

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION
in cooperation with
STATE AGRICULTURAL EXPERIMENT STATIONS

COMPARISON OF
WINTER WHEAT VARIETIES GROWN IN COOPERATIVE
NURSERY EXPERIMENTS IN THE
HARD RED WINTER WHEAT REGION
IN 1968

V. A. Johnson, Agronomist

This is a joint progress report of cooperative investigations underway in the State Agricultural Experiment Stations and the Agricultural Research Service of the U. S. Department of Agriculture containing preliminary data which have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. Confirmed results will be published through established channels. The report is primarily a tool for use of cooperators and their official staffs and to those persons having direct and special interest in the development of agricultural research programs.

This report includes data furnished by the State Agricultural Experiment Stations as well as by the Agricultural Research Service and was compiled in the Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture. The report is not intended for publication and should not be referred to in literature citations nor quoted in publicity or advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

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By

V. A. Johnson^{1/}

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^{1/} The writer expresses appreciation to Mrs. Mary Glantz and Mrs. Katie Meierhenry for their assistance in preparing this report.

PERSONNEL CHANGES

R. H. Painter, Professor of Entomology, Kansas State University, died in Mexico City in December while on assignment with the Rockefeller Foundation. Dr. Painter, an acknowledged expert in the field of insect resistance in crop plants, contributed much to the improvement of hard red winter wheat in the hard red winter wheat region.

I. M. Atkins, long-time leader of small grains improvement in Texas, retired in January, 1969. Dr. Atkins, an enthusiastic supporter of the cooperative regional program in the hard red winter wheat region since its organization more than 35 years ago, developed many improved varieties of wheat and oats for Texas.

The untimely accidental death of Keith Schliebe, agronomist at the San Juan Basin Branch Station, Hesperus, Colorado since 1963, was reported in November.

J. R. Welsh, winter wheat breeder at Montana State University, has accepted a similar position at Colorado State University, Ft. Collins, Colorado. He is succeeded at Montana State by Alan Taylor, formerly associated with the Crop Quality Council, Minneapolis, Minnesota.

R. O. Weibel returned in 1968 to his former position in small grains research at the University of Illinois from a 2-year foreign assignment.

William D. Stegmeier, agronomist at the Garden City, Kansas Branch Station has resumed graduate study at South Dakota State University.

Paul Ehlers, agronomist and superintendent at the Northwest Agricultural Laboratory, Alliance, Nebraska resigned in 1968. He is succeeded by Jason Webster.

John R. Erickson has assumed leadership of a new hard red winter wheat breeding project at North Dakota State University, Fargo, North Dakota.

WHEAT WORKERS CONFERENCE

The Eleventh Hard Red Winter Wheat Workers Conference was held at Manhattan, Kansas, February 6-8, 1968. This was a joint conference with hard red spring wheat workers. Wheat researchers from the western region, eastern soft wheat region, Canada, Mexico, and Argentina as well as from the private sector of the U. S. wheat industry participated. The last half day of the conference was devoted to consideration of the cooperative hard red winter and hard red spring wheat regional programs. Actions affecting the hard winter wheat region were as follows:

The Uniform Quality Series will be discontinued in 1969. Varieties in the 1968 Series will be evaluated as district composites only. Cooperators are urged to submit advanced lines and varieties for quality evaluation at the regional laboratory as "special" samples. Five pounds of seed will permit full evaluation of samples.

Continuation without change of other regional nurseries was recommended. Cooperators are urged to request C.I. numbers for regional entries. Failure to assign numbers could result in eventual loss of valuable germ plasm. As a case in point, no C.I. numbers were assigned to regional entries in 1968.

It was suggested that yield data in 1968 be reported in metric as well as English units in anticipation of eventual conversion to the metric system entirely. Yield summaries for the Southern Regional Performance Nursery and Northern Regional Performance Nursery are reported both in bushels per acre and kilograms per hectare in this report.

COOPERATING AGENCIES, STATIONS, AND PERSONNEL
(The asterisk denotes U.S.D.A. employees)

CEREAL CROPS RESEARCH BRANCH, A.R.S., U.S.D.A.:

Wheat Investigations	L. P. Reitz*
Hard Red Winter Wheat Region	V. A. Johnson*
Rust Investigations	R. A. Kilpatrick*
Quality Investigations	K. F. Finney*

TEXAS AGRICULTURAL EXPERIMENT STATION:

College Station	Texas A & M University	I. M. Atkins* (State Leader)
Soil and Crop Sciences		O. G. Merkle*
Denton	Substation No. 6	J. H. Gardenhire
Chillicothe	Substation No. 12	K. A. Lahr
Bushland	Southwestern Gr. Plains Field Sta.	K. B. Porter
		N. E. Daniels

NEW MEXICO AGRICULTURAL EXPERIMENT STATION:

Clovis	Plains Substation	R. E. Finkner
		C. H. Hsi

OKLAHOMA AGRICULTURAL EXPERIMENT STATION:

Stillwater	Oklahoma State University	E. L. Smith
Agronomy		E. E. Sebesta*
		B. B. Tucker
		R. M. Oswalt
Botany and Plant Pathology		H. C. Young
Entomology		H. L. Chada*
Biochemistry		E. A. Wood, Jr.*
Cherokee	Wheat Land Conservation Sta.	D. C. Abbott
Woodward	Southern Great Plains Field Sta.	E. G. Greer, Jr.
Goodwell	Panhandle Agr. Experiment Sta.	R. A. Hunter
		R. A. Peck

KANSAS AGRICULTURAL EXPERIMENT STATION:

Manhattan	Kansas State University	E. G. Heyne
Agronomy		T. L. Walter
Plant Pathology		E. D. Hansing
		L. E. Browder*
		J. R. Burleigh*
Entomology		H. W. Somsen*
Flour and Feed Milling Industries		J. A. Shellenberger
		J. A. Johnson
Hays	Ft. Hays Branch Station	A. B. Ward
Garden City	Garden City Agr. Exp. Station	R. W. Liver
Colby	Colby Branch Station	J. R. Lawless

COLORADO AGRICULTURAL EXPERIMENT STATION:

Ft. Collins	Colorado State University
Agronomy	
Akron	U.S. Central Gr. Plains Sta.
Hesperus	San Juan Basin Branch Sta.
Springfield	Southeastern Colo. Branch Sta.

J. R. Welsh
K. Takeda
H. O. Mann

IOWA AGRICULTURAL EXPERIMENT STATION:

Ames	Iowa State University
Agronomy	

R. E. Atkins

NEBRASKA AGRICULTURAL EXPERIMENT STATION:

Lincoln	University of Nebraska
Agronomy	

North Platte	North Platte Exp. Station
Alliance	Box Butte Exp. Station
Concord	Northeast Nebr. Exp. Sta.

V. A. Johnson*
J. W. Schmidt
M. R. Morris
P. J. Mattern
P. T. Nordquist
J. Webster
R. Moomaw

WYOMING AGRICULTURAL EXPERIMENT STATION:

Laramie	University of Wyoming
Div. of Plant Science (Crops)	

(Plant Pathology & Horticulture)

Cheyenne	Archer Substation
Gillette	Gillette Substation
Sheridan	Sheridan Substation

K. E. Bohnenblust
R. G. Sackett
G. H. Bridgmon
Alan Herold
L. R. Landers
L. R. Richardson

SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION:

Brookings	South Dakota State University
Agronomy	
Plant Pathology	
Highmore	Central Substation
Presho	South Central Research Farm

D. G. Wells
G. W. Buchenau
Frank Holmes
Harry Geise

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION:

Fargo	North Dakota State University
Agronomy	

Dickinson	Dickinson Substation
Williston	Williston Substation

R. C. Froberg
J. R. Erickson
G. S. Smith
T. J. Conlon
A. A. Schneider

MONTANA AGRICULTURAL EXPERIMENT STATION:

Bozeman	Montana State University
Plant and Soil Science	

Moccasin	Central Montana Branch Sta.
Havre	North Montana Branch Sta.

Alan Taylor
C. R. Haun
A. L. Dubbs
W. H. Miller

IDAHO AGRICULTURAL EXPERIMENT STATION:

Aberdeen	Aberdeen Branch Station
Tetonia	Tetonia Branch Station

D. W. Sunderman*
B. A. McCallum

MINNESOTA AGRICULTURAL EXPERIMENT STATION:

St. Paul	Institute of Agriculture
	Agronomy and Plant Genetics
Waseca	Southern Experiment Sta.

R. E. Heiner*
William Lueschen

ILLINOIS AGRICULTURAL EXPERIMENT STATION:

Urbana	University of Illinois
	Agronomy
	Plant Pathology

R. O. Weibel
C. M. Brown
W. M. Bever

MISSOURI AGRICULTURAL EXPERIMENT STATION:

Columbia	University of Missouri
	Field Crops

J. M. Poehlman

CANADA DEPARTMENT OF AGRICULTURE:

Lethbridge	Canada Agr. Research Station
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M. N. Grant

NEW VARIETIES

The Montana Agricultural Experiment Station in cooperation with the Agricultural Research Service, U.S.D.A., has released two hard red winter wheat varieties in the last two years. One of the varieties was tested in the Western Regional Winter Wheat Nursery while the other was evaluated regionally in the Northern Regional Performance Nursery.

The variety Crest, C.I.13880 (MT6619) has the pedigree Westmont² x P.I.178383. A limited amount of foundation seed was released to Montana producers in 1967. The variety possesses short straw and is early maturing. It has excellent resistance to stripe rust as well as good dwarf bunt resistance. It is recommended for production in western Montana.

The name Froid was given to Selection 1904-7 (C.I.13872) from a bulk population of unknown origin derived from the Montana winter wheat breeding program. Five hundred bushels of foundation seed were distributed to Montana growers in 1968. Froid is very winterhardy, has satisfactory quality, and possesses resistance to stem rust races 17, 56 and 15B in the adult stage. It has somewhat lower test weight than other varieties grown in Montana. It is best adapted for production in northeastern and eastern Montana where threat of stem rust is greatest.

A composite of selections from Winalta that are resistant to race 56 of stem rust is being increased by the South Dakota Experiment Station for release under the name Winoka. During its period of testing in the Northern Regional Performance Nursery, the composite was designated Winalta Re-selection. Winoka will be recommended in South Dakota where winterhardiness is of most concern--namely, the northern and eastern edges of the winter wheat area. The frequently severe leaf necrosis shown by Winoka may hurt its acceptance by farmers. However, when seeded in stubble, Winoka should survive where winter wheat is not normally used and will provide the farmer the advantage of a fall-sown, high quality variety that is competitive with spring wheat in both yield and quality.

A sister selection of the Texas semi-dwarf variety Sturdy is under increase in Texas. Distribution of foundation seed of Svl-Wi-Hope-Cnn-Wi x SS27 (Tx 391-56-D1-29) by the Texas Agricultural Experiment Station is scheduled for the fall of 1969. Production from approximately 40 acres will be distributed to Texas producers. D1-29 is similar to Sturdy in most agronomic traits but has a substantially better yield performance record than Sturdy under irrigation in the Texas Panhandle and its test weight has been higher. Its quality is excellent. The variety has not been evaluated in the regional performance nurseries.

THE 1968 CROP YEAR

A record winter wheat crop of more than 1,200 million bushels reflects the generally good conditions that prevailed throughout most of the region. Timely seeding occurred in the fall. Fall development of the crop was slowed in the Texas high plains by dry soil. Moisture was somewhat short throughout the winter and early spring in most of the area. It became particularly critical in the Texas panhandle, western Oklahoma and Kansas, and eastern Colorado. An infestation of cut worms and brown wheat mites accompanied the moisture shortage in several areas causing severe damage where spraying was not done. Abandonment of wheat acres in these areas was heavy. Over the rest of the region moisture was about normal.

Stem rust remained light in most parts of the region and was observed in trace amounts only. Leaf rust on the other hand became severe throughout the region. By the third week in May heavy infections had developed in north central Texas and southern Oklahoma and the rust already was well established as far north as eastern Nebraska. The subsequent epiphytotic on winter wheat in Kansas and Nebraska was more severe than usual.

Wheat production statistics for the nine principal hard winter wheat states are given below:

<u>State</u>	<u>Seeded acres 1,000</u>	<u>Harvested acres 1,000</u>	<u>Aband- onment %</u>	<u>Yield per harvested acre bu.</u>	<u>Produc- tion (bu.) 1,000</u>
New Mexico	339	305	10	25.0	7,625
Texas	4,909	3,825	22	22.0	84,150
Colorado	3,106	1,916	38	20.0	38,320
Oklahoma	6,091	5,321	13	23.0	122,383
Kansas	11,963	9,751	18	25.0	243,775
Nebraska	3,332	3,159	5	32.0	101,088
South Dakota	779	723	7	36.0	26,028
Wyoming	296	264	11	30.0	7,920
Montana	2,877	2,751	4	31.5	86,656

Data from U.S.D.A. Statistical Reporting Service, Crop Reporting Board
Cr-Pr 2-1 (68) Washington, D. C.

Acreage abandonment was particularly high in Colorado. Heavy abandonment also occurred in Texas and Kansas. Grain yield per harvested acre was 20 bushels or higher in all nine states. Nebraska, South Dakota, Wyoming and Montana, the states with the lowest acreage abandonment, all produced average acre yields of 30 bushels or more.

UNIFORM QUALITY SERIES

This was the last year in which this series will be grown in the region. Varieties comprising the series in 1968 are listed.

Northern District

Warrior*	13190
Trader	13998
Trapper	13999
Selkirk x Cheyenne ²	NB64365
BWH 1904-7	MT639
Winoka	14000

Central District

Comanche*	11673
Guide	13856
Shawnee	14157
Concho x Triumph ²	KS644
Parker	13285

Southern District

Comanche*	11673
Danne Selection 129-16	13876
Triumph x C.I.12406	13875

*Check variety

SOUTHERN REGIONAL PERFORMANCE NURSERY

There were 27 nurseries grown at 25 sites in 1968. Irrigated as well as dryland nurseries were grown at Bushland, Texas and Clovis, New Mexico. In addition to the number of nurseries indicated, observation plots were grown at Brookings, South Dakota and Aberdeen, Idaho. Data were reported from all nursery sites except Garden City, Kansas where the nursery was severely damaged by cutworms and drought; Alliance, Nebraska where hail destroyed the nursery, Highmore, South Dakota where cutworm damage resulted in abandonment of the nursery, and Brookings, South Dakota where an observation nursery was lost from heavy winter killing. Data from reporting stations are assembled in table 1. Pedigrees and C.I. or Selection Numbers of entries in the 1968 SRPN are listed.

<u>Entry No.</u>	<u>Pedigree</u>	<u>C.I. or Sel. No.</u>	<u>Source</u>
1	Kharkof	1442	Check
2	Early Blackhull	8856	Check
3	Comanche	11673	Check
4	Scout	13546	Nebr.
5	Scout 66	13996	Nebr.
6	Pn-Cnn-Pn-Ky58 x Cnn	NB66403	Nebr.
7	"	NB66404	Nebr.
8	Ky58-Nth-Hope-Tk ² -Cnn x Parker	NB66425	Nebr.
9	Triumph	12132	Okla.
10	Triumph x C.I.12406	13874	Okla.
11	"	13875	Okla.
12	Danne Selection 129-16	13876	Okla.
13	" 150-6	13877	Okla.
14*	" 145B4	OK60111	Okla.
15*	Bowie-Quanah x Tascosa	TX61A58	Texas
16*	Triticum x Tmp-Ae x Tascosa	TX62C436	Texas
17*	391-56-D1-8 x Tascosa	TX62A4793-7	Texas
18*	391-56-D1-8 x Triumph	TX62A2607-6	Texas
19*	Wrr-Ky58-Nth-Cnn-Tm-Mi-Hope x Parker	CO652363	Colo.
20	Shawnee	14157	Kans.
21	Concho x Triumph ²	KS644	Kans.

* New entry in 1968.

Data Obtained

Denton--There were good stands in all plots. Above average precipitation and wet weather prevailed from December through harvest. Leaf rust occurred early and quickly became epidemic. Stem rust was present in trace amounts only.

Chillicothe--Winter wheat was seeded under good conditions. Fall growth tended to be slow because of low temperatures. There was excellent moisture throughout the winter in the form of both rain and snow. January was the wettest of record. Leaf rust was present on the wheat throughout most of the winter. There was some spraying for greenbugs which became troublesome in early fall. Abundant rainfall continued through the spring months with precipitation occurring 15 days in May. Wheat matured about 10 days later than normal. Moderate to heavy damage from leaf rust and Septoria occurred. Straw breakage and lodging of wheat was prevalent. Stem rust came in too late to cause damage.

Bushland--Much dryland wheat in the Texas Panhandle did not emerge until January due to dry surface soil. Better than usual late winter moisture occurred and the wheat recovered well from the earlier drought and delayed emergence. A good dryland nursery was produced at Bushland. Leaf rust developed in the nurseries late in the season. Some wheat streak mosaic was observed. Some lodging occurred in the irrigated nursery.

Clovis--Both irrigated and dryland nurseries were grown at Clovis. Good fall stands were obtained in both. The dryland nursery was good enough to harvest for the first time in several years although yields were low and variability was high. The irrigated nursery was tall with light to moderate lodging occurring prior to harvest. Wheat heads in the irrigated nursery did not appear to be as large as normal. There were no diseases of consequence.

Stillwater--Uniform stands were established in the fall. Moisture conditions were good throughout the entire wheat growing season. Powdery mildew and leaf rust became moderately heavy but are not believed to have had serious effect on yields. Straw lodging and mild breakage was recorded in some varieties. Higher than normal variability in the nursery was attributed to depressed areas probably caused by nematodes.

Cherokee--Soil moisture in the fall was good and uniform stands were established. Excessive tillering of varieties was observed in the spring. Some drought stress developed in March and April but, with occurrence of general rains in May there was good recovery of the wheat. Greenbugs were observed in the nursery but damage was slight.

Woodward--The wheat emerged to full stands in the fall and survived the winter without damage. Very short straw resulted from drought stress in March and April. All entries in the nursery were under 30 inches in height. The wheat responded well to rains in May and high yields were made by most of the varieties in the SRPN. Some spike sterility, believed to have resulted from below-freezing temperatures in May, was evident in some varieties--particularly Kharkof.

