

**MISSISSIPPI VALLEY UNIFORM REGIONAL
BARLEY NURSERY**

2003

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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
NORTHERN PLAINS AREA
AND
COOPERATING STATE AGRICULTURAL EXPERIMENT STATIONS

MISSISSIPPI VALLEY UNIFORM REGIONAL BARLEY NURSERY 2003

Compiled by Michael C. Edwards

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

This report includes data furnished by the State Agricultural Experiment Stations, the provinces of Manitoba and Saskatchewan, Agriculture and Agri-Food Canada, and the Agricultural Research Service, and was compiled in the USDA-ARS Cereal Crops Research Unit at North Dakota State University. 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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CONTENTS

Stations and Cooperators.....	1
Summary.....	2
Nursery Conditions.....	3
Table 1. Average over all stations for the indicated variables.....	6
Table 2. Average for the indicated variables at stations in Manitoba, Minnesota, North Dakota and South Dakota.....	7
Table 3. Seasonal measurements 1973-2002.....	8
Table 4. Average station yield (all stations).....	9
Table 5. Information on plot type.....	11
Table 6. Period of years summary for yield.....	12
Table 7. Test weight.....	13
Table 8. Period of years summary for test weight.....	14
Table 9. Plant height.....	15
Table 10. Period of years summary for plant height.....	17
Table 11.	18
Table 12. Period of years summary for lodging.....	19
Table 13. Date headed.....	20
Table 14. Period of years summary for date headed.....	22
Table 15. Date ripe.....	23
Table 16. Average station yield for Manitoba, Minnesota, North Dakota, & South Dakota.....	24
Table 17. Period of years summary for yield (Manitoba, Minnesota, North Dakota, South Dakota).....	26
Table 18. Percent plump (over 6/64).....	27
Table 19. DON levels – Carrington, ND.....	28
Table 20. Fusarium head blight ratings and DON values – Brandon, MB.....	29
Table 21. Foliar disease ratings - Brandon.....	30
Table 22. QCCJ stem rust reactions – Brandon.....	31
Table 23. Stem rust field data – Nolette, MB.....	32
Table 24. Foliar disease ratings – Kernen.....	33
Table 25. Parentage and origin of entries in the 2003 nursery.....	34

List of Stations and Cooperators

2003 Mississippi Valley Uniform Regional Barley Nursery

<u>Stations</u>	<u>Cooperators</u>
Aberdeen, Idaho	D. Burrup, USDA, Agricultural Research Service
Hamiota, Manitoba	M. C. Therrien, Agriculture Canada
Winnipeg, Manitoba	J. Gilbert, T. Fetch, A. Tekauz, Agriculture Canada
Caro, Michigan	R. D. Freed, Michigan State University
Crookston, Minnesota	Kevin Smith, University of Minnesota
Morris, Minnesota	Kevin Smith, University of Minnesota
Bottineau, North Dakota	D.B. Cooper, S. Askelson, M. Emrick, Busch Agricultural Resources
Sidney, Montana	D.B. Cooper, S. Askelson, M. Emrick, Busch Agricultural Resources
Carrington, North Dakota	R. D. Horsley, J. D. Franckowiak, North Dakota State University
Fargo, North Dakota	R. D. Horsley, J. D. Franckowiak, North Dakota State University
Osnabrock, North Dakota	R. D. Horsley, J. D. Franckowiak, North Dakota State University
Saskatoon, Saskatchewan	B. L. Harvey, Eric Lefol, Bryan Rossnagel, Tom Zatorski University of Saskatchewan
Madison, Wisconsin	H. Kaeppler, R. D. Duerst, University of Wisconsin

2003 Mississippi Valley Barley Nursery

Summary

Eleven locations contributed useable data for this year's report. The substitution of Osnabrock for Langdon continues (about 12 miles east). The reader is referred to the "Nursery Conditions" section immediately following this summary for other comments concerning specific locations.

Average planting date was 2 days later than the 30-year average, while average heading date was about four days later than the average. The average planting date of April 29th was only one day earlier than last year. Heading date (June 28th) was six days earlier than last year.

Average yield (4710 kg/ha or 87.5 bu/a) was well above both the 30-year average and the 3832 kg/ha of last year. Entries with the best yields were Newdale, BT485, 6B99-6774, M109, and M115.

Four stations reported test weight; the average of 65.4 kg/hl was slightly better than that of last year (64). The greatest test weights were recorded for Lacey, M117, 6B99-6774, ND17643, and 6B98-9170.

Lodging data were reported from three locations, including Crookston, Carrington, and Bottineau. The five entries with the least lodging were Drummond, 6B98-9170, BT485, 6B99-6774, and M115. The reader should remember that 0% lodging was entered for all entries in 1996 due to a lack of data. Thus, the 10-year averages will still be somewhat skewed by the 1996 data. Average plant height was 77.9 cm, which is very close to that of last year. Shortest entries were 2ND19929, M116, M115, Newdale, and 6B99-6339.

Kernel plumpness data were reported from Crookston, Morris, Sidney, Hamiota, and Kernen. Please refer to Table 18 for further information.

Disease data were submitted from several locations. These data include ratings for net blotch, spot blotch, stem rust, FHB, and DON levels. These notes appear in Tables 19-24.

NURSERY CONDITIONS

MANITOBA:

HAMIOTA:	Previous crop: Soil type: Fertilizer available: added: Remarks:	Faba beans black chernozem Newdale medium textured clay loam. 50 lbs/a N; lbs/a P; >300 lbs/a K. 30 N - 40 P - 0 K lbs/ac. Severe drought conditions, poor rains, intense heat, some grasshopper damage, no lodging. Short-statured crop. Applied 2,4-D/MCPA, Refine Extra, Lontrel and Tilt at recommended rates.
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MICHIGAN:

CARO:	Previous crop: Soil type: Fertilizer available: added: Remarks:	. capac loam. . . .
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MINNESOTA:

CROOKSTON:	Previous crop: Soil type: Fertilizer available: added: Remarks:	Wheatville, silt-loam. 21 lbs/a N; 20 lbs/a P; 366 lbs/a K. 400 lbs 20-20-20. The nursery was attractive throughout the season. There were heavy rains and wind after heading. Lodging notes were taken.
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MORRIS:	Previous crop: Soil type: Fertilizer available: added: Remarks:	soybeans. Hamery clay loam – Flom loam soil complex. lbs/a N; lbs/a P; lbs/a K. broadcasted 108 lbs. urea 46-0-0. The nursery was attractive and growing conditions were very favorable. Lodging was not a factor; nor were diseases.
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NORTH DAKOTA:

CARRINGTON:	Previous crop: Soil type: Fertilizer available: added: Remarks:	soybeans. Heimdahl loam, medium 38 lbs/a N; 32 lbs/a P; 502 lbs/a K 90 lbs/a N Planting and harvesting operations were slightly earlier than previous years, but very normal when compared to the typical average planting date. Levels of Fusarium were moderate this year
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as compared to past years. The Carrington area had some of the highest levels of Fusarium head blight in the state this year.

