 2.05 bushels.

Chillicothe, Texas
Four replications

C.I. No.	Date Headed	Date Ripe	Plant height	Stripe rust	Septoria tritici 1/	Weight per bushel	Av. acre yield 1958	Av. acre yield 1957-1958	Av. acre yield 1955-1958	No. years grown	Percent of Kharkof
	May	June	In.	%		Lb.	Bu.	Bu.	Bu.		
13285	4-30	4	35	5R	L	61.5	37.7	34.8	--	2	143.8
13016	6	7	43	TrR	H	63.0	35.2	34.1	--	2	140.7
11673	2	3	42	25MS	L	60.0	34.6	36.1	26.3	20	120.0
13023	2	4	36	15R	Tr.	63.5	34.1	33.4	27.1	4	156.6
13189	1	4	38	25MS	M	60.5	32.3	--	--	1	---
12517	2	4	37	60S	M	60.0	31.6	30.7	24.1	9	119.8
13024	2	5	36	Tr.R	L	62.0	31.6	30.1	23.8	4	137.2
6251	5	5	43	20MR	M	63.0	30.5	27.3	21.2	20	105.6
13279	4	5	40	50S	M	59.5	30.2	34.2	--	2	141.3
11669	4	4	37	50S	M	60.5	29.3	32.2	26.4	20	122.4
8856	4-25	1	40	40MS	M	65.0	27.2	27.1	22.5	20	107.3
1442	8	8	39	5R	M	60.0	26.6	24.2	17.3	20	100.0
13022	2	5	34	20MR	M	61.0	24.2	28.2	20.5	4	118.5
13186	7	7	37	55S	L	61.5	23.9	26.8	--	2	110.7
13015	5	5	37	20R	L	62.0	23.0	28.8	22.9	4	131.9
13185	7	7	38	65S	L	62.5	22.8	21.7	--	2	89.7
13188	5	6	37	35MS	M	59.5	20.6	25.1	--	2	103.7
13187	4	5	34	90S	M	59.5	19.2	27.0	--	2	111.4

1/ L = light, M = medium, H = heavy infection.

Standard error of a difference = 3.06 bushels.

Bushland, Texas
Four replications, dryland

C.I. No.	Date		Plant height	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
	Headed	Ripe			1958	1957-1958	1955-1958		
	May	June	In.	Lb.	Bu.	Bu.	Bu.		
13023	11	23	37	59.4	36.8	22.9	30.8	4	118.9
13189	11	22	40	58.9	35.2	--	--	1	---
13279	14	24	39	55.0	33.2	22.3	--	2	136.1
13185	14	24	40	59.1	32.7	20.5	--	2	125.1
13186	16	25	41	57.5	32.6	20.7	--	2	126.6
13015	13	23	36	55.8	31.6	22.0	28.0	4	108.0
13285	11	21	36	58.7	30.5	22.3	--	2	136.1
13022	11	22	39	57.2	30.2	20.7	27.4	4	106.0
13187	14	24	38	55.7	29.9	20.7	--	2	126.3
8856	5	18	40	57.7	29.9	20.8	25.4	20	97.3
13016	15	25	40	59.1	28.7	19.8	--	2	121.1
12517	12	23	38	57.0	28.2	19.4	30.3	10	113.6
13024	12	23	42	57.0	28.0	18.9	27.0	4	104.3
6251	14	26	38	57.1	27.4	18.8	28.3	20	109.2
13188	14	24	39	55.3	26.9	17.8	--	2	108.6
1442	17	26	40	55.3	25.9	16.4	25.9	20	100.0
11669	15	25	35	53.4	24.5	15.5	23.1	20	108.2
11673	13	23	35	56.8	24.4	16.9	27.4	20	106.6

Standard error of a difference = 2.84 bushels.

Bushland, Texas.
Three replications, irrigated

C. I. No.	Date		Plant height	Stripe rust	Lodging	Weight per bushel	Average acre yield
	Headed	Ripe					
	May	June	In.	%	%	Lb.	Bu.
13285	14	24	44	50	0	50.5	50.1
13016	21	29	50	T	0	55.3	42.4
8856	10	22	48	T	90	56.1	41.3
13022	14	25	46	50	0	50.3	40.4
13023	14	25	46	40	60	53.6	39.5
13189	14	25	46	80	5	52.7	38.8
12517	14	25	45	50	35	52.6	38.6
13279	18	26	45	30	0	38.4	38.4
13185	21	29	47	60	0	55.1	36.8
11673	18	27	48	50	10	49.8	35.8
6251	19	27	47	T	100	52.5	34.6
13188	18	26	45	60	0	49.8	34.2
13015	14	25	46	20	90	51.2	33.6
11669	17	26	47	30	5	51.2	33.6
13024	17	26	47	50	30	51.0	32.9
13186	19	26	47	60	25	54.1	31.1
13187	18	26	46	90	85	47.9	28.9
1442	21	29	48	50	50	47.9	27.4

Standard error of a difference = 4.68 bushels.

Stratford, Texas
Three replications, dryland

C. I. No.	Plant height	Weight per bushel	Av. acre yield 1958
	In.	Lb.	Bu.
8856	36	53.2	18.2
13023	30	49.9	15.6
13285	32	49.8	15.6
13015	33	49.5	15.4
13189	36	48.5	14.5
13022	34	47.2	14.3
12517	33	46.2	14.1
13024	34	48.5	13.5
13187	33	48.2	13.4
11673	34	47.5	13.2
13188	32	48.4	13.0
6251	38	51.3	12.7
13279	32	47.4	12.4
13016	32	53.3	12.3
11669	32	45.3	12.2
13185	30	53.4	11.4
13186	31	53.3	10.9
1442	31	49.4	10.1

Standard error of a difference = 0.90 bushels.

Clovis, New Mexico
Six replications

C.I. No.	Date headed	Plant height	Shattering score 1/	Stripe rust	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
						1958	1957-1958	1955-1958		
	May	In.		%	Lb.	Bu.	Bu.	Bu.		
13023	15	35	1.8	8	59.4	45.9	31.8	21.2	4	116.4
13285	15	35	2.3	5	59.5	41.9	28.7	----	2	111.7
13189	16	38	2.0	25	58.2	40.8	----	----	1	-----
13279	16	38	2.3	10	55.7	40.7	29.2	----	2	113.4
8856	12	37	2.0	3	57.4	40.2	27.6	18.5	6	101.1
13022	15	37	2.0	15	56.9	40.2	29.1	19.6	4	107.6
13016	18	42	2.0	0	58.4	39.7	27.5	----	2	106.8
13187	16	39	2.3	65	56.7	39.7	29.0	----	2	112.8
13188	17	37	2.5	20	56.5	38.1	26.1	----	2	101.4
13024	16	39	2.0	T	57.8	38.0	27.3	18.3	4	100.6
11673	17	39	2.3	5	57.3	37.0	25.9	18.8	6	100.4
6251	16	42	2.2	5	57.9	36.7	26.2	17.9	6	101.4
13186	17	41	2.0	T-50	57.1	36.6	25.3	----	2	98.2
12517	15	39	3.3	20	57.2	36.4	27.0	19.0	6	108.3
13015	17	37	3.3	5	56.3	36.4	25.7	17.5	4	96.0
13185	18	42	2.0	T-75	58.5	36.3	25.0	----	2	97.1
11669	15	38	3.8	35	55.8	35.7	25.0	17.2	6	99.0
1442	22	41	2.8	0	56.2	34.6	25.7	18.2	6	100.0

1/ Score based on a 1-5 scale, 1 the best.
Standard error of a difference = 1.83 bushels.

Stillwater, Oklahoma
Four replications

C. I. No.	Date headed	Plant height	Broken stems 6-5	Lodging at maturity	Leaf Rust			Weight per bushel	Av. acre yield		No. years grown	Percent of Kharkof
					Type	Sev.	Prev.		1958	1955-1/ 1958		
	May	In.	%	%		%	%	Lb.	Bu.	Bu.		
13279	8	50	3	13	0-1	T	100	57.7	46.1	--	1	---
8856	1	51	8	44	4	60	100	61.0	43.0	24.1	24	111.7
13285	5	47	2	13	---	23	100	60.2	42.8	--	1	---
13189	6	51	1	0	4	55	100	58.2	41.2	--	1	---
13188	8	51	5	0	4	35	100	57.0	39.4	--	1	---
13023	7	49	4	13	4	45	100	59.0	38.0	23.8	3	139.8
13016	11	53	6	13	4	18	100	60.0	36.9	--	1	---
12517	7	51	8	44	4	40	100	56.0	36.8	22.6	9	130.1
6251	11	52	5	31	4	33	100	59.0	35.2	21.9	24	110.9
13186	10	49	1	0	4	55	100	60.2	35.1	--	1	---
11673	8	50	9	44	4	40	100	55.2	34.7	21.4	19	116.9
13024	7	50	3	31	4	50	100	56.8	33.9	22.0	3	128.9
13022	6	50	5	56	4	50	100	56.2	32.4	22.4	3	131.4
11669	7	49	3	13	4	55	100	56.0	32.2	21.9	21	120.4
13015	8	49	2	25	4	55	100	58.0	31.7	21.6	3	127.0
13185	9	52	1	0	4	73	100	60.0	26.8	--	1	---
13187	8	48	9	31	4	60	100	57.0	25.6	--	1	---
1442	13	51	9	6	4	70	100	57.6	24.3	17.0	24	100.0

1/ No crop in 1957.
Standard error of a difference = 1.77 bushels.

Woodward, Oklahoma
Four replications

C.I. No.	Date headed	Plant height	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
				1958	1957-1958	1955-1958		
	May	In.	Lb.	Bu.	Bu.	Bu.		
13187	10	39	62.0	32.4	32.2	--	2	143.8
13022	8	39	60.5	30.9	34.3	27.6	4	128.4
13023	9	38	63.0	30.9	34.0	26.5	4	123.5
13016	13	42	62.2	30.1	26.4	--	2	117.9
12517	10	40	61.7	29.6	29.0	25.2	10	124.7
11673	10	40	60.0	29.6	31.2	25.7	22	115.8
13189	9	40	60.0	28.9	--	--	1	---
13279	11	39	60.3	28.7	36.2	--	2	161.6
13024	8	40	61.0	28.0	30.4	25.2	4	117.3
8856	6	41	63.9	27.2	32.5	25.0	27	106.5
13285	9	35	60.0	26.4	37.0	--	2	165.2
1442	14	41	59.4	26.1	22.4	21.5	27	100.0
13188	11	40	59.4	25.4	32.1	--	2	143.3
6251	12	41	61.4	25.1	25.9	23.9	27	106.5
13186	12	40	62.2	24.4	27.0	--	2	120.5
13185	12	40	62.5	23.9	23.8	--	2	106.3
13015	10	38	61.0	22.7	28.8	24.4	4	113.7
11669	10	39	60.2	21.4	27.4	24.0	24	118.5

Standard error of a difference = 1.47 bushels.

