

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
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 1973

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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 for 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 North Central Region, 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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NORTH CENTRAL REGION

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By

V. A. Johnson¹

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¹ The writer expresses appreciation to Mrs. Katie Meierhenry, Regina Hogendorn, and Allen Diehl for their assistance in preparing this report.

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

AGRICULTURAL RESEARCH SERVICE, U.S.D.A.:

Hard Red Winter Wheat
Uniform and International Rust Nurseries
Hard Red Winter Wheat Quality
Uniform Hessian Fly Nursery
Leaf Rust Investigations
Stem Rust Investigations

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Soil and Crop Sciences

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Plant Sciences
Dallas
TAMU Research and Extension Center
Chillicothe
TAMU Agricultural Research Station
Bushland
U.S.D.A. Southwestern Great Plains
Research Center

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N. E. Daniels

NEW MEXICO AGRICULTURAL EXPERIMENT STATION:

Clovis
Plains Branch Station

R. E. Finkner
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OKLAHOMA AGRICULTURAL EXPERIMENT STATION:

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Agronomy

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E. E. Sebesta*
B. B. Tucker
H. C. Young, Jr.
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Botany and Plant Pathology
Entomology
Biochemistry
Lahoma
North Central Research Station
Goodwell
Panhandle Experiment Station
Altus
Irrigation Research Station

D. Hane
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P. Kruska

IOWA AGRICULTURAL EXPERIMENT STATION:

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WASHINGTON AGRICULTURAL EXPERIMENT STATION:

Lind

Dry Land Research Unit

E. Donaldson

KANSAS AGRICULTURAL EXPERIMENT STATION:

Manhattan

Kansas State University

Agronomy

Plant Pathology

Entomology

Grain Science and Industry

Hays

Ft. Hays Experiment Station

Garden City

Garden City Experiment Station

Colby

Colby Experiment Station

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COLORADO AGRICULTURAL EXPERIMENT STATION:

Ft. Collins

Colorado State University

Agronomy

Akron

Central Great Plains Research Center

Springfield

Southeastern Colorado Research Center

Yellow Jacket

San Juan Basin Branch Station

Burlington

Julesburg

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G. O. Hinze

H. O. Mann

H. D. Moore

J. R. Welsh

J. R. Welsh

NEBRASKA AGRICULTURAL EXPERIMENT STATION:

Lincoln

University of Nebraska

Agronomy

North Platte

North Platte Station

Alliance

Box Butte Station

Sidney

High Plains Agricultural Laboratory

Clay Center

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WYOMING AGRICULTURAL EXPERIMENT STATION:

Laramie University of Wyoming
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Aberdeen
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MINNESOTA AGRICULTURAL EXPERIMENT STATION:

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Columbia University of Missouri
Field Crops

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REGIONAL NOTES

Dr. Y. Pomeranz was named Director of the U.S.D.A. Grain Marketing Research Center at Kansas State University. Dr. C. A. Watson, who served as Acting Director since 1971, will continue as Research Leader in grain quality and instrumentation studies. The Hard Winter Wheat Quality Laboratory is now located at the Research Center.

Dr. A. L. Scharen, ARS Research Plant Pathologist at Montana State University, Bozeman, has begun a search in wheat for genes for resistance to Septoria nodorum, S. tritici and Helminthosporium. In cooperation with Drs. Allan Taylor and F. H. McNeal he will seek to develop varieties resistant to the Septoria diseases and leaf spot disorders.

Dr. J. A. Hoffman, ARS Western Region, Utah State University, distributed in September, 1973, reactions of winter and spring wheats to races of common and dwarf bunt. Experimental wheats from this region with potential resistance to bunt should be sent to Dr. Hoffman for testing.

Wheat breeders and pathologists from this region met in a free-wheeling informal 1/2-day session on January 19, 1973 following the Hard Winter Wheat Quality Advisory Council meeting in Kansas City. Topics of discussion included alternative approaches to reduction of rust vulnerability in the HRWW region and the regional wheat streak mosaic situation.

Wheat breeders and some pathologists from the public and private sectors in the HRWW region met with wheat personnel at Southwestern Great Plains Research Center on June 15, 1973 to view wheat research in progress at that station. It is intended that this become an annual event with the next field meeting scheduled for the summer, 1974, at Fort Collins.

The reassignment of Dr. Kenneth Lebsock, formerly Eastern Soft Wheat Improvement Leader, necessitated some changes in coordination of activities in the Eastern Region. R. D. Barnett and D. D. Morey will coordinate the Southern Uniform Soft Wheat Nursery. Dr. Everson has volunteered to coordinate the Uniform Eastern Soft White Winter Wheat Nursery, and J. J. Roberts and F. L. Patterson will handle the Uniform Soft Red Winter Wheat Nursery. The Uniform Rust, Mildew, and S. nodorum nurseries will be managed by Drs. Kilpatrick, Moseman, and Scharen respectively.

C. W. Crowell resigned his position as agronomist at the Eastern Montana Agricultural Research Center at Sidney during the summer.

Greg Kushnak has replaced Lyle Stempke at the Central Montana Agricultural Research Center at Moccasin.

NEW VARIETIES

Cloud -- C.I.17276 (KS7016), hard red winter.

Pedigree: Scout*5/Agent

Released jointly by the Kansas Agricultural Experiment Station and the Agricultural Research Service, U.S.D.A. Seed distributed to the public in the fall of 1973.

Sage -- C.I.17277 (KS70H179), hard red winter.

Pedigree: Agent/*4Scout

Released jointly by the Kansas and Nebraska Agricultural Experiment Stations and A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

Trison -- C.I.17278 (KS65274), hard red winter.

Pedigree: Triumph/Bison

Released jointly by the Kansas Agricultural Experiment Station and A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

Kirwin -- C.I.17275 (KS6623), hard red winter.

Pedigree: *3Parker/Bison

Released jointly by the Kansas Agricultural Experiment Station and the A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

HiPlains -- C.I.17262 (NE68427), hard red winter.

Pedigree: Gage/Lancer

Released jointly by the Nebraska Agricultural Experiment Station and the A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

Buckskin -- C.I.17263 (NE68435), hard red winter.

Pedigree: Scout/4/Quivira/2/Tenmarq/3/Marquillo/Oro

Released jointly by the Nebraska and Kansas Agricultural Experiment Stations and the A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

Homestead -- C.I.17264 (NE68437), hard red winter.

Pedigree: Scout/4/Kenya/Newthatch/2/Cheyenne/Tenmarq/Mediterranean/ Hope/3/Pawnee/Cheyenne

Released jointly by the Nebraska and Kansas Agricultural Experiment Stations and the A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

Sentinel -- C.I.17265 (NE68440), hard red winter.

Pedigree: sister to Homestead

Released jointly by the Nebraska Agricultural Experiment Station and the A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

Stoddard -- (W7687), soft red winter.

Pedigree: Stadler/Redcoat

Released jointly by the Missouri Agricultural Experiment Station and the A.R.S., U.S.D.A. Seed distributed to the public in the fall of 1973.

W332 -- C.I.17244, hard red winter.

Pedigree: 5*Scout/Agent

Released by Funk Seed Company in 1973.

The Oklahoma Agricultural Experiment Station has announced intention to release 5*Scout/Agent, OK696731, in 1974. The line has high grain yield potential and good resistance to leaf and stem rust.

The South Dakota Agricultural Experiment Station also has announced intention to release in 1974 a Scout/Agent line. This one -- Agent/4*Scout (SD7117) -- is a composite of pure lines developed at Hays, Kansas Experiment Station. It is similar to Scout but with improved rust resistance and yield potential.

THE 1973 CROP YEAR

This was a banner year in the hard red winter wheat region. Many production records fell. Total hard red winter wheat production reached the record level of 960 million bushels, 385 million bushels of which were produced in Kansas.

Seeding in the fall generally proceeded somewhat ahead of schedule except in Texas and Southwest Oklahoma where it was delayed first by dry seed beds and then by wet weather. Cool weather in November delayed growth. Winter survival was good and nearly 90% of the seeded acreage was harvested for grain. In Colorado, Kansas, and Nebraska 95% of the seeded acreage was harvested.

The crop year was unusual in that the wheat throughout the region was never under serious stress from planting to harvest. Record high yields resulted in Kansas, Oklahoma, and Texas with record high production in Kansas and Oklahoma.

Winter wheat production for the plains states is summarized in the tabulation that follows:

<u>State</u>	<u>Seeded acres 1,000</u>	<u>Harvested acres 1,000</u>	<u>Aban- donment %</u>	<u>Yield per harvested acre bu.</u>	<u>Production (bu.) 1,000</u>
New Mexico	390	289	26	29.5	8,526
Texas	4,600	3,400	26	29.0	98,600
Oklahoma	6,000	5,260	12	30.0	157,800
Colorado	2,520	2,400	5	24.5	58,800
Kansas	10,800	10,400	4	37.0	384,800
Nebraska	2,800	2,680	4	35.0	93,800
Montana	2,200	2,080	5	26.5	55,120
Wyoming	250	229	8	23.0	5,267
South Dakota	793	666	16	32.0	21,312
North Dakota	80	73	9	32.0	2,336

Data from Crop Production, 1973 Annual Summary. Crop Reporting Board, Statistical Reporting Service, U.S.D.A., Washington, D. C.

SOUTHERN REGIONAL PERFORMANCE NURSERY

Twenty-five varieties were evaluated in 1973, seven of which were new this year. Two foreign varieties, Kavkaz from the USSR and Burgas 2 from Bulgaria, were included. Eighteen entries in the nursery were derivatives of the Scout variety, four were selections from Scout and four Scout/Agent backcross lines.

Yield data were reported from 25 nurseries at 23 different sites in 10 states. Both irrigated and dryland nurseries were produced at Bushland, Texas and Clovis, New Mexico. A new location and adverse weather prevented the nursery from being seeded at Dallas, Texas. Wet ground prevented seeding at Yellow Jacket, Colorado. Severe winterkilling at Mead, Nebraska resulting from ice and water during the winter forced abandonment of the nursery. Poor fall stands and some loss during the winter at Alliance, Nebraska resulted in abandonment of that nursery. Nurseries in South Dakota were decimated by fall infestation of aphids at Presho and winterkilling at Highmore.

Pedigrees and C.I. or selection numbers of entries are listed below. Data from reporting nursery sites appear in table 1. Stem rust reaction data provided by the U.S.D.A. Cereal Rust Laboratory in St. Paul, Minnesota appear in table 2.

<u>Entry no.</u>	<u>Variety</u>	<u>C. I. or Sel. No.</u>	<u>Source</u>
1	Kharkof	1442	Check
2	Scout 66	13996	Check
3	Centurk	15075	Nebraska
4	Short Wheat/Scout Composite	TX69A571	Texas
5	" "	TX69A367	"
6	" "	TX69A565	"
7*	" "	TX69A330-1	"
8*	" "	TX69A460-1	"
9*	" "	TX69A525-1	"
10	Scout Selection (Baca)	CO64043	Colorado
11	5*Scout/Agent	OK696731	Oklahoma
12*	Scout Selection	OK66V2621	"
13*	"	OK66V2629	"
14*	"	OK66V2619	"
15	Agent/4*Scout	KS70H134	Kansas
16	" (Sage)	KS70H179	"
17	Scout/C.I.12995 (Buckskin)	NE68435	Nebraska
18	Sut/4/Ky58/Nth/2/Cnn/Tm/Ml/Hope/3/ Pn/Cnn (Homestead)	NE68437	"
19	" " (Sentinel)	NE68440	"
20	Atl 66/Cnn//Lcr	NE701132	"
21	Agent/4*Scout	SD7117	So. Dak.
22	Triumph/Bison (Trison)	KS65274	Kansas
23**	Recurrent Sel. Series I, Cycle II (Bronze)	SD6753	NRPN
24	Kavkaz (USSR)	----	IWWPN
25	Burgas 2 (Bulgaria)	Sort 12-13	"

*New in 1973

**Entered from NRPN or Prelim. IWWPN in 1973

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Test Site Information

Dallas -- This was a new test site in 1973 replacing Denton. The nursery was not seeded due to adverse weather conditions.

Chillicothe -- Information on production conditions not reported.

Bushland -- Dryland nursery sown on September 22 on land summer-fallowed for 2 years. Moisture was adequate for normal growth throughout the entire crop year except during the latter part of the fruiting period. Growth was restricted by below-average temperatures during the fall and winter months. Some moisture stress late in the season resulted in low test weights in some varieties. Insects, diseases, and hail were not factors. The irrigated nursery was sown on October 11 after a pre-plant irrigation and application of 150 pounds of nitrogen. Leaf rust became heavy late in the season and may have caused some reduction in yield in susceptible varieties.

Clovis -- Excellent conditions prevailed at Clovis. The 12.3 inches of precipitation received during the crop season was nearly 4 inches above the 23-year average for the station. Precipitation was above the long-time average every month from October through April. The irrigated nursery was watered three times.

Stillwater -- Excellent conditions at seeding permitted good stand establishment. During the fall and winter precipitation was above normal but temperatures were below normal. Heading was delayed approximately one week. Leaf rust, powdery mildew, and septoria were present but not heavy.

Goodwell -- Fall and winter conditions were excellent. Full fall stands were obtained and there was no loss of stands during the winter. Hot winds in early summer reduced high yield prospects. Diseases and insects were of no consequence.

Lahoma -- The seedbed was slightly dry at planting time. Hard rains before emergence resulted in less-than-full stands. The winter was cold with above-normal precipitation and spring growth was delayed. Leaf rust was present but is not believed to have affected yields.

Altus -- Conditions were near-ideal through fall, winter, and early spring. A severe early leaf rust epidemic occurred and some stripe rust was observed. The heavy leaf rust and three days of extremely high, hot winds during grain filling reduced otherwise excellent prospects for high yields. There was some seed shrivelling, lodging, and straw breakage.

Manhattan -- Good fall stands were obtained. No winterkilling occurred. Spring growth was rank and uneven with irregular lodging noted by two weeks after heading. Appearance of some plots and yellow berry in the grain indicated low nitrogen in the nursery area. Leaf rust came late so it was not a factor in yield. Septoria tritici was very heavy.

Hays -- Fall growth was limited by cold weather in November. The winter was wet with temperatures about normal for Hays. The spring remained cool and wet and promoted abundant tillering in March and

April. The last six weeks of the crop season were dry. Low test weights indicated moisture stress and hastened maturity. There were no serious disease or insect problems although leaf rust was present.

Garden City -- The nursery was seeded in good moisture which remained adequate through the fall, winter, and early spring. The winter was mild and no loss of stands was noted. A cool spring delayed maturity and harvest was 10 days later than normal. Very high temperatures in June reduced yields.

Colby -- A wet, cool fall was followed by a cold winter. Snow cover during the coldest periods protected the wheat. Spring precipitation was well above normal and temperatures remained cool. Some damage resulted from 10° temperature low on April 10. Heading and ripening were later than normal. Hot weather in July caused all varieties to ripen together. Diseases were not noted.

Fort Collins -- Conditions were excellent throughout the crop season. Heavy stem rust resulted from artificial 15B inoculation in early June. Yield differences were associated with stem rust reaction and lodging. The nursery received one flood irrigation.

Yellow Jacket -- Excessive moisture at seeding time prevented seeding of the nursery.

Akron, Julesburg, Burlington, and Springfield -- There was excellent fall and winter moisture throughout the eastern Colorado wheat production area. High winds on May 26 produced some foliar damage. Lack of moisture during ripening produced some test weight reduction.

Mead -- Ice cover and water during late winter destroyed the nursery.

Clay Center -- Fall stands were somewhat variable. The fall, winter, and early spring were wet. The winter was not abnormally cold. Some loss of stands was recorded with killing heavy in one Texas entry and the foreign varieties. Stem rust and Septoria remained light but leaf rust caused some damage. Septoria leaf blotch was not as severe as in 1972.

North Platte and Sidney -- Overall conditions at North Platte and Sidney were excellent until a period of prematurely excessive heat during ripening during which temperatures ranged as high as 109°F. The stage of maturity at the onset of high temperatures was sufficiently more advanced at North Platte than at Sidney to reduce the damage at the former. The crop underwent forced maturity and the high temperatures are believed to have contributed to failure of normal seed dormancy. A period of wet weather at harvest time produced serious sprouting of the wheat in unharvested fields.

Alliance -- The nursery was abandoned due to poor stands.

Highmore and Presho -- The Highmore nursery was decimated by winter killing and aphids were destructive at Presho. Nurseries at both sites were abandoned.

Columbia -- A relatively mild winter was followed by an excessively wet spring with precipitation 8 inches above normal. A severe hail storm in mid-May damaged the nursery -- especially the earlier entries. Septoria was the only serious disease problem with both S. tritici and S. nodorum prevalent. Hessian fly infestation resulted in some straw breakage before harvest.

Ames -- The nursery was seeded under excellent conditions and emerged to good stands. Fall top growth was moderate. All but the tender varieties survived well. Gopher damage occurred in some plots and yield adjustments were made. Lodging was minimal. Leaf rust became moderately heavy. There were no other diseases of consequence.

Urbana -- There was adequate moisture from fall through spring. A mild winter resulted in good survival of all entries. Septoria was severe in the spring and appeared to be the only disease causing significant damage.