FARGO:	Previous crop: Soil type: Fertilizer available: added: Remarks:	soybeans Fargo, silty clay loam 15 lbs/a N; 12 lbs/a P; 350 lbs/a K 100 lbs/a N; lbs/a P. Planting and harvesting operations were slightly earlier than previous years, but very normal when compared to the typical average planting date. Levels of Fusarium head blight and foliar diseases were low this year as compared to past years. Yields from this site proved to be higher than usually expected due to adequate and timely precipitation.
OSNABROCK:	Previous crop: Soil type: Fertilizer available: added: Remarks:	canola. . 12 lbs/a N; 17 lbs/a P; 243 lbs/a K. 68 lbs/a N; 30 lbs/a P; 7 lbs/a K. Planting at this location was late compared to the state average because of wet conditions. Harvest was about average for this area. Fusarium head blight severity was low, while levels of foliar diseases were moderate. Net blotch was the predominant foliar disease. Dry conditions in the later half of the growing season affected yield from these plots, but plump kernels remained average.
BOTTINEAU:	Previous crop: Soil type: Fertilizer available: added: Remarks:	canola. Nursery was sown into an excellent seedbed with good moisture. Early stands looked great. Bottineau county experienced an unusually hot and dry late June/early July. The nursery showed some significant stress in sandy areas in mid-July.
SIDNEY (MT):	Previous crop: Soil type: Fertilizer available: added: Remarks:	Sugarbeets. The nursery was sown into an excellent seedbed with good moisture. With adequate precipitation during the growing season, the nursery was flood irrigated once.

WISCONSIN:

MADISON:	Previous crop:	soybeans
	Soil type:	St. Charles, loam
	Fertilizer	
	available:	.
	added:	none
	Remarks:	Planting was made in late April into an excellent seedbed. Considerable rainfall and cool temperatures during the early growing season led to good germination, even stands, and much tillering. Similar to what happened in 2002, the weather turned very dry shortly after heading, with almost no additional rainfall recorded through harvest. Even so, yields and test weights were very good for this area. Little or no foliar disease was present, but a very small amount of smut was observed scattered throughout the nursery.

SASKATCHEWAN:

KERNEN:	Previous crop:	.
	Soil type:	.
	Fertilizer	
	available:	.
	added:	50 lbs/a of 11-51-0.
	Remarks:	Buctril M applied June 9. Summer drier than average and grasshoppers were a constant problem throughout the growing season.

TABLE 1. AVERAGE OVER ALL STATIONS FOR THE INDICATED VARIABLES.

Variety/ Selection	Yield ¹ (kg/ha)	Test Wt ² (kg/hl)	Height ³ (cm)	Lodging ⁴ (%)	Heading ⁵ (5/31=0)	Ripe ⁶ (5/31=0)
BARBLESS	3855.6	65.1	88.7	65.6	27.9	72.3
MOREX	4012.6	64.2	82.6	56.1	27.5	70.3
ROBUST	4377.1	65.1	83.3	48.9	28.7	72.0
LEGACY	4739.2	63.3	80.8	36.5	29.0	73.3
DRUMMOND	4702.0	65.9	79.4	23.9	27.8	71.3
LACEY	4769.5	67.6	76.1	35.4	28.0	73.0
CONLON	4522.9	65.6	76.3	42.2	26.2	70.3
TRADITION	4743.1	65.2	78.6	29.9	28.0	73.0
M109	4989.2	65.9	75.6	32.2	28.0	73.0
6B98-9170	4855.7	66.4	76.9	25.6	27.0	73.0
6B98-9339	4698.1	64.8	78.6	29.9	29.5	75.0
M112	4819.0	66.1	76.8	33.3	28.1	72.7
ND17643	4731.4	66.7	82.4	32.1	28.8	73.7
ND17655	4727.5	66.3	82.7	30.0	30.0	74.0
ND17711	4707.9	65.4	80.3	47.8	28.0	73.0
M115	4968.7	64.4	72.1	28.2	27.8	71.7
M116	4954.5	65.2	72.1	31.7	28.4	74.0
M117	4766.1	67.2	75.6	35.0	27.9	72.0
ND18578	4648.7	65.0	78.7	37.7	28.3	72.3
ND18579	4674.1	64.7	78.1	30.0	28.3	73.0
ND18650	4621.3	65.0	78.8	44.5	27.3	73.3
2ND19098	4755.4	65.4	79.5	30.0	27.4	73.7
2ND19119	4555.2	65.5	78.7	50.4	27.7	73.0
2ND19929	4496.5	66.3	67.1	32.2	27.6	73.7
6B99-6339	4731.4	65.0	74.3	28.2	27.9	72.3
6B99-6639	4758.8	66.2	77.4	30.0	28.5	72.3
6B99-6774	5020.6	66.8	79.7	27.7	29.9	73.3
NEWDALE	5116.9	64.7	74.1	51.6	30.5	74.7
BT485	5073.4	62.4	76.0	26.0	28.9	73.0
BT490	4899.2	65.7	75.1	35.4	28.7	71.7
HIGH MEAN	5116.9	67.6	88.7	65.6	30.5	75.0
LOW MEAN	3855.6	62.4	67.1	23.9	26.2	70.3
EXP MEAN	4709.7	65.4	77.9	36.3	28.3	72.8
C. V. %	8.7	3.3	4.9	29.5	5.1	
LSD 5%	342.7	NS	3.5	17.5	1.2	
LSD 1%	450.4	NS	4.6	23.3	1.6	
# of Loc	11	4	9	3	11	1

1 ALL

2 MADISON, CARO, HAMOTA, KERNEN

3 ALL EXCEPT SIDNEY AND HAMOTA

4 CROOKSTON, CARRINGTON, BOTTINEAU

5 ALL

6 HAMOTA

TABLE 2. AVERAGE OVER STATIONS AT MANITOBA, MINNESOTA, AND NORTH DAKOTA.

Variety/ Selection	Yield ¹ (kg/ha)	Test Wt ² (kg/hl)	Height ³ (cm)	Lodging ⁴ (%)	Heading ⁵ (5/31=0)	Ripe ⁶ (5/31=0)
BARBLESS	3719.1	69.7	93.0	65.6	30.5	72.3
MOREX	3959.9	70.0	85.1	56.1	30.2	70.3
ROBUST	4247.2	69.6	85.5	48.9	31.3	72.0
LEGACY (6B	4625.9	71.4	83.2	36.5	31.8	73.3
DRUMMOND (4618.5	71.0	82.2	23.9	30.3	71.3
LACEY (M98	4627.3	72.9	77.4	35.4	30.7	73.0
CONLON	4393.8	71.4	79.2	42.2	29.2	70.3
TRADITION(4711.4	70.7	81.7	29.9	30.2	73.0
M109	4768.6	71.0	76.6	32.2	30.6	73.0
6B98-9170	4679.8	70.5	79.3	25.6	29.1	73.0
6B98-9339	4674.4	70.9	82.4	29.9	32.2	75.0
M112	4780.7	71.2	79.0	33.3	30.7	72.7
ND17643	4699.3	73.1	85.6	32.1	31.2	73.7
ND17655	4675.1	72.4	86.6	30.0	32.8	74.0
ND17711	4566.7	69.6	83.4	47.8	30.7	73.0
M115	4829.1	69.6	73.6	28.2	30.6	71.7
M116	4743.0	70.0	73.9	31.7	31.1	74.0
M117	4628.6	72.5	77.8	35.0	30.7	72.0
ND18578	4589.6	70.3	81.2	37.7	31.0	72.3
ND18579	4737.6	71.3	80.7	30.0	30.8	73.0
ND18650	4663.6	70.2	81.3	44.5	30.1	73.3
2ND19098	4742.3	69.3	82.3	30.0	30.5	73.7
2ND19119	4570.1	70.5	81.5	50.4	30.5	73.0
2ND19929	4349.4	71.3	68.3	32.2	30.6	73.7
6B99-6339	4584.2	70.2	77.1	28.2	30.5	72.3
6B99-6639	4677.7	71.3	80.0	30.0	31.2	72.3
6B99-6774	4981.8	72.3	82.8	27.7	32.5	73.3
NEWDALE	5046.4	71.6	77.0	51.6	33.4	74.7
BT485	4896.4	63.7	78.1	26.0	31.5	73.0
BT490	4945.5	71.3	77.3	35.4	31.3	71.7
HIGH MEAN	5046.4	73.1	93.0	65.6	33.4	75.0
LOW MEAN	3719.1	63.7	68.3	23.9	29.1	70.3
EXP MEAN	4624.4	70.7	80.4	36.3	30.9	72.8
C. V. %	9.2	3.2	4.8	29.5	5.1	
LSD 5%	416.0	NS	4.1	17.5	1.5	
LSD 1%	546.7	NS	5.4	23.3	2.0	
# of Loc	8	2	7	3	8	1