Cherokee, Oklahoma
Four replications

C.I. No.	Date headed	Plant height	Broken stems 6-13	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
					1958	1957-1958	1955- 1/ 1958		
	May	In.	%	Lb.	Bu.	Bu.	Bu.		
13023	13	51	1	60.8	45.6	30.4	26.8	3	187.9
8856	9	54	15	62.3	44.8	31.1	27.6	11	124.0
13285	11	48	7	60.8	44.4	35.2	--	2	273.5
13279	15	52	19	57.5	42.8	29.5	--	2	229.6
13024	13	53	9	57.8	42.8	28.3	24.4	3	170.9
13022	11	51	7	58.2	42.1	27.9	24.9	3	174.1
11673	13	52	10	56.0	41.9	26.5	23.5	11	125.6
13189	13	52	2	58.2	41.3	--	--	1	---
12517	13	52	24	58.5	39.6	25.8	23.4	9	146.2
13015	14	50	2	59.5	37.9	24.7	22.5	3	157.3
13016	16	54	4	60.0	37.8	22.6	--	2	175.5
13186	16	53	2	60.3	37.4	24.7	--	2	192.2
13187	14	49	21	59.5	37.3	25.7	--	2	200.0
11669	15	51	6	58.3	36.6	21.9	20.5	11	112.6
13188	14	53	25	58.2	36.1	22.0	--	2	171.2
6251	16	53	19	58.0	34.9	20.3	19.6	11	110.1
13185	16	54	3	60.2	34.1	20.0	--	2	155.3
1442	18	52	26	55.8	23.2	12.9	14.3	11	100.0

1/ No crop in 1955.

Standard error of a difference = 2.00 bushels.

Manhattan, Kansas
Four replications

C.I. No.	Date headed	Plant height	Bunt 1/	Hessian fly 2/	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
						1958	1957-1958	1955-1958		
	May	In.	%	%	Lb.	Bu.	Bu.	Bu.		
13279	21	39	65	84	58.4	36.9	43.7	--	2	124.1
13023	20	38	88	84	61.1	36.5	44.4	34.4	4	109.3
13285	20	36	50	16	60.3	35.8	38.8	--	2	110.2
8856	17	41	92	92	61.8	35.6	34.7	31.2	27	112.9
6251	23	44	72	96	61.5	35.5	38.1	33.4	27	112.9
12517	20	40	10	84	60.4	35.1	41.0	35.1	10	120.6
1442	23	40	88	100	60.0	34.7	35.2	31.5	27	100.0
13188	22	39	52	52	58.6	34.3	41.2	--	2	116.9
13187	21	38	75	44	59.3	34.2	41.1	--	2	116.8
13189	20	39	55	92	60.1	34.1	--	--	1	---
13186	23	38	50	56	60.7	33.9	36.4	--	2	103.4
13185	22	40	45	100	61.2	33.5	33.1	--	2	93.9
13016	22	41	72	20	61.4	33.2	34.9	--	2	99.0
13022	19	38	82	80	59.4	32.3	35.7	30.6	4	97.3
13015	21	38	1	100	60.0	31.7	38.0	31.1	4	98.7
11669	21	39	15	92	60.5	31.3	34.9	30.4	24	122.6
11673	21	39	1	88	59.6	30.3	39.1	33.4	22	119.2
13024	20	37	6	92	59.7	30.0	37.1	32.4	4	103.0

1/ Data from E. D. Harding.
2/ Greenhouse data from E. T. Jones.
Standard error of a difference = 1.98 bushels.

Hays, Kansas
Four replications

C.I. No.	Date headed	Plant height	Lodging	Rust		Weight per bushel	Av. acre yield		No years grown	Per cent of Kharkof
				Stripe	Leaf		1958	1955-1/ 1958		
	May	In.	%			Lb.	Bu.	Bu.		
13285	22	39	20	R+	R++	63.0	47.8	----	1	-----
13023	23	39	20	S	S	62.0	44.1	39.1	2	115.3
13015	26	38	40	S	S+	60.5	40.0	34.8	2	102.7
13189	23	44	20	S++	S+	60.5	38.6	----	1	-----
13186	27	40	35	S+++	S	63.0	37.8	----	1	-----
8856	23	40	60	S	S+	62.0	37.3	34.5	23	114.1
12517	26	41	60	S+++	S	60.5	36.5	34.2	7	128.5
11669	27	41	15	S++	S	61.0	36.2	33.2	20	125.1
13279	26	41	40	S++	R	58.0	35.2	----	1	-----
13188	26	40	25	S+++	S	56.5	35.0	----	1	-----
13016	28	42	30	R	S	61.0	34.6	----	1	-----
13024	25	40	20	R	S+	62.0	33.9	29.6	2	87.3
11673	26	40	60	R	S+	59.5	33.7	34.9	19	121.9
6251	28	38	50	S+	S+	60.0	33.1	32.0	23	110.9
13022	23	40	60	S+	S+	58.0	33.0	34.9	2	102.9
13187	23	36	50	S+++	S	61.0	32.9	----	1	-----
1442	30	39	35	S	S	57.5	32.4	33.9	23	100.0
13185	27	42	15	S++	S++	62.0	29.9	----	1	-----

1/ No crop in 1955 and 1957.
Standard error of a difference = 3.16 bushels.

Garden City, Kansas
Four replications

C.I. No.	Date Headed	Date Ripe	Plant height	Lodging	Weight per bushel	Av. acre yield 1958	Av. acre yield 1957-1958	Av. acre yield 1955-1958	No. years grown	Percent of Kharkof
	May	June	In.	%	Lb.	Bu.	Bu.	Bu.		
13023	21	21	48	35	56.5	49.4	35.9	29.9	4	132.1
13285	21	21	45	28	56.0	40.2	38.6	--	2	167.6
8856	19	18	48	38	56.5	38.3	29.8	26.3	5	108.5
13024	21	21	49	50	54.1	38.0	28.8	26.3	4	116.1
13015	22	21	46	14	54.6	37.8	31.5	27.0	4	119.2
13189	21	21	48	10	53.4	35.8	--	--	1	---
13187	22	21	46	40	54.6	33.9	33.7	--	2	138.0
11673	22	21	49	58	52.9	32.6	25.1	24.6	5	107.8
13279	23	22	49	84	50.2	32.5	28.9	--	2	124.7
13185	24	22	50	8	55.9	31.4	25.6	--	2	111.7
13016	24	23	50	34	55.6	30.4	27.2	--	2	111.4
13022	21	20	48	72	51.5	30.4	25.8	26.7	4	117.7
11669	22	21	48	68	52.9	30.4	27.2	24.4	5	104.9
13186	24	23	48	55	54.4	29.3	27.1	--	2	108.6
12517	21	21	49	75	52.3	26.4	27.3	26.4	5	115.3
1442	27	26	50	67	52.3	24.3	22.7	22.7	5	100.0
6251	24	23	52	25	54.7	23.9	26.5	24.1	5	100.9
13188	23	22	48	55	51.2	23.9	23.0	--	2	97.2

Standard error of a difference = 4.00 bushels.

Colby, Kansas
Four replications, dryland

C.I. No.	Date headed	Plant height	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
				1958	1957-1958	1955-1958 1/		
	May	In.	Lb.	Bu.	Bu.	Bu.		
13023	25	41	57.0	42.1	38.4	39.1	3	118.7
13285	24	39	56.0	41.4	40.9	--	2	133.1
8856	23	38	57.0	40.7	36.0	31.8	8	88.2
13189	26	44	56.0	40.3	--	--	1	---
11669	26	40	55.0	39.7	38.0	37.6	7	105.6
13279	28	43	54.0	39.5	36.6	--	2	119.1
13015	26	40	55.0	39.0	38.4	35.3	3	107.1
6251	28	43	57.5	38.7	36.0	36.4	8	100.2
13188	27	44	55.0	38.5	36.3	--	2	118.7
13024	26	42	55.0	38.3	34.1	34.1	3	103.6
11673	27	40	55.0	37.5	34.5	34.0	7	100.4
1442	30	40	57.0	36.9	30.7	32.9	8	100.0
13016	29	45	59.0	36.9	30.5	--	2	99.2
12517	25	38	53.5	35.9	34.4	36.3	6	113.1
13022	24	38	54.0	35.9	35.7	36.5	3	110.8
13186	28	44	58.5	34.6	31.4	--	2	102.1
13185	28	46	57.5	32.4	26.4	--	2	86.0
13187	26	40	55.0	31.4	35.0	--	2	113.8

1/ No crop in 1956
Standard error of a difference = 2.44 bushels.

Colby, Kansas
Four replications, irrigated

C.I. No.	Date headed	Plant height	Weight per bushel	Average acre yield
	May	In.	Lb.	Bu.
13285	26	42	63.0	49.9
13023	25	42	64.0	45.9
1442	30	42	60.5	44.7
8856	24	44	63.0	42.9
13024	25	45	62.5	42.7
13022	25	43	62.0	42.3
13279	28	43	61.0	42.1
13015	27	42	62.5	42.0
13188	28	43	62.0	41.9
12517	26	43	62.0	41.9
13016	29	44	63.0	41.6
13185	28	45	63.0	41.5
13186	28	43	63.0	40.9
6251	28	44	62.0	40.6
11673	26	43	61.0	40.6
13189	25	43	62.5	39.2
11669	26	42	61.5	36.4
13187	26	41	62.0	35.0

Standard error of a difference = 3.03 bushels.

Fort Collins, Colorado
Five replications

C.I. No.	Date headed	Lodging[1] 5-20	Weight per bushel	Av. acre yield			No. years grown	Per cent of Kharkof
				1958	1957-1958	1955-[2] 1958		
	June	%	Lb.	Bu.	Bu.	Bu.		
13189	5-30	0	62.2	71.8	----	----	1	-----
13285	5-31	0	62.7	63.2	62.0	----	2	141.7
13279	2	0	61.0	62.0	59.9	----	2	136.8
13022	5-29	0	61.4	55.2	53.1	53.1	2	121.4
13024	5-31	0	62.0	54.4	53.6	53.6	2	122.4
12517	5-31	0	62.7	54.1	54.9	54.9	6	126.9
11673	1	0	61.3	53.9	55.1	55.1	18	110.0
13023	5-29	0	63.3	53.2	60.4	60.4	2	138.1
13188	2	0	60.9	53.1	60.2	----	2	137.6
13185	2	0	62.8	52.2	55.3	----	2	126.3
8856	5-30	7	62.0	50.5	50.6	50.6	22	99.2
13016	3	0	61.6	50.5	56.1	----	2	128.2
13186	3	0	62.1	47.4	52.9	----	2	120.9
11669	4	8	61.6	45.7	50.5	50.5	20	109.1
13015	2	0	60.6	45.6	50.0	50.0	2	114.3
1442	4	8	60.2	40.8	43.8	43.8	22	100.0
6251	1	32	62.1	36.4	42.7	42.7	22	100.7
13187	1	14	60.3	31.6	49.0	----	2	111.9

[1] All varieties completely lodged by harvest time.
[2] No crop in 1955 and 1956.
Standard error of a difference = 5.37 bushels.