Lind -- Precipitation between seeding and emergence resulted in poor stands. Winter dessication produced poor spring recovery of most varieties. Earliest ripening varieties sustained extensive mouse damage. The yields reflect poor stands, winter injury and drought. Kavkaz appeared to possess the best adaptation to this set of conditions.

Table 1.--Yield and other data for varieties evaluated in the Southern Regional Performance Nursery in 25 trials in the hard red winter wheat region in 1973.

Chillicothe, Texas						
Three replications						
C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height	: Leaf Rust Sev.	: Res. 0-9
	kg/ha	kg/hl		cm	%	
KAVKAZ	1950	75.5	125	88	5	3
SORT 12-13	1614	73.7	122	76	5	7
NE701132	1526	74.9	127	93	5	3
SD7117	1418	74.7	127	96	0	0
KS65274	1392	75.2	116	93	30	8
NB68437	1385	72.8	126	86	5	7
OK696731	1365	75.5	128	93	0	0
NB68440	1365	69.5	127	83	20	8
SD6753	1351	73.9	130	93	0	0
TX69A460-1	1338	72.1	127	78	5	3
KS70H179	1304	73.5	128	93	0	0
TX69A330-1	1223	74.8	127	71	20	8
KS70H134	1170	73.1	129	93	0	0
OK66V2629	1136	72.6	127	96	10	7
CO64043	1102	75.1	128	88	5	3
CI13996	1076	73.9	127	91	5	7
OK66V2619	1055	72.4	126	99	5	7
NB68435	1028	74.4	128	93	5	7
TX69A571	1022	72.6	127	71	5	7
TX69A565	0934	67.6	128	76	5	3
TX69A367	0934	71.7	124	76	30	8
CI15075	0921	72.9	124	88	5	7
CI 1442	0894	77.5	134	99	30	8
OK66V2621	0860	70.0	127	96	5	7
TX69A525-1	0733	68.5	127	78	30	7

L.S.D. = 316, C.V. = 15.7%

Bushland, Texas
Three replications, Dryland

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to Heading	: Plant Height
	kg/ha	kg/hl		cm
OK66V2621	4608	79.0	137	112
TX69A571	4337	79.6	137	88
KS70H179	4195	80.3	138	109
NB68435	4153	79.0	138	115
OK66V2619	4110	78.4	137	111
TX69A565	4106	72.5	137	89
OK696731	4090	79.7	138	108
TX69A460-1	4077	77.0	138	91
NB68440	4056	79.0	138	104
CO64043	4031	80.6	137	108
KS70H134	4023	78.4	138	105
CI15075	4018	78.8	138	96
SD7117	4011	80.6	138	110
OK66V2629	3991	80.9	137	105
TX69A330-1	3991	79.3	138	83
NB68437	3989	79.0	137	100
KS65274	3951	80.9	136	112
TX69A367	3933	75.0	136	94
CI13996	3800	81.7	137	110
NE701132	3738	78.4	137	105
SORT 12-13	3693	76.8	140	87
TX69A525-1	3691	74.5	137	90
KAVKAZ	3284	78.4	142	103
SD6753	3185	79.9	140	107
CI 1442	2502	77.8	142	115

L.S.D. = 724, C.V. = 11.0%

Bushland, Texas
Three replications, Irrigated

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to : Heading	: Plant : Height	: Lodging
	kg/ha	kg/hl		cm	0-9
TX69A330-1	5526	77.8	139	92	0
SORT 12-13	5497	75.6	139	93	0
TX69A565	5452	72.9	139	94	0
TX69A367	5409	77.5	138	99	0
OK66V2629	5064	78.3	138	112	3
OK696731	5007	78.7	140	114	2
KS70H179	4992	79.2	139	109	3
TX69A460-1	4965	76.8	139	95	1
TX69A525-1	4846	74.8	139	98	2
SD7117	4841	78.8	139	115	3
OK66V2621	4801	78.1	138	113	2
TX69A571	4797	77.5	139	96	1
OK66V2619	4770	79.0	138	113	3
NE701132	4770	78.1	139	112	1
CO64043	4680	80.1	139	111	2
NB68440	4642	77.2	139	109	0
CI13996	4630	79.2	139	114	2
CI15075	4606	79.0	140	108	1
KAVKAZ	4460	75.4	144	105	0
NB68435	4308	76.6	140	114	2
KS65274	4218	81.7	137	110	1
NB68437	4099	76.8	139	109	2
KS70H134	4072	77.2	140	114	3
SD6753	3567	77.8	143	105	3
CI 1442	2669	74.3	146	118	2

L.S.D. = 579, C.V. = 7.4%

Clovis, New Mexico
Three replications, Dryland

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height
	kg/ha	kg/hl		cm
NB68435	2742	79.2	139	76
KS70H179	2626	80.9	138	70
CI15075	2617	81.1	137	71
Sort 12-13	2536	78.0	140	60
SD7117	2492	81.0	138	68
OK66V2629	2464	81.5	136	71
CI13996	2446	83.7	137	75
OK66V2619	2438	80.5	136	68
CO64043	2402	81.9	137	68
KS70H134	2357	79.7	139	69
OK696731	2357	80.1	138	67
NB68437	2348	78.4	138	59
NB68440	2321	78.6	137	64
TX69A565	2276	76.0	137	62
OK66V2621	2259	80.2	137	69
NE701132	2186	80.9	138	69
SD6753	2160	78.7	138	69
TX69A525-1	2151	76.1	137	59
TX69A571	2115	80.9	136	61
KS65274	2088	82.4	134	70
CI 1442	2016	78.4	143	86
KAVKAZ	1980	73.1	147	65
TX69A367	1972	79.6	134	61
TX69A469-1	1918	80.5	138	62
TX69A330-1	1882	78.7	137	60

L.S.D. = 756, C.V. = 19.7%

Clovis, New Mexico
Three replications, Irrigated

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height	: Lodg.
	kg/ha	kg/hl		cm	0-9
SD7117	5917	79.5	140	91	1
SORT 12-13	5336	78.5	145	90	0
TX69A565	5230	78.0	137	77	0
TX69A330-1	5228	78.5	138	77	0
CO64043	5207	78.2	138	85	0
KS70H134	5110	79.8	139	93	1
TX69A525-1	5089	79.0	139	78	0
CI15075	5036	79.2	141	93	1
NE701132	4938	79.1	139	85	0
CI13996	4862	79.2	142	88	1
NB68440	4852	78.7	139	91	0
KS70H179	4809	79.6	142	93	3
OK66V2621	4787	79.7	139	91	2
NB68437	4690	79.3	140	93	0
OK66V2629	4658	80.1	139	91	1
TX69A571	4615	79.5	139	83	0
CI 1442	4475	78.8	146	88	0
KAVKAZ	4378	79.5	143	87	0
KS65274	4357	80.4	138	84	0
OK696731	4314	79.1	140	87	0
TX69A460-1	4292	78.6	139	75	0
TX69A367	4249	78.8	139	75	0
OK66V2619	4088	79.6	140	89	1
NB68435	4066	79.3	141	92	1
SD6753	4034	79.8	140	90	0

L.S.D. = 1005, C.V. = 12.6%

Stillwater, Oklahoma
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height	: Lodg.	: Leaf Rust Sev.	: Res.	: Mildew	: Tillers/ft ²	: Kernels/ spike	: Kernel Weight
	kg/ha	kg/hl		cm	0-9	%	0-9				mg
SORT 12-13	4455	79.0	116	90	0	5	8	2	33.0	37.7	36.3
KAVKAZ	4334	80.2	125	111	1	3	8	2	45.3	36.3	35.0
TX69A460-1	4013	76.8	124	106	1	1	8	2	86.3	35.0	22.7
KS70H179	3977	79.8	124	118	1	1	8	3	75.3	25.7	33.3
KS70H134	3955	80.2	124	116	1	1	8	3	69.0	26.7	32.7
SD7117	3922	80.3	124	119	1	1	8	2	68.7	27.0	32.6
CO64043	3915	80.1	123	114	1	0 ^{1/}	0 ^{1/}	2	76.3	26.7	33.3
OK66V2619	3874	78.5	122	117	2	50	8	2	69.0	29.0	34.0
NE701132	3861	79.8	124	117	1	1	8	2	71.8	29.7	30.7
NB68440	3843	77.9	123	108	1	40	8	2	72.3	26.0	28.3
TX69A330-1	3816	77.1	124	94	0	40	8	3	93.3	33.7	26.3
OK66V2629	3803	78.3	122	117	2	50	8	2	69.3	26.7	32.3
CI13996	3740	79.5	122	119	3	50	8	2	71.3	26.0	33.7
OK696731	3717	79.9	125	121	1	1	8	2	66.3	31.7	32.7
TX69A571	3663	77.1	123	104	0	60	8	3	68.0	26.3	30.3
CI15075	3632	79.2	121	114	1	30	8	2	69.0	34.7	26.3
NB68437	3614	76.8	122	109	1	50	8	2	67.0	26.0	28.7
KS65274	3479	80.5	114	109	1	70	8	2	66.7	24.7	36.3
NB68435	3471	78.9	124	120	1	60	8	2	66.0	26.3	28.0
TX69A565	3470	71.4	123	98	0	1	8	2	49.3	38.0	22.3
OK66V2621	3396	77.7	122	116	1	60	8	2	66.7	28.3	32.3
TX69A367	3302	75.6	121	104	0	0 ^{1/}	0 ^{1/}	4	65.3	36.3	24.7
TX69A525-1	2787	73.1	124	100	0	80	8	2	65.3	32.3	27.0
SD6753	2760	79.4	126	113	6	0	2	2	63.3	24.7	27.7
CI 1442	2549	80.6	129	123	5	80	8	2	75.3	25.7	31.3

L.S.D. = 439, C.V. = 7.1%

1/ Segregating

Altus, Oklahoma
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Plant Height
	kg/ha	kg/hl	cm
KAVKAZ	2387	75.4	101
KS65274	2376	79.2	110
SD7117	1984	76.8	103
SD6753	1883	76.1	108
SORT 12-13	1659	74.1	97
NB68440	1603	72.9	99
NE701132	1580	75.6	109
OK696731	1558	75.7	109
CO64043	1468	77.1	106
KS70H134	1446	75.9	103
TX69A460-1	1401	71.2	94
KS70H179	1300	75.6	107
NB68437	1277	71.3	101
CI15075	1188	74.3	104
NB68435	1177	75.4	105
OK66V2629	1087	74.9	110
OK66V2619	1053	73.9	115
OK66V2621	1042	74.1	112
CI13996	1031	75.4	105
TX69A565	1019	64.6	97
TX69A330-1	0986	74.3	89
TX69A571	0638	72.7	84
TX69A367	0560	69.8	103
CI 1442	0481	77.2	107
TX69A525-1	0470	67.1	95

L.S.D. = 427, C.V. = 19.4%

Lahoma, Oklahoma
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Plant Height
	kg/ha	kg/hl	cm
SORT 12-13	3100	76.1	78
KS70H179	3080	79.9	98
KS65274	3058	79.9	96
OK696731	3026	78.3	101
KS70H134	2973	78.9	98
OK66V2619	2941	77.6	100
SD7117	2928	79.4	97
TX69A565	2867	72.0	78
OK66V2629	2865	78.3	96
KAVKAZ	2822	77.5	88
NB68440	2762	77.1	89
NE701132	2712	78.0	99
TX69A367	2690	76.2	79
NB68437	2679	76.8	87
CI13996	2672	79.2	98
NB68435	2625	77.2	99
OK66V2621	2549	77.9	93
CO64043	2529	79.2	91
TX69A460-1	2490	73.9	79
TX69A571	2473	75.7	77
CI15075	2457	77.5	88
SD6753	2349	77.7	96
TX69A525-1	2286	72.1	80
TX69A330-1	2199	72.7	72
CI 1442	1923	77.1	93

L.S.D. = 344, C. V. = 7.6%

Goodwell, Oklahoma
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to Heading	: Plant Height	: Shat.
	kg/ha	kg/hl		cm	0-9
KS70H179	5830	77.2	139	103	5
SORT 12-13	5415	74.9	139	86	2
KS70H134	5135	76.6	140	101	5
NE701132	5078	76.3	140	106	6
NB68437	5056	76.6	139	95	3
OK696731	4899	77.2	142	104	3
CO64043	4776	76.8	139	106	3
SD7117	4742	76.2	141	107	2
NB68440	4585	74.9	140	100	2
OK66V2621	4540	76.3	138	106	2
OK66V2619	4529	76.3	138	104	2
TX69A460-1	4473	76.2	141	94	2
CI13996	4428	76.7	138	105	2
TX69A565	4305	70.0	140	90	2
NB68435	4294	73.8	141	105	5
OK66V2629	4271	76.6	138	102	2
TX69A367	4092	74.4	138	92	5
KS65274	4058	77.6	138	100	5
TX69A571	3789	76.1	139	92	2
CI15075	3699	76.5	141	103	5
TX69A330-1	3565	75.3	139	87	2
SD6753	3419	75.9	144	98	2
KAVKAZ	3318	73.6	144	99	2
TX69A525-1	3195	69.1	139	93	2
CI 1442	2477	73.6	143	105	5

L.S.D. = 558, C.V. = 7.7%

Manhattan, Kansas
Three replications

C. I. or Sel. No.	: Yield kg/ha	: Volume kg/hl	: Days to Heading	: Plant Height cm	: Disease Soil-borne Mosaic RES 0-9
KAVKAZ	3750	78.0	144	109	8
KS70H179	3701	79.1	139	119	8
NB68440	3527	77.4	140	111	8
OK696731	3514	78.6	141	122	8
OK66V2629	3514	79.5	138	117	8
OK66V2621	3481	77.8	138	118	8
KS65274	3393	80.6	135	110	8
SORT 12-13	3389	74.3	142	89	8
CI15075	3383	77.7	139	112	7
KS70H134	3378	78.7	140	117	8
OK66V2619	3284	78.7	138	120	8
NB68435	3221	77.8	141	126	3
TX69A330-1	3197	79.2	139	83	8
SD7117	3195	79.1	140	118	8
CO64043	3118	79.3	139	121	8
TX69A571	3075	74.3	139	92	8
NB68437	2933	78.0	138	109	2
TX69A565	2840	68.0	141	86	2
NE701132	2791	77.8	140	119	7
TX69A525-1	2670	72.9	139	91	8
TX69A460-1	2533	74.4	141	96	8
TX69A367	2393	75.5	138	93	8
CI13996	2320	78.2	138	119	8
SD6753	1917	77.3	143	119	8
CI 1442	1885	76.1	145	131	8

L.S.D. = 830, C.V. = 16.1%

Hays, Kansas
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to : Heading	: Plant Height
	kg/ha	kg/hl		cm
SORT 12-13	3167	71.8	146	83
TX69A565	2848	66.7	145	83
KS65274	2825	78.4	140	101
TX69A571	2799	74.8	144	76
KS70H134	2755	75.2	146	101
OK66V2619	2735	73.0	144	102
NB68440	2716	72.6	145	95
CI15075	2664	72.5	145	99
KS70H179	2664	72.5	145	99
CI13996	2589	74.4	144	105
SD7117	2535	74.7	146	103
TX69A460-1	2452	70.3	146	86
NB68437	2445	71.7	145	95
TX69A330-1	2445	72.1	144	73
KAVKAZ	2444	72.0	150	95
OK66V2629	2417	71.6	144	103
TX69A367	2411	71.4	142	86
TX69A525-1	2379	65.4	144	78
NB68435	2294	71.0	146	105
NE701132	2288	70.9	146	101
OK696731	2215	73.4	147	104
CO64043	2139	72.5	145	102
OK66V2621	2137	70.0	145	105
SD6753	2021	72.6	150	97
CI 1442	1940	72.3	153	110

L.S.D. = 362, C.V. = 8.6%

Garden City, Kansas
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to Heading	: Days to Ripe	: Plant Height
	kg/ha	kg/hl			cm
TX69A571	3008	74.8	140	183	76
TX69A565	2898	69.7	140	183	73
TX69A330-1	2828	78.7	139	183	69
TX69A367	2772	74.8	140	183	77
KS70H179	2725	78.7	140	183	86
SD7117	2678	76.1	141	184	90
OK696731	2676	78.7	140	184	87
NB68437	2649	74.8	141	184	82
CI13996	2599	77.4	140	183	89
OK66V2619	2590	77.4	140	183	89
TX69A525-1	2577	73.5	140	183	75
NB68435	2570	74.8	141	183	90
TX69A460-1	2563	74.8	140	184	74
KS70H134	2555	77.4	140	183	86
NB68440	2519	74.8	141	183	81
CO64043	2510	77.4	141	184	85
NE701132	2478	76.1	142	184	85
SORT 12-13	2452	77.4	141	186	74
OK66V2621	2389	78.7	140	183	84
OK66V2629	2389	78.7	140	183	85
CI15075	2376	72.2	141	183	86
CI 1442	2245	77.4	143	186	92
KS65274	2052	76.1	140	183	87
SD6753	1799	77.4	143	185	80
KAVKAZ	1138	73.5	141	186	72