1 ALL

2 HAMOTA, KERNEN

3 ALL EXCEPT HAMOTA

4 CROOKSTON, CARRINGTON, BOTTINEAU

5 ALL

6 HAMOTA

TABLE 3. 1974-2003 SEASONAL MEASUREMENTS – MISSISSIPPI VALLEY BARLEY NURSERY.

YIELD		TEST WEIGHT		DATE SOWN		DATE HEADED		PLANT HEIGHT		LODGING	
KG/HA	YEAR	KG/HL	YEAR	DATE	YEAR	DATE	YEAR	CM.	YEAR	%	YEAR
5385	1992	66.5	1998	12-Apr	1976	13-Jun	1985	67	1988	2.7	1987
4911	1985	66.1	1999	15	1988	13	1977	73.2	1987	7.5	1988
4799	1986	65.5	1979	16	1981	14	1976	74.6	1979	13.2	2000
4710	2003	65.4	2003	19	1985	15	1988	76.3	1974	14.2	1992
4502	1994	65.4	2001	19	1987	16	1980	76.4	1995	15.6	1983
4402	2001	64	2002	20	1992	16	1987	76.6	1978	16.2	1980
4337	1993	63.1	1997	21	1980	20	1998	76.7	1991	17.1	1984
4274	1990	63	1977	23	1989	21	1982	77.4	1997	17.8	1981
4255	1995	62.7	1984	23	1977	21	1994	77.5	1977	18.4	1975
4251	1984	62.4	1985	24	1998	22	1991	77.8	2002	19	1994
4105	2000	62	1976	25	1990	23	1992	77.9	2003	21.1	1989
4056	1989	61.7	1996	25	1991	23	1978	78.5	1976	21.3	1979
4046	1997	61.6	1995	26	2000	24	1989	79	1994	21.8	1976
4021	1999	61.2	1986	26	1982	24	1990	79.5	1996	21.8	1978
4017	1998	61	1988	27	1994	24	1981	80.7	1989	23.9	1986
3986	1981	60.6	1980	29	1993	25	2000	81.9	1999	24.2	1985
3884	1982	60.2	1989	29	2003	25	1975	81.6	2001	25.4	2001
3882	1987	60.1	1981	30	1978	25	1984	83.9	1980	27.1	1977
3832	2002	59.9	1994	30	1983	26	1986	85.3	1975	27.2	1974
3806	1980	59.7	1974	30	1986	27	1974	86.8	1990	27.7	1995
3728	1977	59.7	1978	30	2002	28	1999	87.7	1984	28.1	1997
3566	1996	59.4	1983	1-May	1984	28	2003	88.6	1993	29	2002
3492	1979	59.2	1992	2	1974	29	1993	89.1	1986	29.2	1990
3432	1976	59.2	1982	2	1975	30	1979	89.3	1998	29.3	1991
3370	1978	59.2	1987	4	2001	1-Jul	1983	89.4	1992	31	1999
3136	1988	58.9	1975	4	1995	2-Jul	1997	90.5	1981	36.3	2003
3113	1983	57.5	1993	7	1996	2-Jul	2001	90.6	2000	38.6	1998
3094	1975	57.5	1990	7	1999	3-Jul	2002	91.5	1982	42.6	1993
3064	1991	54.3	2000	7	1979	4-Jul	1995	92.3	1983	48.2	1982
2792	1974	54.3	1991	11	1997	4-Jul	1996	93	1985	0	1996
3942	AVE.	61	AVE.	27-Apr	AVE.	24-Jun	AVE.	82.4	AVE.	23.2	AVE.

CONVERSION FACTORS: KG/HA TO BU/A x .018587

KG/HL TO LB/BU x .776815

TABLE 4. AVE. STA. YIELD (KG/HA). 2003 MISSISSIPPI VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	11 STA.	CROOKSTN MINN	MORRIS MINN	FARGO ND	CARRNGTN ND	OSNABRCK ND	BOTTNEAU ND	SIDNEY MT
1	BARBLESS	30	3855.6	3929.0	3498.4	3950.5	3519.9	3546.8	5500.5	4849.3
2	MOREX	29	4012.6	4397.2	3552.2	4198.1	3449.9	3686.8	5618.9	5000.0
3	ROBUST	28	4377.1	4843.9	3875.1	4892.4	4079.7	4090.4	6001.1	5328.3
4	LEGACY (6B93-2978)	15	4739.2	5667.4	4413.3	4666.3	4956.9	3993.5	6695.4	5446.7
5	DRUMMOND (ND15477)	20	4702.0	6173.3	3767.5	4903.1	5360.6	4138.9	6076.4	5392.9
6	LACEY (M98)	10	4769.5	5958.0	4144.2	4768.6	4983.9	3907.4	6959.1	5613.6
7	CONLON	26	4522.9	5258.3	5059.2	3202.4	4564.0	4225.0	6248.7	4930.0
8	TRADITION(6B95-2482)	14	4743.1	6367.1	4413.3	4725.5	5457.5	4736.3	6259.4	5312.2
9	M109	4	4989.2	6243.3	4897.7	5000.0	5236.8	3336.9	6496.2	6108.7
10	6B98-9170	8	4855.7	6259.4	4790.1	4892.4	5134.6	4042.0	6533.9	5683.5
11	6B98-9339	21	4698.1	6098.0	4951.6	5317.5	5479.0	3869.8	6361.7	4967.7
12	M112	9	4819.0	6081.8	4251.9	4612.5	5274.5	4273.4	7012.9	5322.9
13	ND17643	16	4731.4	6189.5	4413.3	5016.1	5263.7	4467.2	6426.3	4741.7
14	ND17655	18	4727.5	5543.6	4036.6	4865.4	5721.2	4375.7	6684.6	4962.3
15	ND17711	19	4707.9	5721.2	4521.0	4983.9	4671.7	4574.8	5984.9	5123.8
16	M115	5	4968.7	6512.4	4305.7	4795.5	5807.3	3789.0	6959.1	5236.8
17	M116	6	4954.5	6550.1	4843.9	4908.5	4951.6	3153.9	7314.3	5489.8
18	M117	11	4766.1	5920.3	4467.2	4391.8	5016.1	4225.0	6975.2	5366.0
19	ND18578	23	4648.7	4967.7	3283.1	5193.8	5468.2	4704.0	6480.1	5156.1
20	ND18579	22	4674.1	5559.7	4036.6	4730.9	5839.6	4596.3	6410.1	5209.9
21	ND18650	24	4621.3	5667.4	4144.2	5209.9	5409.0	4709.4	6167.9	5021.5
22	2ND19098	13	4755.4	5796.6	3875.1	5296.0	4800.9	4020.5	7491.9	4854.7
23	2ND19119	25	4555.2	5059.2	4467.2	5075.3	4693.2	3762.1	6474.7	4860.1
24	2ND19929	27	4496.5	5274.5	4036.6	4752.4	5188.4	2938.6	6641.5	5145.3
25	6B99-6339	17	4731.4	6442.4	3982.8	4833.2	5096.9	3326.2	6528.5	5635.1
26	6B99-6639	12	4758.8	6259.4	4413.3	4827.8	5032.3	3692.1	6926.8	5398.3
27	6B99-6774	3	5020.5	6227.1	5113.0	5312.2	5495.2	3880.5	7088.3	5651.2
28	NEWDALE	1	5116.9	6011.8	5651.2	5236.8	5064.6	4101.2	7287.4	5780.4
29	BT485	2	5073.4	6582.3	4682.5	5376.7	5441.3	3681.4	6932.2	5721.2
30	BT490	7	4899.2	6151.8	5113.0	4784.7	4967.7	4289.6	7244.3	5274.5
AVERAGE			4709.7	5790.5	4366.7	4824.0	5047.5	4004.5	6592.8	5286.1