Akron, Colorado
Five replications

C.I. No.	Date		Weight per bushel	Av. acre yield		No. years grown	Percent of Kharkof
	Headed	Ripe		1958	1949-1958[1/]		
	June	July	Lb.	Bu.	Bu.		
13023	2	7	60.0	27.4	--	1	---
13187	2	7	59.5	27.0	--	1	---
13022	4	8	60.0	26.9	--	1	---
13279	8	11	57.5	25.2	--	1	---
6251	5	10	60.5	24.9	18.3	18	107.4
8856	2	7	59.0	23.9	20.2	18	110.9
1442	10	13	57.5	23.5	18.3	18	100.0
12517	5	8	60.0	23.3	21.2	4	116.1
11673	6	9	57.5	23.1	20.1	15	106.5
13189	3	9	61.5	23.0	--	1	---
13186	9	11	59.5	23.0	--	1	---
13015	4	8	59.5	22.0	--	1	---
11669	5	11	61.0	21.0	19.3	16	109.0
13285	2	7	60.5	21.0	--	1	---
13185	9	11	59.5	20.9	--	1	---
13188	7	11	59.0	20.5	--	1	---
13024	4	8	60.0	20.4	--	1	---
13016	9	11	59.5	19.7	--	1	---

1/ Nursery failures in 1951 and from 1953 through 1957.
Standard error of a difference = 2.34 bushels.

Hesperus, Colorado
Five replications, irrigated

C.I. No.	Date		Plant height	Weight per bushel	Av. acre yield			No. years grown	Per cent of Kharkof
	Headed	Ripe			1958	1957-1958	1955-1958		
	June	July	In.	Lb.	Bu.	Bu.	Bu.		
13187	10	14	28	61.8	52.7	72.9	----	2	108.0
13023	8	14	26	62.3	49.2	68.3	62.6	4	102.5
13285	9	15	27	63.1	49.2	69.2	----	2	102.4
13188	14	16	30	62.8	48.3	68.5	----	2	101.5
1442	18	22	30	62.2	48.2	67.5	61.0	18	100.0
13185	15	21	33	62.9	46.4	66.2	----	--	98.0
11673	13	19	29	61.8	45.8	66.3	67.9	18	117.7
13022	10	15	28	62.2	44.7	61.1	59.9	4	98.2
12517	12	18	29	61.7	44.5	74.3	69.8	8	111.6
13186	13	18	31	62.5	43.7	61.8	----	2	91.5
13279	17	21	30	61.6	43.2	76.6	----	2	113.4
6251	11	16	31	61.8	42.8	65.5	60.6	18	110.0
13015	9	15	27	61.2	41.1	55.0	57.2	4	93.7
13189	11	18	30	62.2	41.0	----	----	1	-----
11669	11	17	29	60.7	40.8	57.8	56.2	18	104.1
13016	13	17	31	62.9	40.4	60.5	----	2	89.6
8856	5	10	31	61.1	39.4	63.3	60.4	18	102.5
13024	11	17	29	60.5	34.1	55.6	57.3	4	93.9

Standard error of a difference = 3.42 bushels.

Springfield, Colorado
Five replications

C.I. No.	Date		Plant height	Weight per bushel	Average acre yield
	Headed	Ripe			
	May	June	In.	Lb.	Bu.
13022	19	21	36	60.7	45.2
13186	23	25	35	63.2	44.2
13023	19	21	35	62.2	43.2
12517	20	22	36	60.3	41.3
13187	21	23	35	59.5	41.0
8856	17	20	37	62.0	41.0
13279	23	26	36	58.8	40.4
13024	20	23	36	60.8	40.3
13189	19	22	34	60.5	39.7
13285	20	23	33	61.0	38.5
11673	21	23	36	58.7	38.1
13188	22	26	35	58.8	37.9
13016	24	26	36	61.3	37.8
11669	24	27	36	59.4	37.7
13185	24	27	36	62.3	37.5
13015	22	25	35	60.3	37.1
6251	22	25	37	60.8	36.7
1442	25	27	36	57.5	36.0

Standard error of a difference = 2.74 bushels.

Ames, Iowa
Three replications

C.I. No.	Date		Plant height	Other data			Weight per bushel	Av. acre yield			No. years grown	Per cent of Kharkof
	Headed	Ripe		Lodging	Leaf rust	Mildew		1958	1957-1958	1955-1958		
	May	July	In.	%	6-10	5-26	Lb.	Bu.	Bu.	Bu.		
13279	26	6	37	55	R+	HR	62.0	92.6	65.7	----	2	155.3
13188	25	5	37	45	S-	HR	61.7	76.5	51.9	----	2	122.7
13023	22	3	35	38	S+	S	63.3	75.8	59.1	53.1	4	135.6
11673	24	2	36	47	S	S-	60.7	74.3	47.1	43.2	16	107.5
12517	24	2	36	43	S	S	62.8	74.1	52.7	50.9	8	136.3
13285	22	2	33	28	R-	S	61.1	73.5	61.9	----	2	146.3
13189	22	3	37	50	S+	S	62.8	71.6	----	----	1	-----
1442	29	6	39	62	S	S	60.5	69.3	42.3	39.2	16	100.0
6251	26	4	39	63	S	HS	61.7	68.5	46.3	44.0	16	105.0
13024	24	3	38	42	S	HS	62.3	67.8	48.7	46.6	4	119.1
11669	24	6-30	34	23	S+	S	61.1	67.0	50.7	46.1	16	119.4
13022	23	1	38	65	S+	S-	60.2	66.6	48.7	45.8	4	116.9
13016	26	5	39	37	S	S	62.0	66.3	44.9	----	2	106.1
13186	25	5	36	40	S+	HS	61.4	63.3	44.0	----	2	104.0
8856	21	1	40	75	S+	HS	61.6	63.3	46.8	45.2	16	110.9
13015	24	1	36	55	S+	S	61.0	63.1	46.7	44.5	4	113.7
13185	27	5	37	32	S+	HS	62.4	55.1	43.4	----	2	102.6
13187	24	6-30	33	32	S+	HS	61.2	53.0	36.5	----	2	86.3

Standard error of a difference = 3.26 bushels.

Lincoln, Nebraska
Five replications

C.I. No.	Date headed	Plant height	Lodging	Leaf rust	Bunt	Shattering 1/	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
								1958	1957-1958	1955-1958		
	May	In.	%	%			Lb.	Bu.	Bu.	Bu.		
13279	28	45	25	0	VS	0	59.7	54.4	53.6	--	2	160.5
13188	28	46	50	25S	VS	1	59.5	52.2	50.4	--	2	150.9
13285	27	43	50	5MR	VS	1	60.7	49.0	47.9	--	2	143.4
13189	27	46	25	65S	S	0	60.2	49.0	--	--	1	---
13023	26	43	70	70S	S	0	60.3	47.3	46.6	46.0	4	131.8
13186	28	46	5	90S	S	1	61.9	45.7	44.7	--	2	133.7
13016	30	48	10	75S	VS	1	61.9	45.3	43.3	--	2	129.6
13185	29	49	0	90S	VS	1	62.1	44.7	42.8	--	2	128.0
11669	28	43	55	65S	MR	1	59.5	44.2	42.0	44.2	24	130.6
11673	29	44	55	45S	R	1	59.6	42.3	40.0	42.2	22	116.5
12517	27	45	65	30S	R	0	59.3	41.9	41.9	43.2	10	127.4
13024	28	44	75	70S	S	0	59.7	41.2	39.5	39.6	4	113.3
13187	27	41	55	15MS	S	1	59.3	40.3	37.9	--	2	113.5
6251	29	45	65	45S	VS	0	60.9	40.2	37.9	40.0	27	111.2
13015	27	43	65	70S	R	0	58.7	39.8	39.6	41.8	4	119.6
1442	6-1	44	75	65S	VS	0	58.7	38.6	33.4	34.9	27	100.0
13022	28	45	80	70S	S	0	56.8	37.8	39.6	44.1	4	126.3
8856	26	45	65	65S	S	0	59.4	35.4	38.8	40.1	27	121.3

1/ Rating based on 0-5 scale; 0 = none, 1 = trace, 2 = 5%, 3 = 10%, 4 = 15%, 5 = 25% or more.
Standard error of a difference = 2.62 bushels.

North Platte, Nebraska
Three replications

C.I. No.	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
		1958	1957-1958	1955-1958		
	Lb.	Bu.	Bu.	Bu.		%
13285	63.3	63.9	49.5	----	2	136.4
13189	63.5	63.4	----	----	1	-----
13023	64.7	61.7	46.7	36.0	4	104.6
13279	61.6	60.2	48.2	----	2	132.6
13188	61.8	58.9	46.9	----	2	129.2
13187	63.2	57.5	44.3	----	2	122.0
13186	63.2	57.0	42.0	----	2	115.6
11669	62.7	56.4	46.0	36.2	20	118.1
13016	63.2	55.9	41.3	----	2	113.8
13024	63.0	53.9	41.3	36.2	4	105.1
13015	62.9	53.8	40.8	31.2	4	90.6
11673	62.0	53.2	41.5	34.4	18	109.3
12517	63.4	52.4	42.3	35.6	10	114.3
13185	63.5	52.2	36.0	----	2	99.2
13022	62.0	50.9	40.1	32.9	4	95.6
8856	63.8	49.9	41.1	32.2	21	97.0
6251	63.1	49.7	36.4	32.3	21	95.9
1442	61.6	46.9	36.3	34.4	21	100.0

Standard error of a difference = 3.77 bushels.

