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EC91-103 Nebraska Fall-Sown Small Grain Variety Tests

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NEBRASKA FALL-SOWN SMALL GRAIN VARIETY TESTS 1991

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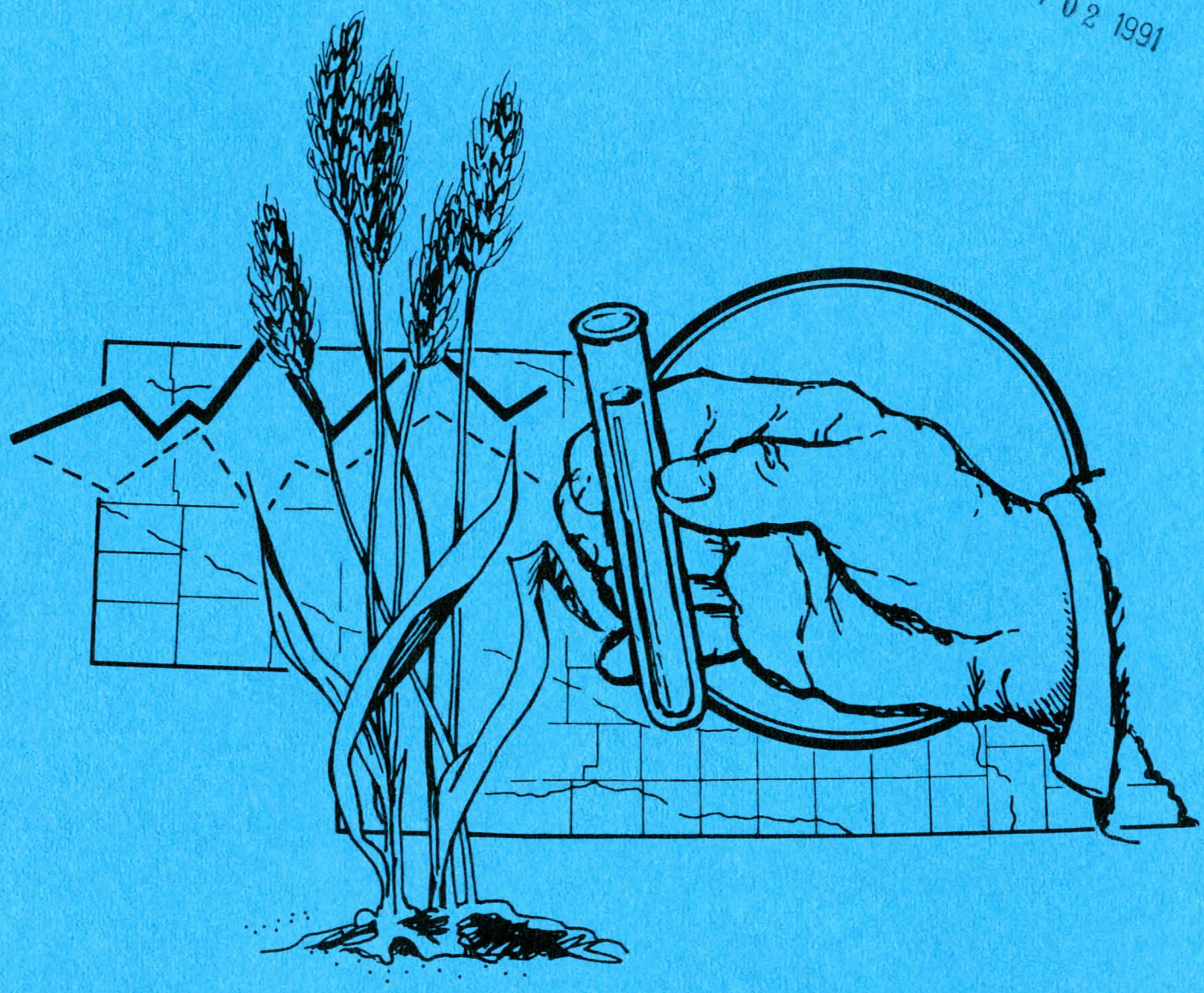

University of Nebraska–Lincoln
Institute of Agriculture and Natural Resources
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Cooperative Extension

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EXTENSION CIRCULAR 91-103
NEBRASKA FALL-SOWN SMALL GRAIN VARIETY TESTS

September 1991

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We would like to thank the Nebraska Wheat Board for contributing wheat check-off money and the Nebraska Agricultural Statistics Service for compiling data on varieties and production of wheat.

METRIC EQUIVALENTS

1 centimeter =	0.394 inches	cm =	inches x 2.54
1 hectare =	2.471 acres	ha =	acres x 0.405
1 kilogram =	2.205 pounds	kg =	pounds x 0.454
1 hectoliter =	2.838 bushels	hl =	bushels x 0.35

Kilogram/hectoliter = ...lb/bu x 1.287
Kilogram/hectare = ...bu/A x 53.81 (48# bushel)
Kilogram/hectare = ...bu/A x 67.26 (60# bushel)

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NEBRASKA WINTER WHEAT PRODUCTION

Year	Planted 000 acres (hectares)	Harvested 000 acres (hectares)	Average yield bu/a (kg/ha)
1977	3300 (1337)	2950 (1195)	35.0 (2354)
1978	2900 (1175)	2550 (1033)	32.0 (2152)
1979	3000 (1215)	2550 (1033)	34.0 (2287)
1980	3000 (1215)	2850 (1154)	38.0 (2556)
1981	3000 (1215)	2900 (1175)	36.0 (2421)
1982	3050 (1235)	2900 (1175)	35.0 (2354)
1983	2800 (1134)	2300 (932)	43.0 (2892)
1984	3200 (1296)	2250 (911)	36.0 (2421)
1985	2600 (1053)	2300 (932)	39.0 (2623)
1986	2300 (932)	2000 (810)	39.0 (2623)
1987	2200 (891)	1950 (790)	44.0 (2959)
1988	2300 (932)	2000 (810)	36.0 (2421)
1989	2300 (932)	2050 (830)	27.0 (1814)
1990	2400 (975)	2250 (911)	38.0 (2556)
1991[1]	2350 (952)	2000 (810)	32.0 (2152)

[1]August 1 estimate.

NEBRASKA FALL-SOWN SMALL GRAIN VARIETY TESTS 1991

The 1991 estimated winter wheat yield for Nebraska was 32 bushels per acre from 2,000,100 harvested acres. The total production of winter wheat for the state was 67,2000,000 bushels.

This circular reports data from winter wheat and winter barley trials conducted throughout Nebraska. Entries included varieties or hybrids and promising experimental strains from Nebraska and surrounding states and private breeders. This was the twelfth year for privately developed varieties. The state has been divided into four districts for purposes of variety testing. Locations of the 1991 variety tests are shown on the map (page 7).

Trials were located on Research Centers and private farms. Names of cooperators and dates of planting and harvest are shown in Table A. Soil type, soil test data, and fertilizer applications are shown in Table B. Plot sizes varied with location. Drill strips were used in Lincoln (field plots). Nursery-type plots six rows wide and 15 to 35 feet long were planted at other locations. All tests were direct combined. Entries were replicated 4 to 6 times.

The 1991 season started out dryer than normal in the fall and winter. Planting across the state was generally on time. The spring had periods of wet weather. Reports during the summer indicated take-all disease, rust, fungus and chinchbugs in some wheat fields. Harvest was ahead of schedule for the whole state this year. Overall yields were reduced from a year ago in the southeast part of the state due to wet weather. The overall yields were reduced in the rest of the state due to dry weather.

Winter Wheat Varieties

In 1991, Redland was the most extensively grown variety with 15% of the wheat acres in Nebraska. Although this a slight decrease from 1990, Siouxland had a greater decrease and fell to second place with 14.5% of the acres. Thunderbird was the third leading variety with nearly 13% of the acres. Centura was the fourth leading variety with over 10% and Arapahoe with 8.5% was in fifth place. All the TAM wheats together were at 8% and Abilene had over 6%. Brule fell to just over 5% and Centurk and Centurk 78 together accounted for just over 3%. Scout, Buckskin, Cody, and Victory each accounted for between 1 and 2% of the Nebraska wheat acres. All other varieties combined were planted on about 6% of the wheat acres.

'Arapahoe' was released in 1988 by the Nebraska Agricultural Research Division and the USDA-ARS. This variety has been tested under the experimental number NE82656. Its parentage is: Brule/3/Parker*4/Agent//Beloterkovskaia 198/Lancer.

'Siouxland 89' was released in 1989 as a selection from Siouxland. It was released by the Texas Agricultural Experiment Station. It is more uniform than Siouxland, otherwise quite similar.

'Newcale' triticale was released in 1989. It has been tested under the experimental number 83T12. It has an advantage over many other triticale varieties for grain because it is not as tall and is less likely to lodge.

'Rawhide' was released in 1990 by Nebraska. It has been tested under the experimental number NE83498. Rawhide is a medium height semi-dwarf variety. In 1991, it lacked in consistency across the state but had several good locations.

'Perkins' winter barley was released in 1989 from the Nebraska Agriculture Research Division. It was previously tested as NE851808.

Pedigrees of Nebraska experimental strains are as follows:

NE83407 - CIMMYT/Scout//Bennett sib/4/Pkr*4/Agent//Belot198/Lcr/3/-Bez1/Ctk78

Rawhide - Wrr*5/Agent//Kavkaz/-4/Pkr*4/Agent//Belot 198/Lcr/3/Vona

NE86501 - Colt/Cody

NE86606 - Wrr/Sut//MoW6811/3/Agate sib (NE77615)//Cody

NE87612 - Newton/Wrr*5//Agent/3/NE69441

NE87613 - NE76668/4/TAM105/3/Larned//Eagle /Sage

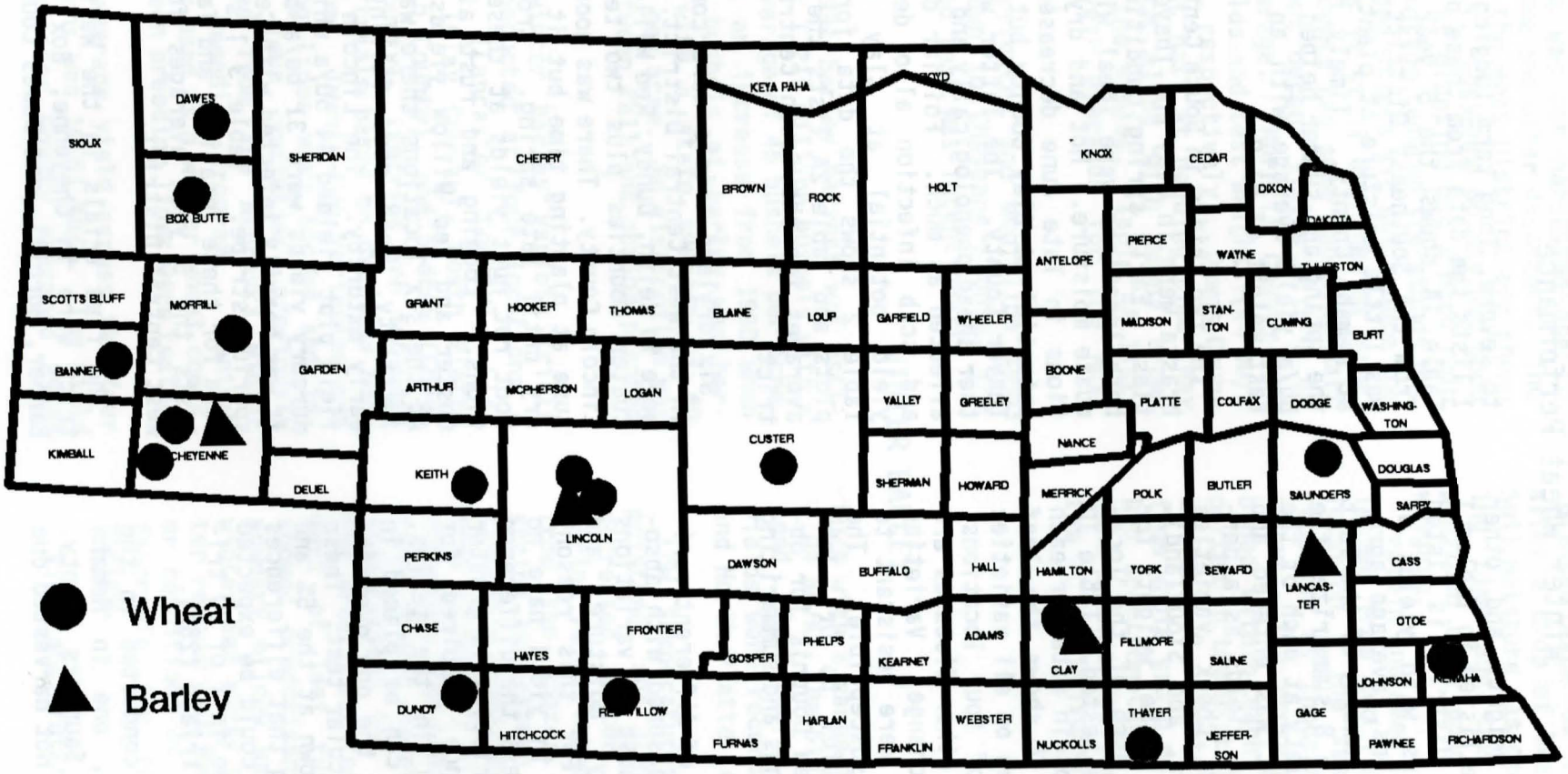
NE87615 - NE68513/NE68547//Ctk/3/Brule

Privately developed winter wheats were included in these trials. Entries were on a voluntary basis. A fee was charged to pay a portion of the testing costs. Entries and areas were selected by the seed producer.

The following made entries as indicated:

AgriPro Biosciences Inc. 806 N. 2nd, P.O. Box 30 Berthoud, CO 80513	Abilene, Bronco, Longhorn Thunderbird, Victory Tomahawk
MBS, Inc. P.O. Box 308 Ames, IA 50010	Exp. 9202.
HybriTech Seeds 5912 N. Meridan Witchita, Ks 67204	Quantum 542, Quantum 549, Quantum 561, Quantum 562.
Terra International 950 S. Broadway Lima, OH 45804	HR 152
Arrow Seed Co. Broken Bow, NE 68822	Abilene, Bronco, Thunderbird

Some of these are varieties, others are hybrids. The entrant should be contacted for information on seed availability, adaption and agronomic characteristics.



Locations of 1991 Nebraska winter wheat and winter barley variety tests.

Winter Wheat Performance

Yield, bushel weight, and other agronomic data are listed in Tables 1 through 11. Each district is listed on separate tables with yields of individual locations, average agronomic data, and a summary of the last five years. Table 8 summarizes the yield of each variety at each of the locations where it was entered and Table 8A shows the yields as a percentage of three check varieties (Arapahoe, Redland, and Siouxland). Table 9 lists the bushel weights for the varieties at each of the locations where it was tested. Table 10 summarizes the protein data for each location. Table 7 shows the leaf rust readings taken on all varieties entered at each of four locations. Races of rust and other diseases are under continuous change. Varieties which in the past were resistant to rust may become susceptible. The authors are grateful to Dr. John Watkins and Dr. Ben Doupnik for obtaining these ratings and summarizing them.

Yielding ability of different varieties cannot be measured with absolute accuracy because of variations in soil fertility, moisture, and other factors. For this reason, small differences in yield have no significance. Unless the difference in yield of two varieties is greater than the difference required for significance shown in the tables, little confidence can be placed in the superiority of the one over the other in that particular test. These differences are shown at the 5% and 25% levels, meaning that differences as large or larger could be expected through chance alone in 1 of 20 trials (5%) or 1 of 4 trials (25%).

Two trials were conducted in the Southeast District, one in Nemaha County and one in Saunders County. Saunders County was not harvested due to severe, long term lodging. Table 1 lists the data from these plots and Table 1A shows the 5 year summary from the Southeast District. There was little moisture at planting time at Nemaha County. Timely rains in the spring and summer helped get a 44 bu/a yield average with an average test weight of 61.0.

The two trials in South Central Nebraska were in Clay and Thayer Counties. Early spring conditions at both locations were ideal with adequate moisture. Hot and dry conditions in late June decreased yield potential at Clay County but not at Thayer County. The latter was further ahead phenologically and was not affected as much. Foiliar diseases and scab infection also decreased yield potential at Clay County. Table 2 shows the data for these plots and Table 2A lists the 5 year averages for the South Central District.

Six dryland trials were conducted in the West Central District. These were in Keith, Dundy, Red Willow, and Custer Counties plus two tests in Lincoln County. There was good moisture at planting time but it turned dry until late spring. Crown and root rot hurt yields at these locations. Lodging and rust affected Custer and Red Willow yields also. At the six locations there was high fertility, good seed filling, and early maturity. The Lincoln County field plot yielded 44 bu/a while the nursury yields were 31 bu/a because it was heavily infected with Cephalosporium stripe. Table 3 lists the data for these locations and Table 3A lists the 5 year averages for the West Central District.

The five trials in the West District were in Cheyenne, Box Butte, Banner, Morrill, and Dawes Counties.

Box Butte was not harvested due to downy brome and other disasters. The data for the West District are shown in Table 4. Cheyenne County had good moisture at planting but a hard rain after planting reduced the stands but the reduced stands did not reduce the yields as it still averaged 51 bu/a. Banner County had some had some hail damage but decent yields with a 42 bu/a average. Morrill County had good yields and test weights (44 bu/a and 61.5, respectively). Dawes County caught hail at heading time (May 25) which along with downy brome damaged the yields. Table 4A lists the 5 year averages for the West District.

The irrigated and ecofallow test were grown in Cheyenne County. The irrigated test was intentionally planted late to simulate planting after a crop of beans is harvested. Soil moisture was excellent at planting time and the artificial rain provided made good yields and test weights.

Protein and seed size data was collected from two replicates of each location. The seed size data are reported as thousands of seeds per pound. The protein data were combined within each District and reported in the District tables as well as Table 9. Protein was determined from whole grain using a Near Infra-Red Spectrometer. The analysis is done by the Soil and Plant Analysis Lab at the University of Nebraska.

WINTER BARLEY

The 1991 barley harvest was estimated at 1.215 million bushels with a state average of 45 bushels per acre. This is an increase from 1990 when 880,000 bushels of barley was harvested with a state average of 40 bushels per acre. No distinction was made between fall and spring planted barley.

The winter barley variety trials were conducted at four locations - Lincoln (Lancaster County), Clay Center (Clay County), North Platte (Lincoln County), and Sidney (Cheyenne County). Entries are included in the trials based on previous performance. Twenty-two varieties and breeding lines were tested and included four varieties previously released from the Nebraska Winter Barley Breeding Program. 'Centurk 78' was used as a winter wheat check. Seventeen breeding lines were tested.

The average yield across the four locations was 16.61 bu/A. The yield at Lancaster County averaged 29.84 bu/A with a range from 53.47 bu/A to 3.94 bu/A. The Sidney location averaged 22.53 bu/a. Extremely low yields were recorded at Clay Center and North Platte locations.

Low temperatures, limited winter moisture, and scattered snow cover decreased winter survival. Early spring rains improved crop recovery from the winter. A cool, moist spring in Eastern Nebraska provided favorable conditions for the development of powdery mildew and leaf rust diseases. The Lancaster County location showed severe powdery mildew infestations but early maturity of the crop prevented further development of leaf rust. Clay Center showed predominantly leaf rust but powdery mildew was present. A dry winter and early spring limited winter recovery at North Platte. Weather conditions at Sidney proved more favorable for recovery of winter barley.

Yield and winter survival data were

collected on four replications at four locations. Data was collected on heading, height, and powdery mildew from four replications at the Lancaster County location. Heading date was calculated as days after May 1, 1991. Powdery mildew was reported as a percentage that reflects both the amount of plant effected and the severity of the infection. Test weight was measured on two replications at the Lancaster County location. Leaf rust date was measured at Clay Center using four replications. Leaf rust was scored as a percentage of the upper two or three leaves effected. The mean, coefficient of variance (C.V.), and Least Significant Differences (LSD) were calculated for yield, agronomic performance characteristics, and disease reactions. The LSD was calculated at the 4% level. The pedigrees for the entries are listed in Table 12. Yield, agronomic performance, and disease reaction are listed in Table 11.

Five Nebraska breeding lines ranked as the highest yielding entries at Lancaster County (NE90721, NE90710, NE90701, NE89725, NE86954). These lines also performed well at the other three locations. These lines will be tested again in the 1992 winter barley variety trials. The variety trials are used to evaluate breeding material from the Nebraska Winter Barley Breeding Program for potential release of new germplasm and varieties.

Table A. Nebraska winter wheat variety tests 1991.

County	Cooperator	Planted	Harvested
Nemaha	Fred Gauchat, Brock	Sept. 28	June 19
Saunders	Agricultural Res & Dev Center	Oct. 2	*
Clay	South Central Res & Ext Center	Sept. 21	July 5
Thayer	Jim Wiedel, Hebron	Sept. 26	June 25
Lincoln	West Central Res & Ext Center	Sept. 13	July 15
Custer	Lynn Estergard, Oconto	Sept. 24	July 8
Dundy	Dean Prusley, Wauneta	Sept. 20	July 1
Keith	Kevin Armknecht,Ogallala	Sept. 20	July 4
Red Willow	Lewis Leibbrandt, McCook	Sept. 21	June 29
Dawes	Soester Bros, Crawford	Sept. 18	July 22
Banner	David Anderson, Kimball	Sept. 11	July 18
Morrill	Rod Terrell, Angora	Sept. 11	July 16
Box Butte	Northwest Ag Lab.	Sept. 11	**
Cheyenne	High Plains Ag Lab.	Sept. 13	July 16
Panhandle Irr.	High Plains Ag Lab.	Oct. 1	July 19
Cheyenne Ecofallow	High Plains Ag Lab.	Sept. 27	July 17

* Not harvested due to severe, long term lodging
** Not Harvested due to weeds

Table B. Soil series, planting rates, previous crop, and fertilizers applied. Nebraska Winter Wheat Variety Tests – 1991.