Manhattan--Good fall stands of all varieties were obtained. Freeze damage occurred on March 23. April and May were dry but with cool nights. Precipitation was received soon after anthesis. Moderately cool dry weather in June promoted high grain yields.

Hays--The fall and winter were very dry and mild. Emergence was good and there was no loss of stands during the winter. Temperature as low as 6°F occurred March 27 and may have promoted some stem breakage near the base of plants observed after heading. The relationship of the March freeze to stunted areas and partial sterility present in the nursery is not known. Very dry weather with mild temperatures persisted throughout the spring and summer forcing the wheat to finish mainly on stored moisture.

Garden City--Reasonably good stands were obtained in the fall but severe drought throughout the winter and spring together with cutworms and greenbugs resulted in complete loss of dryland wheat nurseries.

Colby--Topsoil moisture was adequate for wheat emergence in the fall but subsoil moisture was low. Fall growth was limited. The winter was very dry and moderately mild and open with little snow cover. Early resumption of growth in the spring was interrupted by a period of very low temperatures in early April. There was some stand reduction from the freeze. Cutworms caused some damage and very dry weather persisted until late May. A hail storm in late June produced further damage. Substantial secondary growth occurred in most plots during wet weather in June.

Ft. Collins--The rank heavy growth of wheat in the SRPN resulted in severe lodging of most varieties in the nursery by harvest time. Grain yields and bushel weights seemed relatively unaffected.

Akron--An excellent nursery was grown. Full stands of all varieties were obtained despite critically short soil moisture in the fall. Winter survival was good and the wheat made satisfactory development in the spring on timely rains. It ran out of water in June and test weights were sharply reduced as well as grain yields. Early maturing varieties were the least effected.

Julesburg--The moisture situation throughout the wheat growing season was better than at Akron. This is reflected in higher grain yields and above-normal test weights. Light to moderate infections of both leaf and stem rust were recorded.

Burlington--Conditions not reported.

Springfield--Drought conditions during the fall and winter were severe at Springfield. Reasonably good stands were obtained but nursery development was variable because of the moisture shortage. Late spring rains favored the later maturing varieties and permitted the grain to finish well.

Yellow Jacket--Moisture conditions were marginal throughout the season. Only 9.28 inches of rain was received. Yield and test weights were low.

Mead--Moisture conditions were good during the fall and spring growing seasons. Leaf rust appeared early and became severe on susceptible varieties. Stem rust was present in trace amounts only.

North Platte--There was good fall emergence and development of the wheat. No winterkilling occurred. Moisture was limited throughout the spring and yields were not as high as they have been at North Platte in recent years. Diseases were of no consequence in varietal performance.

Alliance--Hail on June 5 destroyed the nursery.

Ames--Fall moisture was adequate but not abundant. Fall growth was not excessive. Most entries survived the winter without loss of stand. April and early May were dry. Precipitation in late May and June totaled nearly 9 inches and was accompanied by cool temperatures. Leaf rust became very heavy but stem rust was present in trace amounts only. There were no other diseases of consequence.

Columbia--Conditions not reported.

Urbana--There was excellent emergence and fall growth of wheat at Urbana. Winterkilling occurred in only the more tender entries. Early spring temperatures were below normal and accompanied by adequate precipitation. Disease and insects caused no measurable damage to the wheat.

Presho--This was the first year that the SRPN was grown in South Dakota. Soil moisture at Presho was good at seeding time and the wheat survived the winter without measurable loss of stand. The spring and summer growing seasons were cool. Some lodging occurred and leaf rust was very heavy.

Highmore--The nursery was destroyed by cutworms.

Table 1.--Yield and other data for varieties grown in the Southern Regional Performance Nursery at 22 stations (24 trials) in the hard red winter wheat region in 1968.

DENTON, TEXAS
Four replications

C.I. or Sel. No.	: Date :headed	: Plant :height	: Leaf Rust :3/25/68:4/15/68	: Weight : per :bushel	:Av.acre :1968 : bu.	:Yield :1967- : 1968 : bu.	:No. :years: :grown:	:Percent : of :Kharkof
	April	in.	% %	lbs.	bu.	bu.		
NB66425	19	40	T 10R	54	37.6	--	1	239.5
TX62C436	24	43	T 15R	58	35.3	--	1	224.8
TX61A58	27	43	T 10R	54	30.3	--	1	193.0
13874	16	39	30 60	56	29.1	34.7	3	164.1
CO652363	25	42	10R 30MR	56	26.9	--	1	171.3
13546	26	39	25 40	55	25.1	32.2	8	135.0
13877	16	39	30 60	55	24.2	31.8	2	153.6
13996	25	42	20 40	55	23.6	30.5	4	146.7
KS644	17	40	20 50	58	23.5	29.7	3	141.5
11673	29	41	20 40	54	23.0	27.1	28	128.3
TX62A2607-6	26	36	T 50	58	23.0	--	1	146.5
13875	17	39	20 60	55	22.8	30.0	2	144.7
8856	19	41	20 40	57	22.1	27.9	32	130.6
OK60111	16	39	50 60	52	22.1	--	1	140.8
12132	18	36	40 40	57	18.9	27.0	8	123.1
13876	19	39	40 60	53	18.5	25.3	3	128.6
NB66403	27	39	20 50	53	17.9	--	1	114.0
NB66404	26	39	30 50	53	17.9	--	1	114.0
14157	28	41	40 50	55	17.8	21.0	3	98.3
1442	29	42	20 50	54	15.7	20.7	32	100.0
TX62A4793-7	25	37	T 40	49	13.8	--	1	87.9

L.S.D. = 4.3 bushels; C.V. = 12.8%
.05

CHILLICOTHE, TEXAS
Four replications

C.I. or Sel. No.	Date		Plant height in.	Weight per bushel lbs.	Av. acre yield		No. years grown	Percent of Kharkof
	First head	Full ripe			1968 bu.	1967- 1968 bu.		
	May	June						
TX62A2607-6	4-30	1	29	58.0	39.0	--	1	185.7
NB66425	4-29	5-31	35	59.0	38.0	--	1	181.0
TX61A58	3	5	38	59.5	36.0	--	1	171.4
TX62A4793-7	1	4	32	56.0	34.6	--	1	164.8
13546	1	3	35	59.0	33.7	31.5	8	145.6
13996	1	2	38	59.0	32.4	30.4	4	168.5
TX62C436	2	4	40	59.0	29.9	--	1	142.4
CO652363	2	4	34	60.0	29.0	--	1	138.1
13875	4-23	5-27	34	60.0	28.0	23.2	2	106.9
11673	3	5	38	58.5	27.5	24.4	30	117.6
14157	2	4	37	59.5	26.9	24.5	3	119.4
13874	4-23	5-27	34	60.0	26.0	25.9	3	134.1
13877	4-22	5-26	33	60.0	25.6	24.4	2	112.2
12132	4-24	5-27	34	59.5	23.5	26.0	8	135.5
8856	4-26	5-29	40	60.5	23.4	22.3	30	109.0
KS644	4-23	5-27	34	60.5	23.4	23.9	3	126.7
OK60111	4-24	5-28	34	59.0	23.4	--	1	111.4
13876	4-24	5-28	33	60.0	23.3	23.8	3	122.6
NB66404	4	6	33	58.5	22.8	--	1	108.6
NB66403	5	7	32	58.0	22.6	--	1	107.6
1442	8	9	41	58.0	21.9	22.2	30	100.0

L.S.D. .05 = 5.1 bushels; C.V. = 12.8%

BUSHLAND, TEXAS
Four replications, dryland

C.I. or Sel. No.	Plant height in.	Weight per bushel lbs.	Av. acre yield 1968 bu.	No. years grown	Percent of Kharkof
NB66425	24	59.9	26.5	1	125.0
NB66403	24	59.2	25.3	1	119.3
TX62C436	25	59.1	25.1	1	118.4
CO652363	24	60.8	23.9	1	112.7
TX61A58	24	60.2	23.8	1	112.3
NB66404	24	58.8	23.5	1	110.8
13546	25	59.8	23.3	4	114.1
OK60111	22	59.6	22.5	1	106.1
11673	28	58.1	22.4	24	106.3
13996	24	59.5	22.3	2	112.9
TX62A4793-7	22	55.4	22.2	1	104.7
8856	26	61.5	22.0	24	104.2
14157	27	58.0	21.6	2	101.9
TX62A2607-6	22	59.1	21.6	1	101.9
13876	24	60.3	21.4	2	96.9
1442	29	57.0	21.2	24	100.0
13875	23	60.3	21.0	1	99.1
13874	23	60.9	20.9	2	111.3
KS644	22	61.2	20.4	2	107.5
13877	22	59.9	20.3	1	95.8
12132	23	60.9	19.9	4	102.7

L.S.D. .05 = 6.1 bushels; C.V. = 9.6%

BUSHLAND, TEXAS
Three replications, irrigated

C.I. or Sel. No.	: Date :headed	: Plant :height	: Lodg- :ing	:Weight : per :bushel	:Av. acre yield		:No. :years :grown	:Percent : of :Kharkof
	May	in.	%	lbs.	1968 bu.	1967- 1968 bu.		
NB66425	12	39	3	62.3	85.6	--	1	184.5
TX62A4793-7	10	36	0	57.5	78.7	--	1	169.6
TX62C436	10	42	20	61.3	73.2	--	1	157.8
14157	12	43	7	61.6	69.3	70.0	3	155.3
13546	9	38	20	62.0	68.7	62.1	5	135.0
NB66404	12	39	10	60.9	66.7	--	1	143.8
TX62A2607-6	11	34	0	61.6	66.3	--	1	142.9
CO652363	12	39	7	61.9	64.2	--	1	138.4
NB66403	14	39	13	61.2	62.6	--	1	134.9
OK60111	8	37	23	61.9	61.1	--	1	131.7
11673	12	41	20	61.2	60.6	58.3	16	115.2
13996	9	37	15	62.0	60.0	61.2	3	142.2
13876	7	35	27	62.9	59.3	60.2	3	137.1
TX61A58	10	38	12	62.6	59.1	--	1	127.4
8856	5	41	33	62.6	58.1	53.6	16	97.2
13875	8	37	23	62.3	56.9	55.5	2	127.3
13874	7	36	27	62.9	55.5	56.0	3	135.4
12132	6	35	27	62.7	53.0	53.1	5	113.5
13877	8	35	23	62.3	50.4	53.7	2	123.2
KS644	8	36	17	62.9	49.7	51.0	3	114.3
1442	16	42	3	60.0	46.4	43.6	16	100.0

L.S.D. .05 = 12.6 bushels; C.V. = 12.2%

CLOVIS, NEW MEXICO
Four replications, dryland

C.I. or	Date		Plant		Weight	Av. acre	No.	Percent
Sel. No.	Headed	Ripe	height	Vigor	per bushel	yield 1968	years grown	of Kharkof
	May	June	in.	%	lbs.	bu.		
NB66403	8	14	16	3	63	13.9	1	175.9
NB66425	6	12	16	3	62	13.5	1	170.9
NB66404	6	15	16	3	62	12.8	1	162.0
TX62C436	1	12	17	4	61	12.6	1	159.5
13546	4	12	16	3	62	10.9	5	136.3
14157	6	14	16	3	61	10.8	1	136.7
TX62A4973-7	5	12	16	4	58	10.6	1	134.2
13996	5	11	15	3	62	10.4	1	131.6
TX61A58	6	12	15	3	60	10.1	1	127.8
11673	9	14	17	3	61	9.3	13	100.5
CO652363	7	16	15	3	59	8.8	1	111.4
1442	15	18	16	3	60	7.9	13	100.0
13875	5	12	17	3	60	7.3	1	92.4
8856	4	13	18	4	60	6.8	11	100.4
OK60111	6	12	15	3	60	6.3	1	79.7
13874	4	12	17	3	54	6.0	1	75.9
12132	4	12	18	3	57	5.8	5	103.3
TX62A2607-6	5	11	15	3	58	5.5	1	69.6
13877	4	12	14	3	45	5.3	1	67.1
13876	4	12	14	3	61	3.8	1	48.1
KS644	4	12	14	3	60	3.3	1	41.8

L.S.D. .05 = 4.0 bushels; C.V. = 32.0%

CLOVIS, NEW MEXICO
Four replications, irrigated

C.I. or Sel. No.	Date		Plant height in.	Lodg- ing %	Weight per bushel lbs.	Av. acre yield		No. years grown	Percent of Kharkof
	Headed May	Ripe June				1967- 1968 bu.	1968 bu.		
NB66425	14	23	44	23	63.5	89.9	---	1	143.6
TX62A4793-7	9	21	37	0	61.0	82.2	---	1	131.3
NB66404	13	24	45	33	63.0	78.9	---	1	126.0
11673	14	23	47	40	63.5	78.8	71.1	6	97.1
13546	9	22	46	43	63.5	77.4	75.2	6	113.9
NB66403	14	25	44	35	62.0	77.3	---	1	123.5
TX62A2607-6	9	22	40	0	63.0	77.0	---	1	123.0
14157	14	25	46	5	62.5	76.8	80.0	3	100.3
CO652363	14	25	44	13	63.5	75.8	---	1	121.1
TX62C436	7	23	44	0	64.0	75.6	---	1	120.8
OK60111	10	22	45	8	64.0	73.5	---	1	117.4
13996	10	22	43	43	63.5	71.9	76.4	3	102.2
13875	9	22	45	13	63.5	70.5	70.5	2	96.9
13877	9	22	46	23	64.0	69.6	65.8	2	90.5
TX61A58	13	24	44	40	63.0	69.2	---	1	110.5
13874	8	22	46	15	63.0	68.3	70.6	3	89.7
13876	8	22	42	18	64.0	65.0	73.2	3	103.4
1442	23	26	45	53	61.5	62.6	72.7	6	100.0
12132	8	22	45	13	63.0	62.4	60.4	6	85.4
KS644	8	22	46	8	63.5	59.1	57.8	3	78.6
8856	5	20	45	48	63.5	58.8	56.5	6	86.9

L.S.D. .05 = 10.7 bushels; C. V. = 11.0%

STILLWATER, OKLAHOMA
Four replications

C.I. or Sel. No.	: Date	: Plant	: Powdery	: Leaf rust ^{2/}			: Lodging ^{3/}		: Weight	: Av. acre	: No.	: Percent
	: headed	: height	: mildew ^{1/}	: T	: S	: P	: Broken	: Lean	: per	: yield	: years	: of
	May	in.	%		%	%	%	%	lbs.	bu.	grown	Kharkof
NB66425	1	36	1	2-4	1	100	5	10	60.0	53.9	1	229.4
TX61A58	4	37	2	4	1	100	2	2	60.9	51.0	1	217.0
TX62A4793-7	4	34	2	2-4	5	100	2	2	57.0	49.6	1	211.1
TX62A2607-6	2	33	7	2-4	5	100	0	0	59.2	49.6	1	211.1
TX62C436	1	40	4	0	0	0	2	5	61.0	47.4	1	201.7
KS644	4-25	37	2	4	60	100	2	10	62.5	44.8	2	193.9
11673	5	41	5	4	30	100	5	20	59.3	44.5	27	118.8
NB66404	4	39	2	4	30	100	2	5	60.1	44.1	1	187.7
CO652363	3	37	2	4	5	100	2	5	60.9	43.3	1	184.3
12132	4-26	38	2	4	50	100	2	30	62.0	43.1	6	144.6
OK60111	4-27	38	4	4	50	100	2	20	59.7	42.6	1	181.3
13874	4-25	36	3	4	20	100	0	10	60.2	42.0	2	170.7
13875	4-27	38	4	4	40	100	0	15	61.2	42.0	1	178.7
13996	2	40	2	4	30	100	5	25	59.5	41.8	3	170.4
13546	2	40	1	4	30	100	2	10	58.9	39.1	7	158.1
NB66403	4	38	2	4	40	100	2	10	59.4	39.1	1	166.4
13877	4-26	36	1	4	60	100	5	25	59.5	39.0	1	166.0
13876	4-27	36	3	4	50	100	2	15	61.0	38.1	2	156.1
8856	4-27	39	4	4	60	100	5	40	60.9	34.9	33	118.6
14157	4	39	2	4	40	100	2	2	59.7	28.6	2	124.6
1442	9	38	3	4	60	100	10	10	60.0	23.5	33	100.0

^{1/} 0 = none, 1 = trace, 9 = flag leaf destroyed. Notes taken 5-1-68

^{2/} T = infection type, S = % severity, P = % prevalence. Readings taken 5-1-68

^{3/} Lodging notes taken at maturity.