TABLE 4. AVE. STA. YIELD (KG/HA). 2003 MISSISSIPPI VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	11 STA.	MADI SON WI SC	CARO MI CHI GAN	HAMI OTA MANI TOBA	KERNEN SASK
1	BARBLESS	30	3855.6	4973.1	2836.4	2034.4	3772.9
2	MOREX	29	4012.6	4181.9	3277.7	2185.1	4591.0
3	ROBUST	28	4377.1	5242.2	3600.6	2222.8	3972.0
4	LEGACY (6B93-2978)	15	4739.2	5737.4	3939.7	2201.3	4413.3
5	DRUMMOND (ND15477)	20	4702.0	5495.2	3885.9	2222.8	4305.7
6	LACEY (M98)	10	4769.5	5915.0	3918.2	2448.9	3848.2
7	CONLON	26	4522.9	5554.4	4117.3	2142.1	4451.0
8	TRADI TI ON(6B95-2482)	14	4743.1	5764.3	3406.9	2249.7	3482.2
9	M109	4	4989.2	6232.5	4391.8	2637.2	4300.3
10	6B98-9170	8	4855.7	6194.8	4095.8	2104.4	3681.4
11	6B98-9339	21	4698.1	5301.4	4015.1	1797.6	3519.9
12	M112	9	4819.0	5543.6	3896.7	2405.8	4332.6
13	ND17643	16	4731.4	5554.4	4155.0	2163.6	3654.5
14	ND17655	18	4727.5	5645.9	3993.5	2082.9	4090.4
15	ND17711	19	4707.9	5409.0	4720.1	2276.6	3799.8
16	M115	5	4968.7	6098.0	4687.8	2206.7	4257.3
17	M116	6	4954.5	6420.9	4644.8	2346.6	3875.1
18	M117	11	4766.1	5726.6	4305.7	1996.8	4036.6
19	ND18578	23	4648.7	5645.9	3616.8	2131.3	4488.7
20	ND18579	22	4674.1	5382.1	2922.5	2222.8	4504.8
21	ND18650	24	4621.3	5753.5	2750.3	2152.9	3848.2
22	2ND19098	13	4755.4	5021.5	4494.1	1964.5	4693.2
23	2ND19119	25	4555.2	4784.7	3902.0	2319.7	4709.4
24	2ND19929	27	4496.5	5102.3	4418.7	2045.2	3918.2
25	6B99-6339	17	4731.4	5785.8	3950.5	2179.8	4284.2
26	6B99-6639	12	4758.8	5861.1	3665.2	2131.3	4138.9
27	6B99-6774	3	5020.5	5828.8	3891.3	2142.1	4596.3
28	NEWDALE	1	5116.9	5613.6	4521.0	2185.1	4833.2
29	BT485	2	5073.4	6280.9	4634.0	2292.8	4181.9
30	BT490	7	4899.2	5726.6	3326.2	2260.5	4752.4
AVERAGE			4709.7	5592.6	3932.7	2191.8	4177.8

TABLE 5. INFORMATION ON PLOT TYPE.

LOCATION	# REPS	DATE SOWN	LSD 5%		METERS HARVESTED	CM. BET. ROWS	DATE HARVESTED
			KG/HA	BU/A			
HAMIOTA	3	5/22	209.8	3.9	5.2 m ²	23.5	8/22
CARO	?						
BOTTINEAU	3	4/30	632.2	11.8	3.35	20	8/7
CARRINGTON	4	4/25	624.1	11.6	3	30	8/11
FARGO	4	4/22	322.8	6.0	3	30.5	8/6
SIDNEY	3	4/24	455.7	8.5	3.35	20	8/2
OSNABROCK	4	5/4	516.5	9.6	3	30.5	8/14
CROOKSTON	3	5/1	726.3	13.5	2.4	18	8/6
MADISON	3	4/23	433.6	8.1	4.9	30.5	7/23
MORRIS	3	5/1	1006.1	18.7	2.4	18	7/30
KERNEN	9	5/13	473.5	8.8	4.5 m ²	15	8/15

TABLE 6 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	STA YR	ADJ. YRS	MEAN	RANK
YIELD - AVERAGE KILOGRAMS PER HECTARE															
1	BARBLESS	3823	3596	3072	3455	3328	3217	3341	3787	3185	3856	10	89	3479.0	30
2	MOREX	4070	3747	3319	3778	3400	3881	3562	3884	3398	4013	10	89	3709.3	29
3	ROBUST	4573	4161	3437	3940	3793	3846	4092	4269	3666	4377	10	89	4025.3	28
BASE AVERAGES		4155	3835	3276	3724	3507	3648	3665	3980	3417	4082				
4	LEGACY (6B93-2978)			3752	4166	3986	4129	4279	4201	3864	4739	8	72	4226.5	23
5	DRUMMOND (ND15477)				3870	4206	4048	3966	4616	3638	4702	7	64	4165.5	25
6	LACEY (M98)					4175	4369	4418	4584	3919	4770	6	54	4390.7	10
7	CONLON										4523	1	11	4141.9	26
8	TRADITION(6B95-2482						4011	4294	4532	4115	4743	5	46	4328.9	16
9	M109								4672	4033	4989	3	30	4465.9	8
10	6B98-9170									4055	4856	2	21	4442.3	9
11	6B98-9339									3876	4698	2	21	4275.4	19
12	M112									4262	4819	2	21	4520.7	6
13	ND17643									4076	4731	2	21	4387.6	11
14	ND17655									3880	4727	2	21	4292.7	17
15	ND17711									3805	4708	2	21	4246.9	21
16	M115										4969	1	11	4550.0	4
17	M116										4954	1	11	4537.1	5
18	M117										4766	1	11	4364.6	12
19	ND18578										4649	1	11	4257.0	20
20	ND18579										4674	1	11	4280.3	18
21	ND18650										4621	1	11	4231.9	22
22	2ND19098										4755	1	11	4354.7	14
23	2ND19119										4555	1	11	4171.4	24
24	2ND19929										4497	1	11	4117.7	27
25	6B99-6339										4731	1	11	4332.7	15
26	6B99-6639										4759	1	11	4357.8	13
27	6B99-6774										5021	1	11	4597.5	3
28	NEWDALE										5117	1	11	4685.8	1
29	BT485										5073	1	11	4645.9	2
30	BT490										4899	1	11	4486.4	7
NO. OF STATIONS		8	9	8	10	8	7	9	9	10	11				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 3737.9 /BASE AVERAGE FOR SAME YEARS