County	Soil Type	Planting Rate lbs/a	1990 Crop	pH	Nitrate lbs/a	P ppm	Organic matter %	N+P2O5+K+S lbs/a
Nemaha	Zook silty clay loam	80	soybeans	--	72	42	--	38-0-0
Clay	Hastings silt loam	75	fallow	5.5	99	24	1.8	40-30-0-1
Thayer	Butler loam	75	fallow	5.8	40	32	2.1	18-46-0
Keith	Silt loam	60	fallow	6.9	186	15	1.7	5-25-0
Dundy	Silt loam	60	fallow	6.8	134	25	1.8	31-29-0
Red Willow	Silty clay loam	60	fallow	6.6	276	10	1.8	10-7-90
Custer	Silt loam	60	fallow	5.5	219	74	2.6	0-0-0
Lincoln Nursery	Hall silt loam	55	Fallow	6.3	--	--	1.8	60+40+0
Lincoln FP	Hall silt loam	60	Fallow	6.3	--	--	1.8	60+40+0
Cheyenne	Alliance silt loam	45	fallow	7.2	111	18	1.4	6-19-0
Banner	Keith loam	45	fallow	6.8	311	17	1.8	56-19-0
Morrill	Jayem fine sandy loam	45	fallow	6.6	249	24	1.1	49-19-0
Dawes	Keith silt loam	45	fallow	7.0	271	19	1.7	61-31-0
Cheyenne Irr.	Keith silt loam	90	fallow	6.9	162	23	1.8	67-22-0
Cheyenne Eco.	Alliance silt loam	45	proso	7.6	45	6	1.6	66-19-0

Table C. Hard Red Winter Wheat Characteristics.

	Agronomic Characteristics 1						Reactions 2							
Variety	Maturity	Winter Hardiness	Straw Strength	Plant Height 4	Col-optile Length 3	Seed Size 4	Hessian Fly	Leaf Rust	Stem Rust	Soil Borne Mosaic	Wheat Streak Mosaic	Origin	Year of Release	PVP 5
Arapahoe	medium	good	med stong	medium	medium	medium	MR	MR-MS	R	S	MT	NE	1988	yes
Arkan	very early	fair	strong	med short	long	medium	R	MS	R	R	S	KS	1982	yes
Brule	medium	good	strong	medium	short	medium	R	MS-MR	MR	S	MT	NE	1982	no
Buckskin	med early	fair	med strong	tall	long	med small	MR	S	MS	MR	LT	NE	1973	no
Centura	med early	fair	med strong	tall	long	medium	S	MS	MR	MS	MS	NE	1983	yes
Cody	med early	good	med strong	tall	long	medium	S	MS	MR	MS-MR	MS	NE	1985	yes
Colt	medium	good	strong	short	short	med large	MR	S	MR	MS	S	NE	1983	yes
Karl	very early	fair	strong	med short	medium	med large	S	MS	MS	R	MS	KS	1988	yes
Lamar	medium	good	medium	tall	long	med large	S	MS	MR-MS	S	–	CO	1988	no
Norkan	med early	fair	med strong	medium	medium	medium	R	S	R	R	S	KS	1985	yes
Rawhide	early	good	med strong	medium	medium	med large	MR	S	MR	S	MS	NE	1990	yes
Redland	medium	good	strong	medium	short	medium	R	MS-MR	MR	S	LT	NE	1985	yes
Scout 66	early	fair	medium	tall	long	med large	S	MS	MR	S	LT	NE	1966	no
Siouxland	med early 6	fair	med strong	med tall	long	med large	S	MS	MR	MS	MT	NE	1984	yes
Siouxland 89	med early	fair	med stong	medium	long	med large	S	MS	MR	MS	MT	TX	1990	yes
TAM 107	very early	fair	very strong	med short	long	med large	S	S	MR-MS	S	MT	TX	1984	yes
TAM 200	med early	poor	med strong	short	short	small	S	MS-MR	MR-MS	S	MT	TX	1987	no
Vona	early	poor	strong	short	short	small	S	S	MR-MS	S	S	CO	1976	yes
2163	med early	poor	very strong	medium	medium	med large	R	MR	MS	R	LT	PIO/KSU	1989	yes

1 These comparative ratings are based on each variety's average performance within its area of adaptation under normal Nebraska growing conditions and cultural practices. This chart is updated annually. Plant appearance may be influenced by soil, weather, pests, and other production conditions. For purposes of yield comparisons between varieties, see Extension Circular 91-103, Nebraska Fall-Sown Small Grain Variety Tests - 1991.

2 R=resistant; S=susceptible, MR=moderately resistant; MS=moderately susceptiable. The reation may vary depending on how favorable conditions are for disease or inspect development practices and/or plant growth or deviations are genetic resistance with the variety. Sources used to comple this information include: field and greenhouse observations and other state university materials. (a) Relative varietal reaction to wheat streak mosaic virus is based upon actual Nebraska yield data from the 1988 and 1989 crops years or other comparable tests. MT=moderate tolerance, LT-low tolerance, MS=moderately susceptible, S=susceptible.

3 If "short" stand uniformity and establishment will be reduced by sowing seed more than 2 inches deep. Deep seeding may also reduce stand of medium and long coleoptile varieties.

4 Actual height and seed size will vary widely with season, location, and production conditions. General seed size ratings: Large=less than 14,000 seeds/lb, small=more than 18,000 seeds/lb. General height ratings under optiumum moisture): short=30-35", medium=35-40", tall=40-45".

5 If "yes" the Plant Variety Protection Act prohibits unauthorized seed production. Generally seed may be sold for planting purposes only when labeled as Certified Quality seed.

6 Maturity may become later compared to other varieties as Siouxland is moved north or west due to response to available heat units.

Table 1. Southeast District Winter Wheat Test. Nemaha County – 1991.

BRAND	VARIETY	GRAIN YIELD BU/A	BUSHEL WEIGHT LBS	PLANT HEIGHT IN	GRAIN PROTEIN PCT	GRAIN WEIGHT 000/LB
TERRA	HR152	51	62.4	31	9.4	16.5
----	TAM 107	51	61.0	31	11.0	12.5
-----	NE86606	49	61.3	35	11.1	15.7
----	TAM 200	48	61.8	28	10.9	17.8
----	Karl	48	62.8	32	12.2	14.2
AGRIPRO	Tomahawk	48	60.4	30	11.3	15.4
-----	2163	47	59.3	30	11.3	15.6
-----	KS8010–72	46	59.6	32	11.4	14.6
-----	Rawhide	45	62.2	33	11.6	16.4
----	Siouxland	44	62.0	36	12.2	15.8
-----	NE87612	44	61.0	32	11.4	15.9
-----	NE86501	43	61.5	33	12.4	14.7
-----	Newcale Triticale	43	50.5	42	11.0	14.8
----	Centura	43	62.8	35	11.4	16.4
-----	KS87H6	43	62.7	31	12.5	16.9
----	Redland	43	60.2	34	11.7	16.5
-----	NE83407	42	60.7	32	12.3	15.6
-----	Lamar	42	63.7	33	11.8	15.2
----	Siouxland 89	42	60.3	35	11.6	15.9
QUANTUM	561	41	61.8	33	12.0	14.0
-----	NE87615	41	60.3	25	12.0	15.9
----	Scout 66	41	63.0	35	12.2	14.9
-----	N87L313	40	60.8	33	12.6	15.7
---	Arapahoe	37	61.1	32	12.7	16.7
----	Turkey	35	61.6	44	12.6	16.3
-----	NE87613	35	61.2	32	12.4	15.9
AVERAGE ALL ENTRIES		**44**	**61.0**	**33**	**11.7**	**15.6**
DIF. REQ. FOR SIG. 5%		**5**	**1.1**	**2**	**0.8**	**0.9**
25%		**3**	**0.7**	**1**	**0.5**	**0.5**

Table 1A. Southeast District Winter Wheat Tests. 1987 – 1991.

		2 Years 1990–1991				3 Years 1989–1991			4 Yr 1988–1991		5 Yr 1987–1991	
Brand	Variety	Grain Yield bu/a	Plant Height inches	Grain Protein pct	Bushel Weight lbs/bu	Grain Yield bu/a	Grain Protein pct	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu
---	Arapahoe	45	36	12.6	59.8	49	13.4	58.7	50	58.6	51	58.1
----	Centura	46	38	11.6	61.4	47	12.8	60.4	49	60.4	48	59.8
----	Karl	48	34	13.6	61.6	48	14.8	60.3	49	60.4	--	--
----	Redland	50	37	11.7	58.8	53	12.4	58.0	53	57.7	54	57
----	Scout 66	38	41	12.3	61.5	43	13.0	60.7	44	60.7	43	59.8
----	Siouxland	48	40	12.3	60.2	53	13.0	59.4	53	59.3	52	58.8
----	Siouxland 89	46	39	11.7	59.3	51	12.5	58.8	--	--	--	--
----	TAM 107	51	34	11.0	59.7	52	12.0	59.2	54	59.2	54	58.6
----	TAM 200	53	30	11.2	61.5	52	12.4	61.0	52	61.4		
----	Turkey	33	46	13.0	59.6	37	13.8	58.7	38	58.8	36	58.1
-----	Lamar	45	38	12.5	61.7	--	--	--	--	--	--	--
-----	Newcale Triticale	46	44	12.0	50.4	45	13.6	50.4	46	51.1	--	--
-----	NE83407	51	34	11.9	59.5	58	12.6	58.5	--	--	--	--
-----	NE86501	49	38	12.9	59.8	--	--	--	--	--	--	--
-----	NE86606	51	39	11.7	60.2	--	--	--	--	--	--	--
-----	Rawhide	50	36	11.8	60.7	56	12.7	59.7	--	--	--	--
-----	2163	50	32	11.9	58.4	--	--	--	--	--	--	--
QUANTUM	561	47	36	12.3	60.5	48	13.4	59.2	--	--	--	--
Average All Entries		**47**	**37**	**12.1**	**59.7**	**49**	**13.0**	**58.8**	**49**	**58.8**	**48**	**58.6**
Dif. Req. for Sig. 5%		**N.S.**	**2**	**0.5**	**0.6**	**4**	**0.4**	**0.5**	**3**	**0.4**	**2**	**0.2**
25%		**2**	**1**	**0.3**	**0.3**	**2**	**0.2**	**0.3**	**1**	**0.3**	**1**	**0.1**

Table 2. South Central District Winter Wheat Tests. Clay and Thayer Counties – 1991.