L.S.D. .05 = 9.2 bushels; C.V. = 15.5%

CHEROKEE, OKLAHOMA
Four replications

C.I. or Sel. No.	Date headed	Plant height in.	Weight per bushel lbs.	Av. acre yield		No. years grown	Percent of Kharkof
				1968	1967- 1968		
	April			bu.	bu.		
TX61A58	30	31	62.4	48.9	--	1	245.7
13874	25	28	61.9	47.6	39.2	3	175.4
13876	27	31	62.4	44.8	41.8	3	179.4
13875	26	30	62.0	44.4	41.5	2	182.6
CO652363	5-3	27	63.0	42.8	--	1	215.1
NB66404	5-2	27	61.5	42.3	--	1	212.6
NB66403	5-4	29	60.6	41.5	--	1	208.5
OK60111	27	31	61.2	40.6	--	1	204.0
NB66425	5-1	27	61.7	40.1	--	1	201.5
TX62C436	25	30	61.1	40.1	--	1	201.5
KS644	25	31	62.3	39.5	35.6	3	150.4
11673	5-2	27	61.1	39.3	36.6	21	136.6
TX62A2607-6	28	28	60.7	39.0	--	1	196.0
8856	25	32	62.2	38.9	35.9	21	140.0
TX62A4793-7	29	28	60.5	37.8	--	1	189.9
13996	5-2	31	61.2	36.8	39.1	4	166.2
13877	26	31	60.9	36.3	36.3	2	159.9
13546	5-3	26	61.2	35.8	34.2	8	166.1
14157	5-2	28	61.4	33.1	29.5	3	147.0
12132	24	27	61.0	32.6	34.0	8	150.3
1442	5-6	33	61.4	19.9	22.7	21	100.0

L.S.D. .05 = 7.7 bushels; C.V. = 14.0%

WOODWARD, OKLAHOMA
Four replications

C.I. or Sel. No.	: :Date :headed	: :Plant :height	: :Weight : per :bushel	:Av. acre : yield :1968:1967- :1968	: :No. :years :grown	: :Percent : of :Kharkof
	April	in.	lbs.	bu. bu.		
OK60111	25	27	62.8	55.4 --	1	279.8
NB66404	30	28	62.8	53.3 --	1	269.2
NB66425	5-1	25	62.7	52.6 --	1	265.7
CO652363	5-1	25	63.4	51.8 --	1	261.6
13546	30	26	62.9	51.3 48.8	8	155.8
TX62A4793-7	29	25	61.9	50.6 --	1	255.6
13875	26	28	62.5	50.4 43.0	2	162.0
11673	5-1	28	62.4	50.0 43.3	32	175.2
NB66403	5-1	25	62.5	49.3 --	1	249.0
13876	26	27	62.8	48.9 44.4	3	161.2
13874	25	26	62.2	48.8 44.0	3	162.0
TX62A2607-6	28	22	62.2	46.4 --	1	234.3
13877	26	26	62.4	45.5 42.2	2	158.8
13996	30	26	63.0	44.6 44.1	4	148.6
KS644	24	27	63.0	44.6 40.3	3	141.3
TX61A58	5-1	25	62.4	44.5 --	1	224.7
TX62C436	29	27	62.2	44.5 --	1	224.7
12132	24	27	61.9	41.4 37.0	8	131.3
8856	24	29	62.3	39.9 36.2	37	110.0
14157	5-2	26	62.8	39.6 38.1	3	136.2
1442	5-6	26	61.6	19.8 26.6	37	100.0

L.S.D. .05 = 8.5 bushels; C.V. = 13.0%

MANHATTAN, KANSAS
Four replications

C.I. or Sel. No.	: : Date : headed	: : Plant : height	: : Leaf Rust : Resp.: Sev.	: Freeze : damage/1/ : March	: Weight : per : bushel	: Av. acre yield : 1968 : 1967- : 1968	: No. : years : grown	: Percent : of : Kharkof
	May	in.	%		lbs.	bu.	bu.	
13876	12	35	S 30	2	62.2	58.5	41.7	3 107.1
13877	11	35	S 30	1	62.5	58.1	38.2	2 105.5
OK60111	11	37	S 30	1	61.9	57.3	--	1 131.1
TX61A58	21	38	MR 5	1	61.8	56.3	--	1 128.8
NB66425	17	35	MR-MS 10	2	61.6	54.9	--	1 125.6
NB66403	23	40	S 40	1	61.5	54.5	--	1 124.7
13874	11	35	MS 20	2	62.7	53.1	35.7	3 86.7
NB66404	22	39	S 30	1	62.0	52.9	--	1 121.1
13546	15	39	S 30	2	61.6	52.8	42.9	8 115.3
13875	11	36	MS 20	1	62.4	52.7	34.5	2 95.3
CO652363	16	38	MR 10	1	62.8	51.2	--	1 117.2
13996	16	38	S 30	3	61.9	51.1	42.0	4 107.8
TX62A4793-7	16	34	MR 5	2	57.1	50.4	--	1 115.3
14157	10	41	S 40	1	61.7	50.2	38.7	3 103.4
11673	17	40	MR-MS 10	2	61.3	49.6	39.5	32 121.5
12132	11	36	S 30	1	62.3	49.5	35.6	8 103.5
TX62A2607-6	14	35	MR tr	1	60.2	48.3	--	1 110.5
KS644	10	37	S 30	1	62.7	47.7	33.0	3 81.5
8856	12	38	S 30	1	62.3	45.4	35.4	37 110.0
1442	25	47	MR-S 20-30	1	61.2	43.7	36.2	37 100.0
TX62C436	21	40	R 0	1	61.3	42.7	--	1 97.7

1/ Amount leaf area killed

0 = none

1-3 = tr to 30%

L.S.D. .05 = 4.7 bushels; C.V. = 6.4%

HAYS, KANSAS
Four replications

C.I. or Sel. No.	: :Date :headed May	: :Plant :height in.	: :Weight : per :bushel lbs.	: :Av. acre : yield :1968:1967- : :1968 bu. bu.	: :No. :years :grown	: :Percent : of :Kharkof
NB66403	18	37	63.0	50.1 --	1	132.2
NB66425	19	33	63.0	45.7 --	1	120.6
14157	17	38	63.0	44.5 35.2	3	109.0
NB66404	18	36	62.9	43.8 --	1	115.6
13876	13	30	63.5	43.5 28.0	3	86.0
TX62A2607-6	14	28	61.7	42.4 --	1	111.9
CO652363	19	34	63.5	41.8 --	1	110.3
13996	15	34	63.3	41.3 33.6	4	122.0
13875	13	33	62.6	39.8 24.3	2	77.0
1442	27	42	62.4	37.9 31.6	31	100.0
8856	12	35	63.4	37.9 26.3	31	112.9
OK60111	13	31	62.6	37.6 --	1	99.2
13546	17	32	62.3	37.3 33.0	7	138.8
TX62A4793-7	18	28	59.1	37.1 --	1	97.9
12132	13	32	62.4	36.5 21.7	7	102.9
13877	13	31	62.9	35.0 24.1	2	76.2
13874	12	31	62.8	35.0 21.3	3	72.5
TX62C436	16	35	62.2	34.8 --	1	91.8
KS644	12	31	63.0	33.9 20.5	3	65.6
11673	19	34	62.3	33.5 28.7	27	119.7
TX61A58	19	33	63.1	33.4 --	1	88.1

L.S.D. .05 = 7.6 bushels; C.V. = 13.1%

COLBY, KANSAS
Four replications

C.I. or Sel. No.	:Date :headed May	:Plant :height in.	:Spring :stand %	:Av.acre yield		:No. :years :grown	:Percent : of :Kharkof
				:1968 : bu.	: 1967- : 1968 : bu.		
1442	6-7	18	88	8.3	17.1	16	100.0
NB66403	30	16	80	7.5	--	1	90.4
13996	29	15	81	6.6	15.6	3	97.3
8856	28	17	79	6.4	15.1	16	94.0
NB66404	6-2	14	79	6.2	--	1	74.7
13546	30	16	84	6.0	15.6	6	110.3
CO652363	6-2	14	79	5.6	--	1	67.5
14157	31	16	80	5.3	16.7	3	104.2
11673	6-3	15	76	4.8	12.5	15	98.9
OK60111	29	16	79	4.5	--	1	54.2
13876	27	15	78	4.3	14.0	3	89.3
13875	29	15	79	4.2	13.2	2	77.4
13877	28	15	76	4.1	14.0	2	81.8
NB66425	6-4	13	70	4.0	--	1	48.2
TX62A2607-6	29	14	75	3.8	--	1	45.8
KS644	26	17	81	3.6	11.3	3	68.8
13874	26	16	79	3.4	13.0	3	87.3
12132	27	15	79	3.1	10.5	6	88.3
TX61A58	6-4	14	38	3.0	--	1	36.1
TX62A4793-7	6-3	14	53	3.0	--	1	36.1
TX62C436	---	---	4	0.0	--	---	--

L.S.D. .05 = 2.0 bushels; C.V. = 28.6%

FORT COLLINS, COLORADO
Four replications, irrigated

C.I. or Sel. No.	: :Date :headed June	: :Plant :height In.	: :Lodging 1/ :Type: Sev.	: :Weight : per :bushel lbs.	:Av. acre : yield : 1968 bu.	:No. :years :grown	:Percent : of :Kharkof
NB66403	8	52	4 8	59.4	96.6	1	130.2
13996	5	48	5 8	62.1	95.1	3	127.2
TX62C436	3	48	4 8	61.0	94.6	1	127.5
13876	6	49	5 8	62.2	92.4	2	118.3
13546	6	48	4 8	62.2	90.6	7	133.8
OK60111	7	49	5 9	61.1	90.1	1	121.4
NB66404	7	49	6 6	58.2	89.1	1	120.1
TX62A2607-6	5	36	1 9	60.7	88.8	1	119.7
13874	6	49	2 8	62.1	86.7	2	113.2
NB66425	11	47	2 9	60.4	86.3	1	116.3
13877	6	48	7 9	62.0	84.6	1	114.0
13875	6	49	6 8	62.7	82.8	1	111.6
TX62A4793-7	4	38	2 8	56.3	82.2	1	110.8
14157	7	49	4 8	58.9	81.8	2	106.6
KS644	4	49	7 8	62.7	80.7	2	105.6
12132	6	49	4 9	62.4	79.0	7	107.8
8856	6	52	6 9	62.7	78.9	31	101.5
CO652363	9	47	4 8	60.7	77.6	1	104.6
11673	10	50	5 9	60.3	76.5	27	107.9
TX61A58	7	47	6 8	61.4	75.9	1	102.3
1442	15	52	5 9	60.7	74.2	31	100.0

1/ Lodging:

Type = 1-9 degrees from vertical (1 upright, 9 completely lodged)
Severity = proportion of plot affected (1=10%, 9=90%)

L.S.D. .05 = 9.5 bushels; C.V. = 7.9%

AKRON, COLORADO
Four replications

C.I. or Sel. No.	: Date :headed	: Plant :height	:Weight : per :bushel	:Av.acre yield :1968 : 1967- : : 1968	:No. :years: :grown:	:Percent : of :Kharkof
	June	in	lbs.	bu.	bu.	
13877	3	30	54.9	25.7	33.1	2 91.0
13876	3	30	56.6	24.9	32.0	2 88.2
KS644	3	31	57.6	24.8	30.0	2 82.1
12132	3	31	56.6	24.6	29.5	6 85.5
13874	4	31	54.4	24.1	27.4	2 75.3
8856	3	30	56.1	23.8	30.1	24 106.6
13875	4	30	55.2	23.1	29.8	2 82.1
TX62C436	3	29	50.8	22.9	--	1 116.8
TX62A2607-6	3	25	54.2	22.8	--	1 116.3
13996	3	29	55.1	22.6	31.5	2 86.6
TX61A58	4	29	53.9	21.8	--	1 111.2
OK60111	4	29	53.0	21.7	--	1 110.7
13546	3	29	54.4	21.0	32.3	6 103.8
NB66425	5	26	52.3	20.5	--	1 104.6
1442	7	28	56.1	19.6	36.3	24 100.0
NB66403	4	27	52.1	19.2	--	1 98.0
CO652363	5	25	54.8	18.5	--	1 94.4
NB66404	4	27	51.9	18.0	--	1 91.8
11673	4	27	53.8	17.7	29.0	21 103.1
TX62A4793-7	3	24	47.1	17.3	--	1 88.3
14157	4	27	49.7	15.3	28.7	2 78.9

L.S.D. .05 = 4.7 bushels; C.V. = 15.6%

JULESBURG, COLORADO
Four replications

C.I. or Sel. No.	: Plant : height	: Stem Rust		: Leaf rust		: Weight : per : bushel	: Av. acre yield		: No. : years : grown	: Percent : of : Kharkof
		: Resp ¹	: Sev ²	: Resp ¹	: Sev ²		: 1968	: 1967- : 1968		
	in.		%		%	lbs.	bu.	bu.		
NB66403	31	-	0	7	40	62.2	42.4	--	1	116.2
13876	30	8	20	8	30	63.4	42.1	34.2	3	109.0
NB66404	31	-	1	8	40	62.8	41.2	--	1	112.9
NB66425	30	-	0	2	5	62.0	40.3	--	1	110.4
TX61A58	31	7	5	3	10	64.1	39.7	--	1	108.8
13546	31	-	0	3	20	62.8	38.6	32.3	3	100.8
CO652363	31	-	0	3	10	63.5	38.5	--	1	105.5
OK60111	30	7	15	7	20	63.2	38.3	--	1	104.9
TX62A4793-7	25	8	20	3	20	60.1	38.3	--	1	104.9
13874	30	7	15	7	30	63.3	37.8	27.6	3	94.0
14157	31	7	5	8	20	63.1	37.6	31.4	3	101.3
13996	31	3	5	8	30	62.8	37.4	33.3	3	106.1
8856	33	8	15	8	40	64.3	37.1	27.7	3	91.2
1442	34	7	5	7	30	62.3	36.5	31.8	3	100.0
12132	31	8	15	7	30	63.6	36.2	27.8	3	91.5
TX62C436	30	-	0	3	5	61.8	35.7	--	1	97.8
TX62A2607-6	26	8	20	3	10	62.9	35.6	--	1	97.5
13875	31	7	10	3	20	63.1	35.4	27.8	2	87.4
13877	30	8	10	8	30	63.2	35.4	29.6	2	92.9
KS644	32	8	25	2	10	63.8	34.3	26.8	3	89.3
11673	32	7	5	7	20	62.5	34.0	27.7	3	91.4

1/ Response: 0 or blank = no visible infection; 1=very resistant; 2=resistant;
3=moderately resistant; 5=intermediate; 7=moderately susceptible;
8=susceptible; 9=very susceptible.

2/ Severity: percent of plant area infected.

L.S.D. .05 = 3.3 bushels; C.V. = 6.2%

BURLINGTON, COLORADO
Four Replications

C.I. or Sel. No.	: :Plant :height in.	: :Stem Rust :Resp.:Sev. %	: :Leaf Rust :Resp.:Sev. %	:Weight : per :bushel lbs.	:Av. acre : yield : 1968 bu.	:Percent : of :Kharkof
NB66404	28	- 0	8 30	59.3	38.0	112.8
NB66403	27	- 0	7 15	58.4	37.9	112.5
NB66425	26	- 0	2 5	58.7	35.6	105.6
TX61A58	28	8 5	3 5	60.3	35.5	105.3
TX62A2607-6	23	8 10	2 5	59.4	35.5	105.3
CO652363	28	- 0	3 15	60.3	35.4	105.0
TX62C436	28	- 0	2 5	57.5	34.6	102.7
8856	28	8 5	7 20	61.0	33.9	100.6
13876	25	8 10	8 40	60.3	33.9	100.6
1442	31	8 20	7 10	59.2	33.7	100.0
14157	28	- 0	7 20	58.9	33.0	97.9
KS644	28	- 1	8 40	61.3	33.0	97.9
TX62A4793-7	24	8 10	3 10	55.3	32.3	95.8
OK60111	27	- 0	7 30	59.8	31.3	92.9
13874	26	- 0	8 30	60.0	30.6	90.8
13875	27	- 1	8 30	60.7	30.2	89.6
13877	27	8 5	8 40	60.7	39.1	86.4
13546	22	- 0	7 20	58.9	28.8	85.5
12132	26	- 0	8 30	60.2	26.8	79.5
11673	26	8 5	7 10	59.0	26.4	78.3
13996	26	- 0	8 30	59.2	26.1	77.4

L.S.D. .05 = 6.9 bushels; C.V. = 15.1%

SPRINGFIELD, COLORADO
Four Replications

C.I. or Sel. No.	Date :Headed:Ripe	Plant :height	Shatter- :ing 1/	Weight :per :bushel	Av. acre : yield : 1968	No. :years :grown	Percent : of :Kharkof
	May	June	in.	lbs.	bu.		
TX61A58	18	27	21	0	62.0	30.0	1 133.9
NB66403	20	28	21	1	61.7	28.8	1 128.6
NB66425	21	28	21	1	62.1	28.7	1 128.1
14157	20	28	25	1	61.5	27.5	2 106.6
TX62A2607-6	14	23	19	0	61.2	27.2	1 121.4
NB66404	21	28	21	1	61.4	26.5	1 118.3
CO652363	21	28	23	1	62.0	25.4	1 113.4
TX62A4793-7	17	25	19	0	57.2	24.6	1 109.8
13546	15	25	20	0	61.5	23.0	5 106.0
1442	6-18	--	23	1	59.6	22.4	8 100.0
11673	23	30	22	1	60.7	21.8	8 106.2
13876	17	25	18	1	61.9	21.6	2 77.6
13875	15	26	22	1	62.0	19.9	1 88.8
OK60111	16	26	21	1	61.6	19.0	1 84.8
13877	14	25	19	1	62.1	19.0	1 84.8
TX62C436	12	24	23	2	61.0	18.5	1 82.6
13874	15	25	20	0	61.8	17.6	2 66.2
13996	16	26	19	0	62.1	17.5	2 67.9
8856	14	25	20	1	62.1	16.4	8 96.7
KS644	16	25	20	1	61.5	14.6	2 58.2
12132	14	25	21	0	61.6	13.8	5 70.9

1/ Percent shattering observed (1=10%; 2=20%)

L.S.D. .05 = 6.8 bushels; C.V. = 21.7%

YELLOW JACKET, COLORADO
Four replications

C.I. or Sel. No.	:Date :headed June	:Weight : per :bushel lbs.	Av. acre yield		:No. :years :grown	:Percent : of :Kharkof
			1968	: 1967- : 1968 bu.		
NB66425	15	56.8	17.4	--	1	140.3
TX62A4793-7	13	55.5	14.6	--	1	117.7
13546	11	56.2	14.3	26.2	3	112.4
8856	10	56.5	14.2	20.5	3	95.4
13876	12	56.7	14.2	21.5	3	99.0
13874	12	56.5	13.9	22.0	3	100.8
13875	13	56.7	13.5	20.3	2	91.0
TX62C436	15	55.8	13.4	--	1	108.1
CO652363	16	58.2	13.1	--	1	105.6
1442	16	56.1	12.4	22.3	3	100.0
13877	13	--	12.2	21.5	2	96.2
13996	14	55.3	12.2	23.6	3	106.3
NB66404	13	54.6	12.1	--	1	97.6
12132	10	--	11.8	20.6	3	94.8
KS644	11	--	11.0	18.5	3	87.2
TX61A58	16	57.8	11.0	--	1	88.7
NB66403	17	54.5	10.7	--	1	86.3
OK60111	14	--	10.4	--	1	83.9
11673	13	--	10.2	21.3	3	92.2
14157	16	--	9.1	20.4	3	92.2
TX62A2607-6	12	--	8.4	--	1	67.7