TABLE 7. AVE. STA. TEST WEIGHT (KG/HL). 2003 MISS. VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	4 STA.	MADI SON WISC	CARO MI CHI GAN	HAMI OTA MANI TOBA	KERNEN SASK
1	BARBLESS	19	65.1	64.2	56.8	71.2	68.2
2	MOREX	28	64.2	60.5	56.5	72.9	67.1
3	ROBUST	20	65.1	64.0	57.2	70.3	68.9
4	LEGACY (6B93-2978)	29	63.3	62.9	47.6	72.7	70.0
5	DRUMMOND (ND15477)	11	65.9	63.3	58.2	73.6	68.4
6	LACEY (M98)	1	67.6	64.6	60.1	75.4	70.3
7	CONLON	13	65.6	65.1	54.3	72.0	70.8
8	TRADI TI ON(6B95-2482)	18	65.2	65.3	54.1	71.6	69.8
9	M109	10	65.9	65.5	56.3	72.1	69.9
10	6B98-9170	5	66.4	65.5	59.0	71.7	69.3
11	6B98-9339	24	64.8	61.8	55.9	71.3	70.4
12	M112	9	66.1	65.7	56.5	73.0	69.4
13	ND17643	4	66.7	64.8	55.9	76.1	70.0
14	ND17655	7	66.3	63.7	56.6	73.8	71.1
15	ND17711	16	65.4	64.1	58.2	71.2	68.1
16	M115	27	64.4	63.7	54.7	70.8	68.5
17	M116	17	65.2	63.1	57.8	72.5	67.6
18	M117	2	67.2	65.5	58.4	75.4	69.5
19	ND18578	23	65.0	63.6	55.7	72.2	68.4
20	ND18579	25	64.7	62.8	53.3	74.8	67.8
21	ND18650	23	65.0	63.5	56.1	72.2	68.1
22	2ND19098	16	65.4	62.6	60.5	70.2	68.4
23	2ND19119	14	65.5	62.3	58.4	71.6	69.5
24	2ND19929	7	66.3	63.7	59.0	72.9	69.6
25	6B99-6339	21	65.0	64.1	55.5	70.4	70.0
26	6B99-6639	8	66.2	62.8	59.3	74.1	68.4
27	6B99-6774	3	66.8	63.7	58.8	74.1	70.4
28	NEWDALE	26	64.7	61.3	54.1	72.1	71.2
29	BT485	30	62.4	65.0	57.0	57.9	69.5
30	BT490	12	65.7	64.0	56.1	73.2	69.4
AVERAGE			65.4	63.8	56.6	72.1	69.3

TABLE 8 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	STA YR YRS	ADJ. MEAN RANK	
TEST WEIGHT (KI LOGRAMS PER HECTOLI TER)														
1	BARBLESS	59. 6	60. 0	62. 0	62. 4	61. 8	65. 2	54. 7	64. 0	64. 3	65. 1	10	42	62. 0 27
2	MOREX	58. 8	60. 7	62. 1	61. 8	63. 8	64. 3	54. 5	62. 6	62. 5	64. 2	10	42	61. 8 28
3	ROBUST	60. 7	61. 9	61. 8	64. 2	66. 5	66. 8	56. 6	64. 5	65. 0	65. 1	10	42	63. 6 9
BASE AVERAGES		59. 7	60. 8	61. 9	62. 8	64. 0	65. 4	55. 2	63. 7	63. 9	64. 8			
4	LEGACY (6B93-2978)			61. 7	62. 1	65. 5	66. 3	48. 2	63. 1	62. 7	63. 3	8	33	61. 7 29
5	DRUMMOND (ND15477)				62. 4	66. 3	66. 1	55. 7	65. 3	63. 8	65. 9	7	29	63. 3 11
6	LACEY (M98)					67. 0	67. 9	56. 9	65. 4	65. 0	67. 6	6	24	64. 7 2
7	CONLON										65. 6	1	4	63. 2 13
8	TRADI TION(6B95-2482						65. 8	55. 2	66. 0	64. 9	65. 2	5	18	63. 1 15
9	M109								65. 9	65. 5	65. 9	3	10	64. 0 4
10	6B98-9170									64. 0	66. 4	2	8	63. 3 12
11	6B98-9339									63. 5	64. 8	2	8	62. 3 25
12	M112									65. 4	66. 1	2	8	63. 8 7
13	ND17643									65. 0	66. 7	2	8	63. 9 6
14	ND17655									63. 8	66. 3	2	8	63. 1 14
15	ND17711									63. 5	65. 4	2	8	62. 6 22
16	M115										64. 4	1	4	62. 1 26
17	M116										65. 2	1	4	62. 9 18
18	M117										67. 2	1	4	64. 8 1
19	ND18578										65. 0	1	4	62. 7 21
20	ND18579										64. 7	1	4	62. 4 23
21	ND18650										65. 0	1	4	62. 7 21
22	2ND19098										65. 4	1	4	63. 1 17
23	2ND19119										65. 5	1	4	63. 1 16
24	2ND19929										66. 3	1	4	63. 9 5
25	6B99-6339										65. 0	1	4	62. 7 19
26	6B99-6639										66. 2	1	4	63. 8 8
27	6B99-6774										66. 8	1	4	64. 4 3
28	NEWDALE										64. 7	1	4	62. 3 24
29	BT485										62. 4	1	4	60. 1 30
30	BT490										65. 7	1	4	63. 3 10
NO. OF STATIONS		4	5	4	5	6	5	3	2	4	4			

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 62.5 /BASE AVERAGE FOR SAME YEARS