Brand	Variety	Average Grain Yield bu/a	Clay Grain Yield bu/a	Thayer Grain Yield bu/a	Average Plant Lodging pct	Average Bushel Weight lbs/bu	Average Plant Height in	Average Flower Date May
AGRIPRO	Tomahawk	59	53	65	15	55.9	36	26
-----	Newcale Triticale	58	51	64	6	47.8	46	25
----	Karl	55	54	55	17	57.8	35	22
-----	2163	55	44	66	7	53.9	34	25
-----	NE87615	53	41	65	38	54.6	36	27
QUANTUM	562	52	45	58	7	54.4	38	25
----	TAM 200	52	44	59	51	56.7	35	23
-----	NE86501	51	46	55	41	55.2	43	25
AGRIPRO	Abilene	50	45	55	37	56.5	34	24
-----	NE83407	50	44	55	48	52.7	37	26
-----	KS8010-72	50	42	58	3	53.1	36	24
----	Redland	49	41	57	23	54.0	41	25
---	Arapahoe	49	41	57	51	54.6	40	27
QUANTUM	561	49	46	51	5	54.6	40	25
-----	NE86606	47	41	52	46	54.8	41	25
-----	Rawhide	47	39	54	52	53.7	41	24
-----	KS87H6	47	37	57	48	55.7	37	24
-----	Lamar	46	38	53	7	55.6	39	27
----	TAM 107	46	33	58	7	52.0	36	23
MBS, INC.	EXP9202	46	38	53	18	54.7	36	27
----	Centura	46	40	51	23	55.8	41	26
-----	NE87612	45	40	49	33	51.2	39	27
-----	N87L313	45	41	48	12	52.2	37	24
----	Siouxland 89	43	36	49	18	54.4	42	26
-----	NE87613	43	39	46	42	53.5	41	24
----	Siouxland	39	32	46	24	51.9	41	26
----	Scout 66	35	31	39	66	54.4	42	24
----	Turkey	32	27	36	41	53.8	44	21
Average All Entries		48	41	54	28	54.2	38	25
Dif. Req. for Sig.	5%	8	5	7	NS	2.2	2	3.1
	25%	4	3	4	27	1.3	1	1.8

Table 2A. South Central Winter Wheat Tests. 1987 – 1991.

		2 Year Average 1990 – 1991					3 Yr Avg 1989 – 1991			4 Yr 1988–1991		5 Yr 1987–1991	
Brand	Variety	Grain Yield bu/a	Plant Lodging pct	Plant Height inches	Grain Protein pct	Bushel Weight lbs/bu	Grain Yield bu/a	Grain Protein pct	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu
---	Arapahoe	58	33	41	10.6	55.6	49	13.0	55.8	48	56.5	52	56.2
----	Centura	51	23	43	9.8	56.2	43	12.4	56.6	43	57.6	46	57.3
----	Karl	56	13	36	11.3	58.4	--	--	--	--	--	--	--
----	Redland	56	21	41	11.4	54.8	47	12.2	54.9	46	55.8	49	55.3
----	Scout 66	41	41	45	12.7	55.8	36	13.4	56.4	38	57.5	40	57.2
----	Siouxland	49	21	43	10.1	54.1	44	12.3	55.0	45	56.3	48	56.1
----	Siouxland 89	49	19	43	10.3	55.1	--	--	--	--	--	--	--
----	TAM 107	52	13	36	10.3	53.5	44	12.3	54.8	46	56.1	50	55.9
----	TAM 200	59	44	34	9.8	57.4	51	12.5	57.5	48	58.8		
----	Turkey	37	27	46	11.5	54.3	35	13.5	55.1	36	56.3	37	55.9
-----	Lamar	48	23	41	11.5	55.9	--	--	--	--	--	--	--
-----	Newcale Triticale	58	8	46	11.2	48.8	46	13.5	49.3	45	49.9	--	--
-----	NE83407	57	31	38	11.6	54.8	50	12.6	55.0	--	--	--	--
-----	NE86501	57	28	44	12.4	56.3	--	--	--	--	--	--	--
-----	NE86606	55	28	43	11.4	56.4	--	--	--	--	--	--	--
-----	Rawhide	55	36	41	10.6	55.4	47	12.9	55.9				
AGRIPRO	Abilene	59	28	34	9.9	57.9	47	13.0	58.1	48	59.0	52	58.4
QUANTUM	561	55	13	40	10.1	55.6	--	--	--	--	--	--	--
QUANTUM	562	58	19	39	9.6	55.0	--	--	--	--	--	--	--
Average All Entries		53	25	41	11.1	55.3	45	12.8	55.4	44	56.4	47	56.5
Dif. Req. for Sig.	5%	3	N.S.	1	0.5	0.6	3	0.6	0.5	N.S.	0.5	2	0.4
	25%	1	N.S.	1	0.2	0.3	2	0.2	0.3	2	0.3	1	0.2

Table 3. West Central District Winter Wheat Tests – 1991. Keith, Dundy, Red Willow, Custer, and Lincoln Counties

							Lincoln Co.						
		Avg	Keith	Dundy	Rd Wl	Custer	FldPlt	Nursy	Average				
Brand	Variety	Grain Yield bu/a	Grain Yield bu/a	Grain Yield bu/a	Grain Yield bu/a	Grain Yield bu/a	Grain Yield bu/a	Grain Yield bu/a	Plant Lodging pct	Grain Weight 000/lb	Grain Protein pct	Bushel Weight lbs/bu	Plant Height in
----	Karl	48	38	45	66	43	39	54	17	17.2	12.6	59	31
AGRIPRO	Tomahawk	46	42	41	62	42	36	53	13	16.5	12.4	58	32
-----	Newcale Triticale	45	55	34	63	36	27	54	6	15.6	12.0	50	41
---	Arapahoe	44	50	43	49	38	36	49	31	18.3	12.4	57	36
----	Redland	43	42	39	53	34	40	49	10	18.4	11.9	56	36
-----	NE87615	43	47	39	52	36	38	48	20	17.6	12.4	57	32
-----	NE86501	41	43	44	45	32	32	47	39	17.1	12.7	58	37
-----	KS87H6	41	41	41	52	33	33	48	24	18.3	12.7	58	33
----	Siouxland 89	40	41	41	50	22	39	44	17	18.3	12.0	58	38
----	Siouxland	40	43	40	52	24	39	41	14	18.4	12.1	57	39
-----	NE87612	40	38	44	50	22	39	44	11	17.7	11.9	56	34
-----	KS8010–72	39	34	42	49	25	28	56	5	17.0	12.3	55	32
QUANTUM	562	38	36	39	51	24	35	45	3	17.9	11.9	57	34
AGRIPRO	Thunderbird	38	33	38	48	32	31	48	16	17.6	12.6	59	37
----	Cody	38	37	46	43	25	32	42	21	18.3	12.1	57	38
AGRIPRO	Longhorn	38	35	35	50	31	28	48	2	16.4	12.7	59	35
AGRIPRO	Abilene	37	31	41	51	24	35	40	6	20.4	12.6	58	31
-----	NE86606	37	35	45	41	24	35	43	45	19.3	12.0	57	37
AGRIPRO	Bronco	36	37	40	43	25	32	41	30	18.9	12.0	57	33
-----	NE87613	36	30	38	45	24	34	44	21	17.9	12.3	57	36
----	Centura	36	34	44	45	25	27	43	14	17.5	12.5	58	39
QUANTUM	549	36	34	45	45	22	32	40	5	19.1	12.0	56	35
-----	Rawhide	35	35	41	43	19	31	43	32	19.1	12.2	56	36
-----	NE83407	35	28	41	49	22	27	41	17	18.8	12.0	55	33
----	Scout 66	34	39	39	37	20	30	37	72	17.0	12.4	58	38
-----	Lamar	34	33	41	42	26	20	41	14	17.0	12.6	57	37
----	TAM 107	33	29	34	43	25	27	41	20	17.3	12.2	56	32
----	TAM 200	33	33	32	53	22	17	42	16	20.3	12.3	59	29
-----	N87L313	31	21	35	49	18	21	42	29	18.3	12.9	55	34
QUANTUM	542	30	22	39	32	18	32	35	17	19.3	11.5	54	39
----	Turkey	26	33	36	24	16	20	29	59	19.1	12.7	55	39
-----	Sandy	26	27	43	24	14	20	28	40	19.4	12.2	57	37
Average All Entries		36	36	40	47	26	31	44	20	18.1	12.2	57.4	35
Dif. Req. for Sig.	5%	6	5	4	7	7	9	5	16	1.1	0.4	1.5	1
	25%	3	3	2	4	4	5	3	9	0.6	0.2	0.9	1

Table 3A. West Central District Winter Wheat Tests. 1987 – 1991.

		2 Year Average 1990 – 1991						3 Year 1989–1991			4 Yr 1988–1991		5 Yr 1987–1991	
Brand	Variety	Grain Yield bu/a	Plant Lodging pct	Grain Weight 000/lb	Grain Protein pct	Bushel Weight lbs/bu	Plant Height in	Grain Yield bu/a	Grain Protein pct	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu
----	Arapahoe	52	22	17.2	11.9	57.9	37	41	13.0	56.6	42	54.8	44	55.0
----	Centura	45	21	16.6	11.9	59.0	39	39	13.0	58.4	38	56.5	41	56.9
----	Cody	45	19	17.5	11.5	57.9	39	37	12.7	56.7	38	55.3	40	55.6
----	Karl	54	8	16.4	12.0	60.3	33	42	13.7	58.7	43	57.6		
----	Redland	49	10	17.2	11.2	57.0	37	38	12.1	56.6	38	54.2	41	54.3
----	Scout 66	40	65	16.0	12.0	59.3	40	36	12.9	57.4	36	56.4	37	56.6
----	Siouxland	46	12	17.3	11.6	58.2	40	41	12.6	56.7	40	55.0	43	55.5
----	Siouxland 89	46	14	17.4	11.7	58.4	39	--	--	--	--	--	--	--
----	TAM 107	44	6	16.2	12.1	57.7	33	38	12.8	57.2	38	55.4	43	55.7
----	TAM 200	46	11	18.4	11.7	59.7	31	35	12.8	58.8	34	57.5		
----	Turkey	35	52	17.1	12.1	57.4	41	32	13.2	56.4	31	54.8	32	55.0
-----	Lamar	45	18	16.1	11.9	58.6	38	--	--	--	--	--	--	--
-----	Newcale	51	7	15.7	11.7	51.4	41	40	12.7	50.2	35	48.2	--	--
-----	NE83407	47	13	16.9	11.4	56.8	33	39	12.5	55.6	--	--	--	--
-----	NE86501	49	23	16.1	12.1	59.0	38	--	--	--	--	--	--	--
-----	NE86606	44	32	17.7	11.6	58.5	39	--	--	--	--	--	--	--
-----	Rawhide	45	21	17.9	11.9	57.9	37	38	13.0	56.9	--	--	--	--
-----	Sandy	37	24	18.0	11.6	58.2	39	--	--	--	--	--	--	--
AGRIPRO	Abilene	48	5	18.7	11.9	59.9	32	41	13.0	59.2	41	57.3	45	57.7
AGRIPRO	Bronco	44	23	17.2	11.3	58.7	34	--	--	--	--	--	--	--
AGRIPRO	Thunderbird	45	12	16.7	12.3	60.0	37	37	13.4	58.1	38	56.8	41	57.1
QUANTUM	542	40	16	17.5	11.1	56.4	39	--	--	--	--	--	--	--
QUANTUM	549	48	3	17.7	11.6	57.4	37	--	--	--	--	--	--	--
QUANTUM	562	49	4	17.2	11.6	58.2	34	--	--	--	--	--	--	--
Average All Entries		45	19	17.1	11.7	58.1	37	38	12.9	56.9	38	55.4	41	55.9
Dif. Req. for Sig.	5%	2	2	0.4	0.1	0.5	0.2	N.S.	0.2	0.4	N.S.	0.4	2	0.4
	25%	1	1	0.2	0.1	0.3	0.1	N.S.	0.1	0.2	1	0.2	1	0.2