L.S.D. = 3.1 bushels; C.V. = 17.4%
.05

LINCOLN (MEAD), NEBRASKA
Four replications

C.I. or Sel. No.	: Date :headed May	: Plant :height in.	: Leaf :rust %	:Weight: per : 1968 : 1967- : bushel: lbs. bu. bu.	: No. :years :grown	:Percent : of :Kharkof		
TX62A2607-6	28	33	10MR	61.8	61.7	--	1	139.0
13876	27	37	70S	61.9	57.2	50.6	3	109.1
13874	27	39	70S	62.0	56.6	46.6	3	102.6
TX62A4793-7	29	34	20MR	58.5	55.4	--	1	124.8
NB66425	31	38	35MR	59.2	54.0	--	1	121.6
13877	28	38	70S	61.8	53.0	46.0	2	110.0
CO652363	31	39	30MR	59.8	52.5	--	1	118.2
13875	27	39	70S	62.1	51.6	43.9	2	106.0
OK60111	28	40	70S	60.9	50.3	--	1	113.3
TX61A58	6-1	41	20MS	61.4	49.9	--	1	112.4
KS644	26	39	70S	62.4	49.0	42.2	3	95.9
13996	30	41	65S	61.7	48.1	47.6	4	115.7
13546	30	41	65S	61.1	47.8	44.8	8	139.6
12132	28	38	80S	62.2	47.4	41.1	8	109.5
14157	6-1	41	50S	60.3	47.4	46.9	3	108.0
NB66403	6-2	40	70S	59.5	47.4	--	1	106.8
NB66404	6-2	40	70S	59.1	47.4	--	1	106.8
8856	27	41	70S	63.1	46.8	41.5	36	116.1
1442	6-5	43	65S	58.4	44.4	41.4	36	100.0
11673	6-1	41	65S	59.4	40.9	42.0	31	117.4
TX62C436	6-2	40	OR	60.4	40.6	--	1	91.4

L.S.D. .05 = 4.2 bushels; C.V. = 6.0%

NORTH PLATTE, NEBRASKA
Four Replications

C.I. or Sel. No.	: Date :headed	: Plant :height	:Weight : per :bushel	:Av.acre yield :1968 :1967- :1968	:No. :years :grown	:Percent : of :Kharkof
	June	in.	lbs.	bu.	bu.	
NB66404	4	34	61.8	41.1	--	1 103.8
NB66403	4	33	60.2	40.5	--	1 102.3
13546	3	35	61.4	39.9	43.0	8 152.4
1442	8	36	60.2	39.6	40.3	31 100.0
TX61A58	4	32	62.4	39.1	--	1 98.7
13876	2	34	61.6	38.9	39.2	3 100.6
13996	3	33	61.2	38.6	42.5	4 115.7
13874	2	36	61.6	37.8	35.7	3 94.7
NB66425	4	31	58.9	37.4	--	1 94.4
13877	3	34	61.5	36.3	34.7	2 86.1
12132	2	36	62.2	35.4	33.4	8 114.9
KS644	2	36	62.4	35.1	33.2	3 84.1
14157	4	33	60.4	34.8	44.1	3 106.0
CO652363	4	31	60.8	34.5	--	1 87.1
OK60111	3	33	60.7	34.1	--	1 86.1
13875	2	36	61.6	33.7	35.3	2 87.5
11673	4	35	60.0	33.5	37.7	28 113.2
TX62A2607-6	3	29	60.3	33.1	--	1 83.6
8856	3	38	61.9	32.0	32.4	31 101.2
TX62C436	4	33	58.2	29.4	--	1 74.2
TX62A4793-7	4	28	56.6	28.8	--	1 72.7

L.S.D. .05 = 4.4 bushels; C.V. = 8.6%

AMES, IOWA
Three replications

C.I. or Sel. No.	Date	Plant	Lodg-	Winter	Leaf	Weight	Av.	No.	Percent	
	Headed:	Ripe	height	ing	Sur-	Rust	per	acre	years	
	June	July	in.	%	%	%	lbs.	bu.	of	
					vival	6-16	bushel	yield	grown	
									Kharkof	
NB66425	1	6	38	12	100	10	60.1	61.8	1	118.2
TX62A4793-7	1	5	32	2	100	25	60.3	58.6	1	112.0
CO652363	1	8	38	3	100	20	61.1	55.8	1	106.7
OK60111	5-28	3	39	6	100	65	61.1	55.3	1	105.7
13996	5-30	4	39	8	100	70	60.4	53.1	2	133.4
1442	6	9	42	20	100	60	59.4	52.3	23	100.0
13546	1	5	39	6	100	75	60.8	51.8	5	215.5
NB66403	3	6	38	8	100	75	59.9	51.6	1	98.7
14157	1	8	40	4	100	50	61.0	50.2	2	139.6
NB66404	3	7	37	8	100	80	60.7	49.4	1	94.5
TX62C436	4	9	37	18	91	Trace	60.6	49.0	1	93.7
TX62A2607-6	5-31	3	31	1	100	15	61.5	48.1	1	92.0
TX61A58	4	10	36	6	100	10	61.2	47.1	1	90.1
11673	2	6	42	35	100	60	60.1	47.0	23	112.8
8856	5-30	6	42	32	100	65	61.3	44.5	23	119.4
13874	5-28	3	36	5	100	50	61.2	44.5	1	85.1
12132	5-29	4	36	2	100	60	61.1	44.1	5	174.5
13877	5-28	3	35	13	98	65	60.6	44.0	1	84.1
13875	5-28	3	36	3	100	55	61.4	43.6	1	83.4
13876	5-28	3	35	3	98	70	61.4	43.5	1	83.2
KS644	5-27	4	36	8	100	65	61.3	38.5	2	124.0

L.S.D. .05 = 7.3 bushels; C.V. = 8.9%

COLUMBIA, MISSOURI
Four replications

C.I. or Sel. No.	: : Date : headed	: : Plant : height	: : Lodg- : ing	: : Leaf : Rust	: : Pearled : off	: : Weight : per : bushel	: : Av. acre yield : 1968 : 1967- : 1968	: : No. : years : grown	: : Percent : of : Kharkof
	May	in.	%	%	%	lbs.	bu.	bu.	
NB66425	17	37	14	29	23.8	59.0	54.2	--	1 154.0
13546	18	37	15	65	33.5	59.5	53.5	58.3	5 146.8
NB66403	19	41	18	65	41.4	58.0	53.4	--	1 151.7
CO652363	19	38	14	25	27.6	60.0	53.3	--	1 151.4
NB66404	20	41	14	65	30.6	59.0	51.9	--	1 147.4
TX62C436	20	39	17	6	38.3	59.0	44.8	--	1 127.3
TX61A58	23	40	18	14	33.2	61.0	44.6	--	1 126.7
13996	19	37	14	65	31.6	58.5	43.5	53.7	4 145.7
12132	13	37	14	65	36.1	60.0	42.9	48.5	5 131.7
OK60111	14	36	13	65	33.5	59.0	41.8	--	1 118.8
13875	15	36	13	53	31.0	59.0	41.6	51.9	2 151.2
TX62A4793-7	18	29	8	40	23.4	54.0	41.6	--	1 118.2
13876	14	34	11	59	29.4	58.0	40.8	49.6	3 157.1
11673	22	41	20	65	30.6	58.0	40.5	40.8	5 130.5
8856	17	38	18	59	45.7	60.0	39.5	44.1	5 126.0
14157	20	41	12	65	14.3	59.0	38.9	43.1	3 149.9
13874	13	34	11	40	34.5	58.0	38.4	46.8	3 157.5
KS644	13	35	12	65	37.7	60.0	37.8	45.4	3 162.2
1442	29	45	25	59	43.4	58.5	35.2	34.3	5 100.0
TX62A2607-6	18	31	8	33	23.0	56.0	34.2	--	1 97.2
13877	14	33	14	59	36.3	59.0	33.7	46.6	2 135.7

L.S.D. = 7.6 bushels; C.V. = 12.4%
.05

URBANA, ILLINOIS
Three replications

C.I. or Sel. No.	Date headed	Plant height	Weight per bushel	Av. acre yield 1968 bu.	1967 1968 bu.	No. years grown	Percent of Kharkof
	May	in.	lbs.				
OK60111	17	39	58	61.6	--	1	133.9
NB66403	25	42	57	59.5	--	1	129.3
13874	15	38	59	57.4	54.6	3	123.8
NB66404	26	43	58	57.4	--	1	124.8
NB66425	22	37	58	57.2	--	1	124.3
13876	17	37	58	56.7	49.8	3	104.8
13875	17	38	60	56.6	51.8	2	126.5
13546	20	42	59	56.0	56.7	8	118.2
13996	20	39	59	54.4	57.1	4	125.0
CO652363	24	40	60	53.8	--	1	117.0
TX62A2607-6	19	31	58	52.3	--	1	113.7
11673	26	43	58	51.7	50.6	8	108.8
12132	16	37	59	50.6	51.3	8	103.3
8856	18	43	60	50.1	52.0	8	102.9
14157	26	41	60	49.8	50.1	3	119.3
13877	18	37	59	49.1	50.3	2	122.8
KS644	16	35	59	47.1	49.0	3	112.2
1442	31	47	59	46.0	41.0	8	100.0
TX62A4793-7	21	33	55	45.9	--	1	99.8
TX61A58	30	41	60	44.7	--	1	97.2
TX62C436	6-1	43	59	35.8	--	1	77.8

L.S.D. .05 = 6.4 bushels; C.V. = 7.3%

PRESHO, SOUTH DAKOTA
Three replications

C.I. or Sel. No.	: :Plant :height in.	: :Lodging : 7-17 %	:Leaf : :rust :Necrosis : 6-26 : 6-26 % class	:Weight :Av. acre :No. :Percent : per : yield :years : of :bushel : 1968 :grown :Kharkof lbs. bu.
NB66425	34	1	R-1 3	57.6 51.7 1 142.8
NB66403	36	10	S-100 4	57.8 51.0 1 140.9
KS644	35	20	S-100 4	59.3 46.8 1 129.3
13996	34	13	S-100 4	58.9 45.9 1 126.8
13546	36	11	S-100 4	58.7 45.1 1 124.6
TX62A2607-6	30	1	S-1 4	57.2 45.0 1 124.3
13874	31	40	S-100 5	58.4 44.4 1 122.7
CO652363	37	8	S-100 4	58.3 44.2 1 122.1
TX61A58	37	5	S-1 2	61.1 43.7 1 120.7
NB66404	35	3	S-65 4	58.1 41.9 1 115.7
8856	35	30	S-100 5	59.4 41.6 1 115.0
12132	31	23	S-100 5	59.4 41.0 1 113.3
13875	31	25	S-100 4	59.0 40.6 1 112.2
14157	38	3	S-100 4	56.4 40.6 1 112.2
11673	35	13	S-100 4	57.1 40.4 1 111.6
TX62A4793-7	30	1	S-1 3	54.0 39.4 1 108.8
13876	30	28	S-100 5	57.3 39.0 1 107.7
13877	32	40	S-100 4	58.8 38.0 1 105.0
1442	41	8	S-100 3	57.7 36.2 1 100.0
TX62C436	34	8	R-0 3	57.1 32.3 1 89.2

OK60111 not grown at Presho.

L.S.D. .05 = 7.6 bushels; C.V. = 11.0%

Summary of Nursery Yields

Grain yields at stations growing the SRPN in 1968 together with state average yields and ranks for 21 varieties grown in the nursery are assembled in table 2. Yields are reported in kilograms per hectare in table 3. Three new Nebraska experimental lines produced the highest average yields among 21 varieties in the nursery. NB66425 with a 45.3 bushel average was 3.6 bushels per acre more productive than 66403, the second ranked variety. Scout ranked fourth in the nursery and was followed by CO652363 and the new Texas semi dwarf varieties TX62A2607-6 and TX62A4793-7 in that order. Kharkof and Triumph were the least productive on the average.

Summaries of 2-year average yields in bushels per acre and kilograms per hectare for 12 varieties grown in 1967 and 1968 appear in tables 4 and 5. Scout and Scout 66, both with 2-year average yields above 41 bushels per acre, have been the most productive.

Summary of Agronomic Data

Agronomic data other than yield for varieties in the SRPN in 1968 are summarized in table 6. Triumph, Triumph derivatives and Early Blackhull were the earliest maturing varieties, with Kharkof the latest maturing. Kharkof, Comanche, and Early Blackhull were tallest and TX62A1607-6 and TX62A4793-7 the shortest. TX62C436, TX61A58, and NB66425 were the most resistant to leaf rust. The two Texas semi-dwarfs and Shawnee lodged the least while KS644 and Early Blackhull produced grain with the highest average bushel weight.

Table 2.--Summary of average yields in bushels per acre made by 21 varieties grown in the southern regional performance nursery in 24 trials in 1968 with state averages and rank.

Variety	: C.I. or : Sel. No.	: Texas						: Rank
		: Den- : ton	: Bush- : land	: Bush- : land	: Chilli- : cothe	: Aver- : age		
							drl.	
Ky58-Nth-Hope-Tk ² -Cnn x Parker	NB66425	37.6	26.5	85.6	3.80	46.9	1	
Pn-Cnn-Pn-Ky58 x Cnn	NB66403	17.9	25.3	62.6	22.6	32.1	15	
Pn-Cnn-Pn-Ky58 x Cnn	NB66404	17.9	23.5	66.7	22.8	32.7	12	
Scout	13546	25.1	23.3	68.7	33.7	37.7	3	
Wrr-Ky58-Nth-Cnn-Tm-Mi-Hope x Parker	CO652363	26.9	23.9	64.2	29.0	36.0	7	
391-56-D1-8 x Triumph	TX62A2607-6	23.0	21.6	66.3	39.0	37.5	4	
391-56-D1-8 x Tascosa	TX62A4793-7	13.8	22.2	78.7	34.6	37.3	5-6	
Bowie-Quanah x Tascosa	TX61A58	30.3	23.8	59.1	36.0	37.3	5-6	
Danne Sel. 145B4	OK60111	22.1	22.5	61.1	23.4	32.3	13	
Scout 66	13996	23.6	22.3	60.0	32.4	34.6	8	
Danne Sel. 129-16	13876	18.5	21.4	59.3	23.3	30.6	17	
Triumph x C.I.12406	13874	29.1	20.9	55.5	26.0	32.9	11	
Triumph x C.I.12406	13875	22.8	21.0	56.9	28.0	32.2	14	
Triticum x Tmp-Ae(C.I.13523) x Tascosa	TX62C436	35.3	25.1	73.2	29.9	40.9	2	
Shawnee	14157	17.8	21.6	69.3	26.9	33.9	9	
Comanche	11673	23.0	22.4	60.6	27.5	33.4	10	
Danne Sel. 150-6	13877	24.2	20.3	50.4	25.6	30.1	18	
Early Blackhull	8856	22.1	22.0	58.1	23.4	31.4	16	
Concha x Triumph ²	KS644	23.5	20.4	49.7	23.4	29.3	19	
Triumph	12132	18.9	19.9	53.0	23.5	28.8	20	
Kharkof	1442	15.7	21.2	46.4	21.9	26.3	21	

Table 2.--(Continued)

C.I. or Sel. No.	Oklahoma					Kansas				
	:Chero- :kee	:Still- :water	:Wood- :ward	:Aver- :age	:Rank :	:Colby :	:Hays :	:Man- :hattan	:Aver- :age	:Rank :
NB66425	40.1	53.9	52.6	48.9	1	4.0	45.7	54.9	34.9	3
NB66403	41.5	39.1	49.3	43.3	13	7.5	50.1	54.5	37.4	1
NB66404	42.3	44.1	53.3	46.6	3	6.2	43.8	52.9	34.3	4
13546	35.8	39.1	51.3	42.1	15	6.0	37.3	52.8	32.0	11
CO652363	42.8	43.3	51.8	46.0	6-7	5.6	41.8	51.2	32.9	8
TX62A2607-6	39.0	49.6	46.4	45.0	9	3.8	42.4	48.3	31.5	12
TX62A4793-7	37.8	49.6	50.6	46.0	6-7	3.0	37.1	50.4	30.2	15
TX61A58	48.9	51.0	44.5	48.1	2	3.0	33.4	56.3	30.9	13
OK60111	40.6	42.6	55.4	46.2	4	4.5	37.6	57.3	33.1	6
13996	36.8	41.8	44.6	41.1	16	6.6	41.3	51.1	33.0	7
13876	44.8	38.1	48.9	43.9	12	4.3	43.5	58.5	35.4	2
13874	47.6	42.0	48.8	46.1	5	3.4	35.0	53.1	30.5	14
13875	44.4	42.0	50.4	45.6	8	4.2	39.8	52.7	32.2	10
TX62C436	40.1	47.4	44.5	44.0	11	0.0	34.8	42.7	25.8	21
14157	33.1	28.6	39.6	33.8	20	5.3	44.5	50.2	33.3	5
11673	39.3	44.5	50.0	44.6	10	4.8	33.5	49.6	29.3	19
13877	36.3	39.0	45.5	40.3	17	4.1	35.0	58.1	32.4	9
8856	38.9	34.9	39.9	37.9	19	6.4	37.9	45.4	29.9	17
KS644	39.5	44.8	44.6	43.0	14	3.6	33.9	47.7	28.4	20
12132	32.6	43.1	41.4	39.0	18	3.1	36.5	49.5	29.7	18
1442	19.9	23.5	19.8	21.1	21	8.3	37.9	43.7	30.0	16

Table 2.--(Continued)