Alliance, Nebraska
Three replications

C.I. No.	Date headed	Plant height	Shattering 1/	lodging	Weight per bushel	Average acre yield			No. years grown	Percent of Kharkof
						1958	1957-1958	1955-1958		
	June	In.		%	Lb.	Bu.	Bu.	Bu.		
13279	4	46	1	T	61.0	58.4	52.8	--	2	128.3
13188	4	45	1	0	60.8	57.2	50.2	--	2	122.0
13187	2	42	0	0	60.1	56.8	52.0	--	2	126.5
13285	1	39	1	0	61.6	56.4	51.2	--	2	124.5
12517	1	45	1	5	61.6	55.0	53.4	40.3	8	119.4
13189	1	43	0	0	61.2	53.9	--	--	1	---
13185	4	46	0	0	62.8	53.1	42.1	--	2	102.3
11669	2	44	2	5	60.3	52.7	53.5	38.6	18	106.4
6251	4	43	0	10	61.5	49.5	43.1	34.0	21	96.6
13023	1	41	0	0	61.9	49.3	48.8	35.7	4	111.1
1442	7	42	0	0	60.6	49.2	41.1	32.2	21	100.0
11673	1	46	0	T	60.2	49.1	43.0	33.5	18	99.1
8856	1	44	0	20	60.8	47.4	44.7	34.4	21	92.3
13024	2	44	0	0	60.5	45.8	46.0	35.5	4	110.4
13186	4	44	0	0	61.8	45.3	44.3	--	2	107.8
13015	2	43	0	0	59.8	44.8	40.9	34.5	4	107.4
13016	4	48	0	0	61.9	44.6	45.6	--	2	110.8
13022	1	43	0	5	59.5	41.9	38.1	32.3	4	100.4

1/ Rating based on 0-5 scale; 0 = none, 1 = trace, 2 = 5%, 3 = 10%, 4 = 15% and 5 = 25% or more.
Standard error of a difference = 2.42 bushels.

STANDARD ERRORS

Standard errors for the uniform yield nurseries at the various locations are reported in Table 14. Mean yields exceeded 20 bushels per acre at all but 2 locations. Mean yields of more than 50 bushels were reported at 4 locations. Coefficients of variability were less than 10 per cent in 11 tests.

SUMMARY OF NURSERY YIELDS

The 1958 yield summary for the uniform yield nursery is presented in Table 15. State as well as regional averages and rank are reported. C. I. 13285 had the highest 20-station average yield of 42.4 bushels per acre. C.I. 13279 was second and Tascosa was third in the region. Tascosa had highly consistent performance throughout the region. It ranked no lower than fifth in any State and was third or higher in 5 States. C. I. 13189, with the same pedigree as Tascosa, ranked fourth on a region-wide basis and no lower than fourth in any State.

The data in Table 16 show C. I. 13285, C. I. 13279, and Tascosa in that order with the highest 2-year regional average yields. This is the same relative rank for the 3 varieties as that recorded in 1958. Concho is in fourth position regionally. Nine bushels per acre separate Kharkof and C. I. 13285, the lowest and highest yielding varieties.

SUMMARY OF AGRONOMIC DATA

Agronomic data other than yield for varieties in the uniform yield nursery are summarized in Table 17. Five varieties produced grain in 20 tests that weighed more than 60 pounds on the average, while 4 varieties averaged less than 58 pounds. Heaviest grain was produced by Aztec, C. I. 13185, and Early Blackhull. Comanche and C. I. 13015 had the least amount of bunt, while Aztec was clearly the most resistant variety to stripe rust. C. I. 13279 and C. I. 13285 were the only varieties with low average leaf-rust readings. C. I. 13185 and Aztec in that order were the most resistant to lodging. C. I. 13285 had the shortest straw and was earlier than all varieties except Early Blackhull.

Table 14. Number of replications, mean yields, and standard errors for the uniform yield nursery at the reporting stations in 1958.

State and Station	No. of reps.	Number of varieties	Av. yield all varieties	Standard error of		Coefficient of Variability
				Difference in means	Mean	
			Bu.	Bu.	Bu.	%
TEXAS						
Denton	4	18	14.0	2.05	1.45	20.8
Chillicothe	4	18	28.6	3.06	2.16	15.2
Bushland (dryland)	4	64 1/	29.8 2/	2.84	2.01	13.5
do (irrigated)	3	64 1/	36.5 2/	4.68	3.31	15.0
Stratford	3	64 1/	13.5 2/	0.90	0.63	8.3
NEW MEXICO						
Clovis	6	18	38.6	1.83	1.29	8.2
OKLAHOMA						
Stillwater	4	18	35.3	1.77	1.25	7.1
Woodward	4	18	27.3	1.47	1.04	7.6
Cherokee	4	18	38.9	2.00	1.42	7.3
KANSAS						
Manhattan	4	18	33.8	1.98	1.40	8.3
Hays	4	18	36.2	3.16	2.23	12.3
Garden City	4	18	32.7	4.00	2.83	17.3
Colby (dryland)	4	18	37.7	2.44	1.72	9.1
do (irrigated)	4	18	41.8	3.03	2.14	10.3
COLORADO						
Ft. Collins	5	18	51.2	5.37	3.80	16.6
Akron	5	18	23.2	2.34	1.66	16.0
Hesperus	5	18	4[illegible].2	3.42	2.42	12.2
Springfield	5	18	39.7	2.74	1.94	10.9
IOWA						
Ames	3	18	69.7	3.26	2.31	5.7
NEBRASKA						
Lincoln	5	18	43.9	2.62	1.85	9.5
North Platte	3	18	55.5	3.77	2.67	8.3
Alliance	3	18	50.6	2.42	1.71	5.9

1/ Uniform yield nursery grown as part of a larger nursery.
2/ Average yield based on uniform yield nursery entries only.

Table 15. Summary of average yields in bushels per acre made by the 18 varieties grown in the uniform yield nursery at 20 stations in 1958, with State averages and rank.

Variety	C.I. No.	Texas						New Mexico		Oklahoma					Iowa	
		Denton	Chillicothe	Bushland	Stratford	Av.	Rank	Clovis	Rank	Stillwater	Woodward	Cherokee	Av.	Rank	Ames	Rank
Qv Hybrid	13285	29.7	37.7	30.5	15.6	28.4	1	41.9	2	42.8	26.4	44.4	37.9	5	73.5	6
Pn x Io-It-Wis 5	13279	29.5	30.2	33.2	12.4	26.3	2	40.7	4	46.1	28.7	42.8	39.2	2	92.6	1
Tascosa	13023	11.6	34.1	36.8	15.6	24.5	3	45.9	1	38.0	30.9	45.6	38.2	4	75.8	3
Kr-HF-Tm-Mi-Hp x Ca	13189	14.4	32.3	35.2	14.5	24.1	4	40.8	3	41.2	38.9	41.3	40.4	1	71.6	7
Cm-Mi-Hp x Io	13188	19.3	20.6	26.9	13.0	20.0	12	38.1	9	39.4	25.4	36.1	33.6	11	76.5	2
Early Blackhull	8856	18.3	27.2	29.9	18.2	23.4	5	40.2	5	43.0	27.2	44.8	38.3	3	63.3	14
Concho	12517	9.2	31.6	28.2	14.1	20.8	10	36.4	14	36.8	29.6	39.6	35.3	7	74.1	5
Comanche	11673	16.0	34.6	24.4	13.2	22.1	6	37.0	11	34.7	29.6	41.9	35.4	6	74.3	4
Ca-Hp-Cn x Cm	13024	14.7	31.6	28.0	13.5	22.0	7	38.0	10	33.9	28.0	42.8	34.9	9	67.8	10
Aztec	13016	10.0	35.2	28.7	12.3	21.6	8	39.7	7	36.9	30.1	37.8	34.9	9	66.3	13
Ca x Hp-Cn	13022	8.6	24.2	30.2	14.3	19.3	15	40.2	6	32.4	30.9	42.1	35.1	8	66.6	12
Improved BJ x Cm	13186	13.5	23.9	32.6	10.9	20.2	11	36.6	13	35.1	24.4	37.4	32.3	12	63.3	14
Pawnee	11669	12.0	29.3	24.5	12.2	19.5	13	35.7	17	32.2	21.4	36.6	30.1	16	67.0	11
Pawnee x Nebred	13015	7.3	23.0	31.6	15.4	19.3	15	36.4	14	31.7	22.7	37.9	30.8	15	63.1	16
Bh-Oro x Pn	13187	5.9	19.2	29.9	13.4	17.1	18	39.7	7	25.6	32.4	37.3	31.7	13	53.0	18
Blackhull	6251	13.1	30.5	27.4	12.7	20.9	9	36.7	12	35.2	25.1	34.9	31.7	13	68.5	9
Improved BJ x Cm	13185	3.1	22.8	32.7	11.4	17.5	17	36.3	16	26.8	23.9	34.1	28.3	17	55.1	17
Kharkof	1442	15.2	26.6	25.9	10.1	19.5	14	34.6	18	24.3	26.1	23.2	24.5	18	69.3	8

Table 15. (continued)

C.I. No.	Kansas						Colorado						Nebraska					19-Station 1/		20 Station av.
	Manhattan	Hays	Garden City	Colby	Av.	Rank	Ft. Collins	Akron	Hesperus	Springfield	Av.	Rank	Lincoln	North Platte	Alliance	Av.	Rank	Av.	Rank	
13285	35.8	47.8	40.2	41.4	41.3	2	63.2	21.0	49.2	38.5	43.0	3	49.0	63.9	56.4	56.4	2	42.1	2	42.4
13279	36.9	35.2	32.5	39.5	36.0	6	62.0	25.2	43.2	40.4	42.7	5	54.4	60.2	58.4	57.7	1	42.2	1	42.2
13023	36.5	44.1	49.4	42.1	43.0	1	53.2	27.4	49.2	43.2	43.3	2	47.3	61.7	49.3	52.8	5	41.5	3	41.9
13189	34.1	38.6	35.8	40.3	37.2	4	71.8	23.0	41.0	39.7	43.9	1	49.0	63.4	53.9	55.4	4	41.0	4	41.0
13188	34.3	35.0	23.9	38.5	32.9	14	53.1	20.5	48.3	37.9	40.0	8	52.2	58.9	57.2	56.1	3	37.2	6	37.8
8856	35.6	37.3	38.3	40.7	38.0	3	50.5	23.9	39.4	41.0	38.7	11	35.4	49.9	47.4	44.2	17	37.5	5	37.6
12517	35.1	36.5	26.4	35.9	33.5	11	54.1	23.3	44.5	41.3	40.8	6	41.9	52.4	55.0	49.8	9	36.9	7	37.3
11673	30.3	33.7	32.6	37.5	33.5	11	53.9	23.1	45.8	38.1	40.2	7	42.3	53.2	49.1	48.2	12	36.8	8	37.3
13024	30.0	33.9	38.0	38.3	35.1	7	54.4	20.4	34.1	40.3	37.3	13	41.2	53.9	45.8	47.0	13	36.6	9	36.4
13016	33.2	34.6	30.4	36.9	33.8	10	50.5	19.7	40.4	37.8	37.1	14	45.3	55.9	44.6	48.6	11	36.1	10	36.3
13022	32.3	33.0	30.4	35.9	32.9	14	55.2	26.9	44.7	45.2	43.0	3	37.8	50.9	41.9	43.5	18	35.7	11	36.2
13186	33.9	37.8	29.3	34.6	33.9	9	47.4	23.0	43.7	44.2	39.6	9	45.7	57.0	45.3	49.3	10	35.6	12	36.0
11669	31.3	36.2	30.4	39.7	34.4	8	45.7	21.0	40.8	37.7	36.3	17	44.2	56.4	52.7	50.1	7	35.1	13	35.4
13015	31.7	40.0	37.8	39.0	37.1	5	45.6	22.0	41.1	37.1	36.5	16	39.8	53.8	44.8	46.1	15	34.8	14	35.1
13187	34.2	32.9	33.9	31.4	33.1	13	31.6	27.0	52.7	41.0	38.1	12	40.3	57.5	56.8	51.5	6	33.8	16	34.8
6251	35.5	33.1	23.9	38.7	32.8	16	36.4	24.9	42.8	36.7	35.2	18	40.2	49.7	49.5	46.4	14	34.4	15	34.8
13185	33.5	29.9	31.4	32.4	31.8	18	52.2	20.9	46.4	37.5	39.3	10	44.7	52.2	53.1	50.0	8	33.4	17	34.0
1442	34.7	32.4	24.3	36.9	32.1	17	40.8	23.5	48.2	36.0	37.1	14	38.6	46.9	49.2	44.9	16	32.6	18	33.3