Table 4. West District Winter Wheat Tests – 1991
Cheyenne, Banner, Morrill, and Dawes Counties

Brand	Variety	Avg Grain Yield bu/a	Chyn Grain Yield bu/a	Dawes Grain Yield bu/a	Bnnr Grain Yield bu/a	Mor'l Grain Yield bu/a	Average Plant Lodging pct	Average Grain Protein pct	Average Grain Weight 000/lb	Average Bushel Weight lbs/bu	Average Plant Height in
-----	NE87612	52	57	38	52	59	0	15	11.5	59.4	32
-----	NE87615	48	57	31	52	53	3	15	12.6	59.3	28
---	ARAPAHOE	47	60	32	50	47	0	17	13.2	59.7	34
QUANTUM	549	46	49	34	52	50	0	17	11.7	58.4	34
----	SIOUXLAND 89	46	60	23	49	51	1	16	12.4	59.7	37
----	REDLAND	45	57	30	45	46	1	16	12.1	58.6	34
-----	KS8010-72	44	52	30	51	43	0	16	12.5	58.4	30
-----	NE83407	44	54	29	42	49	0	17	12.1	57.4	30
AGRIPRO	BRONCO	43	55	30	43	44	4	17	11.6	59.5	31
-----	KS87H6	43	55	29	42	46	0	17	13.0	60.6	29
-----	NE86501	43	58	22	42	48	2	15	13.7	58.9	34
----	BUCKSKIN	43	54	24	45	50	10	16	12.2	60.0	39
----	CODY	43	54	24	45	47	0	17	12.3	58.7	35
----	SIOUXLAND	43	54	20	45	51	0	16	12.4	60.0	36
-----	Rawhide	42	54	28	38	46	0	17	12.4	60.2	34
-----	NE86606	42	53	24	42	48	3	17	12.5	60.0	34
QUANTUM	562	41	53	29	37	45	0	17	12.4	58.6	31
AGRIPRO	ABILENE	41	48	29	40	46	0	18	12.8	61.3	28
----	TAM 107	41	46	25	49	42	2	15	12.2	58.7	29
AGRIPRO	THUNDERBIRD	41	56	24	44	41	0	16	13.4	61.2	32
-----	NE87613	40	48	30	38	44	1	15	12.9	59.4	33
----	SCOUT 66	40	56	21	40	41	32	15	13.1	60.5	38
----	CENTURA	40	48	21	43	47	3	17	12.7	58.7	35
-----	Lamar	39	52	28	39	38	1	15	13.0	61.1	35
----	KARL	39	48	22	42	42	0	15	14.2	59.8	30
QUANTUM	542	39	44	25	42	46	1	17	11.8	57.8	36
-----	Newcale Triticale	37	49	21	40	37	0	16	13.0	51.8	36
----	TURKEY	37	49	22	38	39	38	17	12.9	59.9	41
-----	Hybrid F2#2	37	43	25	38	41	0	18	13.1	57.8	33
-----	Hybrid F2#3	35	42	31	30	37	0	18	13.1	57.5	31
-----	Sandy	35	50	24	31	35	1	19	11.8	59.6	35
-----	N87L313	33	48	19	32	32	1	16	13.5	56.7	30
----	TAM 200	33	45	22	36	28	1	19	12.7	60.2	27
-----	Hybrid F2#1	32	35	23	33	35	0	18	12.8	56.2	36
Average All Entries		41	51	26	42	44	3	16.5	12.6	59.0	33
Dif. Req. for Sig.	5%	5	6	12	9	6	11	1.2	0.7	1.7	2
	25%	3	4	7	5	3	6	0.7	0.4	1.0	1

Table 4A. West District Winter Wheat Tests. 1987 – 1991.

		2 Year Average 1990 – 1991						3 Year 1989 – 1991			4 Yr 1988–1991		5 Yr 1987–1991	
Brand	Variety	Grain Yield bu/a	Plant Lodging pct	Grain Weight 000/lb	Grain Protein pct	Bushel Weight lbs/bu	Plant Height inches	Grain Yield bu/a	Grain Protein pct	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu	Grain Yield bu/a	Bushel Weight lbs/bu
---	Arapahoe	45	0	17.6	12.8	58.1	32	41	12.5	58.7	42	58.0	44	58.2
----	Buckskin	43	5	16.6	12.3	58.6	37	40	12.2	59.5	41	58.8	43	59.1
----	Centura	41	2	17.3	12.5	58.1	34	39	12.2	59.1	40	58.5	43	58.9
----	Cody	42	0	18.1	12.3	57.6	34	39	12.0	58.7	40	57.9	43	58.3
----	Karl	41	0	15.7	13.4	59.6	29	37	13.6	60.0	38	59.3	--	--
----	Redland	43	1	17.2	11.9	57.1	33	41	11.6	57.8	42	57.0	44	57.4
----	Scout 66	40	22	15.3	12.4	59.6	36	38	11.9	60.1	38	59.4	41	59.6
----	Siouxland	42	0	17.3	12.5	58.5	35	39	12.2	59.3	41	58.6	43	58.9
----	Siouxland 89	44	0	17.0	12.2	58.5	36	--	--	--	--	--	--	--
----	TAM 107	42	1	15.0	12.0	58.2	28	40	11.7	58.8	42	58.3	45	58.6
----	TAM 200	37	0	19.3	12.3	59.8	27	36	12.0	60.8	37	60.2	--	--
----	Turkey	38	23	17.3	12.7	58.6	38	35	12.4	59.4	36	58.7	37	58.8
-----	Lamar	41	1	16.1	12.6	60.1	34	--	--	--	--	--	--	--
-----	Newcale	38	1	16.0	12.6	49.9	36	35	12.3	50.9	36	50.2	--	--
-----	NE83407	43	0	17.2	12.2	56.8	29	40	12.0	57.9	--	--	--	--
-----	NE86501	43	1	16.0	13.0	58.0	33	--	--	--	--	--	--	--
-----	NE86606	41	2	18.0	12.4	58.5	34	--	--	--	--	--	--	--
-----	Rawhide	44	0	17.9	12.3	59.0	33	41	11.9	59.7	--	--	--	--
-----	Sandy	39	1	19.2	11.8	58.9	34	--	--	--	--	--	--	--
AGRIPRO	Abilene	42	0	18.5	12.7	60.8	27	40	13.0	61.5	41	60.6	43	60.6
AGRIPRO	Bronco	43	2	18.4	11.6	58.1	30	--	--	--	--	--	--	--
AGRIPRO	Thunderbird	41	1	16.4	12.9	60.4	31	38	12.7	61.0	39	60.2	42	60.4
QUANTUM	542	42	0	17.4	12.1	57.5	35	--	--	--	--	--	--	--
QUANTUM	549	45	0	18.1	11.9	57.3	32	--	--	--	--	--	--	--
QUANTUM	562	42	0	18.2	12.3	57.3	35	41	11.7	58.6	42	57.8	--	--
Average All Entries		42	2	17.3	12.4	58.2	32.7	39	12.2	58.9	40	58.2	43	59.0
Dif. Req. for Sig.	5%	N.S.	2	0.3	0.3	1.4	0.4	1	0.3	0.4	1	0.3	1	0.2
	25%	1	1	0.2	0.2	0.2	0.2	1	0.2	0.2	1	0.2	1	0.1

Table 5. Cheyenne County Irrigated Winter Wheat Variety Test – 1991

Brand	Variety	Grain Yield bu/a	Bushel Weight lbs/bu	Plant Height in	Grain Protein pct	Grain Weight 000/lb
-----	NE87615	62	60.8	29	12.3	15.4
---	Arapahoe	61	60.7	36	12.8	16.6
-----	KS87H6	59	61.8	33	13.5	16.8
-----	2163	59	59.0	30	12.2	17.0
-----	NE83407	58	58.4	33	11.6	16.9
-----	Newcale Triticale	57	51.2	44	12.4	16.0
Agripro	Tomahawk	57	60.4	30	13.7	15.0
-----	KS8010-72	55	59.5	32	12.1	15.6
Quantum	562	55	60.2	32	11.6	18.0
-----	Rawhide	55	61.1	35	13.2	17.9
Agripro	Victory	54	59.5	31	13.4	16.5
Agripro	Abilene	54	61.8	30	13.4	19.4
----	Redland	53	59.1	36	11.7	16.5
-----	NE86606	53	60.4	38	12.1	17.9
----	Karl	52	62.0	30	13.7	16.1
----	Siouxland	52	60.4	40	12.8	16.8
----	Colt	51	60.0	30	12.7	16.9
-----	NE86501	51	60.3	36	13.2	15.4
----	Siouxland 89	51	60.7	39	12.4	16.0
----	TAM 200	50	61.3	30	13.1	20.8
-----	NE87613	50	59.8	34	12.9	15.4
-----	NE87612	50	58.7	32	12.3	16.4
----	TAM 107	50	59.1	30	11.9	16.2
-----	Lamar	49	60.9	38	12.2	15.7
MBS, INC.	Exp8860	47	61.5	25	13.7	19.1
-----	N87L313	46	58.0	33	13.1	16.3
-----	Hybrid F2#2	46	58.7	36	13.6	18.5
-----	Hybrid F2#3	45	59.4	33	12.7	17.6
-----	Hybrid F2#1	39	56.9	39	12.5	19.3
Average All Entries		**53**	**59.7**	**34**	**12.7**	**17.0**
Dif. Req. for Sig.	**5%**	**5**	**1.0**	**2**	**1.3**	**2.0**
	25%	**3**	**0.6**	**1**	**0.7**	**1.2**

Table 5A. West District Irrigated Wheat. Two Year Average. 1990 – 1991.