C.I. or Sel. No.	Colorado								New Mexico			
	Akron:	Burling-:	Jules-:	Fort	Spring-:	Yellow:	Aver-:	Rank:	Clovis:	Clovis:	Aver-:	Rank
	:ton	:burg	:Collins:	field	:Jacket	age			drl.	irr.		
NB66425	20.5	35.6	40.3	86.3	28.7	17.4	38.1	3	13.5	89.9	51.7	1
NB66403	19.2	37.9	42.4	96.6	28.8	10.7	39.3	1	13.9	77.3	45.6	4
NB66404	18.0	38.0	41.2	89.1	26.5	12.1	37.5	4	12.8	78.9	45.8	3
13546	21.0	28.8	38.6	90.6	23.0	14.3	36.1	7	10.9	77.4	44.2	5
CO65263	18.5	35.4	38.5	77.6	25.4	13.1	34.8	13	8.8	75.8	42.3	9
TX62A2607-6	22.8	35.5	35.6	88.8	27.2	8.4	36.4	6	5.5	77.0	41.3	10
TX62A4793-7	17.3	32.3	38.3	82.2	24.6	14.6	34.9	12	10.6	82.2	46.4	2
TX61A58	21.8	35.5	39.7	75.9	30.0	11.0	35.7	8	10.1	69.2	39.7	13
OK60111	21.7	31.3	38.3	90.1	19.0	10.4	35.1	10-11	6.3	73.5	39.9	12
13996	22.6	26.1	37.4	95.1	17.5	12.2	35.2	9	10.4	71.9	41.2	11
13876	24.9	33.9	42.1	92.4	21.6	14.2	38.2	2	3.8	65.0	34.4	18
13874	24.1	30.6	37.8	86.7	17.6	13.9	35.1	10-11	6.0	68.3	37.2	17
13875	23.1	30.2	35.4	82.8	19.9	13.5	34.2	15	7.3	70.5	38.9	14
TX62C436	22.9	34.6	35.7	94.6	18.5	13.4	36.6	5	12.6	75.6	44.1	6
14157	15.3	33.0	37.6	81.8	27.5	9.1	34.1	16-17	10.8	76.8	43.8	8
11673	17.7	26.4	34.0	76.5	21.8	10.2	31.1	21	9.3	78.8	44.0	7
13877	25.7	29.1	35.4	84.6	19.0	12.2	34.3	14	5.3	69.6	37.5	15-16
8856	23.8	33.9	37.1	78.9	16.4	14.2	34.1	16-17	6.8	58.8	32.8	20
KS644	24.8	33.0	34.3	80.7	14.6	11.0	33.1	18-19	3.3	59.1	31.2	21
12132	24.6	26.8	36.2	79.0	13.8	11.8	32.0	20	5.8	62.4	34.1	19
1442	19.6	33.7	36.5	74.2	22.4	12.4	33.1	18-19	7.9	62.6	37.5	15-16

Table 2.--(Concluded)

	: Nebraska			: South Dakota		: Iowa		: Illinois		: Missouri		: 24	
C.I. or	: Lin-:	North	: Aver-	: Rank	: Presho:	Rank	: Ames:	Rank	: Urbana:	Rank	: Colum-:	: Rank	: Trial
Sel. No.	: coln:	Platte:	age	:	:	:	:	:	:	:	: bia	:	: Average
	(Mead)												
NB66425	54.0	37.4	45.7 4 18	51.7	1	61.8	1	57.2	5	54.2	1	45.3	
NB66403	47.4	40.5	43.9 8 9 7-8	51.0	2	51.6	8	59.5	2	53.4	3	41.9	
NB66404	47.4	41.1	44.3 7 6	41.9	10	49.4	10	57.4	3-4	51.9	5	40.8	
13546	47.8	39.9	43.9 8 9 7-8	45.1	5	51.8	7	56.0	8	53.5	2	40.5	
CO652363	52.5	34.5	43.5 10-11 9-10	44.2	8	55.8	3	53.8	10	53.3	4	40.3	
TX62A2607-6	61.7	33.1	47.4 2	45.0	6	48.1	12	52.3	11	34.2	20	39.8	
TX62A4793-7	55.4	28.8	42.1 14-15 13-14	39.4	16	58.6	2	45.9	19	41.6	11-12	39.6	
TX61A58	49.9	39.1	44.5 6 5	43.7	9	47.1	13	44.7	20	44.6	7	39.5	
OK60111	50.3	34.1	42.2 18 12	--	--	55.3	4	61.6	1	41.8	10	39.2*	
13996	48.1	38.6	43.5 10-11 9-10	45.9	4	53.1	5	54.4	9	43.5	8	39.1	
13876	57.2	38.9	48.1 1	39.0	17	43.5	20	56.7	6	40.8	13	38.9	
13874	56.6	37.8	47.2 3	44.4	7	44.5	15-16	57.4	3-4	38.4	17	38.6	
13875	51.6	33.7	42.7 12 11	40.6	13-14	43.6	19	56.6	7	41.6	11-12	38.0	
TX62C436	40.6	29.4	35.0 21	32.3	20	49.0	11	35.8	21	44.8	6	38.0	
14157	47.4	34.8	41.1 18 17	40.6	13-14	50.2	9	49.8	15	38.9	16	37.1	
11673	40.9	33.5	37.2 20	40.4	15	47.0	14	51.7	12	40.5	14	36.8	
13877	53.0	36.3	44.6 5 4	38.0	18	44.0	18	49.1	16	33.7	21	36.4	
8856	46.8	32.0	39.4 19	41.6	11	44.5	15-16	50.1	14	39.5	15	35.6	
KS644	49.0	35.1	42.1 14-15 13-14	46.8	3	38.5	21	47.1	17	37.8	18	35.3	
12132	47.4	35.4	41.4 17 16	41.0	12	44.1	17	50.6	13	42.9	9	35.1	
1442	44.4	39.6	42.0 14 15	36.2	19	52.3	6	46.0	18	35.2	19	32.6	

* Average of 23 stations only

Table 3.--Summary of average yields in kilograms per hectare made by varieties in the Southern Regional Performance Nursery in 1968.

Variety	:	:	Texas		:	Oklahoma				
			:C.I. or	:Den-:		Bush-:	Bush-:	Chilli-:	Aver-:	Chero-:
			:Sel. No.:	ton	:land	:land	:cothe	:age	:kee	:water
					drl.	irr.				ward
										age
Ky58-Nth-Hope-Tk ² -Cnn x Parker	NB66425	2528	1782	5755	2555	3155	2696	3624	3536	3252
Pn-Cnn-Pn-Ky58 x Cnn	NB66403	1203	1701	4209	1519	2158	2790	2629	3314	2882
Pn-Cnn-Pn-Ky58 x Cnn	NB66404	1203	1580	4484	1533	2200	2844	2965	3583	3099
Scout	13546	1687	1566	4619	2266	2535	2407	2629	3449	2800
Wrr-Ky58-Nth-Cnn-Tm-Mi-Hope x Parker	CO652363	1808	1607	4316	1950	2420	2877	2911	3483	3059
391-56-Dl-8 x Triumph	TX62A2607-6	1546	1452	4457	2622	2519	2622	3335	3119	2995
391-56-Dl-8 x Tascosa	TX62A4793-7	928	1493	5291	2326	2510	2541	3335	3402	3061
Bowie-Quanah x Tascosa	TX61A58	2037	1600	3973	2420	2508	3288	3429	2992	3204
Danne Sel. 145B4	OK60111	1486	1513	4108	1573	2170	2730	2864	3725	3075
Scout 66	13996	1587	1499	4034	2178	2325	2474	2810	2998	2733
Danne Sel. 129-16	13876	1244	1439	3987	1566	2059	3012	2561	3288	2924
Triumph x C.I.12406	13874	1956	1405	3731	1748	2210	3200	2824	3281	3071
Triumph x C.I.12406	13875	1533	1412	3825	1882	2163	2985	2824	3388	3035
<u>Triticum</u> x Tmp-Ae (C.I.13523) x Tascosa	TX62C436	2373	1687	4921	2010	2373	2696	3187	2992	2929
Shawnee	14157	1197	1452	4659	1808	2279	2225	1923	2662	2247
Comanche	11673	1546	1506	4074	1849	2244	2642	2992	3362	2969
Danne Sel. 150-6	13877	1627	1365	3388	1721	2025	2440	2622	3059	2680
Early Blackhull	8856	1486	1479	3906	1573	2111	2615	2346	2682	2522
Concho x Triumph ²	KS644	1580	1371	3341	1573	1966	2656	3012	2998	2860
Triumph	12132	1271	1338	3563	1580	1938	2192	2898	2783	2598
Kharkof	1442	1056	1425	3119	1472	1768	1338	1580	1331	1402

Table 3.--Continued

C.I. or	: Kansas ;					Colorado :					New Mexico			
Sel. No.	: Colby:	Hays:	Man-	: Aver-	: Akron:	Burling-:	Jules-:	Fort	: Spring-	: Yellow:	Aver-	: Clovis:	Clovis:	Aver-
	:	:	: hattan:	age :	: ton	: burg	: Collins:	field	: Jacket:	age :	:	:	: age	
												drl.	irr.	
NB66425	269	3072	3691	2320	1378	2393	2709	5802	1930	1170	2569	907	6043	3475
NB66403	504	3368	3664	2487	1291	2548	2851	6494	1936	719	2645	934	5197	3066
NB66404	417	2945	3556	2283	1210	2555	2770	5990	1782	813	2525	861	5304	3083
13546	403	2508	3550	2132	1412	1936	2595	6091	1546	961	2428	733	5204	2969
CO652363	376	2810	3442	2187	1244	2380	2588	5217	1708	881	2341	592	5096	2844
TX62A2607-6	255	2851	3247	2096	1533	2387	2393	5970	1829	565	2451	370	5177	2774
TX62A4793-7	202	2494	3388	2008	1163	2172	2575	5526	1654	982	2350	713	5526	3120
TX61A58	202	2245	3785	2057	1466	2387	2669	5103	2017	740	2402	679	4652	2666
OK60111	303	2528	3852	2205	1459	2104	2575	6057	1277	699	2367	424	4941	2683
13996	444	2777	3435	2196	1519	1755	2514	6394	1177	820	2368	699	4834	2767
13876	289	2925	3933	2359	1674	2279	2830	6212	1452	955	2572	255	4370	2313
13874	229	2353	3570	2030	1620	2057	2541	5829	1183	934	2365	403	4592	2498
13875	282	2676	3543	2145	1553	2030	2380	5567	1338	908	2301	491	4740	2616
TX62C436	0	2340	2871	1720	1540	2326	2400	6360	1244	901	2466	847	5083	2965
14157	356	2992	3375	2219	1029	2219	2528	5499	1849	612	2294	726	5163	2945
11673	323	2252	3335	1950	1190	1775	2286	5143	1466	686	2095	625	5298	2962
13877	276	2353	3906	2157	1728	1956	2380	5688	1277	820	2313	356	4679	2518
8856	430	2548	3052	1990	1600	2279	2494	5304	1103	955	2294	457	3953	2205
KS644	242	2279	3207	1890	1667	2219	2306	5425	982	740	2228	222	3973	2098
12132	208	2454	3328	1977	1654	1802	2434	5311	928	793	2158	390	4195	2293
1442	558	2548	2938	1995	1318	2266	2454	4988	1506	834	2232	531	4209	2370

Table 3.--Concluded

C.I. or Sel. No.	Nebraska			S. Dak.:	Iowa	Illinois:	Missouri:	24-trial
	Lincoln	North	Average	Presho	Ames	Urbana	Columbia	Average
		Platte						
	(Mead)							
NB66425	3630	2514	2736	3476	4155	3846	3644	3046
NB66403	3187	2723	2951	3429	3469	4000	3590	2817
NB66404	3187	2763	2978	2817	3321	3859	3489	2743
13546	3214	2682	2951	3032	3483	3765	3597	2723
CO652363	3530	2319	2925	2972	3751	3617	3583	2709
TX62A2607-6	4148	2225	3187	3025	3234	3516	2299	2676
TX62A4793-7	3725	1936	2830	2649	3940	3086	2797	2662
TX61A58	3355	2629	2992	2938	3167	3005	2998	2656
OK60111	3382	2293	2837	--	3718	4141	2810	2635
13996	3234	2595	2925	3086	3570	3657	2925	2629
13876	3846	2615	3234	2622	2925	3812	2743	2615
13874	3805	2541	3173	2985	2992	3859	2582	2595
13875	3469	2266	2871	2730	2931	3805	2797	2555
TX62C436	2730	1977	2353	2172	3294	2407	3012	2555
14157	3187	2340	2763	2730	3375	3348	2615	2494
11673	2750	2252	2501	2716	3160	3476	2723	2474
13877	3563	2440	2998	2555	2958	3301	2266	2447
8856	3146	2151	2649	2797	2992	3368	2656	2393
KS644	3294	2360	2830	3146	2588	3167	2541	2373
12132	3187	2380	2783	2756	2965	3402	2884	2360
1442	2985	2662	2824	2434	3516	3093	2366	2192

Table 4.--Summary of 2-year average yields for 12 varieties grown in the southern regional performance nursery in 16 trials in 1967 and 1968 with state averages and rank.

Variety	:C.I. or :Sel. No.	: Kansas					: New Mexico				: Texas			
		: Man-	:	:	:	:	:	:	:	:	: Chilli-	: Bush-	:	:
		: hattan	: Hays	: Colby	: Average	: Rank	: Clovis	: Rank	: Denton	: cothe	: land	: Average	: Rank	:
							irr.				irr.			
Scout	13546	42.9	33.0	15.6	30.5	1	75.2	3	32.2	31.5	62.1	41.9	1	
Scout 66	13996	42.0	33.6	15.6	30.4	2	76.4	2	30.5	30.4	61.2	40.7	2	
Danne Sel. 129-16	13876	41.7	28.0	14.0	27.9	5	73.2	4	25.3	23.8	60.2	36.4	7	
Shawnee	14157	38.7	35.2	16.7	30.2	3	80.0	1	21.0	24.5	70.0	38.5	4	
Triumph x C.I.12406	13874	35.7	21.3	13.0	23.3	10	70.6	7	34.7	25.9	56.0	38.9	3	
Triumph x C.I.12406	13875	34.5	24.3	13.2	24.0	9	70.5	8	30.0	23.2	55.5	36.2	8	
Danne Sel. 150-6	13877	38.2	24.1	14.0	25.4	8	65.8	9	31.8	24.4	53.7	36.6	5-6	
Comanche	11673	39.5	28.7	12.5	26.9	6	71.1	6	27.1	24.4	58.3	36.6	5-6	
Early Blackhull	8856	35.4	26.3	15.1	25.6	7	56.5	12	27.9	22.3	53.6	34.6	11	
Triumph	12132	35.6	21.7	10.5	22.6	11	60.4	10	27.0	26.0	53.1	35.4	9	
Concho x Triumph ²	KS644	33.0	20.5	11.3	21.6	12	57.8	11	29.7	23.9	51.0	34.9	10	
Kharkof	1442	36.2	31.6	17.1	28.3	4	72.7	5	20.7	22.2	43.6	28.8	12	

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Table 4.--(Continued)

C.I. or Sel. No.	Oklahoma				Missouri		Colorado				
	Woodward	Cherokee	Average	Rank	Columbia	Rank	Akron	Julesburg	Jacket	Average	Rank
13546	48.8	34.2	41.5	5	58.3	1	32.3	32.3	26.2	30.3	1
13996	44.1	39.1	41.6	3-4	53.7	2	31.5	33.3	23.6	29.5	3
13876	44.4	41.8	43.1	1	49.6	4	32.0	34.2	21.5	29.2	4
14157	38.1	29.5	33.8	11	43.1	10	28.7	31.4	20.4	26.8	6
13874	44.0	39.2	41.6	3-4	46.8	6	27.4	27.6	22.0	25.7	11
13875	43.0	41.5	42.3	2	51.9	3	29.8	27.8	20.3	26.0	8-9-10
13877	42.2	36.3	39.3	7	46.6	7	33.1	29.6	21.5	28.1	5
11673	43.3	36.6	40.0	6	40.8	11	29.0	27.7	21.3	26.0	8-9-10
8856	36.2	35.9	36.1	9	44.1	9	30.1	27.7	20.5	26.1	7
12132	37.0	34.0	35.5	10	48.5	5	29.5	27.8	20.6	26.0	8-9-10
KS644	40.3	35.6	38.0	8	45.4	8	30.0	26.8	18.5	25.1	12
1442	26.6	22.7	24.7	12	34.3	12	36.3	31.8	22.3	30.1	2

Table 4.--(Concluded)

C.I. or Sel. No.	Nebraska				Illinois		16
	: Lincoln (Mead)	: North : Platte	: Average	: Rank	: Urbana	: Rank	: station : Average
13546	44.8	43.0	43.9	4	56.7	2	41.8
13996	47.6	42.5	45.1	2	57.1	1	41.4
13876	50.6	39.2	44.9	3	49.8	10	39.3
14157	46.9	44.1	45.5	1	50.1	9	38.7
13874	46.6	35.7	41.2	5	54.6	3	37.6
13875	43.9	35.3	39.6	9	51.8	5	37.3
13877	46.0	34.7	40.4	7	50.3	8	37.0
11673	42.0	37.7	39.9	8	50.6	7	36.9
8856	41.5	32.4	37.0	12	52.0	4	34.8
12132	41.1	33.4	37.3	11	51.3	6	34.8
KS644	42.2	33.2	37.7	10	49.0	11	34.3
1442	41.4	40.3	40.9	6	41.0	12	33.8

Table 5.--Summary of 2-year average yields in kilograms per hectare made by varieties grown in the Southern Regional Performance Nursery in 1967 and 1968.

Variety										
	: C.I. or :	: Kansas :				: New :	: Texas :			
	: Sel. No.:	Man :	Hays :	Colby :	Aver- :	: Mexico :	Denton :	Chilli- :	Bush- :	Aver- :
	:	: hattan:	:	:	: age :	:	:	: cothe :	: land :	: age :
						irr.			irr.	
Scout	13546	2884	2219	1049	2051	5056	2165	2118	4175	2817
Scout 66	13996	2824	2259	1049	2044	5136	2051	2044	4114	2736
Danne Sel. 129-16	13876	2803	1882	941	1876	4921	1701	1600	4047	2447
Shawnee	14157	2602	2366	1123	2030	5378	1412	1647	4706	2588
Triumph x C.I.12406	13874	2400	1432	874	1566	4746	2333	1741	3765	2615
Triumph x C.I.12406	13875	2319	1634	887	1614	4740	2017	1560	3731	2434
Danne Sel. 150-6	13877	2568	1620	941	1708	4424	2138	1640	3610	2461
Comanche	11673	2656	1930	840	1808	4780	1822	1640	3920	2461
Early Blackhull	8856	2380	1768	1015	1721	3798	1876	1499	3604	2326
Triumph	12132	2393	1459	706	1519	4061	1815	1748	3570	2380
Concho x Triumph ²	KS644	2219	1378	760	1452	3886	1997	1607	3429	2346
Kharkof	1442	2434	2124	1150	1903	4888	1392	1493	2931	1936

Table 5.--Concluded.