L.S.D. = 469, C.V. = 11.2%

Colby, Kansas
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to : Heading	: Plant Height
	kg/ha	kg/hl		cm
KS70H134	3127	80.0	145	87
TX69A330-1	3107	79.3	145	73
CI15075	3000	78.0	148	89
TX69A460-1	2931	80.6	148	80
OK696731	2834	79.3	145	88
KS70H179	2817	80.0	145	85
NB68435	2794	77.4	146	90
SD7117	2783	80.0	146	84
TX69A571	2770	78.0	144	71
CI13996	2745	78.7	143	89
TX69A525-1	2723	77.4	146	77
OK66V2621	2667	78.7	144	85
CO64043	2656	79.3	144	85
OK66V2629	2646	79.3	143	84
KS65274	2623	80.0	142	87
TX69A367	2621	76.8	143	73
OK66V2619	2614	81.3	143	84
NE701132	2604	80.0	146	88
TX69A565	2593	73.5	147	75
NB68440	2560	78.0	146	78
SORT 12-13	2535	78.0	149	74
NB68437	2523	79.3	144	80
SD6753	2408	80.0	151	89
CI1442	2108	78.7	151	101
KAVKAZ	1843	79.3	153	88

L.S.D. = 376, C.V. = 8.4%

Fort Collins, Colorado
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height	: Lodg.	: Stem Rust Sev.	: Res.
	kg/ha	kg/hl		cm	0-9	%	0-9
TX69A565	4275	74.4	160	96	1	5	2
TX69A460-1	4203	76.8	160	101	1	5	2
OK696731	4141	77.0	161	126	8	5	2
TX69A367	4114	76.1	159	99	1	30	8
NE701132	4096	78.4	161	124	8	5	2
KAVKAZ	4081	75.3	167	119	1	60	8
SD7117	3937	77.4	160	124	8	5	2
OK66V2619	3895	76.8	158	121	8	10	2
CI13996	3875	78.2	159	121	7	10	2
CI15075	3864	78.9	162	121	8	5	8
SORT 12-13	3807	75.9	163	93	1	40	8
KS70H179	3726	78.0	160	124	7	5	2
NB68437	3674	77.3	159	116	5	10	2
KS70H134	3661	77.1	160	124	8	5	2
NB68440	3610	76.8	160	121	6	20	8
OK66V2621	3602	76.6	158	119	7	20	2
TX69A525-1	3570	72.9	160	106	1	30	8
NB68435	3565	78.2	158	116	4	30	8
OK66V2629	3537	77.3	158	114	8	10	2
TX69A330-1	3482	75.9	160	101	1	80	8
TX69A571	3469	77.3	160	101	1	40	8
CO64043	3385	78.3	160	116	7	5	2
KS65274	3017	77.7	158	129	2	60	8
SD6753	2495	75.7	163	114	9	5	2
CI 1442	1945	65.1	167	116	8	80	8

L.S.D. = 201, C.V. = 6.8%

Springfield, Colorado
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to : Heading	: Days to : Ripe	: Plant Height
	kg/ha	kg/hl			cm
TX69A525-1	2887	65.4	143	184	72
CO64043	2731	68.8	145	184	84
TX69A330-1	2726	71.6	144	184	70
NB68437	2686	66.0	144	184	73
TX69A571	2681	65.9	145	184	72
KS65274	2650	72.9	144	183	86
TX69A367	2616	66.7	141	182	73
KS70H179	2575	69.8	145	184	82
OK66V2621	2538	68.9	143	183	83
NB68440	2521	63.6	145	184	75
SORT 12-13	2488	64.6	151	188	70
NB68435	2430	64.9	140	183	83
SD7117	2394	71.2	144	184	82
CI15075	2349	64.8	148	185	73
TX69A565	2318	62.3	145	183	69
OK696731	2309	66.0	145	184	78
KS70H134	2309	69.7	146	185	80
KAVKAZ	2233	64.4	158	190	74
CI13996	2206	71.3	144	184	85
NE701132	2179	69.0	146	185	82
CI 1442	2022	65.5	158	190	81
TX69A460-1	1964	68.1	146	184	76
OK66V2619	1892	69.3	143	183	88
OK66V2629	1851	68.5	142	183	85
SD6753	1833	69.4	153	188	77

L.S.D. = 644, C.V. = 16.1%

Burlington, Colorado
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Plant Height
	kg/ha	kg/hl	cm
SORT 12-13	4776	64.2	86
TX69A571	4215	77.3	91
CI15075	3659	76.4	101
OK66V2619	3610	78.0	109
TX69A565	3581	73.3	83
OK66V2629	3547	77.5	106
KS70H134	3533	78.0	101
SD7117	3444	79.7	111
TX69A460-1	3424	76.9	91
TX69A330-1	3424	77.5	81
TX69A525-1	3424	75.2	91
TX69A367	3409	78.2	91
CO64043	3364	79.5	106
OK696731	3289	76.8	106
NE701132	3280	75.7	109
NB68435	3163	77.8	109
NB68437	3034	76.5	101
KAVKAZ	3023	62.3	101
CI13996	3020	79.9	104
OK66V2621	2854	75.5	101
KS65274	2802	80.8	111
KS70H179	2727	79.2	106
NB68440	2650	76.8	101
SD6753	2618	80.9	109
CI 1442	2573	67.7	121

L.S.D. = 897, C.V. = 16.2%

Akron, Colorado
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to : Heading	: Plant Height
	kg/ha	kg/hl		cm
CI15075	2639	79.1	160	76
KS70H134	2639	80.1	159	76
TX69A571	2541	80.1	159	60
KS70H179	2487	78.8	159	76
SORT 12-13	2472	74.7	162	60
KS65274	2427	80.4	158	76
CI 1442	2424	76.8	166	86
TX69A565	2358	76.0	159	60
OK696731	2349	78.4	159	60
OK66V2619	2346	79.2	158	71
NB68440	2333	77.8	159	60
SD7117	2315	79.9	159	71
OK66V2629	2287	79.1	158	71
TX69A330-1	2269	79.2	159	60
CI13996	2266	80.1	159	81
NE701132	2134	78.6	159	71
KAVKAZ	2129	72.2	165	71
OK66V2621	2128	78.8	158	66
TX69A367	2106	80.6	159	60
TX69A525-1	2097	78.7	159	55
TX69A460-1	2066	80.9	159	66
NB68435	2014	78.9	158	76
SD6753	1956	74.7	162	71
CO64043	1825	78.9	158	66
NB68437	1807	78.0	159	60

L.S.D. = 653, C.V. = 17.2%

Julesburg, Colorado
Three replications

C. I. or Sel. No.	Yield kg/ha	Volume Weight kg/hl	Plant Height cm
TX69A330-1	3272	74.7	76
TX69A571	3237	73.3	83
CI13996	3234	79.2	106
CO64043	3128	76.6	99
CI15075	3068	76.8	96
TX69A367	3068	72.9	86
NB68437	3057	76.2	91
OK66V2629	3046	75.9	104
KAVKAZ	3036	67.7	93
NB68440	3016	74.7	88
OK66V2619	2965	74.8	104
KS70H134	2962	75.7	96
OK66V2621	2905	73.4	104
KS70H179	2828	77.1	101
SORT 12-13	2802	71.7	76
KS65274	2756	76.1	104
NE701132	2750	75.2	93
SD7117	2679	76.2	99
TX69A565	2664	65.9	78
OK696731	2645	71.7	101
TX69A525-1	2641	68.6	83
NB68435	2593	76.6	99
SD6753	2438	73.1	93
CI 1442	2424	73.3	111
TX69A460-1	2323	65.5	78

L.S.D. = 449, C.V. = 9.3%

Clay Center, Nebraska
Three replications

C. I. or	:	:	Volume	:	Days to	:	Plant	:		
Sel. No.	:	Yield	:	Weight	:	Heading	:	Height	:	Surv.
		kg/ha		kg/hl				cm		0-9
KS70H179		3684		78.4		152		103		8
NE70I132		3632		78.1		154		103		8
KS70H134		3596		78.4		153		105		8
CO64043		3542		77.9		152		103		9
OK696731		3533		78.4		153		106		8
NB68435		3444		77.3		153		108		8
OK66V2621		3432		77.4		152		102		7
SD7117		3401		78.3		153		102		7
CI15075		3387		77.5		153		103		8
OK66V2629		3327		77.7		152		99		8
OK66V2619		3302		77.4		152		102		8
TX69A330-1		3208		76.5		152		80		8
NB68440		3080		75.2		153		93		8
CI 1442		3033		76.2		160		114		8
CI13996		3004		77.4		152		103		8
NB68437		2966		76.1		152		89		8
TX69A571		2916		76.5		153		80		8
TX69A460-1		2910		75.7		155		84		7
SD6753		2822		77.0		155		100		9
TX69A565		2656		70.4		154		82		6
TX69A367		2607		74.3		152		81		7
KS65274		2500		77.4		151		96		7
KAVKAZ		2296		73.3		160		88		4
TX69A525-1		1569		68.4		158		80		2
SORT 12-13		0672		69.7		159		65		1

L.S.D. = 516, C.V. = 10.3%

North Platte, Nebraska
Three replications

C. I. or : Sel. No.	Yield : kg/ha	Volume : Weight : kg/hl	Days to : Heading :	Plant : Height : cm	Surv. : 0-9	Leaf Rust : Sev. : %	Res. : 0-9
KS70H179	3596	75.3	161	86	8	1	8
CO64043	3168	76.0	160	87	8	20	8
NB68435	3134	75.9	160	92	9	20	8
KS70H134	3094	74.4	160	86	8	1	8
OK696731	3056	74.3	161	87	8	1	8
SD7117	3029	74.8	161	86	8	1	8
OK66V2619	3018	76.2	161	83	8	40	8
NE701132	2957	74.1	161	90	8	5	3
OK66V2629	2952	75.9	161	84	8	30	8
NB68437	2950	74.7	160	75	8	20	8
TX69A565	2867	72.1	162	69	8	5	7
KS65274	2849	76.0	160	83	8	30	8
CI13996	2843	76.1	161	85	8	30	8
OK66V2621	2804	75.9	161	84	8	30	8
CI15075	2755	73.5	162	88	8	10	8
TX69A330-1	2733	75.3	161	69	8	70	8
NB68440	2719	74.6	161	81	8	30	8
TX69A367	2692	74.2	162	67	8	40	8
TX69A460-1	2688	73.7	162	75	8	5	3
KAVKAZ	2618	71.5	163	78	6	0	0
TX69A571	2549	75.3	161	67	7	40	8
SORT 12-13	2475	71.0	163	74	5	0	0
SD6753	2435	75.1	162	89	9	0	0
CI 1442	2367	71.6	163	102	8	10	8
TX69A525-1	2291	71.3	162	71	7	50	8

L.S.D. = 409, C.V. = 8.6%

Sidney, Nebraska
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to Heading	: Plant Height	: Surv.
	kg/ha	kg/hl		cm	0-9
TX69A330-1	3255	70.3	161	70	9
TX69A571	2699	65.3	161	74	9
TX69A565	2625	61.2	162	73	9
KS70H179	2419	67.0	161	96	9
NB68437	2363	65.8	161	84	9
CI15075	2352	65.7	162	84	9
TX69A367	2345	63.5	161	77	9
OK66V2619	2336	65.3	161	96	9
KS65274	2331	69.4	161	94	9
CI13996	2280	66.3	161	94	9
NB68440	2277	63.9	161	85	9
OK66V2629	2239	64.1	161	91	9
KS70H134	2233	66.3	161	88	9
TX69A460-1	2217	63.7	161	74	9
SD7117	2118	66.8	161	83	9
NE701132	2116	65.3	161	88	9
OK66V2621	2103	63.9	161	86	9
SORT 12-13	2051	65.2	165	77	7
OK696731	2004	65.5	161	86	9
CO64043	1990	63.9	161	90	9
NB68435	1923	62.8	162	91	9
CI 1442	1894	64.4	165	94	9
TX69A525-1	1883	57.9	161	73	9
KAVKAZ	1742	65.2	167	86	7
SD6753	1378	63.9	165	82	9

L.S.D. = 490, C.V. = 13.2%

Columbia, Missouri
Three replications

C. I. or Sel. No.	: Yield:	: Volume:	: Days to:	: Plant:	: Disease Septoria	: Leaf	: Glumes
	kg/ha	kg/hl	Heading:	Height:	Surv.:	0-9	0-9
				cm	0-9	0-9	0-9
TX69A330-1	2978	76.1	144	86	9	3	2
OK696731	2950	77.4	147	111	9	2	2
NB68435	2633	73.5	148	116	9	2	2
KS70H179	2620	76.8	145	106	9	3	3
CI 1442	2510	74.8	154	134	9	2	2
SD7117	2458	77.4	146	107	9	3	3
KS70H134	2418	75.5	147	111	9	3	2
SD6753	2309	77.4	150	107	9	2	2
NE701132	2127	73.5	146	110	9	2	2
CI13996	2122	77.4	147	106	9	4	3
TX69A565	2116	64.5	146	89	9	4	4
CO64043	2113	74.2	144	104	9	3	2
TX69A525-1	2066	67.7	146	92	9	4	3
OK66V2619	1864	70.9	144	103	9	4	3
OK66V2629	1851	72.2	143	101	9	3	3
OK66V2621	1844	70.9	145	104	9	3	3
TX69A571	1731	69.7	144	85	9	4	4
CI15075	1671	67.1	145	98	9	3	3
NB68437	1639	69.7	144	88	9	4	4
NB68440	1635	67.1	146	95	9	3	3
TX69A460-1	1611	63.2	147	91	9	3	3
SORT 12-13	1593	67.1	143	78	9	4	3
KAVKAZ	1561	63.2	148	95	9	3	2
TX69A367	1412	68.4	143	85	9	5	4
KS65274	1366	74.8	140	85	9	6	4

L.S.D. = 318, C.V. = 9.2%

Ames, Iowa
Three replications

C. I.	:	:	:	Days	Days	:	:	:	Leaf Rust
or	:	:	Volume:	to	to	Plant:	:	:	:
Sel. No.	:Yield:	Weight:	Heading:	Ripe:	Height:	Surv.:	Lodg.:	Sev.:	Res.
	kg/ha	kg/hl			cm	0-9	0-9	%	0-9
KS70H179	5074	78.2	154	191	99	9	0	5	3
CO64043	5000	77.9	153	190	101	9	1	50	7
KS70H134	4982	77.4	154	191	104	9	0	10	7
SD7117	4643	77.5	154	189	101	9	0	5	7
OK696731	4596	77.8	156	191	99	8	0	1	2
NB68437	4495	76.6	154	190	90	9	0	30	7
OK66V2621	4370	76.9	153	190	102	8	1	25	7
NB68440	4275	77.7	153	190	90	9	0	40	7
CI 1442	4237	77.0	157	191	112	9	1	40	7
NE701132	4222	78.2	156	191	102	9	1	5	2
OK66V2629	4184	76.5	153	189	95	9	1	35	7
CI15075	4002	77.0	155	190	95	8	0	30	7
OK66V2619	3975	76.6	153	190	97	9	1	20	3
NB68435	3713	77.0	155	189	101	8	0	20	7
TX69A460-1	3688	77.5	156	191	82	8	1	10	2
KAVKAZ	3517	74.8	159	192	84	9	0	1	7
TX69A330-1	3491	77.0	153	189	76	9	0	65	7
SD6753	3316	78.3	157	190	94	7	0	1	2
TX69A571	3313	75.9	155	191	77	6	0	40	3
CI13996	3078	76.5	154	190	95	7	0	35	7
KS65274	2966	77.7	151	188	96	9	1	45	7
SORT 12-13	2784	72.9	158	193	72	6	0	5	2
TX69A565	2755	69.9	155	188	78	9	1	15	2
TX69A367	2159	74.6	153	189	78	9	0	35	7
TX69A525-1	1686	71.3	158	192	76	2	0	65	7

L.S.D. = 1125, C.V. = 17.7%

Urbana, Illinois
Three replications

C. I. or	:	Volume	:	Days to	:	Plant	:	
Sel. No.	:	Yield	:	Weight	:	Heading	:	
		kg/ha		kg/hl		cm	0-9	
KAVKAZ		4603		74.2		150	93	0
TX69A330-1		4143		77.6		149	76	0
CO64043		4002		77.0		148	102	4
CI15075		3874		74.8		147	93	3
SORT 12-13		3812		72.2		146	77	0
TX69A525-1		3716		70.9		149	83	1
OK66V2629		3694		75.7		148	100	5
KS70H179		3687		76.3		150	101	4
KS70H134		3667		76.9		149	99	6
OK696731		3607		76.8		150	104	3
SD7117		3591		77.1		149	102	6
NB68435		3580		75.2		149	108	4
NE701132		3562		76.0		150	101	5
NB68440		3537		73.5		149	90	2
TX69A571		3533		75.4		148	84	1
NB68437		3493		74.3		149	92	2
CI13996		3488		76.6		147	99	5
KS65274		3470		77.9		143	90	1
TX69A460-1		3421		72.2		150	91	1
TX69A367		3370		71.3		147	81	0
CI 1442		3320		74.5		152	102	4
OK66V2621		3285		73.1		149	101	7
SD6753		3185		76.3		152	97	6
OK66V2619		3184		73.7		148	99	7
TX69A565		3051		65.3		150	82	0