Brand	Variety	Grain Yield bu/a	Plant Height inches	Grain Weight 000/lb	Grain Protein pct	Bushel Weight lbs/bu
---	Arapahoe	58	36	19.7	13.6	56.7
-----	2163	58	32	19.5	13.1	55.2
-----	Newcale Triticale	57	43	18.9	13.4	49.8
AGRIPRO	Victory	57	32	18.3	13.7	57.2
AGRIPRO	Abilene	57	31	21.4	14.0	58.9
-----	NE83407	56	34	18.7	12.9	55.5
----	Karl	55	31	17.3	14.1	59.7
QUANTUM	562	54	33	20.8	12.8	55.8
-----	Rawhide	54	36	20.3	13.6	57.5
MBS, INC.	EXP8860	54	27	20.0	13.6	59.7
----	Colt	54	31	18.9	13.2	56.8
----	TAM 107	53	32	17.8	13.0	56.0
----	TAM 200	53	31	22.9	13.5	58.2
-----	NE86501	52	37	17.6	13.8	57.4
----	Redland	52	36	19.7	12.5	54.9
-----	NE86606	51	38	20.0	13.1	56.5
----	Siouxland	51	39	20.0	13.5	56.6
----	Siouxland 89	50	38	18.7	13.2	56.9
-----	Lamar	48	38	18.2	13.5	58.2
Average All Entries		54	34	19.4	13.4	56.7
Dif. Req. for Sig.	5%	NS	1	0.8	NS	1.0
	25%	NS	1	0.4	NS	0.5

Table 6. Cheyenne County Winter Wheat Ecofallow Test – 1991

Brand	Variety	Grain Yield bu/a	Bushel Weight lbs/bu	Plant Height in	Grain Protein pct	Grain Weight 000/lb
---	Arapahoe	37	61.5	26	12.5	16.8
-----	NE87612	36	61.5	24	11.0	16.0
----	Redland	36	60.9	25	11.4	17.3
-----	NE86606	35	61.8	29	11.2	16.3
-----	NE83407	35	60.1	24	11.2	17.5
-----	KS8010-72	35	61.2	25	11.7	15.0
-----	Lamar	34	63.5	28	11.5	16.3
----	Siouxland	34	61.5	30	10.8	15.3
----	Siouxland 89	34	62.5	31	12.4	16.9
-----	NE87615	34	61.0	21	12.3	15.9
-----	Rawhide	33	62.0	26	12.2	18.3
-----	KS87H6	33	62.4	23	13.0	16.6
-----	Newcale Triticale	32	53.9	31	11.7	15.5
QUANTUM	542	32	61.0	29	10.7	17.2
----	Karl	32	62.5	24	13.0	16.8
MBS, INC.	EXP9202	31	61.3	25	12.0	16.3
-----	N87L313	30	59.6	26	12.5	17.2
----	TAM 200	30	64.3	23	12.1	17.9
-----	NE86501	29	61.0	26	12.5	15.2
----	TAM 107	29	59.8	23	11.4	16.7
-----	NE87613	28	61.8	25	12.8	16.1
-----	Hybrid F2#1	27	59.1	29	11.9	16.4
-----	Hybrid F2#3	27	60.9	25	12.2	18.0
-----	Hybrid F2#2	26	60.5	26	12.7	17.0
Average All Entries		**32**	**61.1**	**26**	**11.9**	**16.6**
Dif. Req. for Sig.	**5%**	**3**	**1.3**	**2**	**0.7**	**1.8**
	25%	**2**	**0.8**	**1**	**0.4**	**1.0**

Table 7. Clay, Dundy, Custer & Keith Counties Leaf Rust and Scab Ratings

Brand	Variety	CLAY RUST	CLAY SCAB	DUNDY RUST	CUSTER RUST	KEITH RUST
		---Rating----		-----Percent------		
-----	2163	2	4	--	--	--
Quantum	542	--	--	13	27	35
Quantum	549	--	--	25	50	47
Quantum	561	4	3	--	--	--
Quantum	562	4	3	27	45	48
AgriPro	Abilene	3	3	37	57	48
AgriPro	Bronco	--	--	43	45	73
AgriPro	Longhorn	--	--	13	30	25
AgriPro	Thunderbird	--	--	23	53	50
AgriPro	Tomahawk	3	3	10	18	22
---	Arapahoe	3	4	15	4	18
----	Centura	3	3	23	7	25
----	Cody	--	--	20	25	60
MBS, INC.	Exp9202	3	3	--	--	--
----	Karl	2	3	8	25	23
-----	KS8010-72	3	3	28	47	48
-----	KS87H6	4	3	5	8	15
-----	Lamar	2	4	7	13	22
-----	N87L313	2	2	25	20	53
-----	NE83407	3	3	50	62	72
-----	NE86501	3	3	17	17	38
-----	NE86606	3	3	8	47	33
-----	NE87612	4	3	28	53	60
-----	NE87613	4	3	42	65	63
-----	NE87615	3	4	13	12	32
-----	Newcale Triticale	2	2	--	0	1
-----	Rawhide	4	3	57	67	65
----	Redland	3	4	13	13	25
-----	Sandy	--	--	17	62	63
----	Scout 66	4	3	40	70	65
----	Siouxland	5	2	47	52	60
----	Siouxland 89	5	2	43	47	73
----	TAM 107	5	2	57	75	80
----	TAM 200	3	4	23	15	40
----	Turkey	5	3	47	70	60
AVERAGE ALL ENTRIES		**2**	**3.2**	**27**	**39**	**46**
DIF. REQ. FOR SIG.	**5%**	**0.6**	**0.8**	**8**	**9**	**8**
	25%	**0.3**	**0.5**	**5**	**5**	**4**

Table 8. Winter wheat yields at all locations in 1991.

Brand	Variety	Nem	Clay	Thyr	Keith	Dundy	Red Wil	Custer	Lnc FP	Lnc Nsy	Chy D	Dawes	Bannr	Morrl	ChyIrr	ChyEco
		bu/a														
---	ARAPAHOE	37	41	57	50	43	49	38	36	49	60	32	50	47	61	37
----	BUCKSKIN	.	.	.	.	.	.	.	.	.	54	24	45	50	.	.
----	CENTURA	43	40	51	34	44	45	25	27	43	48	21	43	47	.	.
----	CODY	.	.	.	37	46	43	25	32	42	54	24	45	47	.	.
----	COLT	.	.	.	.	.	.	.	.	.	.	.	.	.	51	.
----	KARL	48	54	55	38	45	66	43	39	54	48	22	42	42	52	32
----	REDLAND	43	41	57	42	39	53	34	40	49	57	30	45	46	53	36
----	SCOUT 66	41	31	39	39	39	37	20	30	37	56	21	40	41	.	.
----	SIOUXLAND	44	32	46	43	40	52	24	39	41	54	20	45	51	52	34
----	SIOUXLAND 89	42	36	49	41	41	50	22	39	44	60	23	49	51	51	34
----	TAM 107	51	33	58	29	34	43	25	27	41	46	25	49	42	50	29
----	TAM 200	48	44	59	33	32	53	22	17	42	45	22	36	28	50	30
----	TURKEY	35	27	36	33	36	24	16	20	29	49	22	38	39	.	.
-----	Hybrid F2#1	.	.	.	.	.	.	.	.	.	35	23	33	35	39	27
-----	Hybrid F2#2	.	.	.	.	.	.	.	.	.	43	25	38	41	46	26
-----	Hybrid F2#3	.	.	.	.	.	.	.	.	.	42	31	30	37	45	27
-----	KS8010-72	46	42	58	34	42	49	25	28	56	52	30	51	43	55	35
-----	KS87H6	43	37	57	41	41	52	33	33	48	55	29	42	46	59	33
-----	LAMAR	42	38	53	33	41	42	26	20	41	52	28	39	38	49	34
-----	NEWCALE	43	51	64	55	34	63	36	27	54	49	21	40	37	57	32
-----	NE83407	42	44	55	28	41	49	22	27	41	54	29	42	49	58	35
-----	NE86501	43	46	55	43	44	45	32	32	47	58	22	42	48	51	29
-----	NE86606	49	41	52	35	45	41	24	35	43	53	24	42	48	53	35
-----	NE87612	44	40	49	38	44	50	22	39	44	57	38	52	59	50	36
-----	NE87613	35	39	46	30	38	45	24	34	44	48	30	38	44	50	28
-----	NE87615	41	41	65	47	39	52	36	38	48	57	31	52	53	62	34
-----	N87L313	40	41	48	21	35	49	18	21	42	48	19	32	32	46	30
-----	RAWHIDE	45	39	54	35	41	43	19	31	43	54	28	38	46	55	33
-----	SANDY	.	.	.	27	43	24	14	20	28	50	24	31	35	.	.
-----	2163	47	44	66	.	.	.	.	.	.	.	.	.	.	59	.
AGRIPRO	ABILENE	.	45	55	31	41	51	24	35	40	48	29	40	46	54	.
AGRIPRO	BRONCO	.	.	.	37	40	43	25	32	41	55	30	43	44	.	.
AGRIPRO	LONGHORN	.	.	.	35	35	50	31	28	48	.	.	.	.	.	.
AGRIPRO	THUNDERBIRD	.	.	.	33	38	48	32	31	48	56	24	44	41	.	.
AGRIPRO	TOMAHAWK	48	53	65	42	41	62	42	36	53	.	.	.	.	57	.
AGRIPRO	VICTORY	.	.	.	.	.	.	.	.	.	.	.	.	.	54	.
MBS, INC.	EXP8860	.	.	.	.	.	.	.	.	.	.	.	.	.	47	.
MBS, INC.	EXP9202	.	38	53	.	.	.	.	.	.	.	.	.	.	.	31
QUANTUM	542	.	.	.	22	39	32	18	32	35	44	25	42	46	.	32
QUANTUM	549	.	.	.	34	45	45	22	32	40	49	34	52	50	.	.
QUANTUM	561	41	46	51	.	.	.	.	.	.	.	.	.	.	.	.
QUANTUM	562	.	45	58	36	39	51	24	35	45	53	29	37	45	55	.
TERRA	HR152	51	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Table 8A. Winter wheat yields as % of checks – 1991.

Checks = Arapahoe, Redland, and Siouxland.