C.I. or:	Oklahoma	Missouri:	Colorado	:	Nebraska	Illinois:	16						
Sel. No:	Wood-:	Chero-:	Aver-:	Colum-:	Akron:	Jules-:	Yellow:	Aver-:	Lincoln:	North	Aver-:	Urbana	station
	:ward	:kee	:age	:bia	:	:burg	:Jacket:	age	:	:Platte:	age	:	:average
(Mead)													
13546	3281	2299	2790	3920	2172	2172	1761	2037	3012	2891	2951	3812	2810
13996	2965	2629	2797	3610	2118	2239	1587	1983	3200	2857	3032	3839	2783
13876	2985	2810	2898	3335	2151	2299	1445	1963	3402	2635	3019	3348	2642
14157	2561	1983	2272	2898	1930	2111	1371	1802	3153	2965	3059	3368	2602
13874	2958	2635	2797	3146	1842	1856	1479	1728	3133	2400	2770	3671	2528
13875	2891	2790	2844	3489	2003	1869	1365	1748	2951	2373	2662	3483	2508
13877	2837	2440	2642	3133	2225	1990	1445	1889	3093	2333	2716	3382	2488
11673	2911	2461	2689	2743	1950	1862	1432	1748	2824	2535	2682	3402	2481
8856	2434	2414	2427	2965	2024	1862	1378	1755	2790	2178	2488	3496	2340
12132	2488	2286	2387	3261	1983	1869	1385	1748	2763	2245	2508	3449	2340
KS644	2709	2393	2555	3052	2017	1802	1244	1687	2837	2232	2535	3294	2306
1442	1788	1526	1661	2306	2440	2138	1499	2024	2783	2709	2750	2756	2272

Table 6.--Summary of agronomic data other than yield for varieties grown in the southern regional performance nursery in 1968.

Pedigree	: :C.I. or :Sel. No.	: : Date :headed	: : Plant :ripe	: : Leaf :height	: : Lodg- : rust	: : ing : bushel	: : Weight : per lbs.
		May	June	in.	%	%	
Number of stations-----		20	5	23	9	7	22
Concho x Triumph ²	KS644	14	18	32	50	22	61.4
Early Blackhull	8856	14	18	35	52	42	61.3
Bowie-Quanah x Tascosa	TX61A58	20	21	33	9	23	60.9
Triumph	12132	14	18	32	51	29	60.8
Triumph x C.I.12406	13875	15	18	33	47	25	60.8
Danne Sel. 129-16	13876	15	18	31	53	26	60.7
Wrr-Ky58-Nth-Cnn-Tm-Mi-							
Hope x Parker	CO652363	20	22	33	26	19	60.7
Scout 66	13996	16	19	33	37	28	60.5
Scout	13546	17	19	33	43	27	60.4
Triumph x CI.12406	13874	14	18	32	43	27	60.4
Danne Sel. 145B4	OK60111	15	18	33 ^{1/}	45 ^{1/}	27 ^{1/}	60.1 ^{1/}
Danne Sel. 150-6	13877	15	17	32	53	33	59.9
Ky58-Nth-Hope-Tk ² -							
Cnn x Parker	NB66425	18	20	32	10	23	59.9
Shawnee	14157	19	22	34	46	16	59.8
Pn-Cnn-Pn-Ky58 x Cnn	NB66404	20	22	32	47	19	59.8
Triticum x Tmp-Ae(C.I.13523)							
x Tascosa	TX62C436	17 ^{2/}	20	33	3	21	59.8
391-56-D1-8 x Triumph	TX62A2607-6	17	18	28	14	15	59.8
Comanche	11673	20	22	35	44	35	59.6
Kharkof	1442	26	23 ^{3/}	37	52	31	59.5
Pn-Cnn-Pn-Ky58 x Cnn	NB66403	20	22	33	53	25	59.5
391-56-D1-8 x Tascosa	TX62A4793-7	18	19	29	18	14	57.0

1/ Average based on 1 less station than indicated; Prescho missing.

2/ Average based on 1 less station than indicated; Colby missing.

3/ Average based on 1 less station than indicated; Springfield missing.

NORTHERN REGIONAL PERFORMANCE NURSERY

There were 15 entries in the nursery in 1968. Nursery sites totaled 16. The nursery at Alliance was lost from hail. At Brookings, South Dakota, Atrazine residue from 1966 affected stands so severely that the nursery had to be abandoned. Winterkilling at St. Paul and Waseca was heavy and nurseries at both sites were abandoned. Entries in the 1968 nursery appear below.

Entry No.	Pedigree	C.I. or Sel. No.	Source
1	Kharkof	1442	Check
2	Warrior	13190	Check
3	Winalta	13670	Lethbridge
4	Trader	13998	Nebraska
5	Trapper	13999	Nebraska
6	Selkirk x Cheyenne ²	NB64365	Nebraska
7*	Ky58-Nth-Cnn-Tn-Mi-Hope-Pn-Cnn x Wrr	NB66490	Nebraska
8	Selkirk x Cheyenne ²	NB64334	Nebraska
9*	Selkirk x Cheyenne ³	NB64308	Nebraska
10	BWH 1904-7	MT639	Montana
11*	NT-2 x Cnn-2 8-9-3	MT6326	Montana
12*	Yogo x Cnn 12-4-2	MT6320	Montana
13*	Selected Bulk 2-77	MT6319	Montana
14	So. Dakota Sel.	SD56-758	So. Dak.
15	Winoka	14000	So. Dak.

* New entry in 1968.

Data Obtained

Nebraska Stations--Single rod-row plots were grown at Mead with replicated nurseries at North Platte and Alliance. Hail on June 5 destroyed the Alliance Nursery. Conditions at Mead and North Platte are discussed under the SRPN.

Archer--Soil moisture was adequate at seeding time and during the spring. All varieties survived the winter without stand loss and produced excellent yields. No diseases were recorded.

Sheridan--Moisture and growing conditions throughout the season were excellent. The wheat may have run out of moisture by maturity because test weights were below normal -- particularly on the late maturing varieties. Grain yields were high. There were no diseases of consequence.

Highmore--Good stands were established in the fall. Moisture was ample. Mild winterkilling occurred in some varieties. The spring and summer were cool and some lodging occurred. There was sufficient stem rust and necrosis for varieties to be rated.

Presho--Conditions were similar to those at Highmore. No winterkilling occurred.

Dickinson--Fall moisture was sufficient for good germination and emergence. The wheat made only limited growth in the fall. There was no winterkilling. Moisture stress during the spring retarded growth and depressed yields. Both leaf and stem rust became moderately heavy in the nursery.

Williston--Very dry conditions existed at seeding time with resulting poor emergence and stand establishment. Winter survival was good. Light stand losses in a few varieties during the winter are believed to have resulted from a combination of winter drought and cold. Septoria and Helminthosporium were heavy on some varieties.

Moccasin--Conditions not reported.

Tetonia--Fall, winter and spring moisture was good through June. Varieties were subjected to some drought stress in July and early August. In late August several days of heavy rain occurred.

Clovis--See the SRPN.

Lethbridge--Wheat emergence in the fall was uneven due to dry soil. Some germination occurred in March and by spring, the stands in most plots were reasonably uniform. Conditions during the spring and summer were generally favorable and good yields were made.

Table 7.--Yield and other data for varieties grown in the
Northern Regional Performance Nursery at 12 stations
(13 trials) in the hard red winter wheat region in 1968.

LINCOLN (MEAD), NEBRASKA
Single Plot

C.I. or Sel. No.	: :Date :headed	: :Plant :height	:Leaf :rust :6-2	:Weight : per :bushel
	June	in.		lbs.
13999	3	41	65S	58.3
NB64365	2	42	65S	60.2
1442	4	42	65S	59.6
NB66490	5-30	41	70S	59.3
SD56-758	5	43	65S	58.0
NB64308	3	42	10MR-50MS	58.3
13998	3	42	65S	59.6
NB64334	3	41	65S	59.9
13190	2	41	65S	59.3
MT6326	5	42	80S	58.0
MT6319	4	41	70S	58.3
14000	5	41	65S	59.6
13670	3	42	65S	60.8
MT6320	4	42	70S	56.8
MT639	5	42	65S	55.2

NORTH PLATTE, NEBRASKA
Four replications

C.I. or Sel. No.	: Date headed	: Plant height	:Weight per bushel	:Av.acre yield 1968 : 1967- : 1968	:No. years grown	:Percent of Kharkof
	June	in.	lbs.	bu.	bu.	
13999	5	39	59.8	51.9	51.8	3 117.8
1442	7	42	59.6	48.5	44.8	10 100.0
NB64365	4	40	61.4	47.2	49.1	3 114.3
13998	6	38	59.3	46.3	46.2	3 107.0
NB66490	3	38	59.4	45.8	--	1 94.4
NB64308	5	39	60.3	45.6	--	1 94.0
14000	7	40	62.3	45.4	42.8	2 95.6
13190	4	38	58.4	44.4	42.2	5 117.4
13670	7	39	61.6	44.4	40.8	7 117.6
MT6326	6	39	59.3	43.9	--	1 90.5
MT6319	7	38	59.9	42.6	--	1 87.8
SD56-758	6	40	59.7	41.9	44.6	3 103.9
NB64334	6	40	60.1	41.7	46.3	2 103.5
MT6320	6	42	57.9	39.1	--	1 79.0
MT639	8	41	56.6	31.4	37.8	2 84.5

L.S.D. .05 = ns; C.V. = 15.7%

ARCHER, WYOMING
Four replications

C.I. or Sel. No.	: Date :headed	: Plant :height	:Weight : per :bushel	:Av. acre yield :1968 : 1967- : 1968	:No. :years :grown	:Percent : of :Kharkof
	June	in.	lbs.	bu.	bu.	
NB66490	17	41	61.6	46.2	--	1 106.0
NB64308	21	40	61.3	45.2	--	1 103.7
1442	13	43	61.6	43.6	45.4	12 100.0
NB64334	12	43	61.6	42.8	47.8	2 105.4
MT6319	17	40	59.5	41.3	--	1 94.7
13190	20	40	58.9	41.2	48.6	4 99.8
NB64365	17	40	60.4	40.0	46.6	3 101.8
13670	18	40	62.0	39.7	47.4	6 103.0
13998	19	42	59.0	39.2	49.9	3 108.1
SD56-758	20	46	58.4	39.0	43.9	3 96.7
MT6320	21	40	58.4	38.1	--	1 87.4
13999	17	40	60.1	37.6	51.3	3 109.2
MT639	17	44	59.2	37.4	42.2	2 93.1
MT6326	20	40	61.5	37.4	--	1 85.8
14000	19	43	61.9	36.2	43.8	2 96.5

L.S.D. .05 = ns; C.V. = 12.9%

SHERIDAN, WYOMING
Three replications

C.I. or Sel. No.	:	:Weight	:Av. acre yield		:No.	:Percent
	:Plant :height	: per :bushel	:1968	: 1967- : 1968	:years :grown	: of :Kharkof
	in.	lbs.	bu.	bu.		
13190	47	56.0	62.8	63.7	5	111.8
NB64308	48	56.5	62.0	--	1	115.2
NB64334	52	56.0	59.1	58.6	2	105.2
13999	50	56.3	57.0	54.9	3	106.1
NB66490	44	55.9	56.1	--	1	104.3
NB64365	50	56.2	55.2	55.2	3	103.5
13998	49	56.1	54.5	53.3	3	102.1
MT639	54	54.4	54.3	51.6	2	92.6
1442	48	54.6	53.8	55.7	17	100.0
13670	50	57.1	52.1	52.5	7	98.0
MT6320	52	55.3	52.1	--	1	96.8
MT6319	50	54.7	51.4	--	1	95.5
SD56-758	52	53.4	50.4	51.9	3	98.0
14000	47	56.8	50.1	53.2	2	95.5
MT6326	50	55.6	48.3	--	1	89.8

L.S.D. .05 = ns; C.V. = 10.8%

HIGHMORE, SOUTH DAKOTA
Four Replications

C.I. or Sel. No.	: Plant height	:Lodg- ing 7/18	:Sur- vival 4/18	:Stem rust 7/7	:Necro- sis 1/ 6/26	:Weight per bushel	:Av. acre yield 1968	:1967- 1968	:No. years grown	:Percent of Kharkof
	in.	%	%			lb.	bu.	bu.		
NB66490	36	11	100	S-tr	1	60.5	50.2	--	1	115.7
NB64365	41	19	95	R	2	60.9	48.9	49.8	3	113.9
NB64308	39	0	80	R	1	60.8	48.1	--	1	110.8
NB64334	41	16	100	R	1	61.3	46.7	47.9	2	105.7
13190	36	3	100	S-5	2	58.6	45.0	47.3	5	103.8
13670	41	8	100	S-tr	4	61.6	43.8	47.0	6	108.7
1442	42	14	90	S-5	3	57.7	43.4	45.3	6	100.0
13998	38	11	100	S-tr	3	59.7	42.9	44.4	3	93.8
SD56-758	39	20	100	R	5	59.8	42.2	45.5	3	103.1
14000	42	7	100	R	4	61.5	40.9	44.3	2	97.9
MT6326	42	11	93	S-1	2	59.7	40.4	--	1	93.1
13999	42	14	100	R	3	60.0	40.2	42.9	3	94.8
MT6319	41	4	100	S-1	1	59.4	40.0	--	1	92.2
MT6320	42	36	90	S-1	2	58.3	37.1	--	1	85.5
MT639	45	4	100	R	4	58.4	36.2	41.1	2	90.8

1/ Necrosis scale: 1=least; 5=most

L.S.D. .05 = 5.5 bushels; C.V. = 9.0%

PRESHO, SOUTH DAKOTA
Four replications

C.I. or Sel. No.	:Plant :height :6-26 in.	:Lodging :7-12 %	: :Leaf :rust %	:Weight :per :bushel lbs.	:Av.acre yield :1968 bu.	:1967- :1968 bu.	:No. :years :grown	:Percent :of :Kharkof
NB64334	44	40	S-100	57.8	43.4	46.9	2	114.5
13190	41	15	S-100	53.9	42.0	44.4	2	108.7
NB64308	45	10	MR-20	59.9	42.0	--	1	144.3
NB64365	43	40	S-100	57.6	39.2	44.7	3	110.4
13999	43	30	S-100	56.9	37.2	39.1	3	100.1
NB66490	37	60	S-100	55.1	35.7	--	1	122.7
SD56-758	45	10	S-65	55.6	35.2	39.7	3	95.4
14000	45	20	S-65	59.8	34.6	41.1	2	100.4
13670	44	20	S-100	57.8	34.4	38.8	6	110.6
MT6319	43	10	S-65	56.3	33.4	--	1	114.8
13998	42	30	S-100	55.2	32.8	39.7	3	101.1
1442	45	30	S-100	54.9	29.1	40.9	6	100.0
MT6326	45	30	S-100	56.7	27.5	--	1	94.5
MT639	48	10	S-65	54.1	25.9	35.7	2	68.4
MT6320	46	20	S-100	52.3	25.7	--	1	88.3

L.S.D. .05 = 6.3 bushels; C.V. = 13.0%

DICKINSON, NORTH DAKOTA
Three replications

C.I. or Sel. No.	Date :headed	Plant :height	Rust :Leaf	Stem :Stem	Weight :per bushel	Av. acre yield :1968 bu.	1967- :1968 bu.	No. :years :grown	Percent :of :Kharkof
	June	in.	%	%	lbs.	bu.	bu.		
1442	25	41	70	50	59.0	24.0	28.1	5	100.0
13670	26	38	70	50	60.5	22.3	27.1	3	92.3
13190	26	36	70	50	60.0	21.3	26.9	3	87.5
14000	27	38	5	T	62.0	20.6	29.0	2	103.2
MT6326	28	37	50	50	59.0	20.5	--	1	85.4
SD56-758	28	40	T	T	60.0	20.4	28.5	3	93.7
MT6319	28	38	20	20	60.0	20.4	--	1	85.0
MT6320	28	39	40	50	59.5	19.5	--	1	81.3
13999	27	39	40	T	59.5	18.4	29.7	3	90.2
MB64365	23	38	50	T	60.0	18.1	26.8	3	82.8
MT639	27	41	50	20	58.5	17.9	24.5	2	87.2
MB64308	28	34	50	20	59.5	17.4	--	1	72.5
13998	25	39	20	T	58.0	15.6	22.6	3	77.8
NB64334	28	38	50	T	60.0	13.6	23.3	2	82.9
NB66490	23	32	40	T	60.5	11.1	--	1	46.3

L.S.D. = ns; C.V. = 22.4%
.05

WILLISTON, NORTH DAKOTA
Two replications

C.I. or Sel. No.	Date		Plant	Leaf disease	Winter survival	Vigor	Weight per bushel	Av. acre yeild		No. years grown	Percent of Kharkof
	headed	ripe	height	1/	2/	3/		1968	1967- 1968		
	June	July	in.		%		lbs.	bu.	bu.		
13670	15	25	33	4	99	3.0	62.1	35.1	30.2	3	102.1
MT6319	15	26	32	3	100	4.5	61.1	34.9	--	1	110.4
MT6326	14	25	33	4	96	2.5	62.0	33.8	--	1	107.0
MT6320	14	24	35	3	99	4.5	62.8	32.8	--	1	103.8
MT639	14	24	36	3	100	4.5	60.8	32.6	28.4	2	95.9
1442	15	25	35	4	86	2.5	60.5	31.6	29.6	3	100.0
NB64365	15	25	33	3	99	3.0	61.5	29.4	26.9	3	90.0
SD56-758	15	25	34	3	98	3.0	61.2	29.3	29.9	3	98.4
14000	15	24	32	4	100	3.5	63.2	29.0	26.1	2	88.0
NB66490	14	24	28	3	98	2.0	62.1	28.5	--	1	90.2
NB64334	14	25	33	2	96	3.5	62.7	27.6	26.3	2	88.7
13998	15	25	31	3	96	2.5	61.0	27.2	28.9	3	91.9
NB64308	14	25	32	4	76	1.5	60.8	25.1	--	1	79.7
13190	14	27	30	3	96	2.0	62.5	24.9	27.2	3	87.1
13999	14	26	29	2	76	1.5	60.5	22.9	25.9	3	86.4

1/ Leaf disease (Septoria and Helminthosporium) read 7-3-68.

1=none; 2=light; 3=moderate; 4=heavy.

2/ Winter survival read 4-8-68.

3/ Vigor read 4-8-68. Determined by amount and appearance of early spring growth.