L.S.D. = 419, C.V. = 6.9%

Lind, Washington
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height
	kg/ha	kg/hl		cm
KAVKAZ	1828	76.1	142	63
CI15075	1293	78.9	138	58
NE701132	1246	77.4	137	58
CI 1442	1221	77.1	139	66
OK696731	1187	78.3	137	58
NB68435	1146	78.4	137	60
SORT 12-13	1121	76.4	139	60
SD6753	1066	77.3	138	60
KS70H134	1017	77.8	136	58
NB68440	0997	76.9	136	55
SD7117	0977	77.8	136	58
TX69A565	0929	77.3	138	55
KS70H179	0906	77.9	136	58
TX69A330-1	0905	79.3	138	53
TX69A525-1	0829	76.0	138	58
TX69A460-1	0819	78.6	137	55
OK66V2621	0808	78.4	136	58
TX69A571	0775	80.4	137	55
CO64043	0764	79.1	136	60
KS65274	0743	78.8	136	60
OK66V2619	0675	78.9	136	58
CI13996	0655	79.1	136	53
OK66V2629	0651	80.1	136	58
TX69A367	0590	78.6	136	53
NB68437	0582	78.2	136	50

L.S.D. = 207, C.V. 13.0%

Table 2.--Seedling reaction of the 1973 Southern Regional Hard Red Winter
Wheat Performance Nursery to *Puccinia graminis tritici*.
(by D. V. McVey, Cereal Rust Laboratory, ARS, University of Minnesota, St. Paul, MN)

Entry No.	Variety or Sel. No.	C.I. No.	Source	Reaction Produced by Isolates												
				72-41-140A	72-32-1007A	72-45-1080C	72-00-94C	71-41-486A	72-21-1184A	72-8-167B	72-41-248A	72-39-736A	72-98-1321A	72-45-1079B	68-14-73A	72-21-1219C
				TM* 15	TN 15B-2	QL 151	QS 151	QT 151	RP 11-32	RT 11-32	RK 11-32	RH 11-32	MB 56	HF 17	HN 17	GJ ?
1.	Kharkof	1442	check	S	S	R	S	S	S	S	S	S	S	I	S	S
2.	Scout 66	13996	check	S	I	R	I	S	R	R	S	S	R	R	R	S
3.	Centurk	15075	Nebraska	R	R	R	S	S	R	R	S	I	R	R	R	R
4.	TX 69A571	-	Texas	S	S	S	S	S	R	R	S	S	R	S	S	S
5.	TX 69A367	-	"	S	I	R	I	S	S	S	S	I	S	R	S	S
6.	TX 69A565	-	"	S	S	R	I	S	S	S, ^R	R	S	R	R	S	S
7.	TX 69A330-1	-	"	S	S	I	S	S	S	S	S	S	R	I	S	S
8.	TX 69A460-1	-	"	S	I	I	S	S	I	I	S	S	R	I	S	S
9.	TX 69A525-1	-	"	S	S	S	S	S	S	S	S	S	S	S	S	S
10.	CO 64043	-	Colorado	S	I	R	I	S	R	R	S	S	S	I	R	S
11.	OK 696731	-	Oklahoma	R	R	R	R	R	R	R	R	R	R	R	R	R
12.	OK 66V2621	-	"	S	S	I	I	S	R	R	S	S	R	S	R	R
13.	OK 66V2629	-	"	S	I	R	I	S	R, ^S	R	S	S	S	S	R	S
14.	OK 66V2619	-	"	S	I	S	S	S	R	R	S	S	S	S	R	S
15.	KS 70H134	-	Kansas	R	R	R	R	R	R	R	R	R	R	R	R	R, ^S
16.	Sage, KS 70H179	-	"	R	R	R	R	R	R	R	R	R	R	R	R	R
17.	Buckskin	17263	Nebraska	S	I	R, ^S	I	R	R	R	S	S	S	I	R	S
18.	Homestead	17264	"	R	R	R	S	S	R	R	S	I	R	R	R	R
19.	Sentinal	17265	"	R	R	R	I	S	R	R	R	I	R	R	R	S
20.	NE 701132	-	"	S	R	R	S, ^I	S	R	R	I	S	R	R	R	R
21.	SD 7117	-	S. Dakota	R	R	R	R	R	R	R	R	R	R	R	R	R
22.	Trison, KS 65274	-	Kansas	S	S	R	R	R	S, ^R	R	R	R	S	R	S	R
23.	Bronze	14013	S. Dakota	S	I	R	R	R	R	R	S	S	R	R	R	R
24.	Kavkaz (USSR)	-	IWPN	R	R	R	R	R	R, ^S	R	R	R, ^S	R	R	R	R
25.	Burgas 2	(Sort 12-13)	"	R	R	R	R	R	R	R	R	R	R	R	R	R

* Cereal Rust Laboratory designation based upon 8 isogenic lines.

Summary of SRPN Yields

Yields from reporting stations are summarized for 1973 in table 3. Varieties are arranged according to their regional yield rank. Eight varieties surpassed Centurk in overall performance. The Scout/Agent lines dominated the nursery with Sage the most productive on a region-wide basis. It ranked first in Kansas, Nebraska, and Iowa, second in Oklahoma, and third in Texas. Surprisingly, Burgas 2 from Bulgaria ranked seventh regionally among 25 entries due mainly to its outstanding performance in Colorado, Oklahoma, and Texas where it ranked first in yield. NE701132, a high protein line derived from Atlas 66, performed slightly better than Centurk over the region.

Three Scout/Agent lines surpassed Centurk in yield over a two-year period (table 4). Sage was the most productive, followed by OK696731 and SD7117.

The performance parameters $b_{y.x}$, r , and r^2 are reported for yield of varieties in 1973 in table 5. Sage, with the highest regional yield, showed strong response to changes in environment ($b_{y.x} = 1.12$). SD7117, Baca, Burgas 2, and OK66V2621 also responded strongly to environmental changes. Kharkof and SD6753, with the lowest mean yields, also exhibited the least capability to respond in yield to changes in environment. The performance of most varieties in the nursery (Kharkof, Kavkaz, Burgas 2, and TX69A525-1 were the most notable exceptions) was highly correlated with nursery mean performance (r -values of .90 or higher). As in 1972, Kharkof was lowest in mean yield, the least responsive, and least predictable in performance among all entries.

Yield parameters on a 2-year basis appear in table 6. Regression coefficients are considerably lower than the 1973 coefficients with only 7 varieties exceeding 1.00. The strongest 2-year average response to production environment was exhibited by TX69A367 but it was relatively low in mean yield. SD7117 and Centurk showed the best mean yield and high $b_{y.x}$ combination.

Summary of Agronomic Data

Agronomic data other than yield for varieties in the SRPN in 1973 are summarized in table 7. Range in heading was 9 days with Trison the earliest and Kharkof the latest. TX69A460-1 and Burgas 2 with mean plant heights below 80 cm were the shortest varieties on the average while Buckskin and Kharkof with heights exceeding 100 cm were tallest. Burgas 2, TX69A525-1, and Kavkaz were the most winter-tender while Bronze was most resistant to leaf rust among 10 varieties with low leaf rust readings at 4 reporting stations. Trison produced grain with the highest hectoliter weight.

Table 3. Summary of mean yields (kg/ha) made by 25 varieties grown in the Southern Regional Performance Nursery in 24 trials in 1973, with state averages and ranks.

Variety	: C. I. : or : Sel. No.	: Nebraska					: New Mexico			
		: Clay : North:		: : :		: Rank:	: Aver-:		: Rank	
		: Center:	: Platte:	: Sidney:	: Average:		: Clovis:	: Clovis:		
							dryl	irrig		
Agent/4*Scout (Sage)	KS70H179	3684	3596	2419	3233	1	2626	4809	3718	7
Agent/4*Scout	SD7117	3401	3029	2118	2849	8	2492	5917	4205	1
Agent/4*Scout	KS70H134	3596	3094	2233	2974	3	2357	5110	3734	6
5*Scout/Agent	OK696731	3533	3056	2004	2864	7	2357	4314	3336	18
Short Wheat/Scout Composite	TX69A330-1	3208	2733	3255	3065	2	1882	5228	3555	13
Scout Selection (Baca)	CO64043	3542	3168	1990	2900	5	2402	5207	3805	4
Burgas 2 (Bulgaria)	Sort 12-13	0672	2475	2051	1733	25	2536	5336	3936	2
Atlas66/Cmn//Lcr	NE701132	3632	2957	2116	2902	4	2186	4938	3562	11
Centurk	CI15075	3387	2755	2352	2831	11	2617	5036	3826	3
Sut/4/Ky58/Nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn (Sentinel)	NB68440	3080	2719	2277	2692	17	2321	4852	3587	10
Scout Selection	OK66V2629	3327	2952	2239	2839	9	2464	4658	3561	12
Scout Selection	OK66V2619	3302	3018	2336	2885	6	2438	4088	3263	19
Short Wheat/Scout Composite	TX69A565	2656	2867	2625	2716	15	2276	5230	3753	5
Short Wheat/Scout Composite	TX69A571	2916	2549	2699	2721	14	2115	4615	3365	17
Sut/4/Ky58/Nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn (Homestead)	NB68437	2966	2950	2363	2760	13	2348	4690	3519	15
Scout Selection	OK66V2621	3432	2804	2103	2780	12	2259	4787	3523	14
Scout/C.I.12995 (Buckskin)	NB68435	3444	3134	1923	2834	10	2742	4066	3404	16
Scout 66	CI13996	3004	2843	2280	2709	16	2446	4862	3654	8
Short Wheat/Scout Composite	TX69A460-1	2910	2688	2217	2605	18	1918	4292	3105	24
Triumph/Bison (Trison)	KS65274	2500	2849	2331	2560	19	2088	4357	3223	21
Kavkaz (USSR)	---	2296	2618	1742	2219	22	1980	4378	3179	22
Short Wheat/Scout Composite	TX69A367	2607	2692	2345	2548	20	1972	4249	3111	23
Short Wheat/Scout Composite	TX69A525-1	1569	2291	1883	1914	24	2151	5089	3620	9
Recurrent Sel. Series I, Cycle II (Bronze)	SD6753	2822	2435	1378	2212	23	2160	4034	3097	25
Kharkof	CI 1442	3033	2367	1894	2431	21	2016	4475	3246	20

Table 3. continued.

C. I. or Sel. No.	Oklahoma						Texas					Kansas					
	:Still- water:	:Good- well:	:Lahoma:	:Altus:	:Average:	:Rank:	:Bush- land:	:Bush- land:	:Chil- licothe:	:Average:	:Rank:	:Man- hattan:	:Hays:	:Colby:	:City:	:Average:	:Rank:
							dryl	irrig									
KS70H179	3977	5830	3080	1300	3547	2	4195	4992	1304	3497	3-4	3701	2664	2817	2725	2977	1
SD7117	3922	4742	2928	1984	3394	3	4011	4841	1418	3423	8-9	3195	2535	2783	2678	2798	10
KS70H134	3955	5135	2973	1446	3377	4	4023	4072	1170	3088	23	3378	2755	3127	2555	2954	2
OK696731	3717	4899	3026	1558	3300	6	4090	5007	1365	3487	5	3514	2275	2834	2676	2810	8
TX69A330-1	3816	3565	2199	0986	2642	21	3991	5526	1223	3580	2	3197	2445	3107	2828	2894	4
CO64043	3915	4776	2529	1468	3172	10	4031	4680	1102	3271	15	3118	2139	2656	2510	2606	18
Sort 12-13	4455	5415	3100	1659	3657	1	3693	5497	1614	3601	1	3389	3167	2535	2452	2886	5
NE701132	3861	5078	2712	1580	3308	5	3738	4770	1526	3345	13	2791	2288	2604	2478	2540	22
CI15075	3632	3699	2457	1188	2744	19	4018	4606	0921	3182	18	3383	2664	3000	2376	2856	6
NB68440	3843	4585	2762	1603	3198	9	4056	4642	1365	3354	12	3527	2716	2560	2519	2831	7
OK66V2629	3803	4271	2865	1087	3007	14	3991	5064	1136	3397	10	3514	2417	2646	2389	2742	12
OK66V2619	3874	4529	2941	1053	3099	12	4110	4770	1055	3312	14	3284	2735	2614	2590	2806	9
TX69A565	3470	4305	2867	1019	2915	16	4106	5452	0934	3497	3-4	2840	2848	2593	2898	2795	11
TX69A571	3663	3789	2473	0638	2641	22	4337	4797	1022	3385	11	3075	2799	2770	3008	2913	3
NB68437	3614	5056	2679	1277	3157	11	3989	4099	1385	3158	21	2933	2445	2523	2649	2638	16
OK66V2621	3396	4540	2549	1042	2882	18	4608	4801	0860	3423	8-9	3481	2137	2667	2389	2669	15
NB68435	3471	4294	2625	1177	2892	17	4153	4308	1028	3163	20	3221	2294	2794	2570	2720	14
CI13996	3740	4428	2672	1031	2968	15	3800	4630	1076	3169	19	2320	2589	2745	2599	2563	20
TX69A460-1	4013	4473	2490	1401	3094	13	4077	4965	1338	3460	6	2533	2452	2931	2563	2620	17
KS65274	3479	4058	3058	2376	3243	7	3951	4218	1392	3187	17	3393	2825	2623	2052	2723	13
---	4334	3318	2822	2387	3215	8	3284	4460	1950	3231	16	3750	2444	1843	1138	2294	23
TX69A367	3302	4092	2690	0560	2661	20	3933	5409	0934	3425	7	2393	2411	2621	2772	2549	21
TX69A525-1	2787	3195	2286	0470	2185	24	3691	4846	0733	3090	22	2670	2379	2723	2577	2587	19
SD6753	2760	3419	2349	1883	2603	23	3185	3567	1351	2701	24	1917	2021	2408	1799	2036	25
CI 1442	2549	2477	1923	0481	1858	25	2502	2669	0894	2022	25	1885	1940	2108	2245	2045	24

Table 3. concluded.

C. I.	Colorado						Iowa	Illinois	Missouri	24				
or	Fort	Spring-	Jules-	Burling-						Test				
Sel. No.	Collins:	field	Akron:	burg	ton	Average	Rank:	Ames	Rank:	Urbana:	Rank:	Columbia:	Rank:	Average
KS70H179	3726	2575	2487	2828	2727	2869	16	5074	1	3687	8	2620	4	3310
SD7117	3937	2394	2315	2679	3444	2954	8	4643	4	3591	11	2458	6	3227
KS70H134	3661	2309	2639	2962	3533	3021	7	4982	3	3667	9	2418	7	3215
OK696731	4141	2309	2349	2645	3289	2947	9	4596	5	3607	10	2950	2	3169
TX69A330-1	3482	2726	2269	3272	3424	3035	6	3491	17	4143	2	2978	1	3124
CO64043	3385	2731	1825	3128	3364	2887	15	5000	2	4002	3	2113	12	3116
Sort 12-13	3807	2488	2472	2802	4776	3269	1	2784	22	3812	5	1593	22	3108
NE701132	4096	2179	2134	2750	3280	2888	14	4222	10	3562	13	2127	9	3067
CI15075	3864	2349	2639	3068	3659	3116	3	4002	12	3874	4	1671	18	3051
NB68440	3610	2521	2333	3016	2650	2826	19	4275	8	3537	14	1635	20	3042
OK66V2629	3537	1851	2287	3046	3547	2854	17	4184	11	3694	7	1851	15	3034
OK66V2619	3895	1892	2346	2965	3610	2942	10	3975	13	3184	24	1864	14	3020
TX69A565	4275	2318	2358	2664	3581	3039	5	2755	23	3051	25	2116	11	3004
TX69A571	3469	2681	2541	3237	4215	3229	2	3313	19	3533	15	1731	17	2999
NB68437	3674	2686	1807	3057	3034	2852	18	4495	6	3493	16	1639	19	2994
OK66V2621	3602	2538	2128	2905	2854	2805	20	4370	7	3285	22	1844	16	2974
NB68435	3565	2430	2014	2593	3163	2753	22	3713	14	3580	12	2633	3	2956
CI13996	3875	2206	2266	3234	3020	2920	12	3078	20	3488	17	2122	10	2931
TX69A460-1	4203	1964	2066	2323	3424	2796	21	3688	15	3421	19	1611	21	2915
KS65274	3017	2650	2427	2756	2802	2730	23	2966	21	3470	18	1366	25	2875
---	4081	2233	2129	3036	3023	2900	13	3517	16	4603	1	1561	23	2872
TX69A367	4114	2616	2106	3068	3409	3063	4	2159	24	3370	20	1412	24	2802
TX69A525-1	3570	2887	2097	2641	3424	2924	11	1686	25	3716	6	2066	13	2643
SD6753	2495	1833	1956	2438	2618	2268	25	3316	18	3185	23	2309	8	2485
CI 1442	1945	2022	2424	2424	2573	2278	24	4237	9	3320	21	2510	5	2371

Table 4. Summary of mean yields (kg/ha) made by 16 varieties grown in the Southern Regional Performance Nursery in 20 trials in 1972 and 1973, with state averages and ranks.