TABLE 9. AVE. STA. HEIGHT (CM). 2003 MISSISSIPPI VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	9 STA. MINN	CROOKSTN MINN	MORRIS MINN	FARGO ND	CARRNGTN ND	OSNABRCK ND	BOTTNEAU ND	MADISON WISC
1	BARBLESS	30	88.7	92.0	97.0	89.1	107.6	97.5	100.8	104.0
2	MOREX	27	82.6	93.0	86.0	74.4	89.1	81.4	99.5	104.0
3	ROBUST	29	83.3	96.0	91.0	74.1	87.6	83.8	106.3	106.0
4	LEGACY (6B93-2978)	25	80.8	94.0	81.0	69.8	89.1	83.4	99.9	102.0
5	DRUMMOND (ND15477)	21	79.4	99.0	83.0	68.0	93.3	76.3	96.9	98.0
6	LACEY (M98)	10	76.1	93.0	78.0	65.8	84.6	75.0	92.7	103.0
7	CONLON	11	76.3	85.0	83.0	73.9	92.4	78.0	87.2	91.0
8	TRADITION(6B95-2482)	16	78.6	93.0	86.0	68.8	89.4	83.1	99.9	95.0
9	M109	7	75.6	90.0	79.0	63.3	86.4	71.0	91.4	99.0
10	6B98-9170	13	76.9	89.0	86.0	66.4	97.4	81.4	98.2	98.0
11	6B98-9339	17	78.6	96.0	80.0	64.8	98.3	82.3	93.1	90.0
12	M112	12	76.8	89.0	81.0	65.8	87.3	78.1	95.7	97.0
13	ND17643	26	82.4	97.0	91.0	68.6	96.8	80.9	102.9	100.0
14	ND17655	28	82.7	98.0	83.0	70.4	98.1	86.9	100.8	97.0
15	ND17711	24	80.3	95.0	83.0	66.9	91.9	80.5	103.3	97.0
16	M115	3	72.1	88.0	70.0	63.0	84.0	71.4	88.9	94.0
17	M116	2	72.1	88.0	73.0	63.3	85.3	71.4	88.5	93.0
18	M117	8	75.6	91.0	87.0	63.3	87.0	77.8	89.7	98.0
19	ND18578	18	78.7	90.0	84.0	70.9	92.4	79.5	94.8	99.0
20	ND18579	15	78.1	91.0	82.0	68.6	93.4	76.5	93.6	97.0
21	ND18650	20	78.8	94.0	81.0	66.5	91.5	78.5	103.3	98.0
22	2ND19098	22	79.5	94.0	74.0	73.1	97.0	78.4	97.4	96.0
23	2ND19119	19	78.7	87.0	84.0	71.3	90.8	82.5	99.1	97.0
24	2ND19929	1	67.1	79.0	61.0	59.4	80.4	65.3	81.7	85.0
25	6B99-6339	5	74.3	90.0	77.0	65.6	85.9	75.5	88.5	93.0
26	6B99-6639	14	77.4	91.0	79.0	66.0	93.1	80.3	93.6	97.0
27	6B99-6774	23	79.7	93.0	86.0	69.4	90.6	79.6	96.9	97.0
28	NEWDALÉ	4	74.1	89.0	75.0	68.4	84.1	76.0	87.2	91.0
29	BT485	9	76.0	91.0	78.0	68.4	88.5	77.0	88.5	97.0
30	BT490	6	75.1	90.0	79.0	62.9	87.4	76.4	91.4	97.0
AVERAGE			77.9	91.5	81.3	68.3	90.7	78.9	95.1	97.0

TABLE 9. AVE. STA. HEIGHT (CM). 2003 MISSISSIPPI VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	9 STA.	CARO MI CH I GAN	KERNEN SASK
1	BARBLESS	30	88.7	43.0	67.0
2	MOREX	27	82.6	44.0	72.0
3	ROBUST	29	83.3	45.0	60.0
4	LEGACY (6B93-2978)	25	80.8	43.0	65.0
5	DRUMMOND (ND15477)	21	79.4	41.0	59.0
6	LACEY (M98)	10	76.1	40.0	53.0
7	CONLON	11	76.3	41.0	55.0
8	TRADI T I ON(6B95-2482)	16	78.6	40.0	52.0
9	M109	7	75.6	45.0	55.0
10	6B98-9170	13	76.9	39.0	37.0
11	6B98-9339	17	78.6	41.0	62.0
12	M112	12	76.8	41.0	56.0
13	ND17643	26	82.4	42.0	62.0
14	ND17655	28	82.7	41.0	69.0
15	ND17711	24	80.3	42.0	63.0
16	M115	3	72.1	40.0	50.0
17	M116	2	72.1	38.0	48.0
18	M117	8	75.6	38.0	49.0
19	ND18578	18	78.7	41.0	57.0
20	ND18579	15	78.1	41.0	60.0
21	ND18650	20	78.8	42.0	54.0
22	2ND19098	22	79.5	44.0	62.0
23	2ND19119	19	78.7	41.0	56.0
24	2ND19929	1	67.1	41.0	51.0
25	6B99-6339	5	74.3	36.0	57.0
26	6B99-6639	14	77.4	40.0	57.0
27	6B99-6774	23	79.7	41.0	64.0
28	NEWDALE	4	74.1	37.0	59.0
29	BT485	9	76.0	41.0	55.0
30	BT490	6	75.1	38.0	54.0
AVERAGE			77.9	40.9	57.3

TABLE 10 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	STA YR	YRS	ADJ. MEAN	RANK
HEIGHT (CENTIMETERS)															
1	BARBLESS	83.7	85.2	90.1	88.1	96.2	90.3	100.8	88.3	89.8	88.7	10	73	90.0	30
2	MOREX	84.5	81.6	85.4	81.8	93.9	88.5	96.0	87.1	84.7	82.6	10	73	86.5	29
3	ROBUST	82.5	81.0	82.1	79.8	93.8	86.4	94.3	86.0	81.9	83.3	10	73	85.1	28
BASE AVERAGES		83.5	82.6	85.8	83.2	94.6	88.4	97.0	87.1	85.4	84.8				
4	LEGACY (6B93-2978)			80.0	77.5	90.3	81.8	92.2	83.1	77.6	80.8	8	57	81.9	25
5	DRUMMOND (ND15477)				75.2	89.3	81.8	92.5	82.6	77.6	79.4	7	51	81.3	22
6	LACEY (M98)					86.2	80.1	88.9	79.7	75.5	76.1	6	44	78.9	14
7	CONLON										76.3	1	9	78.4	12
8	TRADITION(6B95-2482						78.5	86.8	78.2	74.6	78.6	5	38	78.3	11
9	M109								76.9	72.7	75.6	3	23	76.5	6
10	6B98-9170									76.3	76.9	2	15	78.5	13
11	6B98-9339									75.7	78.6	2	15	79.3	15
12	M112									74.0	76.8	2	15	77.5	8
13	ND17643									77.2	82.4	2	15	82.2	26
14	ND17655									80.0	82.7	2	15	83.6	27
15	ND17711									77.8	80.3	2	15	81.2	21
16	M115										72.1	1	9	74.1	3
17	M116										72.1	1	9	74.0	2
18	M117										75.6	1	9	77.7	9
19	ND18578										78.7	1	9	80.9	18
20	ND18579										78.1	1	9	80.3	17
21	ND18650										78.8	1	9	80.9	20
22	2ND19098										79.5	1	9	81.7	23
23	2ND19119										78.7	1	9	80.9	19
24	2ND19929										67.1	1	9	68.9	1
25	6B99-6339										74.3	1	9	76.3	5
26	6B99-6639										77.4	1	9	79.6	16
27	6B99-6774										79.7	1	9	81.9	24
28	NEWDALE										74.1	1	9	76.1	4
29	BT485										76.0	1	9	78.1	10
30	BT490										75.1	1	9	77.2	7
NO. OF STATIONS		8	8	6	7	6	7	8	8	6	9				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 87.2 /BASE AVERAGE FOR SAME YEARS