1/ Hesperus, Colorado yields omitted from average.

Table 16. Summary of two-year average yields in bushels per acre for 17 varieties grown in the uniform yield nursery at 14 stations in 1957 and 1958, with State averages.

Variety	C.I. No.	Texas				Oklahoma				New Mexico		Iowa	
		Chilli-cothe	Bush-land	Av.	Rank	Chero-kee	Wood-ward	Av.	Rank	Clovis	Rank	Ames	Rank
Qv Hybrid	13285	34.8	22.3	28.6	1	35.2	37.0	36.1	1	28.7	5	61.9	2
Pn x Io-It-Wis 5	13279	34.2	22.3	28.3	2	29.5	36.2	32.9	2	29.2	2	65.7	1
Tascosa	13023	33.4	22.9	28.2	3	30.4	34.0	32.2	3	31.8	1	59.1	3
Concho	12517	30.7	19.4	25.1	7	25.8	29.0	27.4	9	27.0	9	52.7	4
Cm-Mi-Hp x Io	13188	25.1	17.8	21.5	15	22.0	32.1	27.1	10	26.1	11	51.9	5
Bh-Oro x Pn	13187	27.0	20.7	23.9	11	25.7	32.2	29.0	7	29.0	4	36.5	17
Comanche	11673	36.1	16.9	26.5	5	26.5	31.2	28.9	8	25.9	12	47.1	9
Early Blackhull	8856	27.1	20.8	24.0	10	31.1	32.5	31.8	4	27.6	6	46.8	10
Pawnee	11669	32.2	15.5	23.9	11	21.9	27.4	24.7	13	25.0	16	50.7	6
Ca-Hp-Cn x Cm	13024	30.1	18.9	24.5	8	28.3	30.4	29.4	6	27.3	8	48.7	7
Ca x Hp-Cn	13022	28.2	20.7	24.5	8	27.9	34.3	31.1	5	29.1	3	48.7	7
Aztec	13016	34.1	19.8	27.0	4	22.6	26.4	24.5	14	27.5	7	44.9	13
Pawnee x Nebred	13015	28.8	22.0	25.4	6	24.7	28.8	26.8	11	25.7	13	46.7	11
Improved BJ x Cm	13186	26.8	20.7	23.8	13	24.7	27.0	25.9	12	25.3	15	44.0	14
Blackhull	6251	27.3	18.8	23.1	14	20.3	25.9	23.1	15	26.2	10	46.3	12
Improved BJ x Cm	13185	21.7	20.5	21.1	16	20.0	23.8	21.9	16	25.0	16	43.4	15
Kharkof	1442	24.2	16.4	20.3	17	12.9	22.4	17.7	17	25.7	13	42.3	16

Table 16. (continued)

C.I. No.	Colorado				Kansas					Nebraska					13-Station 1/		14 Station av.
	Ft. Collins	Hesperus	Av.	Rank	Manhattan	Garden City	Colby	Av.	Rank	Lincoln	North Platte	Alliance	Av.	Rank	Av.	Rank	
13285	62.0	69.2	65.6	2	38.8	38.6	40.9	39.4	2	47.9	49.5	51.2	49.5	2	42.2	1	44.1
13279	59.9	76.6	68.3	1	43.7	28.9	36.6	36.4	4	53.6	48.2	52.8	51.5	1	41.6	2	44.1
13023	60.4	68.3	64.4	4	44.4	35.9	38.4	39.5	1	46.6	46.7	48.8	47.3	4	41.0	3	42.9
12517	54.9	74.3	64.6	3	41.0	27.3	34.4	34.2	6	41.9	42.3	53.4	45.8	6	36.9	5	39.6
13188	60.2	68.5	64.4	4	41.2	23.0	36.3	33.5	7	50.4	46.9	50.2	49.1	3	37.2	4	39.4
13187	40.9	72.9	61.0	6	41.1	33.7	35.0	36.6	3	37.9	44.3	52.0	44.7	7	35.7	7	38.4
11673	55.1	66.3	60.7	8	39.1	25.1	34.5	32.9	12	40.0	41.5	43.0	41.5	11	35.5	9	37.7
8856	50.6	63.3	57.0	12	34.7	29.8	36.0	33.5	7	38.8	41.1	44.7	41.5	11	35.5	9	37.5
11669	50.5	57.8	54.2	15	34.9	27.2	38.0	33.3	10	42.0	46.0	53.5	47.1	5	35.8	6	37.3
13024	53.6	55.6	54.6	14	37.1	28.8	34.1	33.3	10	39.5	41.3	46.0	42.2	10	35.7	7	37.1
13022	53.1	61.1	57.1	11	35.7	25.8	35.7	32.4	13	39.6	40.1	38.1	39.2	15	35.2	11	37.0
13016	56.1	60.5	58.3	9	34.9	27.2	30.5	30.8	15	43.3	41.3	45.6	43.4	9	35.0	13	36.8
13015	50.0	55.0	52.5	17	38.0	31.5	38.4	35.9	5	39.6	40.8	40.9	40.4	13	35.1	12	36.5
13186	52.9	61.8	57.4	10	36.4	27.1	31.4	31.6	14	44.7	42.0	44.3	43.6	8	34.4	14	36.4
6251	42.7	65.5	54.1	16	38.1	26.5	36.0	33.5	7	37.9	36.4	43.1	39.1	16	32.7	15	35.1
13185	55.3	66.2	60.8	7	33.1	25.6	26.4	28.3	17	42.8	36.0	42.1	40.3	14	32.0	16	34.4
1442	43.8	67.5	55.7	13	35.2	22.7	30.7	29.5	16	33.4	36.3	41.1	36.9	17	29.8	17	32.5

1/ Hesperus, colorado yields omitted from average.

Table 17 - Summary of agronomic data other than yield for varieties grown in the uniform yield nursery in 1958.

Variety	C.I. No.	Date		Plant height	Lodging	Shattering 1/	Rust		Bunt	Weight per bushel
		Headed	Ripe				Leaf	Stripe		
		May	June	In.	%		%	%	%	Lb.
Number of stations - - - -		18	7	17	8	2	4	3	2	20
Aztec	13016	24	29	43	16	0.7	41	T	66	60.4
Improved BJ x Cm	13185	24	30	42	7	0.7	78	54	23	60.4
Early Blackhull	8856	17	24	42	48	0.3	70	14	91	60.4
Improved BJ x Cm	13186	23	29	41	17	0.7	61	47	33	60.3
Tascosa	13023	20	26	39	23	0.3	51	21	84	60.2
Qv Hybrid	13285	19	26	38	17	1.1	10	20	55	59.9
Blackhull	6251	23	28	43	37	0.4	52	8	76	59.7
Kr-Hf-Tm-Mi-Hp x Ca	13189	20	27	41	17	0.3	58	43	58	59.0
Ca-Hp-Cn x Cm	13024	21	27	41	31	0.3	43	17	3	58.9
Pawnee x Nebred	13015	22	27	39	26	0.8	64	15	1	58.8
Bh-Oro x Pn	13187	21	26	39	29	0.8	54	82	63	58.6
Concho	12517	21	27	41	38	1.1	50	43	25	58.5
Pawnee	11669	22	28	40	24	1.9	55	38	10	58.2
Comanche	11673	22	27	41	34	0.8	39	27	1	58.0
Ca x Hp-Cn	13022	20	26	40	54	0.3	63	28	86	57.8
Cm-Mi-Hp x Io	13188	22	29	41	24	1.2	25	38	36	57.8
Kharkof	1442	26	31	41	33	0.6	64	18	64	57.8
Pn x Io-Tt-Wis 5	13279	23	29	41	27	0.8	3	30	68	57.7

1/ Ratings based on 0-5 scale, 0 best.

UNIFORM WINTER-HARDINESS NURSERY

Beginning with the 1959 report, the uniform winter-hardiness nursery will be designated the northern regional performance nursery. One or more additional testing locations will be used. Varieties will be entered in the nursery on a basis similar to that followed in the southern regional nursery. Experimental strains will be given a C. I. number when entered in the nursery. Data from reporting locations will be summarized in the same manner as that followed in the southern nursery.

The 1958 nursery contained 22 entries of which 4 were new. The entries, together with State selection and C. I. numbers, are listed below. The nursery was grown at 10 stations in 7 States and at Lethbridge, Alberta. All stations reported data this year, which are presented in table 18.

Entry No.	Variety or cross	State No.	C.I. No.
1	Kharkof	----	1442
2	Kharkof M.C.22	----	6938
3	Nebred	----	10094
4	Minturki	----	6155
5	Minter	----	12138
6	Yogo	----	8033
7	Pawnee x Nebred	----	13015
8	Pawnee x Cheyenne	----	13190
9	Pn x Io-Tt-Wis 5	----	13279
10	Cheyenne	----	8885
11	Cheyenne Selection	W.S. 432	13192
12	do.	W.S. 318*	13193
13	Minnesota Selection	III-54-9*	13505
14	do.	III-54-25*	13506
15	do.	III-54-58	13280
16	do.	III-54-60	13281
17	So. Dakota Selection	53-594	----
18	do.	53-498	----
19	do.	53-520	----
20	do.	53-411	----
21	do.	53-429	----
22	do.	53-755*	----

* New entry in 1958.