Brand	Variety	Nem	Clay	Thyr	Keith	Dundy	Red Wil	Custer	Lnc FP	Lnc Nsy	Chy D	Dawes	Bannr	Morrl	Chy Irr	Chy Ecc	Avg.
		-% of Arapahoe, Redland, and Siouxland-															
TERRA	HR152	123	--	--	--	--	--	--	--	--	--	--	--	--	--	--	123
-----	2163	114	116	124	--	--	--	--	--	--	--	--	--	--	107	--	115
AGRIPRO	TOMAHAWK	116	139	122	93	101	121	131	94	114	--	--	--	--	103	--	113
-----	NE87615	99	108	122	104	96	101	113	99	104	100	113	111	110	112	95	106
QUANTUM	561	99	121	96	--	--	--	--	--	--	--	--	--	--	--	--	105
---	ARAPAHOE	90	108	107	111	106	95	119	94	106	105	117	107	98	110	104	105
----	KARL	116	142	103	84	111	129	134	102	117	84	80	90	88	94	90	104
----	REDLAND	104	108	107	93	96	103	106	104	106	100	110	96	96	96	101	102
-----	NE87612	106	105	92	84	108	97	69	102	95	100	139	111	123	90	101	102
-----	NEWCALE	104	134	120	122	84	123	113	70	117	86	77	86	77	103	90	100
-----	KS87H6	104	97	107	91	101	101	103	86	104	96	106	90	96	107	93	99
-----	KS8010-72	111	111	109	76	103	95	78	73	121	91	110	109	90	99	98	98
AGRIPRO	VICTORY	--	--	--	--	--	--	--	--	--	--	--	--	--	98	--	98
-----	NE86501	104	121	103	96	108	88	100	83	101	102	80	90	100	92	81	97
----	BUCKSKIN	--	--	--	--	--	--	--	--	--	95	88	96	104	--	--	96
MBS, INC.	EXP9202	--	100	99	--	--	--	--	--	--	--	--	--	--	--	87	95
----	SIOUXLAND 89	102	95	92	91	101	97	69	102	95	105	84	105	106	92	95	95
QUANTUM	562	--	118	109	80	96	99	75	91	97	93	106	79	94	99	--	95
-----	NE86606	119	108	98	78	111	80	75	91	93	93	88	90	100	96	98	94
QUANTUM	549	--	--	--	76	111	88	69	83	86	86	124	111	104	--	--	94
-----	NE83407	102	116	103	62	101	95	69	70	88	95	106	90	102	105	98	94
AGRIPRO	ABILENE	--	118	103	69	101	99	75	91	86	84	106	86	96	98	--	93
----	SIOUXLAND	106	84	86	96	98	101	75	102	88	95	73	96	106	94	95	93
----	COLT	--	--	--	--	--	--	--	--	--	--	--	--	--	92	--	92
-----	RAWHIDE	109	103	101	78	101	84	59	81	93	95	102	81	96	99	93	92
AGRIPRO	THUNDERBIRD	--	--	--	73	93	94	100	81	104	98	88	94	85	--	--	91
----	CODY	--	--	--	82	113	84	78	83	91	95	88	96	98	--	--	91
AGRIPRO	BRONCO	--	--	--	82	98	84	78	83	88	96	110	92	92	--	--	90
----	CENTURA	104	105	96	76	108	88	78	70	93	84	77	92	98	--	--	90
AGRIPRO	LONGHORN	--	--	--	78	86	97	97	73	104	--	--	--	--	--	--	89
----	TAM 107	123	87	109	64	84	84	78	70	88	81	91	105	88	90	81	88
-----	LAMAR	102	100	99	73	101	82	81	52	88	91	102	84	79	89	95	88
-----	NE87613	85	103	86	67	93	88	75	89	95	84	110	81	92	90	79	88
MBS, INC.	EXP8860	--	--	--	--	--	--	--	--	--	--	--	--	--	85	--	85
----	TAM 200	116	116	111	73	79	103	69	44	91	79	80	77	58	90	84	85
----	SCOUT 66	99	82	73	87	96	72	63	78	80	98	77	86	85	--	--	83
-----	Hybrid F2#2	--	--	--	--	--	--	--	--	--	75	91	81	85	83	73	82
-----	Hybrid F2#3	--	--	--	--	--	--	--	--	--	74	113	64	77	81	76	81
QUANTUM	542	--	--	--	49	96	62	56	83	76	77	91	90	96	--	90	79
-----	N87L313	97	108	90	47	86	95	56	55	91	84	70	69	67	83	84	79
-----	Hybrid F2#1	--	--	--	--	--	--	--	--	--	61	84	71	73	70	76	73
----	TURKEY	85	71	68	73	89	47	50	52	63	86	80	81	81	--	--	71
-----	SANDY	--	--	--	60	106	47	44	52	60	88	88	66	73	--	--	68

Table 9. Winter wheat bushel weights at all locations in 1991.

Brand	Variety	Nem	Clay	Thyr	Keith	Dundy	Rd Wl	Custer	Lnc FP	Lnc Nsy	Chy Dr	Dawes	Bannr	Morrl	Chylrr	ChyEco
		lb/bu														
---	ARAPAHOE	61.1	51.5	57.6	58.8	61.7	56.8	57.6	53.2	55.8	61.8	55.3	59.8	61.8	60.7	61.5
----	BUCKSKIN	.	.	.	.	.	.	.	.	.	61.3	55.2	60.8	62.5	.	.
----	CENTURA	62.8	54.4	57.2	57.5	64.1	57.7	56.9	54.9	56.4	61.0	50.1	61.2	62.4	.	.
----	CODY	.	.	.	56.3	61.3	56.6	56.0	53.3	55.8	61.5	53.3	58.3	61.7	.	.
----	COLT	.	.	.	.	.	.	.	.	.	.	.	.	.	60.0	.
----	KARL	62.8	55.3	60.2	59.3	63.2	59.8	60.3	54.8	56.7	62.3	52.2	61.5	63.0	62.0	62.5
----	REDLAND	60.2	51.5	56.5	56.7	60.4	56.1	55.2	52.3	54.4	59.6	54.2	59.2	61.2	59.1	60.9
----	SCOUT 66	63.0	53.7	55.1	61.2	63.1	55.9	56.5	56.0	55.5	62.8	54.9	61.7	62.5	.	.
----	SIOUXLAND	62.0	48.5	55.3	57.2	62.5	56.3	56.1	54.9	53.7	62.6	54.3	60.0	63.0	60.4	61.5
----	SIOUXLAND 89	60.3	52.7	56.1	58.0	62.7	57.3	57.1	55.0	55.0	62.3	53.8	61.0	61.6	60.7	62.5
----	TAM 107	61.0	48.5	55.5	55.9	61.2	57.5	56.3	53.9	53.5	60.9	52.7	60.5	60.6	59.1	59.8
----	TAM 200	61.8	54.2	59.1	58.9	63.6	60.9	59.5	55.5	56.4	62.4	53.3	62.5	62.5	61.3	64.3
----	TURKEY	61.6	51.7	55.9	57.7	62.9	51.6	54.2	52.9	53.3	60.7	56.0	60.2	62.5	.	.
-----	Hybrid F2#1	.	.	.	.	.	.	.	.	.	55.1	53.6	56.4	59.8	56.9	59.1
-----	Hybrid F2#2	.	.	.	.	.	.	.	.	.	58.3	54.0	58.2	60.7	58.7	60.5
-----	Hybrid F2#3	.	.	.	.	.	.	.	.	.	58.7	55.0	56.7	59.6	59.4	60.9
-----	KS8010-72	59.6	49.6	56.6	56.3	61.9	56.7	51.4	51.8	53.3	59.8	53.9	58.7	61.1	59.5	61.2
-----	KS87H6	62.7	52.2	59.2	58.4	63.1	59.4	58.5	54.4	54.2	62.6	56.1	60.8	62.8	61.8	62.4
-----	Lamar	63.7	52.3	58.9	58.0	62.5	57.7	53.0	54.0	56.9	63.1	57.6	61.1	62.6	60.9	63.5
-----	Newcale	50.5	46.0	49.5	48.8	53.5	51.9	48.8	48.8	49.0	53.4	48.4	52.9	52.6	51.2	53.9
-----	NE83407	60.7	50.2	55.1	53.8	61.6	53.0	54.6	51.0	52.9	59.3	52.1	59.4	58.9	58.4	60.1
-----	NE86501	61.5	53.4	57.0	59.6	61.8	56.1	60.8	52.5	55.9	61.7	51.9	60.2	61.7	60.3	61.0
-----	NE86606	61.3	53.3	56.2	58.1	63.2	55.8	58.5	54.5	54.2	61.8	55.0	60.7	62.5	60.4	61.8
-----	NE87612	61.0	48.7	53.7	57.1	61.4	56.5	54.6	52.3	53.0	60.6	54.7	60.1	62.3	58.7	61.5
-----	NE87613	61.2	50.6	56.3	58.2	63.4	55.2	56.6	52.2	53.9	61.5	53.8	60.0	62.4	59.8	61.8
-----	NE87615	60.3	51.3	57.9	58.8	61.8	56.5	58.5	54.0	54.5	61.5	54.6	59.4	61.8	60.8	61.0
-----	N87L313	60.8	49.6	54.7	55.5	61.3	55.2	55.8	50.0	53.5	59.9	49.6	57.6	59.7	58.0	59.6
-----	Rawhide	62.2	50.8	56.5	57.8	63.0	55.3	52.2	53.9	53.9	62.1	55.9	60.1	62.5	61.1	62.0
-----	Sandy	.	.	.	58.0	64.0	53.5	55.8	54.5	56.4	61.8	55.4	58.8	62.5	.	.
-----	2163	59.3	50.5	57.3	.	.	.	.	.	.	.	.	.	.	59.0	.
AGRIPRO	ABILENE	.	53.6	59.3	58.6	64.2	57.8	56.0	55.0	55.3	62.3	57.9	61.2	63.8	61.8	.
AGRIPRO	BRONCO	.	.	.	59.3	63.3	56.8	57.8	53.3	53.8	61.0	54.7	60.5	61.9	.	.
AGRIPRO	LONGHORN	.	.	.	57.7	63.2	59.4	59.3	54.3	57.0	.	.	.	.	.	.
AGRIPRO	THUNDERBIRD	.	.	.	58.1	63.2	59.3	61.5	55.0	56.9	63.9	55.7	61.9	63.3	.	.
AGRIPRO	TOMAHAWK	60.4	53.3	58.5	59.3	61.3	58.4	59.4	51.3	55.0	.	.	.	.	60.4	.
AGRIPRO	VICTORY	.	.	.	.	.	.	.	.	.	.	.	.	.	59.5	.
MBS, INC.	EXP8860	.	.	.	.	.	.	.	.	.	.	.	.	.	61.5	.
MBS, INC.	EXP9202	.	52.3	57.1	.	.	.	.	.	.	.	.	.	.	.	61.3
QUANTUM	542	.	.	.	53.2	60.7	51.1	53.9	52.8	52.3	56.3	55.3	58.5	61.2	.	61.0
QUANTUM	549	.	.	.	56.0	61.2	55.6	55.3	53.0	53.7	58.4	54.8	59.2	61.3	.	.
QUANTUM	561	61.8	53.3	55.8	.	.	.	.	.	.	.	.	.	.	.	.
QUANTUM	562	.	52.9	55.9	57.0	62.5	56.5	57.7	53.3	54.8	60.1	55.4	57.5	61.4	60.2	.
TERRA	HR152	62.4	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Table 10. Winter wheat protein content at all locations – 1991.