TABLE 11. AVE. STA. LODGING (IN %). 2003 MISSISSIPPI VALLEY BARLEY NURSERY

ENT. VARIETY OR NO. SELECTION	RANK	AVERAGE 3 STA.	CROOKSTN MINN	CARRNGTN ND	BOTTNEAU ND
1 BARBLESS	30	65.6	80.0	70.0	46.7
2 MOREX	29	56.1	66.7	65.0	36.7
3 ROBUST	26	48.9	43.3	50.0	53.3
4 LEGACY (6B93-2978)	21	36.5	33.3	53.0	23.3
5 DRUMMOND (ND15477)	1	23.9	20.0	35.0	16.7
6 LACEY (M98)	20	35.4	43.3	53.0	10.0
7 CONLON	23	42.2	60.0	50.0	16.7
8 TRADI TION(6B95-2482)	8	29.9	26.7	53.0	10.0
9 M109	16	32.2	26.7	50.0	20.0
10 6B98-9170	2	25.6	26.7	40.0	10.0
11 6B98-9339	7	29.9	23.3	53.0	13.3
12 M112	17	33.3	30.0	60.0	10.0
13 ND17643	14	32.1	20.0	43.0	33.3
14 ND17655	12	30.0	16.7	50.0	23.3
15 ND17711	25	47.8	36.7	50.0	56.7
16 M115	5	28.2	23.3	48.0	13.3
17 M116	13	31.7	26.7	55.0	13.3
18 M117	18	35.0	40.0	55.0	10.0
19 ND18578	22	37.7	43.3	53.0	16.7
20 ND18579	12	30.0	23.3	50.0	16.7
21 ND18650	24	44.5	26.7	50.0	56.7
22 2ND19098	12	30.0	36.7	30.0	23.3
23 2ND19119	27	50.4	50.0	68.0	33.3
24 2ND19929	16	32.2	36.7	50.0	10.0
25 6B99-6339	6	28.2	20.0	48.0	16.7
26 6B99-6639	12	30.0	30.0	50.0	10.0
27 6B99-6774	4	27.7	13.3	43.0	26.7
28 NEWDALE	28	51.6	50.0	68.0	36.7
29 BT485	3	26.0	30.0	38.0	10.0
30 BT490	20	35.4	33.3	63.0	10.0
AVERAGE		36.3	34.6	51.5	22.8

TABLE 12 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	STA YR	YRS	ADJ. MEAN	RANK
LODGING (PERCENT)															
1	BARBLESS	48.4	40.0	0.0	64.8	52.7	46.9	31.5	37.2	46.0	65.6	10	28	48.2	30
2	MOREX	41.3	37.5	0.0	44.0	54.0	46.9	25.5	33.3	48.8	56.1	10	28	42.8	29
3	ROBUST	25.1	32.5	0.0	24.0	35.3	37.9	16.0	22.4	38.8	48.9	10	28	30.7	25
BASE AVERAGES		38.2	36.6	.000	44.2	47.3	43.9	24.3	30.9	44.5	56.8				
4	LEGACY (6B93-2978)			0.0	32.0	39.7	31.5	14.5	18.5	26.7	36.5	8	22	28.0	22
5	DRUMMOND (ND15477)				13.3	23.7	17.8	5.5	11.1	21.1	23.9	7	21	16.2	1
6	LACEY (M98)					34.3	29.2	11.5	21.9	26.0	35.4	6	17	26.1	20
7	CONLON										42.2	1	3	30.1	24
8	TRADITION(6B95-2482						21.9	7.5	21.1	30.0	29.9	5	14	22.3	13
9	M109								16.0	30.0	32.2	3	8	24.2	17
10	6B98-9170									28.3	25.6	2	6	21.6	12
11	6B98-9339									20.6	29.9	2	6	20.2	8
12	M112									27.1	33.3	2	6	24.2	16
13	ND17643									18.3	32.1	2	6	20.2	7
14	ND17655									17.7	30.0	2	6	19.1	3
15	ND17711									24.4	47.8	2	6	28.9	23
16	M115										28.2	1	3	20.1	5
17	M116										31.7	1	3	22.6	14
18	M117										35.0	1	3	25.0	18
19	ND18578										37.7	1	3	26.9	21
20	ND18579										30.0	1	3	21.4	11
21	ND18650										44.5	1	3	31.7	26
22	2ND19098										30.0	1	3	21.4	11
23	2ND19119										50.4	1	3	36.0	27
24	2ND19929										32.2	1	3	23.0	15
25	6B99-6339										28.2	1	3	20.1	6
26	6B99-6639										30.0	1	3	21.4	11
27	6B99-6774										27.7	1	3	19.7	4
28	NEWDALE										51.6	1	3	36.8	28
29	BT485										26.0	1	3	18.6	2
30	BT490										35.4	1	3	25.3	19
NO. OF STATIONS		4	2	1	4	3	4	2	2	3	3				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 40.6 /BASE AVERAGE FOR SAME YEARS

TABLE 13. AVE. STA. HEADING (FROM MAY 31). 2003 MISS. VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	11 STA.	CROOKSTN MINN	MORRIS MINN	FARGO ND	CARRNGTN ND	OSNABRCK ND	BOTTNEAU ND	SIDNEY MT
1	BARBLESS	10	27.9	25.0	20.0	22.8	25.5	38.3	23.0	29.0
2	MOREX	5	27.5	22.0	18.0	18.5	23.5	37.3	23.3	28.0
3	ROBUST	22	28.7	24.0	18.0	22.3	24.5	39.0	24.7	29.0
4	LEGACY (6B93-2978)	26	29.0	24.0	18.0	22.8	25.3	38.3	24.3	29.0
5	DRUMMOND (ND15477)	9	27.8	23.0	18.0	19.8	23.8	37.8	24.0	29.0
6	LACEY (M98)	14	28.0	23.0	20.0	21.3	24.5	37.3	24.0	27.0
7	CONLON	1	26.2	22.0	16.0	19.0	23.5	37.3	24.0	27.0
8	TRADI TION(6B95-2482)	15	28.0	23.0	18.0	19.5	24.3	37.3	23.7	30.0
9	M109	13	28.0	24.0	18.0	21.0	24.0	37.8	24.0	28.0
10	6B98-9170	2	27.0	24.0	19.0	21.0	23.8	37.5	24.3	28.0
11	6B98-9339	27	29.5	25.0	19.0	22.0	25.5	39.5	25.0	31.0
12	M112	17	28.1	24.0	18.0	21.0	24.3	37.3	24.0	29.0
13	ND17643	24	28.8	24.0	17.0	20.5	25.3	38.0	24.7	30.0
14	ND17655	29	30.0	26.0	21.0	21.8	26.0	39.3	24.7	31.0
15	ND17711	16	28.0	24.0	18.0	20.0	24.3	37.3	23.7	27.0
16	M115	8	27.8	24.0	20.0	20.3	23.8	37.8	24.7	28.0
17	M116	20	28.4	25.0	20.0	20.0	23.5	37.0	25.0	29.0
18	M117	12	27.9	24.0	18.0	22.0	23.5	37.0	24.0	28.0
19	ND18578	19	28.3	24.0	20.0	19.8	25.0	38.0	24.3	29.0
20	ND18579	18	28.3	24.0	18.0	19.5	24.8	37.8	24.3	29.0
21	ND18650	3	27.3	24.0	18.0	18.0	23.8	37.5	23.0	26.0
22	2ND19098	4	27.4	22.0	21.0	21.0	24.0	37.0	23.7	27.0
23	2ND19119	7	27.7	23.0	18.0	20.3	24.5	37.0	24.3	31.0
24	2ND19929	6	27.6	23.0	18.0	21.0	23.5	38.3	24.7	30.0
25	6B99-6339	11	27.9	23.0	18.0	20.0	23.0	37.8	24.3	28.0
26	6B99-6639	21	28.5	23.0	19.0	20.3	23.8	38.0	24.7	29.0
27	6B99-6774	28	29.9	27.0	19.0	22.5	26.0	39.8	25.7	31.0
28	NEWDAL E	30	30.5	26.0	21.0	25.3	25.8	38.3	26.0	31.0
29	BT485	25	28.9	24.0	21.0	22.3	23.8	38.5	24.3	30.0
30	BT490	23	28.7	24.0	19.0	21.8	24.3	37.8	24.3	31.0
AVERAGE			28.3	23.9	18.8	20.9	24.4	37.9	24.3	29.0