Variety	C. I. or Sel. No.	Nebraska				Oklahoma				
		Clay:North		Average:Rank		Still-Good		water well		Average: Rank
		Center	Platte	Average	Rank	water	well	Lahoma	Average	
Agent/4*Scout (Sage)	KS70H179	3766	3810	3788	1	3868	4596	3370	3944	1
5*Scout/Agent	OK696731	3574	3647	3610	4	3545	4074	3560	3726	5
Agent/4*Scout	SD7117	3634	3622	3628	3	3768	4167	3453	3796	4
Centurk	CI15075	3602	3242	3422	8	3599	3675	3049	3441	12
Agent/4*Scout	KS70H134	3725	3562	3643	2	3675	4208	3516	3799	3
Short Wheat/Scout Composite	TX69A565	2923	3073	2998	14	3518	4348	3539	3801	2
Short Wheat/Scout Composite	TX69A367	3193	3070	3131	12	3425	3676	3238	3446	11
Scout Selection	CO64043	3615	3446	3531	6	3570	3899	3179	3549	8
Scout/C.I.12995 (Buckskin)	NB68435	3493	3524	3509	7	3417	3566	3209	3397	14
Short Wheat/Scout Composite	TX69A571	3234	2758	2996	15	3226	3416	3050	3231	15
Atl66/Cmn//Lcr	NE701132	3711	3372	3541	5	3318	4037	3208	3521	10
Sut/4/Ky58/Nth/2/Cmn/Tm/Mi/Hope/3/Pn/Cnn (Sentinel)	NB68440	3272	3037	3154	11	3435	4127	3025	3529	9
Scout 66	CI13996	3132	3213	3173	10	3576	3599	3107	3427	13
Sut/4/Ky58/Nth/2/Cmn/Tm/Mi/Hope/3/Pn/Cnn (Homestead)	NB68437	3261	3170	3216	9	3448	4564	2983	3665	6
Triumph/Bison (Trison)	KS65274	3048	3108	3078	13	3334	4246	3135	3571	7
Kharkof	CI 1442	2730	2765	2747	16	2449	2522	2228	2400	16

Table 4. continued

C. I. or Sel. No.	New Mexico				Texas					Colorado				
					Bush-	Bush-	Chil-			Fort	Spring-		Burl-	
	Clovis:	Clovis:	Average:	Rank:	land:	land:	licothe:	Average:	Rank:	Collins:	field	Akron:	ington:	Average: Rank
	dryl	irrig			dryl	irrig								
KS70H179	1725	4346	3035	13	2603	4584	830	2672	8	5375	3282	1992	3142	3448 11-12
OK696731	1595	5265	3430	4	2702	4614	759	2691	6	5447	3234	2047	3643	3593 6
SD7117	1569	5712	3640	1	2437	4267	778	2494	13	5590	3270	1905	3361	3531 8
CI15075	1672	5481	3576	2	2739	4368	923	2677	7	5966	3219	2303	3845	3833 1
KS70H134	1524	5050	3287	10	2550	3886	1019	2485	14	5358	3300	2310	3599	3642 5
TX69A565	1376	5627	3501	3	2621	5240	570	2810	1	6109	3183	1978	3457	3682 4
TX69A367	1430	5394	3412	5	2619	4717	1053	2796	2	6439	3327	1736	3779	3820 2
CO64043	1708	5093	3400	6	2698	3955	938	2530	10	4850	3356	1909	3776	3473 10
NB68435	1815	4426	3120	12	2819	4135	722	2559	9	5989	3148	1780	3396	3578 7
TX69A571	1394	5115	3254	11	3056	4540	760	2785	3	5674	3373	2039	4068	3788 3
NE701132	1537	5201	3369	8	2348	4227	955	2510	12	6208	2716	1825	3041	3447 11-12
NB68440	1497	4475	2986	14	2822	4313	943	2693	5	5606	3311	1907	3075	3475 9
CI13996	1680	5109	3395	7	2558	4109	916	2527	11	5164	2943	2068	3340	3379 13
NB68437	1618	5114	3366	9	2941	3953	1196	2697	4	5481	3106	1703	3140	3357 14
KS65274	1362	4410	2886	16	2258	3249	1385	2297	15	4845	3104	1982	3066	3249 15
CI 1442	1429	4356	2893	15	1819	2866	750	1811	16	4168	2951	2033	2914	3016 16

Table 4. concluded.

C. I.	Kansas						Illinois		Missouri		20
or	Man-			Garden:							Test
Sel. No.	hattan:	Hays	Colby:	City:	Average:	Rank:	Urbana:	Rank:	Columbia:	Rank:	Average
KS70H179	4021	3171	2734	2820	3186	1	4141	3	3157	2	3366
OK696731	3998	2929	2759	2616	3075	3	3831	13	3138	3	3349
SD7117	3731	3017	2614	2595	2989	5	3987	7	3135	4	3330
CI15075	3861	2898	2825	2549	3033	4	3840	12	2796	10	3322
KS70H134	3821	3018	2767	2773	3094	2	3829	14	2875	7	3318
TX69A565	3381	2613	2209	2989	2798	11	3904	9	2750	11	3270
TX69A367	3049	2722	2502	2602	2719	12	3844	11	2823	9	3232
CO64043	3510	2623	2570	2641	2836	10	4157	2	3034	6	3226
NB68435	3495	2740	2655	2690	2895	6	3995	6	3335	1	3217
TX69A571	3182	2858	2627	2728	2848	8	3903	10	2859	8	3193
NE701132	3381	2720	2391	2351	2710	13	4070	5	2746	12	3168
NB68440	3765	2807	2372	2523	2867	7	4196	1	2470	14	3149
CI13996	3192	2742	2736	2694	2841	9	3914	8	3076	5	3143
NB68437	3424	2553	2350	2483	2703	15	3789	16	2490	13	3138
KS65274	3500	2732	2425	2165	2705	14	4089	4	2295	15	2987
CI 1442	1969	2156	2075	2333	2133	16	3808	15	2095	16	2521

Table 5. Average yield, regression coefficient, correlation coefficient, and coefficient of determination from linear regression analyses of variety yield on nursery mean yield for entries in the Southern Regional Performance Nursery in 1973.

C. I. or Sel. No.	Average yield : over 24 locations (kg/ha)	Regression : coefficient (by x)	Correlation : coefficient (r)	Coefficient of determination (r^2)
KS70H179	3310	1.12	.93	.86
SD7117	3227	1.10	.96	.93
KS70H134	3215	1.05	.95	.90
OK696731	3169	1.07	.94	.89
TX69A330-1	3124	1.01	.90	.82
CO64043	3116	1.15	.96	.92
SORT 12-13	3108	1.13	.82	.68
NE701132	3067	1.07	.97	.94
CI15075	3051	1.03	.96	.93
NB68440	3042	1.01	.97	.94
OK66V2629	3034	1.09	.98	.96
OK66V2619	3020	1.02	.96	.93
TX69A565	3004	1.09	.93	.87
TX69A571	2999	1.01	.93	.86
NB68437	2994	1.02	.95	.91
OK66V2621	2974	1.14	.97	.94
NB68435	2956	.91	.95	.90
CI13996	2931	1.00	.96	.93
TX69A460-1	2915	1.06	.96	.92
KS65274	2875	.75	.89	.80
KAVKAZ	2872	.86	.80	.63
TX69A367	2802	1.05	.90	.81
TX69A525-1	2643	.98	.84	.71
SD6753	2485	.67	.90	.81
CI 1442	2371	.66	.73	.53

Table 6. Average yield, regression coefficient, correlation coefficient, and coefficient of determination from linear regression analyses of variety yield on nursery mean yield for entries in the Southern Regional Performance Nursery in 1972 and 1973.

C. I. or Sel. No.	Average yield : over 47 locations (kg/ha)	Regression : coefficient (by x)	Correlation : coefficient (r)	Coefficient of determination (r ²)
KS70H179	3434	.97	.93	.86
OK696731	3402	.98	.94	.89
SD7117	3402	1.05	.96	.93
KS70H134	3386	.97	.95	.91
CI15075	3333	1.07	.97	.94
CO64043	3280	.94	.95	.90
TX69A565	3233	1.12	.95	.90
NB68435	3227	1.03	.97	.93
NE701132	3214	1.08	.97	.93
TX69A571	3194	1.03	.96	.91
NB68440	3187	.99	.97	.95
CI13996	3156	.92	.96	.93
TX69A367	3150	1.16	.94	.89
NB68437	3146	.97	.97	.93
KS65274	2982	.86	.92	.86
CI 1442	2537	.76	.86	.74

Table 7. Summary of agronomic and yield data for varieties grown in the Southern Regional Performance Nursery in 1973.

Variety	: C. I. or : Sel. No.	: Days to		: Plant	: Winter	: Lodg-	: Shat-	: Leaf Rust	
		: Head	: Ripe	: Height	: Survival	: ing	: tering	: Sev.	: Resp.
	Number of trials	20	2	cm	0-9	0-9	0-9	%	
				24	4	6	1	4	4
Agent/4*Scout (Sage)	KS70H179	145	188	99	8.5	3.0	5	4	M
Agent/4*Scout	SD7117	145	187	99	8.3	3.2	2	2	M
Agent/4*Scout	KS70H134	145	188	98	8.5	3.2	5	3	M
5*Scout/Agent	OK696731	146	188	99	8.3	2.3	3	1	M
Short Wheat/Scout Composite	TX69A330-1	146	187	84	8.5	0.2	2	49	S
Scout Selection (Baca)	CO64043	145	187	97	8.8	2.5	3	19	M
Burgas 2 (Bulgaria)	Sort 12-13	146	191	79	4.8	0.2	2	4	M
At/66/Cmn//Lcr	NE701132	146	188	98	8.5	2.7	6	4	M
Centurk	CI15075	145	188	95	8.3	2.3	5	19	S
Sut/4/Ky58/Nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn(Sentinel)	NB68440	145	187	91	8.5	1.5	2	33	S
Scout Selection	OK66V2629	144	186	97	8.5	3.3	2	31	S
Scout Selection	OK66V2619	144	187	99	8.5	3.7	2	29	MS
Short Wheat/Scout Composite	TX69A565	145	186	81	8.0	0.3	2	7	M
Short Wheat/Scout Composite	TX69A571	145	188	81	7.5	0.5	2	36	MS
Sut/4/Ky58/Nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn(Homestead)	NB68437	145	187	90	8.5	1.7	3	26	S
Scout Selection	OK66V2621	144	187	98	8.0	3.3	2	30	S
Scout/C.I.12995 (Buckskin)	NB68435	145	186	101	8.5	2.0	5	26	S
Scout 66	CI13996	145	187	99	8.0	3.0	2	30	S
Short Wheat/Scout Composite	TX69A460-1	145	188	78	8.0	0.8	2	5	M
Triumph/Bison (Trison)	KS65274	142	186	97	8.3	1.0	5	44	S
Kavkaz (USSR)	---	150	191	91	6.5	0.3	2	2	M
Short Wheat/Scout Composite	TX69A367	144	186	83	8.3	0.2	5	26	M
Short Wheat/Scout Composite	TX69A525-1	145	188	82	5.0	0.7	2	54	S
Recurrent Sel. Series I, Cycle II (Bronze)	SD6753	148	189	96	8.5	4.0	2	0	VR
Kharkof	CI 1442	151	174	106	8.5	3.3	5	40	S

Table 7. concluded.

C. I. or Sel. No.	Stem Rust : Sev.:	Septoria : Resp.:	Leaf: 0-9	Glumes 0-9	Mildew: 0-9	Tillers : per ft ² :	Kernels : per spike:	Kernal: Weight:	Volume: Weight:	Yield
	%		1	1	1	1	1	mg	kg/hl	kg/ha
Number of trials	1		1	1	1	1	1	1	24	24
KS70H179	5	R	3	3	3	75.3	25.7	33.3	77.1	3310
SD7117	5	R	3	3	2	68.7	27.0	32.6	77.2	3227
KS70H134	5	R	3	2	3	69.0	26.7	32.7	76.7	3215
OK696731	5	R	2	2	2	66.3	31.7	32.7	76.4	3169
TX69A330-1	80	S	3	2	3	93.3	33.7	26.3	74.1	3124
CO64043	5	R	3	2	2	76.3	26.7	33.3	76.9	3116
Sort 12-13	40	S	4	3	2	33.0	37.7	36.3	73.2	3108
NE701132	5	R	2	2	2	71.8	29.7	30.7	76.2	3067
CI15075	5	S	3	3	2	69.0	34.7	26.3	75.4	3051
NB68440	20	S	3	3	2	72.3	26.0	28.3	74.6	3042
OK66V2629	10	R	3	3	2	69.3	26.7	32.3	76.3	3034
OK66V2619	10	R	4	3	2	69.0	29.0	34.0	76.0	3020
TX69A565	5	R	4	4	2	49.3	38.0	22.3	69.9	3004
TX69A571	40	S	4	4	3	68.0	26.3	30.3	75.2	2999
NB68437	10	R	4	4	2	67.0	26.0	28.7	75.1	2994
OK66V2621	20	R	3	3	2	66.7	28.3	32.3	75.4	2974
NB68435	30	S	2	2	2	66.0	26.3	28.0	75.5	2956
CI13996	10	R	4	3	2	71.3	26.0	33.7	77.3	2931
TX69A460-1	5	R	3	3	2	86.3	35.0	22.7	76.2	2915
KS65274	60	S	6	4	2	66.7	24.7	36.3	78.1	2875
---	60	S	3	2	2	45.3	36.3	35.0	73.1	2872
TX69A367	30	S	5	4	4	65.3	36.3	24.7	74.1	2802
TX69A525-1	30	S	4	3	2	65.3	32.3	27.0	71.3	2643
SD6753	5	R	2	2	2	63.3	24.7	27.7	76.2	2485
CI 1442	80	S	2	2	2	75.3	25.7	31.3	74.4	2371

NORTHERN REGIONAL PERFORMANCE NURSERY

Only 13 varieties were evaluated in the NRPN in 1973, 3 of which were new entries. Among experimental lines and varieties in the nursery, 7 were from Nebraska and 4 from South Dakota. Yield data were reported from 15 nurseries at 14 sites. Data were reported from observational plots at 3 sites. Nurseries at 2 sites in South Dakota were abandoned.

Varieties in the 1973 NRPN are listed below. Yield and agronomic data from reporting sites appear in table 8. Stem rust data from the U.S. D.A. Cereal Rust Laboratory at St. Paul, Minnesota are assembled in table 9.

<u>Entry no.</u>	<u>Variety</u>	<u>C. I. or Sel. No.</u>	<u>Source</u>
1	Kharkof	1442	Check
2	Warrior	13190	"
3	Gage/Lancer (H1Plains)	NE68427	Nebraska
4	Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/M1/Hope/ 4/Sut	NE69441	"
5	" "	NE69442	"
6	Atlas 66/Comanche//Lcr	NE701134	"
7*	Warrior/Scout	NE70711	"
8*	" "	NE70712	"
9	Recurrent Sel. Series I, Cycle II (Bronze)	SD6753	So.Dak.
10	Agent/4*Scout	SD7117	" "
11	Hume/Nebr. Semidwarf Comp.	SD697	" "
12	Warrior *5/Agent	68F6635	Nebraska
13*	Nbr*4//Agrus/7*Thatcher/3/2*Hume	SD69103	So.Dak.

*New entry in 1973

Test Site Information

Nebraska Stations -- See information for the SRPN.

South Dakota Stations -- See information for the SRPN.

Archer -- Fall and winter moisture was excellent. Moisture stress became increasingly severe through spring and summer and resulted in shrivelled grain and low yields. There was no damage from diseases or insects.

Sheridan -- Similar to Archer, good fall and winter moisture was followed by inadequate moisture in the spring and summer. No disease or insect damage was noted.

Moccasin -- A mild winter produced no winterkill in the nursery. The summer was dry with no lodging or shattering noted. Diseases and insects were not a problem.

Sidney -- Conditions not reported.

Tetonia -- The nursery received 40 pounds per acre of ammonium nitrate. Production conditions not reported.

Casselton -- The winter was unusually mild with no winterkilling. Moisture was adequate throughout the crop season and disease development was minimal.

Hettinger -- A mild winter produced no winterkilling. Moisture was adequate until later stages of development in the summer. Diseases failed to develop.

Williston -- There was good emergence in the fall. There was good snow cover from late October to mid-November and from early December to mid-January. Above-normal January-March temperatures resulted in excellent winter survival and all entries got off to an early spring re-growth. Moisture was plentiful throughout the spring and summer until mid-June. From then until harvest hot, dry weather may have reduced yields somewhat and slowed disease development. Insects were no problem. Harvest weather was ideal.

St. Paul -- Replications 1, 2, and a part of 3 were severely winter-killed, therefore, the plots were not harvested for yield.

Waseca -- Winter was generally mild. There were no serious disease problems. Moisture was adequate.

Lethbridge -- Fall stand establishment was good and no winterkilling occurred even though there was little snow cover after January 15. Only 5.53 inches of precipitation was received from January 1 to July 31 compared to an average of 10.54 inches. The winter wheat performed surprisingly well considering the drought with early-maturing varieties generally the best. Diseases and insects were not a problem.

Clovis -- See information for the SRPN. The irrigated nursery was watered 3 times.

Table 8. Yield and other data for varieties evaluated in the Northern Regional Performance Nursery in 18 trials in the hard red winter wheat region in 1973.