Brand	Variety	Nem	Keith	Dundy	Rd Wl	Custer	Lnc FP	Lnc Nsy	Chy Dr	Dawes	Bannr	Morrl	ChyIrr	ChyEco
		Percent												
---	ARAPAHOE	12.7	12.0	10.1	13.5	12.9	12.6	13.1	13.6	11.8	14.2	13.3	12.8	12.5
----	BUCKSKIN	.	.	.	.	.	.	.	12.4	12.2	13.1	11.1	.	.
----	CENTURA	11.4	12.2	9.9	13.3	13.4	12.6	13.8	13.0	11.9	13.9	11.9	.	.
----	CODY	.	11.6	10.1	13.5	12.5	12.2	12.9	11.9	12.1	13.5	11.7	.	.
----	COLT	.	.	.	.	.	.	.	.	.	.	.	12.7	.
----	KARL	12.2	13.1	10.6	13.0	13.0	12.3	13.4	14.1	14.3	14.6	13.7	13.7	13.0
----	REDLAND	11.7	11.5	10.0	12.7	12.6	12.0	12.7	12.2	11.4	13.4	11.4	11.7	11.4
----	SCOUT 66	12.2	12.3	10.1	13.5	13.1	12.8	12.6	12.6	13.4	14.2	12.2	.	.
----	SIOUXLAND	12.2	11.6	9.9	12.9	12.6	12.6	12.8	12.3	13.1	13.1	10.9	12.8	10.8
----	SIOUXLAND 89	11.6	11.5	9.7	12.7	13.2	12.2	12.5	12.4	13.0	13.0	11.2	12.4	12.4
----	TAM 107	11.0	12.2	10.3	13.2	13.1	12.1	12.5	12.3	11.4	13.1	12.1	11.9	11.4
----	TAM 200	10.9	12.2	10.4	12.7	12.9	12.7	12.6	13.0	11.8	13.5	12.6	13.1	12.1
----	TURKEY	12.6	11.9	10.4	13.8	13.3	12.8	13.8	12.6	13.4	14.5	10.9	.	.
-----	Hybrid F2#1	.	.	.	.	.	.	.	12.2	12.6	14.5	12.0	12.5	11.9
-----	Hybrid F2#2	.	.	.	.	.	.	.	13.1	12.3	14.1	12.9	13.6	12.7
-----	Hybrid F2#3	.	.	.	.	.	.	.	12.9	12.3	14.3	12.8	12.7	12.2
-----	KS8010–72	11.4	12.5	10.1	13.4	13.0	11.9	13.0	13.0	12.2	13.2	11.6	12.1	11.7
-----	KS87H6	12.5	12.5	10.2	13.5	13.4	13.0	13.3	13.2	12.1	13.9	12.6	13.5	13.0
-----	Lamar	11.8	12.3	10.0	13.5	12.9	13.0	13.9	12.7	12.3	14.0	12.8	12.2	11.5
-----	Newcale	11.0	11.6	9.5	12.9	12.7	12.0	13.1	13.2	13.0	13.7	12.1	12.4	11.7
-----	NE83407	12.3	11.8	10.2	11.4	12.5	12.5	13.6	12.3	11.7	13.4	11.0	11.6	11.2
-----	NE86501	12.4	12.4	10.5	13.4	13.6	13.4	13.1	13.2	13.8	14.5	13.1	13.2	12.5
-----	NE86606	11.1	11.8	9.5	12.9	12.4	12.7	12.7	12.5	11.9	13.8	11.7	12.1	11.2
-----	NE87612	11.4	11.8	9.3	12.7	12.7	12.5	12.6	11.6	10.7	12.8	10.9	12.3	11.0
-----	NE87613	12.4	12.3	9.7	13.1	12.8	12.1	13.5	13.2	12.1	14.1	12.1	12.9	12.8
-----	NE87615	12.0	12.1	10.3	13.5	12.9	12.5	12.9	13.2	11.5	13.1	12.5	12.3	12.3
-----	N87L313	12.6	12.4	10.4	13.7	13.7	13.5	13.8	13.3	13.2	14.7	12.6	13.1	12.5
-----	Rawhide	11.6	11.9	9.9	13.6	12.5	12.3	13.1	12.9	11.9	13.3	11.5	13.2	12.2
-----	Sandy	.	11.7	9.3	13.5	13.1	12.2	13.4	11.7	10.9	13.2	11.5	.	.
-----	2163	11.3	.	.	.	.	.	.	.	.	.	.	12.2	.
AGRIPRO	ABILENE	.	12.1	9.8	13.7	13.4	12.3	14.1	12.5	11.4	15.1	12.1	13.4	.
AGRIPRO	BRONCO	.	11.6	9.3	13.2	12.6	12.3	12.8	11.9	11.2	12.3	10.8	.	.
AGRIPRO	LONGHORN	.	12.8	11.0	13.0	13.3	12.7	13.3	.	.	.	.	.	.
AGRIPRO	THUNDERBIRD	.	12.5	10.6	13.1	13.4	12.7	13.0	13.4	13.1	14.6	12.3	.	.
AGRIPRO	TOMAHAWK	11.3	12.2	10.3	13.7	12.5	12.5	13.2	.	.	.	.	13.7	.
AGRIPRO	VICTORY	.	.	.	.	.	.	.	.	.	.	.	13.4	.
MBS, INC.	EXP8860	.	.	.	.	.	.	.	.	.	.	.	13.7	.
MBS, INC.	EXP9202	.	.	.	.	.	.	.	.	.	.	.	.	12.0
QUANTUM	542	.	11.2	9.5	10.9	12.0	12.0	13.4	11.3	11.4	13.1	11.3	.	10.7
QUANTUM	549	.	11.7	9.9	13.1	12.5	12.2	12.7	11.8	11.3	12.9	10.9	.	.
QUANTUM	561	12.0	.	.	.	.	.	.	.	.	.	.	.	.
QUANTUM	562	.	11.4	9.8	13.0	12.7	12.3	12.3	11.9	11.2	14.3	12.0	11.6	.
TERRA	HR152	9.4	.	.	.	.	.	.	.	.	.	.	.	.

Table 11. 1991 Winter Barley Variety Tests (4 locations).

Variety	GRAIN YIELD all loc (bu/acre)	GRAIN YIELD LINCOLN (bu/acre)	GRAIN YIELD CLAY N (bu/acre)	GRAIN YIELD PLATTE (bu/acre)	GRAIN YIELD SIDNEY (bu/acre)	TESTWT LINCOLN (lbs/bu)	WINTER SURV. all loc. (%)	WINTER SURV. LINCOLN (%)	WINTER SURV. CLAY N (%)	WINTER SURV. PLATTE (%)	WINTER SURV. SIDNEY (%)	HEADING DATE LINCOLN (5/1/91)	PLANT HEIGHT LINCOLN inches	POWDERY MILDEW LINCOLN (11–99)	LEAF RUST CLAY (%)
Centurk 78	30	38	24	21	36	58	93	100	88	95	88	15	43	53	21
NE80725	23	30	9	7	47	47	67	50	85	69	65	18	41	60	48
NE90721	23	47	5	17	23	49	65	78	53	74	58	17	32	20	38
NE89725	21	39	1	10	34	48	65	76	37	64	83	16	33	38	48
NE90710	20	39	14	6	21	50	57	51	74	43	61	20	33	11	48
NE90701	20	53	6	5	15	48	63	71	78	45	59	18	37	10	45
Hitchcock	19	34	5	8	29	51	80	78	76	74	91	20	34	51	50
Kearney	19	36	5	10	24	46	74	78	66	78	76	20	41	58	40
NE87851	19	33	3	11	27	48	75	83	76	71	71	22	31	64	55
NE86954	18	45	1	20	8	49	69	95	35	91	55	18	30	19	42
NE86841	18	34	2	7	28	47	81	85	86	75	78	21	36	13	60
Dundy	16	27	3	7	29	47	83	81	80	85	84	17	32	14	68
NE90753	16	33	2	17	12	47	61	65	51	78	51	22	27	10	21
Perkins	16	18	3	19	23	48	58	46	44	69	73	22	31	30	30
NE87841	15	26	4	6	26	49	66	61	83	61	58	19	33	40	48
NE89716	15	33	4	9	12	49	76	89	81	75	59	18	33	62	60
NE89729	14	23	2	7	24	48	67	75	38	76	78	19	34	22	50
NE86815	13	24	6	5	15	48	58	56	70	44	63	20	32	52	50
NE89712	9	15	2	4	15	47	58	59	65	51	58	22	31	65	62
NE90752	9	18	1	4	12	43	63	69	56	60	69	18	37	12	28
NE90709	8	9	5	2	17	46	44	30	66	29	51	22	27	10	55
NE90713	7	4	1	3	19	–	38	29	31	34	59	19	32	35	38
Average	17	30	5	9	23	46	66	68	64	65	67	19	33	34	46
C.V.	58	23	85	55	53	3	30	12	34	18	33	9	9	43	37
L.S.D. 4%	6	9	5	6	15	3	12	10	28	14	28	2	4	22	25

Table 12. Parentage of Barley Varieties Tested in 1991.

Variety	Pedigree
Centurk 78	winter wheat
NE80725	Sabbaton/Meimi//Decatur/3/Dundy/4/Nebar sel./Dundy
NE90721	Dundy/OK77559
NE89725	Dundy//MD45-488-13
NE90710	NE80725 sel./OK77422
NE90701	NE80725 sel./OK77422
Hitchcock	Dicktoo/Reno//Shanon/Randolph/3/OACW82-11/Decatur
Kearney	
NE87851	Hitchcock/Post//Herb
NE86954	Hitchcock/Maury//Hitchcock
NE86841	Decatur/Chase//OACW82-11/Decatur/3/Hitchcock
Dundy	Sabbaton/Meimi//Decatur/3/Paoli
NE90753	Nebar sel./Dundy//VA80-12-6
Perkins	NE851808 = Nebar sel./Dundy
NE87841	NE80725//Dundy/Herb,F3
NE89716	Hitchcock//MOB2690/Hitchcock
NE89729	Dundy//MD45-488-13
NE86815	Hitchcock/Post
NE89712	Hitchcock//MOB2690/Hitchcock
NE90752	Nebar sel./Dundy//VA80-12-6
NE90709	Hitchcock/Maury//OK77422
NE90713	Dundy/3/Decatur/Chase//MO1222/NE62283/4/MD45-448-13