1=very poor; 5=very good.

L.S.D. .05 = 4.8 bushels; C.V. = 11.1%

MOCCASIN, MONTANA
Three replications

C.I. or Sel. No.	: :Date :headed	: :Plant :height	:Weight : per :bushel	:Av. acre yield :1968 : 1967- : : 1968	:No. :years :grown	:Percent : of :Kharkof
	June	in.	lbs.	bu.	bu.	
NB64308	20	35	61.7	43.4	--	1 107.7
MT6326	22	38	63.0	43.2	--	1 107.2
13190	18	36	62.1	40.6	39.8	3 99.7
13998	20	35	63.0	40.4	36.7	3 97.6
1442	22	40	62.4	40.3	40.7	3 100.0
13670	20	37	63.2	39.6	36.3	3 89.8
NB64334	20	36	63.2	38.3	41.2	2 101.2
NB64365	19	36	62.9	38.0	36.5	3 96.1
NB66490	16	34	63.4	37.8	--	1 93.8
MT6319	22	38	61.2	37.6	--	1 93.3
13999	21	36	62.8	36.5	38.6	3 101.4
SD56-758	22	37	61.6	35.8	37.1	3 95.1
14000	21	34	63.7	34.3	40.1	2 98.5
MT639	23	38	62.4	32.8	35.8	2 90.3
MT6320	21	39	62.3	30.8	--	1 76.4

L.S.D. .05 = ns; C.V. = 14.9%

TETONIA, IDAHO
Four replications

C.I. or Sel. No.	: Date :headed	: Plant :height	:Weight : per :bushel	:Av.acre yield :1968 : 1967- : 1968	:No. :years :grown	:Percent : of :Kharkof
	July	in.	lbs.	bu.	bu.	
NB66490	3	40	57.3	53.8	--	1 133.5
13998	7	42	57.4	52.8	54.7	3 116.5
NB64365	5	41	58.3	52.8	52.9	3 112.1
NB64308	6	40	56.8	52.6	--	1 130.5
NB64334	4	40	59.8	52.0	52.5	2 116.0
13999	6	42	57.4	49.2	51.2	3 112.1
MT6326	9	42	58.2	48.2	--	1 119.6
13670	6	41	60.3	48.1	50.0	6 107.4
13190	6	41	56.4	46.9	48.8	5 104.5
SD56-758	9	45	54.7	44.3	48.5	3 103.4
14000	8	42	59.7	42.3	46.2	2 102.0
MT6319	8	42	57.0	41.6	--	1 103.2
1442	8	45	58.5	40.3	45.3	6 100.0
MT6320	6	42	57.8	39.8	--	1 98.8
MT639	8	46	56.3	37.9	43.3	2 95.7

L.S.D. .05 = 7.7 bushels; C.V. = 11.5%

CLOVIS, NEW MEXICO
Four replications, dryland

C.I. or Sel. No.	Date		Plant height	Weight per bushel	Av. acre yield 1968	Percent of Kharkof
	headed	ripe	in.	lbs.	bu.	
	May	June				
13998	14	16	17	59	14.3	181.0
13999	14	17	16	59	12.4	157.0
NB64365	8	16	17	59	12.3	155.7
NB64334	8	16	18	60	11.5	145.6
NB64308	11	17	18	60	11.5	145.6
13670	15	16	18	61	11.0	139.2
NB66490	7	12	15	60	11.0	139.2
SD56-758	16	19	18	58	10.5	132.9
13190	10	14	16	60	10.0	126.6
MT6320	14	17	19	58	9.4	119.0
MT6319	13	17	18	58	9.3	117.7
MT6326	14	17	18	60	9.1	115.2
1442	15	18	16	60	7.9	100.0
14000	14	17	17	60	7.3	92.4
MT639	16	18	18	58	5.3	67.1

L.S.D. .05 = ns; C.V. = 35.0%

CLOVIS, NEW MEXICO
Four replications, irrigated

C.I. or Sel. No.	Date		Plant	Lodging	Weight per bushel	Av. acre yield		No. years grown	Percent of Kharkof
	headed	ripe	height	%	lbs.	1968	1967- 1968		
	May	June	in.			bu.	bu.		
NB64308	18	25	46	8	62.5	78.5	--	1	125.4
13190	18	25	44	20	62.0	76.2	76.2	4	109.4
NB66490	14	23	43	33	62.5	75.9	--	1	121.2
NB64365	17	24	45	30	62.0	74.6	69.5	3	98.2
13999	22	26	45	25	62.0	71.6	73.5	3	106.2
NB64334	20	24	44	25	63.5	69.0	69.8	2	101.8
14000	24	26	43	18	63.0	67.5	65.8	2	96.1
13998	23	25	44	25	62.0	66.0	72.6	3	107.6
SD56-758	26	26	45	53	61.5	65.6	69.6	3	101.3
13670	22	26	45	20	63.0	63.5	65.6	6	104.3
1442	23	26	45	53	61.5	62.6	68.5	9	100.0
MT6326	23	25	42	43	62.0	62.4	--	1	99.7
MT6319	23	25	45	33	61.5	58.5	--	1	93.5
MT6320	23	24	44	48	61.5	57.9	--	1	92.5
MT639	26	27	46	5	61.5	53.4	58.1	2	84.8

L.S.D. = 11.1 bushels; C.V. = 12.0%
.05

LETHBRIDGE, ALBERTA
Four replications

C.I. or Sel. No.	:1000 :Kernel :weight	:Weight :per :bushell/	:Av. acre yield		:No. :years :grown	:Percent : of :Kharkof
	gm.	lbs.	:1968 bu.	: 1967- : 1968 bu.		
13998	32.4	66.5	42.5	35.9	3	99.9
13999	31.2	66.0	42.1	35.8	3	99.8
1442	32.8	66.0	41.2	34.5	13	100.0
NB64334	34.4	66.5	41.0	37.6	2	109.0
SD56-758	33.2	65.0	40.4	36.6	3	100.7
NB64308	34.0	66.0	40.0	--	1	97.1
13190	32.4	66.5	39.3	33.9	4	98.3
MT6326	34.8	66.0	38.7	--	1	93.9
MT6320	32.0	66.0	38.7	--	1	93.9
NB64365	32.8	66.0	37.0	34.3	3	93.1
13670	35.6	67.0	36.2	33.3	5	93.2
MT639	30.4	65.0	36.2	36.7	2	106.2
MT6319	35.2	65.0	35.3	--	1	85.7
14000	32.4	66.5	33.4	33.1	2	95.8
NB66490	30.0	66.5	32.4	--	1	78.6

1/ Imperial bushels

L.S.D. _{.05} = 4.3 bushels; C.V. = 4.0%

Summary of Nursery Yields

Yields of 15 varieties grown in the NRPN in 1968 are summarized in table 8 (bushels per acre) and table 9 (kilograms per hectare). Five Nebraska varieties produced the highest average grain yields -- all over 40 bushels per acre.

Two year average yields for those varieties grown in the nursery in 1967 and 1968 are contained in tables 10 and 11. Warrior, NB64334, Trapper, NB64365, and Trader have the highest regional yield averages.

Summary of Agronomic Data

Data other than yield are summarized in table 12. NB66490 was the earliest variety and it produced the shortest straw. Selkirk x Cheyenne³ NB64308 had the lowest average leaf rust infection in it, together with MT639, lodged the least. The highest winter survival was recorded for MT639 (87%) and Winalta (80%). NB64308 had the lowest survival (52%). Four entries produced grain that averaged 60 pounds per bushel or more. The highest was Winoka with an average weight of 61.1 pounds.

Table 8.--Summary of average yields in bushels per acre made by 15 varieties grown in the northern regional performance nursery in 12 trials in 1968 with state averages and rank.

Variety	:C.I. or :Sel. No.	: Wyoming :				: New Mexico :				: Idaho :		: Nebraska :	
		:Archer:	:Sheri-:	:Aver-:	:Rank:	:Clovis:	:Clovis:	:Aver-:	:Rank:	:Te-:	:Rank:	:North:	:Rank:
		:dan	:age	:	:	:	:	:age	:	:tonia:	:	:Platte:	:
						dr1.	irr.						
Selkirk x Cheyenne ³	NB64308	45.2	62.0	53.6	1	11.5	78.5	45.0	1	52.6	4	45.6	6
Warrior	13190	41.2	62.8	52.0	2	10.0	76.2	43.1	4	46.9	9	44.4	8-9
Selkirk x Cheyenne ²	NB64365	40.0	55.2	47.6	6	12.3	74.6	43.5	2-3	52.8	2-3	47.2	3
Selkirk x Cheyenne ²	NB64334	42.8	59.1	51.0	4	11.5	69.0	40.3	6	52.0	5	41.7	13
Ky58-Nth-Cnn-Tm-Mi- Hope-Pn-Cnn x Wrr	NB66490	46.2	56.1	51.2	3	11.0	75.9	43.5	2-3	53.8	1	45.8	5
Trapper	13999	37.6	57.0	47.3	7	12.4	71.6	42.0	5	49.2	6	51.9	1
Trader	13998	39.2	54.5	46.9	8	14.3	66.0	40.2	7	52.8	2-3	46.3	4
Winalta	13670	39.7	52.1	45.9	10-11	11.0	63.5	37.3	10	48.1	8	44.4	8-9
Kharkof	1442	43.6	53.8	48.2	5	7.9	62.6	35.3	12	40.3	13	48.5	2
So. Dak. Sel.	SD56-758	39.0	50.4	44.7	13	10.5	65.6	38.1	8	44.3	10	41.9	12
NT-2 x Cnn-2 8-9-3	MT6326	37.4	48.3	42.9	15	9.1	62.4	35.8	11	48.2	7	43.9	10
Selected Bulk 2-77	MT6319	41.3	51.4	46.4	9	9.3	58.5	33.9	13	41.6	12	42.6	11
Winoka	14000	36.2	50.1	43.2	14	7.3	67.5	37.4	9	42.3	11	45.4	7
Yogo x Cnn 12-4-2	MT6320	38.1	52.1	45.1	12	9.4	57.9	33.7	14	39.8	14	39.1	14
BWH 1904-7	MT639	37.4	54.3	45.9	10-11	5.3	53.4	29.4	15	37.9	15	31.4	15

Table 8.--(Concluded)

C.I. or Sel. No.	North Dakota				South Dakota				Montana		Alberta		12
	Dickinson	Williston	Average	Rank	Highmore	Presho	Average	Rank	Moccasin	Rank	Lethbridge	Rank	Average
NB64308	17.4	25.1	21.3	12	48.1	42.0	45.1	1-2	43.4	1	40.0	6	42.6
13190	21.3	24.9	23.1	10	45.0	42.0	43.5	4	40.6	3	39.3	7	41.2
NB64365	18.1	29.4	23.8	9	48.9	39.2	44.1	3	38.0	8	37.0	10	41.1
NB64334	13.6	27.6	20.6	14	46.7	43.4	45.1	1-2	38.3	7	41.0	4	40.6
NB66490	11.1	28.5	19.8	15	50.2	35.7	43.0	5	37.8	9	32.4	15	40.4
13999	18.4	22.9	20.7	13	40.2	37.2	38.7	7-8	36.5	11	42.1	2	39.8
13998	15.6	27.2	21.4	11	42.9	32.8	37.9	9	40.4	4	42.5	1	39.5
13670	22.3	35.1	28.7	1	43.8	34.4	39.1	6	39.6	6	36.2	11-12	39.2
1442	24.0	31.6	27.8	2	43.4	29.1	36.3	12	40.3	5	41.2	3	38.9
SD56-758	20.4	29.3	24.9	7	42.2	35.2	38.7	7-8	35.8	12	40.4	5	37.9
MT6326	20.5	33.8	27.2	4	40.4	27.5	34.0	13	43.2	2	38.7	8-9	37.8
MT6319	20.4	34.9	27.7	3	40.0	33.4	36.7	11	37.6	10	35.3	13	37.2
14000	20.6	29.0	24.8	8	40.9	34.6	37.8	10	34.3	13	33.4	14	36.8
MT6320	19.5	32.8	26.2	5	37.1	25.7	31.4	14	30.8	15	38.7	8-9	35.1
MT639	17.9	32.6	25.3	6	36.2	25.9	31.1	15	32.8	14	36.2	11-12	33.4

Table 9.--Summary of average yields in kilograms per hectare made by varieties grown in the Northern Regional Performance Nursery in 1968.

Variety	:C.I. or : :Sel. No. :	Wyoming			New Mexico		
		Archer	Sheridan	Average	Clovis drl.	Clovis irr.	Average
Selkirk x Cheyenne ³	NB64308	3039	4168	3604	773	5278	3025
Warrior	13190	2770	4222	3496	672	5123	2898
Selkirk x Cheyenne ²	NB64365	2689	3711	3200	827	5015	2925
Selkirk x Cheyenne ²	NB64334	2877	3973	3429	773	4639	2709
Ky58-Nth-Cnn-Tm-Mi-Hope-Pn-Cnn x Wrr	NB66490	3106	3772	3442	740	5103	2925
Trapper	13999	2528	3832	3180	834	4814	2824
Trader	13998	2635	3664	3153	961	4437	2703
Winalta	13670	2669	3503	3086	740	4269	2508
Kharkof	1442	2931	3617	3240	531	4209	2373
So. Dak. Sel.	SD56-758	2622	3388	3005	706	4410	2561
NT-2 x Cnn-2 8-9-3	MT6326	2514	3247	2884	612	4195	2407
Selected Bulk 2-77	MT6319	2777	3456	3119	625	3933	2279
Winoka	14000	2434	3368	2904	491	4538	2514
Yogo x Cnn 12-4-2	MT6320	2561	3503	3032	632	3893	2266
BWH 1904-7	MT639	2514	3651	3086	356	3590	1977

Table 9.-- Concluded

	North Dakota			South Dakota			Idaho	Montana	Nebraska	Alberta	12-
C.I. or	Dickinson	Williston	Average	Highmore	Presho	Average	Tetonia	Moccasin	North	Lethbridge	trial
Sel. No.	:	:	:	:	:	:	:	:	Platte	:	;average
NB64308	1170	1687	1432	3234	2824	3032	3536	2918	3066	2689	2864
13190	1432	1674	1553	3025	2824	2925	3153	2730	2985	2642	2770
NB64365	1217	1977	1600	3288	2635	2965	3550	2555	3173	2488	2763
NB64334	914	1856	1385	3140	2918	3032	3496	2575	2803	2756	2730
NB66490	746	1916	1331	3375	2400	2891	3617	2541	3079	2178	2716
13999	1237	1540	1392	2703	2501	2602	3308	2454	3489	2830	2676
13998	1049	1829	1439	2884	2205	2548	3550	2716	3113	2857	2656
13670	1499	2360	1930	2945	2313	2629	3234	2662	2985	2434	2635
1442	1614	2124	1869	2918	1956	2440	2709	2709	3261	2770	2615
SD56-758	1371	1970	1674	2837	2366	2602	2978	2407	2817	2716	2548
MT6326	1378	2272	1829	2716	1849	2286	3240	2904	2951	2602	2541
MT6319	1371	2346	1862	2689	2245	2467	2797	2528	2864	2373	2501
14000	1385	1950	1667	2750	2326	2541	2844	2306	3052	2245	2474
MT6320	1311	2205	1761	2494	1728	2111	2676	2071	2629	2602	2360
MT639	1203	2192	1701	2434	1741	2091	2548	2205	2111	2434	2245

Table 10.--Summary of 2-year average yields for 10 varieties grown in the northern regional performance nursery in 11 trials in 1967 and 1968 with state averages and rank.

Variety	:C.I. or :Sel. No.	: Wyoming : Archer: Sheridan: Average: Rank	: New Mexico : Clovis : Rank	: Montana : Moccasin: Rank	: Idaho : Tetonla: Rank						
			irr.								
Warrior	13190	48.6	63.7	56.2	1	76.2	1	39.8	4	48.8	6
Selkirk x Cheyenne ²	NB64334	47.8	58.6	53.2	2	69.8	4	41.2	1	52.5	3
Trapper	13999	51.3	54.9	53.1	3	73.5	2	38.6	5	51.2	4
Selkirk x Cheyenne ²	NB64365	46.6	55.2	50.9	5	69.5	6	36.5	8	52.9	2
Trader	13998	49.9	53.3	51.6	4	72.6	3	36.7	7	54.7	1
Kharkof	1442	45.4	55.7	50.6	6	68.5	7	40.7	2	45.3	9
So. Dak. Sel.	SD56-758	43.9	51.9	47.9	9	69.6	5	37.1	6	48.5	7
Winalta	13670	47.4	52.5	49.9	7	65.6	9	36.3	9	50.0	5
Winoka	14000	43.8	53.2	48.5	8	65.8	8	40.1	3	46.2	8
BWH 1904-7	MT639	42.2	51.6	46.9	10	58.1	10	35.8	10	43.3	10

Table 10.--(Concluded)

C.I. or	North Dakota				South Dakota				Nebraska		Alberta		ll trial
Sel. No.	Dickinson	Williston	Average	Rank	Presho	Highmore	Average	Rank	North Platte	Rank	Lethbridge	Rank	Average
13190	26.9	27.2	27.0	6	44.4	47.3	45.8	3	42.1	8	33.9	8	45.3
NB64334	23.3	26.3	24.8	10	46.9	47.9	47.4	1	46.3	3	37.6	1	45.3
13999	29.7	25.9	27.8	4	39.1	42.9	41.0	9	51.7	1	35.8	5	45.0
NB64365	26.8	26.9	26.8	7	44.7	49.8	47.2	2	49.0	2	34.3	7	44.7
13998	22.6	28.9	25.8	9	39.7	44.4	42.0	8	46.2	4	35.9	4	44.1
1442	28.1	29.6	28.8	2	40.9	45.3	43.1	4	44.7	5	34.5	6	43.5
SD56-758	28.5	29.9	29.2	1	39.7	45.5	42.6	7	44.5	6	36.6	3	43.2
13670	27.1	30.2	28.6	3	38.8	47.0	42.9	5	40.7	9	33.3	9	42.5
14000	29.0	26.1	27.5	5	41.1	44.3	42.7	6	42.8	7	33.0	10	42.3
MT639	24.5	28.4	26.4	8	35.7	41.1	38.4	10	37.8	10	36.7	2	39.6

Table 11.--Summary of 2-year average yields in kilograms per hectare made by varieties grown in the Northern Regional Performance Nursery in 1967 and 1968.