<u>North Platte, Nebraska</u>														
Three replications														
C. I. or	:	Volume	:	Days to	:	Plant	:	Leaf Rust						
Sel. No.	:	Yield	:	Weight	:	Heading	:	Height	:	Surv.	:	Sev.	:	Res.
		kg/ha		kg/hl				cm		0-9		%		0-9
SD7117		3881		75.3		161		97		8		3		8
68F6635		3574		74.6		161		103		8		1		8
NE69441		3533		75.1		162		107		8		5		8
NE70712		3515		75.2		161		102		9		50		8
NE70711		3495		75.7		161		97		9		60		8
NB68427		3484		75.5		161		101		8		5		3
CI13190		3336		74.6		160		100		9		50		8
NE69442		3316		75.6		161		102		8		60		8
NE701134		3217		73.8		162		108		8		5		3
SD6753		3129		74.8		162		103		9		5		7
SD697		3109		76.5		161		98		8		1		8
CI 1442		3080		75.2		161		105		8		5		8
SD69103		2973		75.5		162		97		9		0		0

L.S.D. = 388, C.V. = 6.5%

Sidney, Nebraska
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height
	kg/ha	kg/hl		cm
NB68427	2318	65.2	163	84
SD7117	1977	67.1	161	84
NE70711	1883	62.6	161	87
NE70712	1867	64.9	161	90
SD697	1730	65.8	161	89
68F6635	1710	61.3	165	78
CI13190	1710	61.3	165	86
NE69441	1692	63.9	162	92
CI 1442	1634	63.9	162	84
NE701134	1613	64.5	162	83
NE69442	1589	65.8	162	78
SD6753	1546	63.2	163	86
SD69103	1320	63.9	165	82

L.S.D. = 441, C.V. = 14.3%

Alliance, Nebraska
Three replications

C. I. or	:	Volume	:	Plant	:
Sel. No.	:	Yield	:	Weight	:
		kg/ha		kg/hl	
				cm	
					0-9
SD7117		2847		75.2	
NE70712		2659		74.1	
NE69442		2558		76.2	
NE70711		2509		74.7	
SD6753		2473		76.2	
NE69441		2401		75.0	
NE701134		2293		73.1	
CI13190		2251		73.3	
NB68427		2217		73.9	
68F6635		2213		75.2	
SD69103		2060		73.9	
CI 1442		1999		74.2	
SD697		1872		74.8	

L.S.D. = 330, C.V. = 7.9%

Mead, Nebraska
Observation plots

C. I. or	: Volume	: Days to	Plant	Winter	Leaf Rust		
Sel. No.	: Yield	: Weight	: Heading	: Height	: Surv.	: Sev.	: Resp.
	kg/ha	kg/hl		cm	0-9	%	0-9
SD7117	4412	78.7	154	114	9	1	8
NE69441	4022	78.7	154	117	9	0	2
NE69442	4022	77.4	156	117	9	30	8
68F6635	3948	78.7	157	114	9	1	8
NE70712	3867	76.1	154	114	9	50	7
NE701134	3753	78.7	154	117	9	1	2
N70711	3679	76.1	153	114	8	40	8
SD6753	3558	77.4	154	114	9	5	7
SD697	3544	77.4	152	112	9	15	7
CI13190	3490	74.8	155	112	9	30	8
NE68427	3484	78.7	155	112	8	15	8
CI 1442	3423	77.4	159	117	9	5	8
SD69103	3389	78.7	156	107	9	0	2

Archer, Wyoming
Three replications

C. I. or	:	:	Volume	:	Days to
Sel. No.	:	Yield	:	Weight	: Heading
		kg/ha		kg/hl	
NE70711		1275		74.0	161
CI 1442		1253		72.2	164
NE70712		1125		74.0	161
SD697		1107		72.2	161
CI13190		1091		74.0	165
68F6635		1069		74.0	163
NE701134		1062		--	161
NE69442		1026		75.0	163
SD7117		1011		74.0	161
SD6753		0963		72.2	162
SD69103		0932		72.2	164
NB68427		0840		--	162
NE69441		0688		--	162

L.S.D. = 418, C.V. = 22.4%

Sheridan, Wyoming
Three replications

C. I. or	:	:	Volume	:	Days to	:	Plant
Sel. No.	:	Yield	:	Weight	:	Heading	Height
		kg/ha		kg/hl			cm
NB68427		2426		78.0		132	51
CI13190		2100		79.0		133	51
NE70712		2056		77.4		132	53
68F6635		1950		78.0		133	48
CI 1442		1889		78.0		135	61
NE70711		1831		79.3		131	48
SD6753		1820		79.0		131	51
SD697		1762		78.0		129	56
NE69442		1713		79.0		132	48
NE701134		1645		80.0		133	51
SD7117		1632		79.0		130	56
SD69103		1569		79.0		132	51
NE69441		1513		79.0		133	56

L.S.D. = 483, C.V. = 14.8%

Moccasin, Montana
Three replications

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height
	kg/ha	kg/hl		cm
68F6635	2514	77.8	173	82
NE70712	2483	77.9	168	81
CI 1442	2461	77.9	176	89
CI13190	2436	76.7	170	80
NE69441	2395	77.9	170	83
NE70711	2355	77.9	165	78
SD7117	2335	78.5	167	80
NE701134	2283	79.5	170	84
NB68427	2221	77.7	169	76
SD697	2180	78.8	165	83
NE69442	2131	76.9	170	81
SD6753	2064	74.5	168	79
SD69103	1750	75.1	174	81

L.S.D. = 591, C.V. = 14.6%

Sidney, Montana
Three replications

C. I. or :	Volume:	Days to:	Days to:	Plant:	:	:	:	:
Sel. No. :	Yield:	Weight:	Heading:	Ripe :	Height:	Surv.:	Lodg.:	Shat.
	kg/ha	kg/hl			cm	0-9	0-9	0-9
CI13190	4126	80.6	163	204	88	8	3	1
NB68427	4027	80.6	164	204	86	8	1	1
NE69442	3815	80.0	164	205	88	8	2	0
NE70712	3725	80.6	161	202	89	8	3	0
68F6635	3720	80.6	162	202	88	9	1	1
NE70711	3626	80.6	161	205	82	7	3	0
SD6753	3575	80.0	160	204	89	9	1	1
CI 1442	3478	80.6	166	204	94	8	5	1
NE69441	3463	81.3	162	204	88	8	1	1
SD7117	3395	80.6	160	203	86	8	2	1
SD69103	3191	80.0	162	204	83	8	4	1
NE701134	2922	80.6	162	204	89	7	2	1
SD697	2831	80.0	159	202	88	9	2	1

L.S.D. = 812, C.V. = 12.9%

Casselton, North Dakota
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to : heading	: Plant : Height	: Lodg.
	kg/ha	kg/hl		cm	0-9
CI13190	4832	79.3	163	93	1
NE70711	4534	79.3	161	88	1
NE69442	4400	79.3	163	91	1
NE70712	4372	80.0	161	91	0
68F6635	4321	79.3	163	91	0
NB68427	4277	80.0	163	91	0
CI 1442	4243	79.3	165	98	2
SD7117	4198	78.7	160	90	0
SD6753	3851	78.0	161	90	1
NE69441	3839	80.0	163	95	0
SD69103	3727	79.3	165	86	1
NE701134	3683	80.0	163	93	0
SD697	3453	78.7	161	90	0

L.S.D. = 412, C.V. = 5.6%

Williston, North Dakota
Three replications

C. I. or	:	Volume:	Days to:	Plant:	Leaf Rust		
Sel. No.	:	Yield:	Weight:	Heading:	Height:	Surv.:	Sev:Res
		kg/ha	kg/hl		cm	0-9	% 0-9
CI13190		2827	80.5	159	85	9	16 7
68F6635		2811	80.1	159	88	9	0 0
NE70712		2810	81.5	156	85	9	30 7
NE69442		2792	80.0	159	85	9	13 8
NB68427		2734	81.0	159	86	9	11 6
NE70711		2721	82.0	156	86	9	26 7
SD7117		2658	81.8	157	85	9	0 2
CI 1442		2622	78.8	162	93	9	8 8
NE701134		2555	81.8	158	84	9	1 7
NE69441		2540	81.5	159	87	9	1 6
SD6753		2515	79.9	158	88	9	3 7
SD697		2216	80.9	157	90	9	5 6
SD69103		2194	80.0	160	85	9	0 3

L.S.D. = 205, C.V. = 4.4%

Hettinger, North Dakota
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to Heading	: Plant : Height	: Lodg.
	kg/ha	kg/hl		cm	0-9
68F6635	3292	67.1	162	88	0
NE70712	3187	67.7	159	87	0
SD7117	3071	73.5	158	86	0
NB68427	3015	70.9	162	87	0
NE69442	2873	70.3	162	89	0
CI13190	2728	62.6	162	87	0
NE69441	2694	72.2	162	89	1
SD6753	2630	68.4	160	88	1
SD697	2597	69.0	160	89	2
NE70711	2582	65.8	159	86	0
CI 1442	2447	67.1	164	97	2
SD69103	2384	66.4	162	85	3
NE701134	2290	69.7	163	95	0

L.S.D. = 430, C.V. 8.8%

Waseca, Minnesota
Three replications

C. I. or	:	
Sel. No.	:	Yield
		kg/ha
NE69442		3320
NB68427		3217
CI13190		3078
SD697		3049
SD7117		3009
NE70711		2852
NE70712		2769
CI 1442		2764
SD69103		2753
NE69441		2706
SD6753		2553
NE701134		2522
68F6635		2412

L.S.D. = 520, C.V. = 10.3%

St. Paul, Minnesota
Observation plots

C. I. or Sel. No.	Plant : Height cm	: Lodging 0-9	: Leaf Rust : Sev. : Res. : % 0-9 %	: Stem Rust : Sev. : Res. : % 0-9 %
CI 1442	104	2	60 8	1 8
CI13190	89	3	20 7-8	0 0
NB68427	97	1	40 7-8	0 1
NE69441	86	1	60 8	1 3
NE69442	86	2	1 7	0 0
NE701134	97	1	60 8	0 0
NE7011	91	1	60 8	0 0
NE7012	97	1	60 8	0 0
SD6753	94	1	60 8	0 0
SD7117	94	1	5 7-8	0 0
SD697	91	1	1 3	0 0
68F6635	76	1	10 8	20 8
SD69103	94	1	0 0	0 0

Tetonia, Idaho
Three replications

C. I. or Sel. No.	: Yield	: Volume : Weight	: Days to Heading	: Plant Height	: Percent Stand
	kg/ha	kg/hl		cm	%
NE69442	2974	77.1	183	58	98
CI13190	2490	75.0	181	58	98
SD7117	2468	75.4	181	64	95
NE701134	2393	76.8	183	64	94
68F6635	2358	74.3	182	58	95
NB68427	2312	74.8	182	56	99
NE70712	2253	75.3	180	61	96
NE69441	2180	75.4	182	58	93
NE70711	2145	76.3	180	61	95
CI 1442	2094	76.2	185	64	90
SD697	2074	74.6	180	66	93
SD6753	1731	74.1	181	53	88
SD69103	1719	74.9	184	53	93

L.S.D. = 568, C.V. 14.2%

Aberdeen, Idaho
Observation Plots

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height	: Stripe Lodging	: Rust Type	: Rust Sev.
	kg/ha	kg/hl		cm	0-9		%
SD7117	5702	79.2	156	109	0	3	20
NE69442	5416	79.5	159	114	0	4	50
NE70712	4682	79.0	156	117	1	3	15
CI13190	4470	79.5	161	112	1	3	40
68F6635	4456	78.5	161	112	0	3,4	25
NE69441	4313	81.5	161	124	1	4	50
NE70711	4198	81.0	155	104	0	3	5
SD6753	4193	78.5	156	117	1	3	20
NE701134	4129	81.0	159	106	0	3	5
CI 1442	3575	79.8	163	127	3	0	0
NE68427	3469	80.4	161	124	1	4	50
SD697	3464	79.7	158	107	0	3	10
SD69103	3022	79.8	161	104	1	0	0

Lethbridge, Alberta
Three replications

C. I. or	:	Volume	:	Days to	:	Days to	:	Plant		
Sel. No.	:	Yield	:	Weight	:	Heading	:	Ripe	:	Height
		kg/ha		kg/hl						cm
68F6635		2682		82.6		158		200		70
NB68427		2591		82.6		159		202		62
CI 1442		2536		81.3		162		202		77
CI13190		2441		81.3		162		201		67
NE69442		2401		81.3		159		201		56
NE70712		2387		81.9		157		202		53
SD6753		2320		81.3		157		201		72
NE70711		2281		82.6		157		200		50
NE69441		2220		82.6		158		201		68
SD7117		2190		82.6		157		201		54
NE701134		2174		81.9		158		200		61
SD697		2149		80.6		157		200		58
SD69103		1882		79.3		161		202		53

L.S.D. = 371, C.V. = 9.0%

Clovis, New Mexico
Three replications, Dryland

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height
	kg/ha	kg/hl		cm
NE70712	2823	81.3	138	75
SD7117	2491	81.0	138	68
NE701134	2491	82.3	139	78
NE69442	2491	80.5	140	71
NB68427	2411	81.3	139	70
NE70711	2339	80.5	137	69
NE69441	2214	82.6	138	71
SD6753	2160	78.7	138	69
68F6635	2088	79.6	140	68
CI13190	2070	80.1	139	70
CI 1442	2016	78.4	143	86
SD69103	1927	79.7	142	61
SD697	1900	80.2	137	71

L.S.D. = 683, C.V. = 16.9%

Clovis, New Mexico
Three replications, Irrigated

C. I. or Sel. No.	: Yield	: Volume Weight	: Days to Heading	: Plant Height	: Lodg.
	kg/ha	kg/hl		cm	0-9
NE70711	4938	79.5	139	86	1
SD7117	4819	80.4	141	89	1
68F6635	4690	78.8	143	88	1
NE69442	4615	79.5	143	88	0
NB68427	4615	78.8	142	88	0
NE701134	4561	79.6	142	91	0
CI 1442	4539	79.1	147	101	2
SD6753	4497	78.2	142	90	0
CI13190	4496	78.6	143	89	0
SD697	4271	80.0	139	96	0
NE69441	4249	79.7	141	92	0
NE70712	4206	77.8	141	91	1
SD69103	3313	78.6	143	87	1

L.S.D. = 1068, C.V. = 13.5%

Table 9. Seedling reaction of the 1973 Northern Regional Hard Red Winter
Wheat Performance Nursery to Puccinia graminis tritici.
(by D. V. McVey, Cereal Rust Laboratory, ARS, University of Minnesota, St. Paul, MN)

Entry No.	Variety or Sel. No.	C.I. No.	Source	Reaction Produced by Isolates												
				72-41-140A	72-32-1007A	72-45-1080C	72-00-94C	72-41-486A	72-21-1184A	72-8-167B	72-41-248A	72-39-736A	72-98-1321A	72-45-1079B	68-14-73A	72-21-1219C
				TM*	TN	QL	QS	QT	RP	RT	RK	RH	MB	HF	HN	GJ
				15	15B-2	151				11-32		56	17		?	
1.	Kharkof	1442	check	S	S	R	S	S	S	S	S	S	S	I	S	S
2.	Warrior	13190	check	S	S	I	I	S	S	S	S	S	S	I	S	S
3.	HiPlains	17262	Nebraska	S	I	R	R	R	R	R	R	R	S	R	R	R
4.	NE 69441	-	"	S	R	R	S	S	R	R	R	S	S	R	R	R
5.	NE 69442	-	"	R	R	R	R	R	R	R	R	R	R	R	R	R
6.	NE 701134	-	"	S	I	R,S	I	S	R	R	S	I	S,R	R	R	S
7.	NE 70711	-	"	S	S	I	I	S	S	S	S	S	S	I	I	S
8.	NE 70712	-	"	S	S	S	S	S	S	S	S	S	S	I	I	S
9.	Bronze	14013	S. Dakota	S	R	R	R	R	R	R	S	R	S	R	R	R,S
10.	SD 7117	-	"	R	R	R	R	R	R	R	R	R	R	R	R	R
11.	SD 697	-	"	S	I	R	R	R	R	R	S	S	S	R	R	R,S
12.	68F6635	-	Nebraska	R	R	R	R	R	R	R	R	R	R	R	R	R
13.	SD 69103	-	S. Dakota	S	I	R	R	R	R,S	R	R	I	R	R	R	R

* Cereal Rust Laboratory designation based upon 8 isogenic lines.

Summary of NRPN Yields

Variety yields from 15 nurseries at 14 sites in 1973 are summarized in table 10. State averages and ranks also are reported.

The new Nebraska variety HiPlains (Gage/Lancer) was the most productive variety on the average. It ranked no lower than sixth in any state and was first in Wyoming and second in Montana, Alberta, and Minnesota. Its average yield of 2847 kg/ha was slightly higher than two other Nebraska experimentals, NE70712 and NE69442, and Warrior. A high protein South Dakota line, SD69103, was least productive on the average.

On a 2-year basis (table 11) NE69442 and SD7117 have made near-identical average yields. The South Dakota variety Bronze has the poorest 2-year average yield of 2707 kg/ha.

Eight of the 13 varieties in the NRPN in 1973 had $b_{y,x}$ values higher than 1.00, the best being Warrior with 1.11 (table 12). Performance of all varieties was highly correlated with nursery mean performance and therefore highly predictable. SD69103 and SD697 were least responsive to changes in environment. NE69442 and SD7117 have the highest 2-year values for the 3 parameters mean yield, $b_{y,x}$, and r (table 13). SD697 and SD6753 again were lowest.