DATA OBTAINED

Twelve varieties yielded more than 60 bushels per acre at Ames, Iowa, the highest being 87.1 bushels made by C. I. 13279. Three varieties, among which were III-54-58, Cheyenne, and 53-498, produced above 70 bushels. About half the varieties made grain weighing 60 pounds per bushel or above. Lodging was severe, with 37 percent for C. I. 13015 the lowest recorded.

Yields also were high at Alliance and bushel weights were somewhat above normal. All entries exceeded 40 bushels per acre in yield with the high being 56.8 bushels recorded for C. I. 13279. Shattering was recorded for several varieties, the worst occurring in 2 selections from Minnesota.

Varieties were highly productive at Laramie, Wyoming. No winterkilling occurred. Only 3 varieties yielded less than 60 bushels per acre, and 9 produced more than 70 bushels. Cheyenne, with 82.4 bushels, was high for the nursery, followed by Cheyenne Selections 432 and 318 and C. I. 13190, in that order. Only 4 varieties failed to make a 60-pound test weight. Stripe rust ranging from a trace on some varieties to as much as 60 percent on Yogo occurred. Stem rust also was present in sufficient quantities for readings to be made.

Only yields of grain and test weight were recorded for the uniform yield nurseries at Sheridan and Archer, Wyoming. The level of yields in the two nurseries was about the same, although bushel weights tended to be highest at Sheridan. The same 4 varieties that were highest yielding at Laramie also were the most productive at Sheridan, but their relative rank was somewhat different. At Archer, Nebred, W.S. 432, C. I. 13279, and C. I. 13190, in that order, were highest yielding.

Spring drought at Brookings forced partial premature heading of the early varieties and caused some reduction in their yield. The late-maturing types were favored by late rains. No winterkilling occurred. The highest yields were produced by Yogo and Minturki, in that order. The relatively early-maturing C. I. 13015 and C. I. 13190 were the lowest yielding. The bushel weights of all varieties except Kharkof M.C. 22 and C. I. 13190 were above 60 pounds per bushel. Combined resistance to leaf and stem rust was shown by the Minnesota strains III-54-60 and III-54-58 and So Dakota 53-755.

The uniform winter hardiness nursery at Dickinson survived the winter with no loss of stands, and under the highly favorable spring and summer conditions produced unusually high yields and bushel weights. Highest yielder in the nursery was W.S. 318, with 56.7 bushels per acre. Yogo also made more than 50 bushels. All bushel weights were 61 pounds or higher.

At Havre, Montana, yields ranged from 23.0 bushels for C. I. 13279 up to 30.7 and 30.3 bushels recorded for C. I. 13190 and Nebred. As at many other locations, all varieties produced grain weighing 60 pounds or more.

Observation rows of entries in the uniform winter-hardiness nursery are grown at St. Paul and Waseca, Minnesota, each year. Notes on winter survival were obtained from Waseca this year, and stem rust readings were made at St. Paul. Lowest survivals were recorded for Kharkof and III-54-60. Three Minnesota strains were highly resistant to stem rust.

The nursery at Lethbridge survived the winter well. W. S. 318 and Kharkof yielded 42.0 and 39.1 bushels per acre for first and second yield rank, respectively. Bushel weights are for an Imperial bushel and thus appear to be abnormally high.

Table 18. Yield and other data for varieties grown in the uniform winter-hardiness nursery at 9 stations in 1958 with period-of-years averages.

Ames, Iowa
Three replications

C.I. or Sel. No.	Date		Plant height	Lodging	Weight per bushel	Av. acre yield		No. years grown	Percent of Kharkof
	Headed	Ripe				1958	1955-1/ 1958		
	May	July	In.	%	Lb.	Bu.	Bu.		
13279	26	6	37	62	60.5	87.1	--	1	---
III-54-58	30	7	37	72	60.1	73.8	--	1	---
8885	29	5	38	58	60.7	73.1	--	1	---
53-498	27	5	39	40	59.7	72.3	--	1	---
13190	26	4	35	48	60.3	69.6	--	1	---
W.S. 318	30	7	39	62	60.4	67.9	--	1	---
III-54-9	6-1	8	40	60	60.7	67.6	--	1	---
III-54-25	31	7	39	57	60.7	67.5	--	1	---
1442	31	7	39	70	60.7	62.7	52.5	6	100.0
10094	29	4	38	73	59.8	61.5	49.9	6	98.1
W.S. 432	30	5	35	67	59.4	60.9	--	1	---
53-520	31	5	39	67	58.4	60.1	--	1	---
13015	24	1	35	37	61.1	59.7	49.0	3	93.2
12138	6-1	6	40	67	59.1	59.4	50.6	6	102.3
III-54-60	6-1	8	38	80	60.1	59.1	--	1	---
6155	6-1	7	40	73	59.3	58.8	51.3	6	106.2
53-411	6-1	6	39	65	58.6	58.5	--	1	---
53-755	6-1	8	38	72	59.4	58.4	--	1	---
9033	6-1	8	41	75	58.5	55.9	48.2	6	88.9
6938	6-2	8	41	48	58.9	55.5	38.7	6	75.2
53-594	6-1	5	39	68	57.1	54.5	--	1	---
53-429	6-1	5	40	73	58.3	53.4	--	1	---

1/ No crop in 1957.
Standard error of a difference = 5.72 bushels.

Alliance, Nebraska
Three replications

C.I. or Sel. No.	Date headed	Plant height	Shattering 1/	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
					1958	1957-1958	1955-1958 2/		
	June	In.	%	Lb.	Bu.	Bu.	Bu.		
13279	2	40	1	60.7	56.8	53.0	--	2	129.6
W.S. 432	4	38	1	61.2	56.2	46.0	--	2	112.6
13190	3	39	0	60.5	54.0	45.1	--	2	110.3
W.S. 318	4	39	0	61.8	51.9	--	--	1	---
8885	4	39	1	61.8	50.0	44.2	--	2	108.2
53-498	3	42	1	59.8	49.9	--	--	1	---
10094	4	38	0	61.3	49.2	42.7	38.2	8	112.1
53-755	5	41	1	60.5	48.9	--	--	1	---
III-54-58	4	41	3	61.0	48.2	46.4	--	2	113.6
III-54-60	5	43	2	60.3	48.2	42.2	--	2	103.2
III-54-25	5	43	3	61.3	48.1	--	--	1	---
1442	6	44	0	60.8	47.6	40.9	35.3	8	100.0
III-54-9	6	42	1	60.8	46.3	--	--	1	---
53-520	5	43	0	60.5	45.3	--	--	1	---
12138	4	43	1	59.4	45.2	36.8	33.0	8	90.0
53-594	5	43	1	59.4	44.9	--	--	1	---
6155	4	43	2	60.2	44.6	38.1	33.0	8	93.7
53-411	5	43	0	60.2	43.9	--	--	1	---
53-429	5	42	1	59.3	42.5	--	--	1	---
6938	8	42	0	59.5	42.0	29.7	27.6	5	89.6
13015	2	38	0	59.4	40.8	40.3	35.9	3	101.6
8033	6	43	0	61.2	40.1	28.8	27.1	8	84.3

1/ Rating based on 0-5 scale; 0 = none, 1 = trace, 2 = 5%, 3 = 10%, 4 = 15%, 5 = 25% or more.
2/ No crop in 1956.
Standard error of a difference = 3.62 bushels.

Laramie, Wyoming
Four replications

C.I. or Sel. No.	Date headed	Plant height	Rust		Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
			Stem	Stripe		1958	1957-1958	1955-1958		
	June	In.	%	%	Lb.	Bu.	Bu.	Bu.		
8885	17	34.5	25	T	61.1	82.4	84.7	--	2	118.1
W.S. 432	17	31.5	45	T	60.9	79.5	85.9	--	2	119.8
W.S. 318	17	34.0	45	T	61.4	79.0	--	--	1	---
13190	15	31.0	35	15	60.5	76.6	82.6	--	2	115.3
53-594	20	35.5	25	T	60.9	75.2	--	--	1	---
53-755	20	35.0	5	T	60.9	73.8	--	--	1	---
12138	18	35.0	30	10	61.0	72.8	75.0	56.4	7	91.5
1442	18	36.0	25	T	61.4	71.5	71.7	55.3	7	100.0
III-54-58	16	31.5	0	0	60.4	71.4	74.8	--	2	104.4
8033	19	36.5	10	60	61.1	69.8	72.0	56.6	7	95.7
53-411	20	35.5	30	T	61.1	69.6	--	--	1	---
10094	15	31.0	40	5	60.8	67.6	70.8	52.3	7	88.0
53-498	16	32.5	30	5	59.6	67.6	--	--	1	---
53-520	20	35.0	30	T	61.4	67.6	--	--	1	---
6155	17	36.5	30	5	60.1	67.4	69.1	51.7	7	93.4
53-429	20	36.5	20	T	60.8	66.6	--	--	1	---
13279	16	32.0	T	T	59.5	64.8	73.3	--	2	102.3
III-54-60	18	35.0	5	T	60.4	64.8	65.1	--	2	90.9
III-54-9	18	35.5	T	5	60.5	64.0	--	--	1	---
6938	21	37.0	25	15	60.0	58.2	63.2	49.1	6	83.6
III-54-25	17	34.5	5	T	59.9	53.4	--	--	1	---
13015	14	28.5	30	5	57.4	51.6	57.2	36.8	4	66.5

Standard error of a difference = 3.19 bushels.

Sheridan, Wyoming
Four replications

C.I. or Sel. No.	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
		1958	1957-1958	1955-1958		
	Lb.	Bu.	Bu.	Bu.		
WS 318	59.7	40.1	--	--	1	---
WS 432	61.2	39.8	36.1	--	2	137.3
13190	60.0	38.1	35.2	--	2	133.7
8885	61.5	36.6	34.4	--	2	130.6
53-755	62.0	36.6	--	--	1	---
III-54-58	62.5	36.5	31.6	--	2	120.0
53-411	61.5	33.0	--	--	1	---
8033	61.3	32.8	29.2	27.0	7	108.6
53-429	62.0	32.6	--	--	1	---
13279	62.8	32.4	35.2	--	2	133.8
53-520	61.3	32.3	--	--	1	---
10094	61.1	31.5	31.0	30.2	7	110.9
12138	61.9	31.4	29.2	26.8	7	103.9
1442	61.0	31.0	26.3	23.3	7	100.0
III-54-60	61.2	30.9	30.2	--	2	114.6
III-54-25	61.3	30.3	--	--	1	---
6938	58.5	30.1	27.3	23.7	7	89.0
III-54-9	61.0	29.3	--	--	1	---
6155	58.8	28.5	30.6	27.3	7	108.2
53-498	60.1	27.1	--	--	1	---
53-594	60.0	26.6	--	--	1	---
13015	61.0	22.7	23.4	24.5	3	105.0

1/ No crop in 1956.
Standard error of a difference = 4.46 bushels.