Variety	: :C.I. or :Sel. No.	: : :	: : :	: : :	: : :	: : :	: : :	: : :
			Wyoming		New Mexico	Montana	Idaho	
			Archer	Sheridan	Average	Clovis	Moccasin	Tetonia
						irr.		
Warrior	13190		3267	4283	3778	5123	2676	3281
Selkirk x Cheyenne ²	NB64334		3214	3940	3577	4693	2770	3530
Trapper	13999		3449	3691	3570	4941	2595	3442
Selkirk x Cheyenne ²	NB64365		3133	3711	3422	4672	2454	3556
Trader	13998		3355	3583	3469	4881	2467	3677
Kharkof	1442		3052	3745	3402	4605	2736	3046
So. Dak. Sel.	SD56-758		2951	3489	3220	4679	2494	3261
Winalta	13670		3187	3530	3355	4410	2440	3362
Winoka	14000		2945	3577	1916	4424	2696	3105
BWH 1904-7	MT639		2837	3469	3153	3906	2407	2911

Table 11.--Concluded

C.I. or	North Dakota			South Dakota			Nebraska	Alberta	11-
Sel. No.	Dickinson	Williston	Average	Presho	Highmore	Average	North	Lethbridge	trial
:	:	:	:	:	:	:	Platte	:	average
13190	1808	1829	1815	2985	3180	3079	2830	2279	3046
NB64334	1566	1768	1667	3153	3220	3187	3113	2528	3046
13999	1997	1741	1869	2629	2884	2756	3476	2407	3025
NB64365	1802	1808	1802	3005	3348	3173	3294	2306	3005
13998	1519	1943	1735	2669	2985	2824	3106	2414	2965
1442	1889	1990	1936	2750	3046	2898	3005	2319	2925
SD56-758	1916	2010	1963	2669	3059	2864	2992	2461	2904
13670	1822	2030	1923	2609	3160	2884	2736	2239	2857
14000	1950	1755	1849	2763	2978	2871	2877	2219	2844
MT639	1647	1909	1775	2400	2763	2582	2541	2467	2662

Table 12.--Summary of agronomic data other than yield for varieties grown in the northern regional performance nursery in 1968.

Pedigree	:	:	:	:	:	:	:	:Weight
	:C.I. or	: Date	:Plant	:Leaf	:Lodg-	:Winter	:	: per
	:Sel. No.:	:headed:	:ripe:	:height:	:rust:	: ing	: survival:	:bushel
		June	June	in.	%	%	%	lbs.
Number of stations -----		8	3	11	3	3	3	12
Winoka	14000	14	29	39	45	15	68	61.1
Winalta	13670	13	29	39	79	16	80	60.7
Selkirk x Cheyenne ²	NB64334	11	28	39	72	27	69	60.5
Selkirk x Cheyenne ²	NB64365	11	28	38	72	30	70	60.0
Selkirk x Cheyenne ³	NB64308	12	29	38	33	6	52	59.9
Ky58-Nth-Cnn-Tm-Mi- Hope-Pn-Cnn x Wrr	NB66490	9	26	36	70	35	74	59.8
NT-2 x Cnn-2 8-9-3	MT6326	14	29	39	77	27	68	59.6
Trapper	13999	13	29	39	68	23	60	59.4
Warrior	13190	12	28	37	79	13	69	59.3
Kharkof	1442	13	30	40	79	32	64	59.2
Trader	13998	13	29	38	62	22	67	59.1
Selected Bulk 2-77	MT6319	14	29	39	52	16	72	58.9
So. Dak. Sel.	SD56-758	15	30	40	43	28	71	58.5
Yogo x Cnn 12-4-2	MT6320	14	28	40	70	35	71	58.4
BWH 1904-7	MT639	14	30	42	60	6	87	58.0

QUALITY DATA

Quality evaluation of varieties in the Quality Series, SRPN, and NRPN is done each year by the Hard Winter Wheat Quality Laboratory. The amount of seed requested from each location is as follows:

Uniform Quality Series ^{1/} -----	10 pounds
Southern Regional Performance Nursery=====	1 pound
Northern Regional Performance Nursery-----	1 pound

1/ Cooperators voted to discontinue the Uniform Quality Series in 1969.

Samples from the SRPN and NRPN are evaluated as regional composites. Results are reported to the cooperators by K. F. Finney.

UNIFORM WINTERHARDINESS NURSERY

The nursery is comprised of 2 sections according to the origin of materials. The Southern Materials Section consists of experimental lines submitted from Texas, New Mexico, Oklahoma, Kansas, Colorado and Nebraska. The Northern Materials Section includes experimental lines from South Dakota, Minnesota, Wyoming, and Montana.

Entries in the Southern Section in 1968 totaled 271. The nursery was grown at Laramie, Havre, Brookings, Watertown, St. Paul and Fargo. Survival data were received from Laramie, Brookings and Watertown.

Northern section nursery sites were Brookings, Watertown, Havre, St. Paul, Fargo, and Lethbridge. Differential winterkilling occurred at Brookings, Watertown and Lethbridge. Survival data for the two sections were distributed to cooperators as a separate report.

SOIL-BORNE MOSAIC NURSERY

This nursery is grown each year at Urbana, Illinois, and Powhattan, Kansas on land known to be infested with the soil-borne mosaic virus. In 1968 there were 60 entries in the nursery. Data were received from both locations which were summarized and distributed to cooperators as a separate report.

BUNT EVALUATION

The regional hard winter wheat Uniform Bunt Nursery was discontinued as a field nursery in 1966. Cooperators were urged to submit lines with suspected resistance to bunt to the Cereal Disease Laboratory at Pullman, Washington, for determination of their reaction to specific bunt tester races.

In 1968, only 7 experimental lines from Oklahoma were submitted to the Pullman Laboratory from the hard red winter wheat region. Results were reported directly to the Oklahoma personnel.

HYBRID WINTERHARDINESS NURSERY

The primary purpose of the nursery is to assess the winterhardiness of winter wheat hybrids relative to their parents. Other useful information concerning adequacy of restoration, yield, and other agronomic traits was provided by the nursery in 1968.

Twenty-one hybrids were tested in 1968. Four were sterile hybrids and 17 involved selections from the Nebraska restorer crossed with various hard winter wheat varieties -- mainly Gage. The hybrids and parent varieties were grown in single rows replicated 4 times except at Mead where rod-row plots of the restored hybrids in 4 replications were grown. Restricted randomization in which the hybrid always appeared in a 3-row block with its parents in each replication, was followed. Nursery sites in 1968 were Mead, Ft. Collins (irrigated), Bushland (irrigated), Brookings, Moccasin and Lethbridge. In the spring, random heads in hybrid plots were bagged prior to anthesis to determine level of restoration.

Differential winterkilling occurred at Brookings and Lethbridge. Hybrid winter survivals in relation to parents at the 2 stations are shown in table 13. The survival of hybrids seldom exceeded the parent mean and, in many hybrids, was less than the parent mean at each of the reporting stations. Fourteen of 21 hybrids had average survivals that were below the mid-parent values.

Percent seed set on bagged heads of restored hybrids at 5 locations is summarized in table 14. Data from Mead were lost due to premature threshing of the bagged heads before seed set determinations had been made. The highest average restoration of 78 percent occurred at Lethbridge with the next highest at Brookings. As in 1967, the lowest restoration was at Moccasin (32 percent). Average seed set of 60 percent or higher occurred on 12 of the hybrids. Four hybrids were higher than 50 percent on the average. Only the Omaha hybrid had an average seed set of less than 50 percent under bagged heads.

The nursery was harvested for yield at 4 locations. Yield data are summarized in table 15. The best hybrid performance relative to parents was at Bushland and Ft. Collins where the hybrids yielded 112 percent of the parent mean and slightly exceeded the highest yielding parent on the average. Poorest hybrid yields were at Moccasin where fertility restoration was lowest. Observations at Mead at flowering time indicated that fertility restoration in the hybrids was excellent. Despite this, the performance of hybrids tested in replicated rod-row plots was relatively poor. Agronomic data other than yield appear in table 16.

Table 13. Winter survival of winter wheat hybrids in relation to the parents at 2 locations in 1968.

Hybrid	Brookings			Lethbridge			2-station average		
	: parent : best :			: parent : best :			: parent : best :		
	: Hybrid :	mean	: parent :	Hybrid :	mean	: parent :	Hybrid :	mean	: parent :
		%	%		%	%		%	%
Ms Bsn x Ottawa	2	6	8	6	33	51	4	20	30
Ms Bsn x Wichita	4	3	3	31	25	31	18	14	17
Ms Bsn x Cheyenne	8	6	10	11	27	46	10	17	28
Ms Bsn x Warrior	11	6	8	14	42	65	13	24	37
Ms Bsn x NB3547	10	8	11	20	16	24	15	12	18
Ms Gage x NB3547	15	12	15	36	44	51	26	28	33
Ms Scout x NB3547	11	10	11	28	32	45	20	21	28
Ms Parker x NB3547	7	14	15	31	19	23	19	17	19
Ms Omaha x NB3547	25	29	37	35	41	61	30	35	49
Ms Wichita x NB3547	10	10	16	28	20	29	19	15	23
Ms Gage x NB3515	5	12	14	16	32	48	11	22	31
Ms Gage x NB3584	11	10	10	26	43	63	19	22	37
Ms Gage x NB3591	5	7	9	24	30	43	15	19	25
Ms Gage x NB3593	12	9	14	24	25	35	18	17	25
Ms Gage x NB3594	17	6	8	12	22	24	15	14	15
Ms Gage x NB3597	11	17	23	18	48	51	15	33	37
Ms Gage x NB3899	8	17	22	13	43	45	11	30	34
Ms Gage x NB3910	11	14	14	13	31	39	12	23	27
Ms Gage x NB3914	18	17	18	16	25	39	17	21	29
Ms Gage x NB3916	15	11	14	14	34	44	15	23	29
Ms Gage x NB3954	12	16	22	24	40	45	18	28	34
Average	11	11	14	21	32	43	16	22	29

Table 14. Percent seed set on bagged heads of 17 winter wheat hybrids grown at 5 different locations in 1968.

Hybrid	Percent seed set on bagged heads					
	Bushland:	Ft.	Brookings:	Moccasin:	Lethbridge:	5-station
	: Collins:	:	:	:	:	: average
Ms Bsn x NB3547	67	68	63	47	79	65
Ms Gage x NB3547	70	59	67	25	86	61
Ms Scout x NB3547	71	66	69	40	82	66
Ms Parker x NB3547	59	70	61	33	83	61
Ms Omaha x NB3547	45	58	43	18	59	44
Ms Wichita x NB3547	61	58	61	39	76	59
Ms Gage x NB3515	57	48	77	37	55	55
Ms Gage x NB3584	69	57	76	19	83	61
Ms Gage x NB3591	51	58	72	27	94	61
Ms Gage x NB3593	80	42	84	34	74	63
Ms Gage x NB3594	70	62	79	38	87	67
Ms Gage x NB3597	44	55	64	31	79	55
Ms Gage x NB3899	64	65	78	35	67	62
Ms Gage x NB3910	78	46	86	31	79	64
Ms Gage x NB3914	72	60	74	22	86	63
Ms Gage x NB3916	74	66	76	40	86	68
Ms Gage x NB3954	51	48	68	25	76	54
Average	64	58	71	32	78	60

Table 15. Grain yields of 4 sterile hybrids and 17 restored hybrids in relation to parent varieties at 4 locations in the hard red winter wheat region in 1968.

Hybrid	Bushland			Ft. Collins			Lincoln		
	% of			% of			% of		
	bu/a	parent $\bar{x}$	best parent	bu/a	parent $\bar{x}$	best parent	bu/a	parent $\bar{x}$	best parent
<u>Sterile hybrids</u>									
Ms Bsn x Ottawa	38.6	65	56	37.6	85	84	--	--	--
Ms Bsn x Wichita	62.4	127	116	36.7	91	84	--	--	--
Ms Bsn x Cheyenne	41.0	82	73	25.7	59	58	--	--	--
Ms Bsn x Warrior	50.7	86	82	34.7	87	82	--	--	--
<u>Restored hybrids</u>									
Ms Bsn x NB3547	70.4	132	115	50.5	132	127	43.0	95	91
Ms Gage x NB3547	67.2	126	116	44.7	115	107	45.2	93	84
Ms Scout x NB3547	63.1	105	96	41.0	101	92	42.4	90	83
Ms Parker x NB3547	66.5	119	104	42.9	111	108	45.7	92	86
Ms Omaha x NB3547	55.8	96	93	39.6	101	95	40.8	90	86
Ms Wichita x NB3547	60.4	118	101	45.1	116	111	42.1	112	102
Ms Gage x NB3515	57.8	104	82	43.0	118	116	43.6	92	88
Ms Gage x NB3584	60.4	93	91	45.8	112	94	45.0	100	89
Ms Gage x NB3591	61.6	105	97	46.6	110	103	42.0	92	81
Ms Gage x NB3593	66.5	109	106	41.2	107	102	43.3	94	82
Ms Gage x NB3594	65.0	115	104	47.1	125	124	45.7	94	84
Ms Gage x NB3597	59.1	114	113	41.2	107	101	42.0	92	78
Ms Gage x NB3599	61.7	103	95	38.9	108	104	43.0	94	84
Ms Gage x NB3910	70.4	128	124	43.0	112	110	45.1	95	86
Ms Gage x NB3914	64.5	108	100	44.8	109	101	45.6	95	86
Ms Gage x NB3916	68.8	124	120	45.3	120	102	44.7	96	84
Ms Gage x NB3954	58.1	99	89	43.4	108	101	43.2	93	85
<u>AVERAGE</u>									
Sterile hybrids	48.2	90	82	33.7	81	77	--	--	--
Restored hybrids	63.4	112	103	43.8	112	106	43.7	95	86

Table 15. (Concluded)

Hybrid	Moccasin			4-station average		
	bu/a	% of		bu/a	% of	
	: parent $\bar{x}$	: best parent	:	: parent $\bar{x}$	: best parent	:
<u>Sterile hybrids</u>						
Ms Bsn x Ottawa	8.9	29	29	28.4	60	56
Ms Bsn x Wichita	14.0	48	47	37.7	89	82
Ms Bsn x Cheyenne	7.3	18	14	24.7	53	48
Ms Bsn x Warrior	11.2	32	26	32.2	68	63
<u>Restored hybrids</u>						
Ms Bsn x NB3547	27.5	92	90	47.9	113	106
Ms Gage x NB3547	26.5	80	72	45.9	103	95
Ms Scout x NB3547	22.8	79	77	42.3	94	87
Ms Parker x NB3547	25.8	83	72	45.2	101	93
Ms Omaha x NB3547	21.9	76	73	39.5	91	87
Ms Wichita x NB3547	22.9	74	69	42.6	105	96
Ms Gage x NB3515	27.7	83	76	43.0	99	91
Ms Gage x NB3584	24.0	71	67	43.8	94	85
Ms Gage x NB3591	24.9	75	69	43.8	95	88
Ms Gage x NB3593	21.6	60	59	43.2	92	87
Ms Gage x NB3594	24.2	77	76	45.5	103	97
Ms Gage x NB3597	23.5	64	64	41.5	94	89
Ms Gage x NB3599	21.3	61	60	41.2	91	86
Ms Gage x NB3910	24.6	73	73	45.8	102	98
Ms Gage x NB3914	26.6	78	76	45.4	97	91
Ms Gage x NB3916	27.3	77	76	46.5	104	96
Ms Gage x NB3954	18.5	59	54	40.8	90	77
<u>AVERAGE</u>						
Sterile hybrids	10.4	32	29	30.8	68	62
Restored hybrids	24.2	74	71	43.7	98	91

Table 16. Date of heading, plant height and weight per bushel of winter wheat hybrids in relation to parent means.

Hybrid	Date headed						Plant height		Wt. per bu. (3 sta. $\bar{x}$)	
	Ft. Collins		Mead, Nebr.		2-station aver.		Hybrid	Parent $\bar{x}$	Hybrid	Parent $\bar{x}$
	Hybrid:Parent $\bar{x}$		Hybrid:Parent $\bar{x}$		Hybrid:Parent $\bar{x}$		:	:	:	:
	June	June	June	June	June	June	in.	in.	lb.	lb.
Ms Bsn x Ottawa	7	8	--	--	--	--	--	--	--	--
Ms Bsn x Wichita	9	7	--	--	--	--	--	--	--	--
Ms Bsn x Cheyenne	10	11	--	--	--	--	--	--	--	--
Ms Bsn x Warrior	8	8	--	--	--	--	--	--	--	--
Ms Bsn x NB3547	8	8	2	2	5	5	43	45	59.9	60.3
Ms Gage x NB3547	8	8	1	1	5	5	44	42	59.8	60.2
Ms Scout x NB3547	7	10	1	1	4	6	43	43	60.0	60.6
Ms Parker x NB3547	9	9	5/31	1	4	5	43	43	60.2	60.3
Ms Omaha x NB3547	8	9	1	1	5	5	44	43	60.1	60.7
Ms Wichita x NB3547	8	9	1	5/31	5	5	43	43	60.4	60.9
Ms Gage x NB3515	8	9	2	2	5	6	44	44	59.8	60.0
Ms Gage x NB3584	8	9	1	1	5	5	44	44	59.8	60.0
Ms Gage x NB3591	8	9	1	1	5	5	44	44	60.0	60.1
Ms Gage x NB3593	8	9	2	2	5	6	43	44	59.5	59.3
Ms Gage x NB3594	8	8	1	5/31	5	5	44	43	59.5	59.5
Ms Gage x NB3597	8	9	1	1	5	5	45	44	60.0	60.2
Ms Gage x NB3899	8	9	1	2	5	6	44	44	60.5	59.8
Ms Gage x NB3910	8	8	1	5/31	5	5	44	43	60.4	60.3
Ms Gage x NB3914	8	8	1	1	5	5	43	43	60.3	60.2
Ms Gage x NB3916	7	8	1	1	4	5	44	43	60.4	60.5
Ms Gage x NB3954	7	7	1	1	4	4	44	44	59.9	60.0
Average	8	9	1	1	5	5	44	43	60.0	60.2

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