Summary of Agronomic Data

Agronomic data other than yield for varieties in the NRPN in 1973 are summarized in table 14. Only 5 days separated the earliest heading (HiPlains) and the latest heading variety (Kharkof). SD69103 had slightly the shortest straw on the average (76 cm), while Kharkof was tallest (87 cm). All varieties survived well at 4 locations reporting differential winterkill. Test weights ranged from 77.4 kg/hl for SD7117 and NE69441 to 75.5 kg/hl for Warrior.

Table 10. Summary of mean yields (kg/ha) for 13 varieties grown in the Northern Regional Performance Nursery at 15 sites in 1973, with state averages and ranks.

Variety	C. I. or Sel. No.	Nebraska					Montana			
		North					Moc-			
		Platte	Sidney	Alliance	Average	Rank	casin	Sidney	Average	Rank
Gage/Lancer (Hi Plains)	NB68427	3484	2318	2217	2673	3	2221	4027	3124	2
Warrior/Scout	NE70712	3515	1867	2659	2680	2	2483	3725	3104	4
Warrior	CI13190	3336	1710	2251	2432	8	2436	4126	3281	1
Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69442	3316	1589	2558	2488	7	2131	3815	2973	6
Agent/4*Scout	SD7117	3881	1977	2847	2902	1	2335	3395	2865	9
Warrior 5*/Agent	68F6635	3574	1710	2213	2499	6	2514	3720	3117	3
Warrior/Scout	NE70711	3495	1883	2509	2629	4	2355	3626	2991	5
Kharkof	CI 1442	3080	1634	1999	2238	11	2461	3478	2970	7
Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69441	3533	1692	2401	2542	5	2395	3463	2929	8
Recurrent Sel. Series I, Cycle II (Bronze)	SD6753	3129	1546	2473	2383	9	2064	3575	2820	10
Atlas 66/Comanche/Lcr	NE701134	3217	1613	2293	2374	10	2283	2922	2603	11
Hume/Nebr. Semidwarf Comp.	SD697	3109	1730	1872	2237	12	2180	2831	2506	12
Nbr*4//Argus/7*Thatcher/3/2*Hume	SD69103	2973	1320	2060	2118	13	1750	3191	2471	13

Table 10 continued.

C. I.	New Mexico				North Dakota					Wyoming				Alberta	
or	:	:	:	:	Cas-	Wil-	Het-	:	:	Sheri-	:	:	:	:	:
Sel. No.	Clovis	Clovis	Average	Rank	selton	liston	tinger	Average	Rank	Archer	dan	Average	Rank	Lethbridge	Rank
	dryl	irrig													
NB68427	2411	4615	3513	6	4277	2734	3015	3342	5	0840	2426	1633	1	2591	2
NE70712	2823	4206	3515	5	4372	2810	3187	3456	3	1125	2056	1591	3	2387	6
CI13190	2070	4496	3283	9	4832	2827	2728	3462	2	1091	2100	1596	2	2441	4
NE69442	2491	4615	3553	3	4400	2792	2873	3355	4	1026	1713	1370	9	2401	5
SD7117	2491	4819	3655	1	4198	2658	3071	3309	6	1011	1632	1322	11	2190	10
68F6635	2088	4690	3389	7	4321	2811	3292	3475	1	1069	1950	1510	6	2682	1
NE70711	2339	4938	3639	2	4534	2721	2582	3279	7	1275	1831	1553	5	2281	8
CI1442	2016	4539	3278	10	4243	2622	2447	3104	8	1253	1889	1571	4	2536	3
NE69441	2214	4249	3232	11	3839	2540	2694	3024	9	0688	1513	1101	13	2220	9
SD6753	2160	4497	3329	8	3851	2515	2630	2999	10	0963	1820	1392	8	2320	7
NE701134	2491	4561	3526	4	3683	2555	2290	2843	11	1062	1645	1354	10	2174	11
SD697	1900	4271	3086	12	3453	2216	2597	2755	13	1107	1762	1435	7	2149	12
SD69103	1927	3313	2620	13	3727	2194	2384	2768	12	0932	1569	1251	12	1882	13

Table 10. concluded.

C. I.	Idaho		Minnesota		15
or	:	:	:	:	Trial
Sel. No.	Tetonia	Rank	Waseca	Rank	Average
NB68427	2312	6	3217	2	2847
NE70712	2253	7	2769	7	2816
CI13190	2490	2	3078	3	2801
NE69442	2974	1	3320	1	2801
SD7117	2468	3	3009	5	2799
68F6635	2358	5	2412	13	2760
NE70711	2145	9	2852	6	2758
CI 1442	2094	10	2764	8	2604
NE69441	2180	8	2706	10	2555
SD6753	1731	12	2553	11	2522
NE701134	2393	4	2522	12	2514
SD697	2074	11	3049	4	2420
SD69103	1719	13	2753	9	2246

Table 11. Summary of 2-year mean yields for 10 varieties grown in the Northern Regional Performance Nursery in 10 trials in 1972 and 1973, with state averages and ranks (kg/ha).

Variety	C. I. or Sel. No.	Nebraska				New Mexico			
		North ; Platte	Alliance	Average	Rank	Clovis dryl	Clovis irrig	Average	Rank
Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69442	3555	3607	3581	2	1999	4792	3396	2
Agent/4*Scout	SD7117	4160	3381	3771	1	1568	5163	3365	4
Gage/Lancer (Hi Plains)	NB68427	3647	3175	3411	3	1622	4754	3188	5
Warrior 5*/Agent	68F6635	3560	3238	3399	4	1533	5206	3370	3
Warrior	CI13190	3549	3206	3378	6	1519	4512	3016	7
Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69441	3470	3291	3381	5	1497	4636	3067	6
Atlas 66/Comanche/ Lcr	NE701134	3176	2947	3062	9	2491 ^{1/}	4561 ^{1/}	3526 ^{1/}	1
Kharkof	CI 1442	3189	2750	2970	10	1429	4388	2909	9
Hume/Nebr. Semidwarf Comp.	SD697	3532	2987	3260	7	1318	4416	2867	10
Recurrent Sel. Series I, Cycle II (Bronze)	SD6753	3271	3210	3240	8	1358	4620	2989	8

^{1/} Average based on 1 trial less than the number shown.

Table 11. concluded.

C. I.	North Dakota:		Wyoming		Montana		Alberta		Minnesota		10		
or	: Cas-	:	: Sheri-	:	: Moc-	:	: Leth-	:	:	:	:	Trial	
Sel. No.	:selton:	Rank:	Archer:	dan	:Average:	Rank:	casin:	Rank:	bridge:	Rank	:Waseca:	Rank	: Average
NE69442	3792	2	1767	2609	2188	2	2658	5	2603	5	3191	1	3057
SD7117	3626	3	1831	2757	2294	1	2695	4	2505	6	2873	4	3056
NB68427	3602	6	1535	2624	2079	4	2574	7	2727	2	3169	2	2943
68F6635	3620	5	1606	2401	2003	9	2717	3	2782	1	2622	7	2929
CI13190	3989	1	1756	2365	2060	5	2791	1	2674	4	2445	9	2811
NE69441	3215	9	1486	2534	2010	8	2493	9	2441	8	2908	3	2797
NE701134	3346	7	1614	2465	2039	7	2646	6	2470	7	2746	6	2764
CI1442	3201	10	1765	2466	2115	3	2740	2	2691	3	2391	10	2744 ^{2/}
SD697	3626	4	1623	2490	2056	6	2564	8	2272	10	2789	5	2719
SD6753	3329	8	1494	2397	1945	10	2436	10	2399	9	2556	8	2707

2/ Average based on 2 trials less than the number shown.

Table 12. Average yield, regression coefficient, correlation coefficient, and coefficient of determination from linear regression analyses of variety yield on nursery mean yield for entries in the Northern Regional Performance Nursery in 1973.

C. I. or Sel. No.	Average yield : over 15 locations (kg/ha)	Regression : coefficient ($b_{y.x}$)	Correlation : coefficient (r)	Coefficient of determination (r^2)
NB68427	2847	1.03	.97	.94
NE70712	2816	.95	.98	.95
CI13190	2801	1.11	.98	.96
NE69442	2801	1.07	.97	.95
SD7117	2799	1.07	.98	.95
68F6635	2760	1.06	.97	.95
NE70711	2758	1.09	.99	.98
CI1442	2604	.99	.98	.96
NE69441	2555	1.01	.99	.97
SD6753	2522	1.01	.98	.97
NE701134	2514	.91	.96	.93
SD697	2420	.85	.96	.93
SD69103	2246	.85	.97	.94

Table 13 . Average yield, regression coefficient, correlation coefficient, and coefficient of determination from linear regression analyses of variety yield on nursery mean yield for entries in the Northern Regional Performance Nursery in 1972 and 1973.

C. I. or Sel. No.	Average yield : over 23 locations (kg/ha)	Regression : coefficient (by.x)	Correlation : coefficient (r)	Coefficient of determination (r ²)
NE69442	2949	1.08	.97	.95
SD7117	2945	1.06	.96	.92
NB68427	2909	.99	.96	.92
CI13190	2834	1.06	.95	.90
68F6635	2832	1.02	.97	.93
NE69441	2697	1.01	.96	.93
CI1442	2646	.93	.96	.92
NE701134	2640	.87	.95	.90
SD6753	2621	.98	.98	.96
SD697	2581	.95	.96	.92

Table 14. Summary of agronomic data for varieties grown in the Northern Regional Performance Nursery in 1973.

Variety	: C. I. : Sel. No.	: Days to: : Head	: Days to: : Ripe	: Plant: : Height: cm	: Winter: : Survival: 0-9	: Lodg-: : ing 0-9	: Shat-: : tering: 0-9	: Leaf Rust: : Sev.: %	: Res.: : Res.	: Volume: : Weight: kg/hl	: Yield: : Yield kg/ha
Number of Trials		13	2	13	4	4	1	2	2	14	15
Gage/Lancer (Hi Plains)	NB68427	158	203	78	8	0.3	1	8	M	77.0	2847 ^{1/}
Warrior/Scout	NE70712	156	202	80	9	1.0	0	40	S	76.4	2816
Warrior	13190	159	203	79	8	1.0	1	33	S	75.5	2801
Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69442	158	203	78	8	0.8	0	37	S	76.9	2801
Agent/4*Scout	SD7117	156	202	78	8	0.8	1	2	M	77.4	2799
Warrior 5*/Agent	68F6635	159	201	79	9	0.5	1	1	M	75.9	2760
Warrior/Scout	NE70711	156	203	77	8	1.3	0	43	S	76.5	2758
Kharkof	1442	161	203	87	8	2.5	1	7	S	75.9	2604
Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69441	158	203	82	8	0.5	1	3	MS	77.4	2555 ^{1/}
Recurrent Sel. Series I, Cycle II (Bronze)	SD6753	157	202	80	9	0.8	1	4	MS	75.6	2522
Atlas66/Camanche/Lcr	NE701134	158	202	82	8	0.5	1	3	M	77.2	2514 ^{1/}
Hume/Nebr. Semidwarf Comp.	SD697	156	201	81	8	1.0	1	3	MS	76.4	2420
Nbr*4/Argus/7*Thatcher/3/2*Hume	SD69103	160	203	76	8	2.3	1	0	R	75.6	2246

^{1/} Average based on 1 location less than the number shown.

QUALITY DATA

One-pound samples of grain of each nursery entry in the SRPN and NRPN are submitted to the Hard Winter Wheat Quality Laboratory, Grain Marketing Research Center, Manhattan, Kansas from every nursery site from which a grain crop is harvested. Complete quality evaluation is done on a regional composite of each variety in each of the two nurseries. Results are reported directly to the cooperators by K. F. Finney.

UNIFORM WINTERHARDINESS NURSERY

The nursery is comprised of two sections according to the origin of the entries. A Southern Materials section includes wheats from Texas, Oklahoma, Kansas, Colorado, and Nebraska as well as those wheats included in the SRPN and NRPN. The Northern Materials Section is comprised of wheats from Wyoming, South Dakota, Montana, Minnesota, and North Dakota. Entries in each Section are grown in 2 replications of single-row plots with check varieties at 10-row intervals.

The Southern Materials Section contained 127 entries which are identified in the listing that follows. Survival data from 3 reporting stations appear in table 15.

There were 62 entries in the Northern Materials Section, all submitted by Montana. Survival data reported from 3 stations are summarized in table 16.

SOIL-BORNE MOSAIC NURSERY

Sixty-two varieties from Kansas, Oklahoma, and Nebraska were evaluated at test sites at Urbana, Illinois, and Powhattan and Newton, Kansas. Entries are identified in the listing that precedes infection data summarized in table 17.

1973
UNIFORM WINTERHARDINESS NURSERY

Southern Materials Section

Entry no.	Variety	C.I. or Sel. No.	Source
1	Scout 66	13996	Check
2	Parker	13285	Kansas
3	Scout	13546	"
4	Gage/Lancer	NE68427	"
5	Scout/C.I. 12995	NE68435	"
6	Sut/4/Ky58/Nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn	NE68437	"
7	"	NE68440	"
8	Scout Sel.	C064043	"
9	Scout 5*/Agent	H332	"
10	Warrior	13190	Check
11	Tamwheat 101	15324	Kansas
12	Clark's Cream	---	"
13	Clark's 64-21	---	"
14	Kaw/Atlas	71439	"
15	Kaw	12872	"
16	Kaw/Atlas	71077	"
17	Cch/2*Tmp//Scout	71315	"
18	Scout *5/0t	70H205	"
19	"	70H207	"
20	Winter	12138	Check
21	Scout *5/0t	70H208	Kansas
22	"	70H210	"
23	Pronto	14078	"
24	Cch/3*Tmp	71276	"
25	"	72873	"
26	Cch/2*Tmp//Swm	72906	"
27	"	72907	"
28	"	72909	"
29	Cch/2*Tmp//Sut	71255	"
30	Scout 66	13996	Check
31	Cch/2*Tmp//Sut	71255	Kansas
32	"	71261	"
33	"	72938	"
34	"	71285	"
35	"	71287	"
36	"	72879	"
37	"	72882	"
38	"	71346	"
39	"	71348	"
40	Warrior	13190	Check
41	Cch/2*Tmp//Sut	72888	Kansas
42	Cch/2*Tmp//Bsn/Pkr	71224	"
43	"	72921	"
44	"	72923	"

1973 Uniform Winterhardness Nursery (Southern Materials Section) continued

<u>Entry no.</u>	<u>Variety</u>	<u>C. I. or Sel. No.</u>	<u>Source</u>
45	Ap/Pkr	71175	Kansas
46	Pkr *5/Agent	72943	"
47	Agent/Tcs	72971	"
48	Cch//Tst/2*Pn/3/Tmp	69242	"
49	Caddo/3/55C907//Bi//2*Caddo	72974	"
50	Minter	12138	Check
51	Sut/C. I. 12855	72952	Kansas
52	"	72959	"
53	"	72964	"
54	"	72966	"
55	Scoutland	14075	Nebraska
56	Ky58/nth/Hope/2*Tk/Cnn//Pkr	69291	"
57	Gage/Lancer	68427	"
58	Sut/C. I. 12995	68435	"
59	Sut/4/Ky58/nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn	68437	"
60	Scout 66	13996	Check
61	Sut/4/Ky58/nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn	68440	Nebraska
62	MM/Ech/Rm//2*(Hope/Tk/Cnn)/3/Pnc/2*Cnn	68463	"
63	MM/Ech/Rm//2*(Hope/Tk/Cnn)/3/Lcr	68465	"
64	Cnn/Pnc//Tk/Cnn/3/Sut	68521	"
65	Gage/3/Qv-Tm//Mq1/Oro	69416	"
66	Pnc/3*Cnn//Ky58/nth/Cnn/Tm/Mi/Hope/3/Sut	69441	"
67	"	69442	"
68	At166/Wi//Sut	69774	"
69	Mironovskaja 808	PI316437	"
70	Warrior	13190	Check
71	Aurora	---	Nebraska
72	Kavkaz	---	"
73	Burgas 2	---	"
74	5*Wrr/Agent	701286	"
75	At166/Cmn//Lcr	701129	"
76	"	701132	"
77	"	701134	"
78	"	701136	"
79	"	701137	"
80	Minter	12138	Check
81	Guide/Scoutland	70753	Nebraska
82	"	70766	"
83	At166/Cmn//Cnn/Pnc/Tk/Cnn	70577	"
84	"	70578	"
85	Warrior/Scout	70711	"
86	"	70712	"
87	Trapper//Cmn/Ot	70946	"
88	Trapper//Ot/Cnn	70982	"
89	Fertodi/Lcr Sel.	70810	"
90	Scout 66	13996	Check
91	Fertodi/Lcr Sel.	70812	Nebraska

1973 Uniform Winterhardiness Nursery (Southern Materials Section) concluded.

<u>Entry no.</u>	<u>Variety</u>	<u>C.I. or Sel. No.</u>	<u>Source</u>
92	Wrr/At166/Cmn//Lcr	701152	Nebraska
93	Mida/Ky117A/2*(Hope/2*Tk)//Nbr/Cnn/Ky/Mta/ 3/Cnn/Pnc/Tk/Cnn	701218	"
94	Wrr/At166/Cmn//Lcr/3/Gage/C.I.12995	701239	"
95	Funk A	---	"
96	Funk B	---	"
97	Kharkof	1442	SRPN
98	Centurk	15075	"
99	Short Wheat/Scout Composite	TX69A571	"
100	Warrior	13190	Check
101	Short Wheat/Scout Composite	TX69A367	SRPN
102	"	TX69A565	"
103	"	TX69A330-1	"
104	"	TX69A460-1	"
105	"	TX69A525-1	"
106	Scout Selection	C064043	"
107	5*Scout/Agent	OK696731	"
108	Scout Selection	OK66V2621	"
109	"	OK65V2629	"
110	Minter	12138	Check
111	Scout Selection	OK66V2619	SRPN
112	Agent/4*Scout	KS70H134	"
113	"	KS70H179	"
114	Triumph/Bison	KS65274	"
115	Recurrent Sel. Series I, Cycle II	SD6753	"
116	Warrior	13190	NRPN
117	Gage/Lancer	NE68427	"
118	Agent/4*Scout	SD7117	"
119	Nbr*4//Agrus/7*Thatcher/3/2*Hume	SD69103	"
120	Scout 66	13996	Check
121	Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69441	NRPN
122	"	NE69442	"
123	Warrior/Scout	NE70711	"
124	"	NE70712	"
125	5*Scout/Agent	KS7016	"
126	1826-1/Parker	TX65A1268	"
127	Warrior	13190	Check

Table 15. Winter Survival.