Archer, Wyoming
Four replications

C.I. or Sel. No.	Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
		1958	1957-1958	1956-1958		
	Lb.	Bu.	Bu.	Bu.		
10094	60.4	40.6	33.6	30.2	4	102.2
W.S. 432	59.6	39.4	35.4	--	2	111.7
13279	58.7	37.2	30.9	--	2	97.3
13190	59.3	36.9	34.3	--	2	108.0
12138	61.0	36.4	31.7	28.3	4	96.4
53-429	60.6	35.8	--	--	1	---
8885	60.0	35.8	32.7	--	2	103.0
W.S. 318	59.9	35.4	--	--	1	---
53-594	60.5	34.8	--	--	1	---
1442	59.3	34.2	31.7	29.1	4	100.0
8033	59.9	34.0	31.7	28.8	4	97.9
53-411	60.5	33.9	--	--	1	---
III-54-60	59.0	33.8	31.0	--	2	97.8
53-755	59.9	33.6	--	--	1	---
13015	58.9	33.2	29.0	27.3	3	93.8
53-520	60.9	33.2	--	--	1	---
6155	59.4	32.5	28.7	25.7	4	87.2
III-54-58	59.2	32.3	29.2	--	2	92.0
53-498	58.1	30.5	--	--	1	---
6938	59.3	30.2	25.6	23.3	4	82.5
III-54-9	59.3	29.9	--	--	1	---
III-54-25	59.6	28.1	--	--	1	---

Standard error of a difference = 3.21 bushels.

Brookings, South Dakota
Three replications

C.I. or Sel. No.	Date		Plant height	Rust		Weight per bushel	Av. acre yield			No. years grown	Percent of Kharkof
	Headed	Ripe		Stem	Leaf		1958	1957-1958	1955-1958		
	June	July	In.	%	%	Lb.	Bu.	Bu.	Bu.		
8033	11	23	36	33	60	62.6	48.4	41.5	31.0	6	116.7
6155	11	22	36	23	63	61.3	47.5	42.1	33.1	6	118.5
III-54-60	11	22	29	T	7	61.6	45.5	49.3	--	2	137.0
12138	11	24	37	15	57	63.1	43.7	42.7	32.9	6	125.3
53-594	11	22	34	15	30	62.4	41.0	--	--	1	---
10094	8	19	30	37	60	62.3	37.7	41.0	30.7	6	111.3
6938	12	24	40	43	73	58.4	37.1	32.7	24.6	5	81.1
13279	10	20	27	17	47	61.6	36.7	43.8	--	2	121.8
III-54-58	10	20	28	5	13	61.8	36.5	41.9	--	2	116.4
W.S. 432	11	19	26	17	60	61.5	35.6	35.6	--	2	99.0
1442	11	22	31	32	50	62.1	34.8	36.0	27.2	6	100.0
53-498	10	20	30	7	30	61.7	33.3	--	--	1	---
53-411	11	22	30	15	50	62.5	32.0	--	--	1	---
8885	10	20	27	15	60	61.9	30.4	33.8	--	2	93.9
53-429	12	23	33	25	47	62.5	30.2	--	--	1	---
W.S. 318	11	19	27	22	60	61.3	30.1	--	--	1	---
53-520	9	24	31	18	40	63.0	29.2	--	--	1	---
III-54-9	9	19	27	3	30	61.5	27.7	--	--	1	---
III-54-25	12	21	30	5	50	61.6	27.5	--	--	1	---
53-755	12	22	27	7	10	63.0	27.1	--	--	1	---
13190	9	18	31	20	70	59.7	24.7	31.2	--	2	86.8
13015	7	18	20	12	60	61.3	22.6	31.6	23.9	4	87.9

Standard error of a difference = 8.55 bushels.

Dickinson, North Dakota
Three replications

C.I. or Sel. No.	Date headed	Plant height	Weight per bushel	Av. acre yield		No. years grown	Percent of Kharkof
				1958	1954-1958 1/		
	June	In.	Lb.	Bu.	Bu.		
W.S. 318	20	30	62.0	56.7	----	1	-----
8033	22	36	62.1	52.6	32.6	2	127.1
13190	20	30	62.3	43.1	----	1	-----
W.S. 432	20	28	62.0	43.1	----	1	-----
53-429	22	36	63.0	42.0	----	1	-----
1442	22	34	61.0	41.7	25.7	2	100.0
53-755	22	32	62.5	41.4	----	1	-----
12138	22	38	62.0	41.1	25.4	2	98.8
III-54-60	22	32	61.5	41.1	----	1	-----
8885	22	32	63.2	39.7	----	1	-----
6938	22	34	61.0	39.6	22.3	2	86.7
53-594	22	32	62.5	37.7	----	1	-----
53-411	23	36	63.0	36.5	----	1	-----
III-54-9	20	30	61.5	36.4	----	1	-----
6155	22	38	62.5	34.9	22.6	2	87.9
53-520	22	34	63.5	32.2	----	1	-----
13279	20	30	62.3	31.1	----	1	-----
III-54-58	22	32	63.0	30.9	----	1	-----
III-54-25	22	32	61.0	29.1	----	1	-----
10094	20	30	63.0	28.5	19.1	2	74.5
53-498	20	30	62.5	28.2	----	1	-----
13015	20	36	61.5	22.9	----	1	-----

1/ No crop in 1955, 1956 and 1957.
Standard error of a difference = 4.39 bushels.

Havre, Montana
Three replications

C.I. or Sel. No.	Date headed	Plant height	Weight per bushel	Av. acre yield		No. years grown	Percent of Kharkof
				1958	1955-1958 1/		
	June	In.	Lb.	Bu.	Bu.		
13190	5-29	18	62.4	30.7	--	1	---
10094	5-30	21	62.4	30.3	35.4	6	91.7
1442	1	23	62.0	30.0	35.7	6	100.0
III-54-9	3	24	61.6	29.6	--	1	---
8885	2	20	63.2	29.5	--	1	---
W.S. 432	3	19	62.4	29.4	--	1	---
53-520	3	25	62.0	29.3	--	1	---
12138	3	28	62.0	29.1	35.2	6	87.3
53-594	3	23	61.6	28.9	--	1	---
III-54-60	3	24	61.6	28.8	--	1	---
W.S. 318	3	20	63.2	28.5	--	1	---
53-411	2	24	62.4	28.5	--	1	---
53-429	3	25	62.0	28.0	--	1	---
8033	3	26	61.6	27.9	37.4	6	93.8
III-54-58	1	24	60.8	27.8	--	1	---
53-755	3	22	61.6	27.1	--	1	---
III-54-25	3	23	60.4	26.2	--	1	---
53-498	5-31	22	60.0	25.8	--	1	---
6155	3	24	60.8	25.5	36.0	6	83.9
6938	2	25	60.4	25.0	29.0	5	84.6
13015	5-28	21	60.8	23.1	32.0	2	89.6
13279	5-29	22	61.2	23.0	--	1	---

1/ No crop in 1956 and 1957.
Standard error of a difference = 2.79 bushels.

St. Paul and Waseca, Minnesota
Observation rows

C.I. or Sel. No.	Date headed[1]	Stem rust[1]	Winter survival[2]
	June	%	%
1442	6	50S	63
6938	9	60S	95
10094	4	30MS	90
6155	6	20S-MS	95
12138	7	30S-MR	95
8033	8	40S	95
13015	5-30	30MS-MR	95
13190	2	20S	93
13279	2	20MS	87
8885	4	50S	83
W.S. 432	5	50S	90
W.S. 318	6	50S	90
III-54-9	8	5S	90
III-54-25	8	TR	85
III-54-58	4	TR	82
III-54-60	8	TR	77
53-594	8	30S	90
53-498	8	40S	95
53-520	8	30MS	95
53-411	6	30MS	95
53-429	6	30MS-S	95
53-755	8	30MR	95

1/ St. Paul, Minn. data.
2/ Waseca, Minn. data.

Lethbridge, Alberta
Four replications

C.I. or Sel. No.	Date		Plant height	Weight per bushel 1/	Av. acre yield			No. years grown	Per cent of Kharkof
	Headed	Ripe			1958	1957-1958	1955-1958		
	June	July	In.	Lb.	Bu.	Bu.	Bu.		
W.S. 318	13	30	35	66.0	42.0	----	----	1	-----
1442	15	31	34	65.5	39.1	34.7	32.5	5	100.0
53-755	16	31	35	65.5	38.0	----	----	1	-----
III-54-58	18	8-1	36	65.0	38.0	34.1	----	2	98.1
53-594	14	31	32	65.5	37.8	----	----	1	-----
W.S. 432	16	8-1	35	66.0	37.7	34.3	----	2	98.7
8885	18	8-1	38	67.0	37.7	35.5	----	2	102.2
III-54-25	13	31	35	65.0	37.1	----	----	1	-----
III-54-60	6	27	32	64.5	37.1	32.7	----	2	94.2
6938	16	8-1	36	64.0	36.5	32.4	37.4	5	106.0
13190	16	31	35	65.5	36.4	33.1	----	2	95.2
8033	13	31	33	65.5	35.0	32.6	37.6	5	107.1
53-429	16	8-1	36	65.5	35.0	----	----	1	-----
III-54-9	17	8-1	37	64.5	34.3	----	----	1	-----
53-520	11	31	32	66.0	34.2	----	----	1	-----
12138	17	8-1	34	66.0	33.6	32.4	35.8	5	104.4
6155	11	31	34	65.5	33.6	29.6	35.9	5	104.0
53-411	13	31	35	66.0	33.5	----	-----	1	-----
13279	9	31	32	66.5	32.8	31.6	----	2	90.9
10094	16	8-1	35	65.5	32.0	30.4	32.5	5	96.7
53-498	11	30	32	65.0	30.4	----	----	1	-----
13015	11	30	32	65.0	27.2	23.7	24.8	4	72.8

1/ Imperial bushel weights.
Standard error of a difference = 2.20 bushels.

STANDARD ERRORS

Number of replications, number of varieties, and standard errors for the uniform winter-hardiness nursery at 9 stations in 1958 are reported in table 19. Average yields were high at all locations, the lowest being 27.8 bushels per acre made at Havre, Montana. Only 3 stations had coefficients of variability of less than 10 percent.

SUMMARY OF YIELDS

Individual station yields of grain for the uniform winter-hardiness nursery are assembled and summarized in table 20. Fourteen bushels per acre separated the most productive and the lowest yielding varieties on a 9-station basis. The two selections from Cheyenne, W.S. 318 and W.S. 432, were highest yielding, followed by Cheyenne and C. I. 13190 in that order. C. I. 13015 was the least productive variety on the average.

W.S. 432, C. I. 13279, Cheyenne, and C. I. 13190 have the highest 2-year average yields in the uniform winter-hardiness nursery (table 21). C. I. 13015 was the lowest yielding among 18 varieties tested.

SUMMARY OF AGRONOMIC DATA

Agronomic data other than yield for the uniform winter-hardiness nursery in 1958 are summarized in table 22. All varieties averaged more than 60 pounds per bushel in test weight except Kharkof M.C. 22. Cheyenne had an average of 62.2 pounds for the highest position. Low average stem-rust readings were made by each of the 4 Minnesota strains in the nursery. Moderately low average stem-rust readings were recorded for C. I. 13279 and So. Dakota 53-755. C. I. 13015 had the shortest straw on the average, and Minter and Kharkof M.C. 22 were the tallest varieties. Pawnee x Nebred (C. I. 13015) was the earliest maturing variety in the nursery and Minter, Yogo, and Kharkof M.C. 22 were the latest.

Table 19. Number of replications, mean yeilds, and standard errors for the uniform winter-hardiness nursery at the reporting stations in 1958.

State and Station	No. of reps.	Number of varieties	Av. yield all varieties	Standard error of		Coefficient of Variability
				Difference in means	Mean	
			Bu.	Bu.	Bu.	%
IOWA						
Ames	3	22	64.2	5.72	4.05	10.9
NEBRASKA						
Alliance	3	22	47.5	3.62	2.56	9.3
WYOMING						
Laramie	4	22	68.9	3.19	2.26	6.6
Sheridan	4	22	32.3	4.46	3.15	19.5
Archer	4	22	34.2	3.21	2.27	13.3
SO. DAKOTA						
Brookings	3	25	33.5	8.55	6.05	31.3
NO. DAKOTA						
Dickinson	3	22	37.8	4.39	3.10	14.2
MONTANA						
Havre	3	22	27.8	2.79	1.97	12.3
ALBERTA, CANADA						
Lethbridge	4	22	35.4	2.20	1.56	8.8

Table 20. Summary of average yields made by 22 varieties grown in the uniform winter-hardiness nursery at nine stations in 1958.

C.I. or Sel. No.	Yield in bushels per acre at - - - - - - - -									9-station average
	Ames	Alliance	Laramie	Sheridan	Archer	Brookings	Dickinson	Havre	Lethbridge	
WS 318	67.9	51.9	79.0	40.1	35.4	30.1	56.7	28.5	42.0	48.0
WS 432	60.9	56.2	79.5	39.8	39.4	35.6	43.1	29.4	37.7	46.8
8885	73.1	50.0	82.4	36.6	35.8	30.4	39.7	29.5	37.7	46.1
13190	69.6	54.0	76.6	38.1	36.9	24.7	43.1	30.7	36.4	45.6
13279	87.1	56.8	64.8	32.4	37.2	36.7	31.1	23.0	32.8	44.7
8033	55.9	40.1	69.8	32.8	34.0	48.4	52.6	27.9	35.0	44.1
III-54-58	73.8	48.2	71.4	36.5	32.3	36.5	30.9	27.8	38.0	43.9
12138	59.4	45.2	72.8	31.4	36.4	43.7	41.1	29.1	33.6	43.6
1442	62.7	47.6	71.5	31.0	34.2	34.8	41.7	30.0	39.1	43.6
III-54-60	59.1	48.2	64.8	30.9	33.8	45.5	41.1	28.8	37.1	43.3
53-755	58.4	48.9	73.8	36.6	33.6	27.1	41.4	27.1	38.0	42.8
53-594	54.5	44.9	75.2	26.6	34.8	41.0	37.7	28.9	37.8	42.4
10094	61.5	49.2	67.6	31.5	40.6	37.7	28.5	30.3	32.0	42.1
6155	58.8	44.6	67.4	28.5	32.5	47.5	34.9	25.5	33.6	41.5
53-411	58.5	43.9	69.6	33.0	33.9	32.0	36.5	28.5	33.5	41.0
53-429	53.4	42.5	66.6	32.6	35.8	30.2	42.0	28.0	35.0	40.7
53-498	72.3	49.9	67.6	27.1	30.5	33.3	28.2	25.8	30.4	40.6
III-54-9	67.6	46.3	64.0	29.3	29.9	27.7	36.4	29.6	34.3	40.6
53-520	60.1	45.3	67.6	32.3	33.2	29.2	32.2	29.3	34.2	40.4
6938	55.5	42.0	58.2	30.1	30.2	37.1	39.6	25.0	36.5	39.4
III-54-25	67.5	48.1	53.4	30.3	28.1	27.5	29.1	26.2	37.1	38.6
13015	59.7	40.8	51.6	22.7	33.2	22.6	22.9	23.1	27.2	33.8

Table 21. Summary of two-year average yields for 18 varieties grown in the uniform winter-hardiness nursery at six stations in 1957 and 1958.

C.I. or Sel. Number	Yield in bushels per acre at - - - - - - -						2-Year average
	Alliance	Laramie	Sheridan	Archer	Brookings	Lethbridge	
W.S. 432	46.0	85.9	36.1	35.4	35.6	34.3	45.6
13279	53.0	73.3	35.2	30.9	43.8	31.6	44.6
8885	44.2	84.7	34.4	32.7	33.8	35.5	44.2
13190	45.1	82.6	35.2	34.3	31.2	33.1	43.6
III-54-58	46.4	74.8	31.6	29.2	41.9	34.1	43.0
53-594	40.7	75.3	28.9	30.0	42.1	34.7	42.0
III-54-60	42.2	65.1	30.2	31.0	49.3	32.7	41.8
10094	42.7	70.8	31.0	33.6	41.0	30.4	41.6
12138	36.8	75.0	29.2	31.7	42.7	32.4	41.3
53-411	40.6	71.7	31.1	27.6	38.4	31.8	40.2
1442	40.9	71.7	26.3	31.7	36.0	34.7	40.2
53-498	43.5	69.4	32.1	28.0	38.4	28.6	40.0
53-520	42.3	69.5	28.4	28.5	38.7	32.4	40.0
53-429	37.9	66.6	31.4	31.1	39.0	32.1	39.7
6155	38.1	69.1	30.6	28.7	42.1	29.6	39.7
8033	28.8	72.0	29.2	31.7	41.5	32.6	39.3
6938	29.7	63.2	27.3	25.6	32.7	32.4	35.2
13015	40.3	57.2	23.4	29.0	31.6	23.7	34.2

Table 22. Summary of data other than yield for varieties grown in the uniform winter-hardiness nursery in 1958

Variety	C.I. or Sel No.	Date		Plant height	Stem rust	Weight per bushel
		Headed	Ripe			
		June	July	In.	%	Lb.
Number of stations		8	3	7	3	9
Cheyenne	8885	9	19	33	30	62.2
So. Dakota Selection	53-520	10	20	34	26	61.8
Nebred	10094	8	18	32	36	61.8
So. Dakota Selection	53-411	10	20	35	25	61.7
Cheyenne Selection	WS 318	9	19	32	39	61.7
Minter	12138	10	21	37	25	61.7
So. Dakota Selection	53-755	11	20	33	14	61.6
Cheyenne Selection	WS 432	9	19	31	37	61.5
So. Dakota Selection	53-429	11	20	36	25	61.5
Minnesota Selection	III-54-58	9	20	33	2	61.5
Pn x Io-Tt-Wis 5	13279	6	19	32	12	61.5
Yogo	8033	10	21	36	28	61.5
Kharkof	1442	10	20	35	36	61.5
Minnesota Selection	III-54-9	10	20	34	3	61.2
do	III-54-25	10	20	34	3	61.1
Pawnee x Cheyenne	13190	7	18	31	25	61.1
Minnesota Selection	III-54-60	9	19	33	2	61.1
So. Dakota Selection	53-594	11	19	34	23	61.0
Minturki	6155	9	20	36	24	60.8
So. Dakota Selection	53-498	8	18	33	26	60.7
Pawnee x Nebred	13015	5	16	30	24	60.7
Kharkof M.C. 22	6938	12	21	37	43	59.9

SUPPLEMENTARY WINTER-HARDINESS NURSERY

The supplementary winter-hardiness nursery is grown each year in duplicated observation rows at 6 locations in the northern part of the hard red winter wheat region. In 1958, it was seeded at Alliance, Brookings, Dickinson, Moccasin, Ames, and St. Paul. Differential winterkilling did not occur at any location; thus, there were no data to report.

Beginning in 1959, the nursery will be called the uniform winter-hardiness nursery. Some changes in testing locations have been made. The 1959 nursery locations are Laramie, Alliance, Brookings, Watertown, Fargo, St. Paul, and Moccasin.

DISEASE NURSERIES

The 1958 uniform bunt nursery contained 30 entries and was grown at 8 locations in the region. Data obtained from the nursery are being compiled in a separate reprot for distribution to the cooperators.

The hard red winter wheat soilborne mosaic nursery grown annually at Urbana, Illinois, contained 109 varieties this year. Notes on severity of mottling and rosetting were assembled in a separate report that was distributed to the cooperators prior to harvest.

A regional wheat streak mosaic nursery composed of 20 entries was seeded at Stillwater, Manhattan, Garden City, Lincoln, Fort Collins, Archer, and Moccasin. The nursery was not inoculated at the latter 4 locations, and inoculation failed at Stillwater and Garden City. The nursery has been replanted for 1959. A number of crosses involving different combinations of available sources of tolerance to streak mosaic were made at Lincoln in 1957. The F_2 generation is being propagated at Lincoln this year and will furnish F_3 material for initial screening to streak mosaic in 1960.

The uniform and international rust nurseries are grown at several locations in the region each year. Data from these nurseries are reported to Dr. Loegering for summarization and distribution.

DATA FROM THE QUALITY LABORATORY

Samples of grain from uniform plot varieties and entries in the uniform yield and uniform winter-hardiness nurseries are submitted to the Federal Hard Wheat Quality Laboratory each year by the cooperators. A report of results of quality evaluation is distributed each year by the Laboratory.