UNIFORM WINTERHARDINESS NURSERY
Southern Materials Section

<u>Entry No.</u>	<u>Casselton North Dakota</u> %	<u>Havre Montana¹</u> %	<u>St. Paul Minnesota</u> %	<u>3-Station Average</u> %
1	90	40	80	70
2	85	20	55	53
3	90	26	65	60
4	90	5	55	50
5	85	28	95	69
6	80	30	55	55
7	75	30	60	55
8	75	40	73	63
9	85	28	88	67
10	85	30	60	58
11	60	35	75	57
12	75	45	75	65
13	60	45	75	60
14	65	25	70	53
15	65	15	85	55
16	55	13	80	49
17	90	40	88	73
18	80	40	85	68
19	85	40	90	72
20	90	50	98	79
21	75	20	83	59
22	80	8	85	58
23	55	35	75	55
24	60	28	75	54
25	65	28	70	54
26	65	33	93	64
27	75	5	85	55
28	75	10	83	56
29	80	15	85	60
30	70	35	93	66
31	70	20	75	55
32	55	8	75	46
33	80	8	78	55
34	55	8	88	50
35	55	30	85	57
36	45	25	83	51
37	45	25	88	53
38	43	18	88	50
39	33	13	83	43
40	50	33	88	57
41	28	25	80	44
42	23	20	85	43
43	36	20	85	47
44	26	38	86	50
45	27	43	70	47

Table 15. (continued)
UNIFORM WINTERHARDINESS NURSERY
Southern Materials Section (continued)

<u>Entry No.</u>	<u>Casselton North Dakota</u> %	<u>Havre Montana¹</u> %	<u>St. Paul Minnesota</u> %	<u>3-Station Average</u> %
46	50	45	93	63
47	43	3	78	41
48	70	15	80	55
49	45	5	78	43
50	90	55	98	81
51	60	43	55	53
52	65	38	70	58
53	40	10	60	37
54	45	15	35	32
55	65	35	45	48
56	55	25	30	37
57	65	13	65	48
58	40	6	45	30
59	70	13	40	41
60	80	18	45	48
61	65	20	23	36
62	65	20	40	42
63	60	30	26	39
64	70	25	50	48
65	65	13	15	31
66	85	28	45	53
67	80	23	65	56
68	80	13	60	51
69	85	18	89	64
70	80	15	70	55
71	65	15	33	38
72	65	10	40	38
73	75	33	65	58
74	90	35	80	68
75	80	18	60	53
76	80	20	60	53
77	80	10	60	50
78	85	15	68	56
79	75	25	55	52
80	90	38	73	67
81	85	18	73	59
82	80	13	65	53
83	80	15	65	53
84	70	18	65	51
85	30	20	75	58
86	85	45	45	58
87	75	30	55	53
88	75	40	58	58
89	45	3	50	33
90	65	25	70	53
91	65	10	70	48
92	75	20	70	55
93	75	18	68	54
94	75	8	70	51
95	60	3	75	46

Table 15. (concluded)
UNIFORM WINTERHARDINESS NURSERY
Southern Materials Section (continued)

<u>Entry No.</u>	<u>Casselton</u> <u>North Dakota</u> %	<u>Havre</u> <u>Montana</u> ¹ %	<u>St. Paul</u> <u>Minnesota</u> %	<u>3-Station</u> <u>Average</u> %
96	85	35	78	66
97	85	33	75	64
98	75	33	88	65
99	70	6	78	51
100	80	10	85	58
101	75	1	75	50
102	80	5	83	56
103	65	33	80	59
104	80	25	97	67
105	55	8	88	50
106	70	25	85	60
107	65	13	70	49
108	75	30	80	62
109	75	30	80	62
110	90	40	83	71
111	85	33	80	66
112	90	15	83	63
113	75	30	75	60
114	75	28	75	59
115	90	38	97	75
116	90	38	95	74
117	90	13	93	65
118	80	40	90	70
119	90	25	88	68
120	90	25	83	66
121	85	30	83	66
122	90	23	80	64
123	70	18	78	55
124	65	18	68	50
125	65	28	75	56
126	80	18	60	53
127	80	40	85	68

¹Tractor wheel marks appeared to influence the stand in the following rows: 3, 4, 9, 10, 15, 16, 21, 22, 27, 28, 33, 34, 39, 40, 46, 47, 52, 53, 58, 59, 64, 65, 70, 71, 76, 77, 82, 83, 88, 89, 94, 95, 100, 101, 106, 107, 112, 113, 118, 119, 124, and 125.

1973
UNIFORM WINTERHARDINESS NURSERY

Northern Materials Section

Entry no.	Variety	C. I. or Sel. No.	Source
1	Minter	12138	Check
2	55-391-56-D8/Wmt	MT6928	Montana
3	Yg*3/Cnn	MT6715	"
4	"	MT6716	"
5	BWH1376-8/YTO-117	MT6916	"
6	"	MT6917	"
7	"	MT6918	"
8	BWH1867-5/YTO-117	MT6919	"
9	Pol/Turg//Wrr	MT7005	"
10	Warrior	13190	Check
11	Wht/Rye//Ae/3/Wrr	MT7010	Montana
12	55-391-64-D4/Wmt	MT7015	"
13	WH1375-3/Atc	MT7201	"
14	WH1867-10/Atc	MT7203	"
15	Hy/YTO-117	MT7204	"
16	"	MT7205	"
17	Yg/Cnn 11-5-5//SS63283	MT7215	"
18	Yg/Cnn 11-5-5//Yg-SS4662	MT7216	"
19	"	MT7217	"
20	Minter	12138	Check
21	Yg/Cnn 11-5-5//Yg-SS4662	MT7218	Montana
22	"	MT7219	"
23	Yg/Cnn 11-5-3//Yg SS-2456	MT7222	"
24	Wlt/Yg-SS4662	MT7228	"
25	Wlt/SS63283	MT7231	"
26	Cnn/SS63283	MT7232	"
27	Lcr/Wlt	MT7233	"
28	"	MT7236	"
29	"	MT7237	"
30	Warrior	13190	Check
31	Lcr/Wlt	MT7238	Montana
32	"	MT7240	"
33	"	MT7241	"
34	"	MT7243	"
35	"	MT7244	"
36	Yg/Cnn 11-5-3//Lcr	MT7245	"
37	"	MT7246	"
38	"	MT7247	"
39	"	MT7248	"
40	Minter	12138	Check

1973 Uniform Winterhardiness Nursery (Northern Materials Section) concluded.

<u>Entry no.</u>	<u>Variety</u>	<u>C. I. or Sel. No.</u>	<u>Source</u>
41	Yg/Cnn 11-5-3//Lcr	MT7249	Montana
42	"	MT7250	"
43	Lcr/SB2-77	MT7252	"
44	"	MT7253	"
45	"	MT7254	"
46	"	MT7256	"
47	WH1867-10/Atc	MT7202	"
48	Yg/Cnn 11-5-5//SS63263	MT7208	"
49	Yg/Cnn 11-5-5//SS63283	MT7209	"
50	Warrior	13190	Check
51	Yg/Cnn 11-5-5//SS63283	MT7210	Montana
52	"	MT7211	"
53	"	MT7212	"
54	"	MT7213	"
55	"	MT7214	"
56	"	MT7221	"
57	Yg/Cnn 11-5-3//Yg-SS4662	MT7224	"
58	Wlt/Yg-SS1231	MT7229	"
59	Lcr/Wlt	MT7239	"
60	Minter	12138	Check
61	Yg/Cnn 11-5-3//Lcr	MT7251	Montana
62	Warrior	13190	Check

Table 16. Winter Survival
UNIFORM WINTERHARDINESS NURSERY
Northern Materials Section

<u>Entry No.</u>	<u>Casselton</u> <u>North Dakota</u> %	<u>Havre</u> <u>Montana</u> ¹ %	<u>St. Paul</u> <u>Minnesota</u> %	<u>3-Station</u> <u>Average</u> %
1	90	40	98	76
2	15	25	60	33
3	85	50	83	73
4	80	45	75	67
5	70	40	78	63
6	75	18	70	54
7	75	23	75	58
8	80	30	83	64
9	70	30	55	52
10	75	40	75	63
11	70	35	73	59
12	35	6	40	27
13	60	25	75	53
14	80	40	70	63
15	75	45	65	62
16	75	40	68	61
17	80	35	65	60
18	70	20	70	53
19	70	33	75	59
20	90	40	97	76
21	70	40	85	65
22	55	20	83	53
23	65	35	90	63
24	70	35	65	57
25	80	35	95	70
26	65	25	78	56
27	50	25	95	57
28	65	28	55	49
29	55	28	63	49
30	75	35	90	67
31	65	23	68	52
32	75	50	78	68
33	80	26	85	64
34	80	16	73	56
35	85	35	80	67
36	90	35	90	72
37	90	25	88	68
38	75	23	97	65
39	60	11	85	52
40	90	45	97	77
41	65	35	95	65
42	80	45	97	74
43	85	40	80	68
44	85	55	80	73
45	90	50	90	77

Table 16. (concluded)
UNIFORM WINTERHARDINESS NURSERY
Northern Materials Section (concluded)

<u>Entry No.</u>	<u>Casselton</u> <u>North Dakota</u> %	<u>Havre</u> <u>Montana</u> ¹ %	<u>St. Paul</u> <u>Minnesota</u> %	<u>3-Station</u> <u>Average</u> %
46	85	50	97	77
47	90	50	93	78
48	80	35	88	68
49	75	45	88	69
50	85	45	84	71
51	85	40	97	74
52	85	35	97	72
53	85	40	94	73
54	80	25	93	66
55	85	25	89	66
56	80	25	80	62
57	90	35	89	71
58	90	40	92	74
59	90	40	80	70
60	90	50	93	78
61	80	43	90	71
62	85	43	80	69

¹Tractor wheel marks appeared to influence stand in the following rows:
1, 6, 7, 12, 13, 18, 19, 22, 27, 28, 33, 34, 39, 40, 43, 48, 49, 54,
55, 60, and 61.

1973
SOIL-BORNE MOSAIC NURSERY

Entry no.	Variety	C.I. or Sel. No.	Source
1	Pawnee	11669	Check
2	Cch/2*Tmp//Sut	KS71315	Kansas
3	"	KS71255	"
4	"	KS71259	"
5	"	KS71261	"
6	"	KS72938	"
7	"	KS71285	"
8	"	KS71287	"
9	"	KS72879	"
10	Concho	12517	Check
11	Cch/2*Tmp//Sut	KS72882	Kansas
12	"	KS71346	"
13	"	KS71348	"
14	"	KS72888	"
15	Cch/3*Tmp	KS71276	"
16	"	KS72873	"
17	Cch/2*Tmp//Swn	KS72906	"
18	"	KS72907	"
19	"	KS72909	"
20	Bison	12518	Check
21	Cch/2*Tmp//Bsn/Pkr	KS71224	Kansas
22	"	KS72921	"
23	"	KS72923	"
24	Cch//Tst/2*Pn/3/Tmp	KS69242	"
25	Tcs/T ₁ (2026)//SdyF ₆	OK711248	Oklahoma
26	"	OK711252	"
27	Tcs/T ₁ (2108)//SdyF ₆	OK711324	"
28	Tcs/T ₁ (2034)//SdyF ₆	OK711299	"
29	"	OK711311	"
30	Tcs/T ₁ (2108)//SdyF ₆	OK711323	"
31	Pawnee	11669	Check
32	Ndd/C0662549 F ₆	C0701272	Oklahoma
33	Sn64//Tmp/C.I. 12406 F ₇	C0711375	"
34	"	C0711365	"
35	Sut/4/Qv/2/Tm/3/Mq1/Oro	NE68435	Nebraska
36	Sut/4/Ky58/Nth/2/Cnn/Tm/Mi/Hope/3/Pn/Cnn	NE68437	"
37	"	NE68440	"
38	Gage/Lancer	NE68427	"
39	At1 66/Cnn//Lcr	NE701129	"
40	Concho	12517	Check

1973 Soil-borne Mosaic Nursery (concluded).

<u>Entry no.</u>	<u>Variety</u>	<u>C. I. or Sel. No.</u>	<u>Source</u>
41	At166/Cmn//Lcr	NE701132	Nebraska
42	"	NE701136	"
43	"	NE701137	"
44	"	NE701134	"
45	Fertodi 293/Lcr Sel	NE70810	"
46	"	NE70812	"
47	Gage//Qv/Tm/Mq1/Oro	NE69416	"
48	Pnc/3*Cnn/3/Ky58/Nth/2/2*Cnn/Tm/Mi/Hope/4/Sut	NE69441	"
49	"	NE69442	"
50	Bison	12518	Check
51	Mironovskaja 808 (USSR)	---	Nebraska
52	Aurora (USSR)	---	"
53	Kavkaz (USSR)	---	"
54	Burgas 2 (Bulgaria)	Sort 12-13	"
55	At166/Cmn//Cnn/Pnc/Tk/Cnn	NE70577	"
56	"	NE70578	"
57	Trapper//Cmn/Ot	NE70946	"
58	Trapper//Ot/Cnn	NE70982	"
59	Wrr//At166/Cmn/3/Lcr	NE701152	"
60	Wrr//At166/Cmn/3/Lcr/4/Gage/C.I.12995	NE701239	"
61	Pawnee	11669	Check
62	Concho	12517	Check

Table 17. Field Infection Data.
1973
Winter Wheat Regional
Soil-borne Mosaic Nursery

Entry No.	Kansas		Urbana, Illinois	
	Newton Reaction ^{1/}	Powhattan, Reaction ^{1/}	Incidence %	Severity ^{2/} (0 - 10)
1	S	MS	45	8
2	R-	R-	0	0
3	R	R-	0	0
4	R	R-	0	0
5	R	R	0	0
6	R	R-	20	1
7	MR	MR-	5	1
8	R-	R-	60	4
9	R	MR	25	1
10	R	R	0	0
11	MR	MR-	0	0
12	R	MR-	0	0
13	MR	MR-	10	8
14	R	R-	5	2
15	MR	MS	0	0
16	MR	MS	0	0
17	R	R	40	2
18	R	R	0	0
19	R	R	60	3
20	S	S	15	2(10%R)
21	MR	MS	40	2
22	MS	MS-	20	2
23	R	R	0	0
24	R	R-	0	0
25	S	S	50	8
26	MS-	S	60	8
27	S	S	20	4
28	R-	S	5	3
29	MS	M	0	0
30	S	S	60	8
31	S	S	50	6
32	S	S	55	7
33	S	S	100	3
34	S	S	25	4
35	MR-	S	10	5
36	R	R	0	0
37	MS-	S	30	7
38	MS	S	0	0

Table 17. (concluded)

1973

Winter Wheat Regional Soil-borne Mosaic Nursery (concluded)

Entry No.	Kansas		Urbana, Illinois	
	Newton Reaction ^{1/}	Powhattan Reaction ^{1/}	Incidence %	Severity ^{2/} (0 - 10)
39	MS	S	50	6
40	R	R	0	0
41	MS	Seg	0	0
42	MS	Seg	25	4
43	MS	Seg	25	5
44	MS	Seg	50	6
45	MS	MS ⁻	15	6
46	MS	MS ⁻	80	7
47	MR ⁻	MS ⁻	20	4
48	MR ⁻	MS	10	5
49	MS	MR	0	0
50	S	S	10	1 (30%R)
51	MS	MS ⁻	0	0
52	MR ⁻	MS ⁻	0	0
53	MS	S	0	0
54	MS	S	0	0
55	S	S	20	5
56	S	S	25	4
57	S	S	100	10
58	MR ⁻	MS	10	3
59	S	S	20	7
60	S	S	50	8
61	S	S	90	7
62	R	R	0	0

^{1/} R = only a few plants with symptoms, no yellowing, no stunting.

MR = a number of plants with symptoms, no yellowing, no stunting.

MS = nearly all plants with symptoms, generally no yellowing or stunting.

S = all plants with symptoms, yellowing, and often stunting.

Seg = evident healthy plants in the row, virus susceptible, sometimes confused with MS.

+or - deviates from the four major classes.

^{2/} 0 - no visible symptoms

10 - intolerant

R - indicates rosetting