TABLE 13. AVE. STA. HEADING (FROM MAY 31). 2003 MISS. VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	11 STA.	MADI SON WI SC	CARO MI CHI GAN	HAMI OTA MANI TOBA	KERNEN SASK
1	BARBLESS	10	27.9	17.0	17.0	39.0	50.0
2	MOREX	5	27.5	17.0	16.0	47.0	52.0
3	ROBUST	22	28.7	19.0	17.0	48.0	50.0
4	LEGACY (6B93-2978)	26	29.0	19.3	16.0	50.6	51.0
5	DRUMMOND (ND15477)	9	27.8	17.7	17.0	46.6	49.0
6	LACEY (M98)	14	28.0	18.0	17.0	46.6	49.0
7	CONLON	1	26.2	15.7	12.0	46.0	46.0
8	TRADI TI ON(6B95-2482)	15	28.0	18.0	18.0	48.0	48.0
9	M109	13	28.0	17.7	17.0	47.0	49.0
10	6B98-9170	2	27.0	19.0	17.0	50.0	33.0
11	6B98-9339	27	29.5	19.7	16.0	51.7	50.0
12	M112	17	28.1	19.0	16.0	48.0	49.0
13	ND17643	24	28.8	19.0	18.0	49.3	51.0
14	ND17655	29	30.0	19.3	18.0	51.3	52.0
15	ND17711	16	28.0	18.0	18.0	48.0	50.0
16	M115	8	27.8	17.7	15.0	46.0	48.0
17	M116	20	28.4	18.3	17.0	48.0	50.0
18	M117	12	27.9	18.0	16.0	47.7	49.0
19	ND18578	19	28.3	18.0	17.0	47.7	49.0
20	ND18579	18	28.3	18.7	17.0	48.3	50.0
21	ND18650	3	27.3	17.3	16.0	47.7	49.0
22	2ND19098	4	27.4	16.7	14.0	47.0	48.0
23	2ND19119	7	27.7	17.0	13.0	48.7	48.0
24	2ND19929	6	27.6	16.3	13.0	50.0	46.0
25	6B99-6339	11	27.9	18.0	17.0	48.7	49.0
26	6B99-6639	21	28.5	17.7	17.0	50.7	50.0
27	6B99-6774	28	29.9	20.0	18.0	49.7	50.0
28	NEWDALE	30	30.5	20.0	17.0	53.7	51.0
29	BT485	25	28.9	19.0	17.0	50.0	48.0
30	BT490	23	28.7	19.0	16.0	49.0	50.0
AVERAGE			28.3	18.2	16.3	48.3	48.8

TABLE 14 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	STA YR	YRS	ADJ. MEAN	RANK
DATE HEADED - FROM MAY 31															
1	BARBLESS	21.6	34.8	35.8	33.8	21.3	28.9	26.1	32.2	33.1	27.9	10	69	29.8	23
2	MOREX	19.5	32.8	32.5	30.3	18.9	26.5	23.8	30.8	31.1	27.5	10	69	27.8	2
3	ROBUST	21.7	34.4	34.1	31.7	19.9	28.5	25.0	32.0	32.2	28.7	10	69	29.2	16
BASE AVERAGES		20.9	34.0	34.1	31.9	20.0	27.9	24.9	31.6	32.1	28.0				
4	LEGACY (6B93-2978)			33.9	33.4	21.1	29.4	26.6	33.2	33.4	29.0	8	57	30.0	26
5	DRUMMOND (ND15477)				31.3	19.8	27.6	24.3	30.8	31.9	27.8	7	51	28.4	6
6	LACEY (M98)					19.7	27.6	24.5	31.8	31.6	28.0	6	44	28.7	11
7	CONLON										26.2	1	11	27.1	1
8	TRADITION(6B95-2482						27.5	24.5	31.4	31.9	28.0	5	39	28.6	10
9	M109								31.6	31.6	28.0	3	27	28.7	12
10	6B98-9170									31.9	27.0	2	19	28.2	4
11	6B98-9339									33.6	29.5	2	19	30.3	27
12	M112									31.7	28.1	2	19	28.8	14
13	ND17643									33.3	28.8	2	19	29.8	25
14	ND17655									34.8	30.0	2	19	31.1	29
15	ND17711									32.8	28.0	2	19	29.2	17
16	M115										27.8	1	11	28.6	9
17	M116										28.4	1	11	29.3	20
18	M117										27.9	1	11	28.8	15
19	ND18578										28.3	1	11	29.2	19
20	ND18579										28.3	1	11	29.2	18
21	ND18650										27.3	1	11	28.2	3
22	2ND19098										27.4	1	11	28.3	5
23	2ND19119										27.7	1	11	28.6	8
24	2ND19929										27.6	1	11	28.5	7
25	6B99-6339										27.9	1	11	28.8	13
26	6B99-6639										28.5	1	11	29.4	21
27	6B99-6774										29.9	1	11	30.8	28
28	NEWDALE										30.5	1	11	31.4	30
29	BT485										28.9	1	11	29.8	24
30	BT490										28.7	1	11	29.7	22
NO. OF STATIONS		6	6	6	7	5	6	6	8	8	11				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 28.9 /BASE AVERAGE FOR SAME YEARS

TABLE 15. AVE. STA. RIPE (FROM MAY 31). 2003 MISSISSIPPI VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	1 STA.	HAMI OTA MANI TOBA
1	BARBLESS	11	72.3	72.3
2	MOREX	2	70.3	70.3
3	ROBUST	7	72.0	72.0
4	LEGACY (6B93-2978)	23	73.3	73.3
5	DRUMMOND (ND15477)	3	71.3	71.3
6	LACEY (M98)	20	73.0	73.0
7	CONLON	2	70.3	70.3
8	TRADI TION(6B95-2482)	20	73.0	73.0
9	M109	20	73.0	73.0
10	6B98-9170	20	73.0	73.0
11	6B98-9339	30	75.0	75.0
12	M112	12	72.7	72.7
13	ND17643	26	73.7	73.7
14	ND17655	28	74.0	74.0
15	ND17711	20	73.0	73.0
16	M115	5	71.7	71.7
17	M116	28	74.0	74.0
18	M117	7	72.0	72.0
19	ND18578	11	72.3	72.3
20	ND18579	20	73.0	73.0
21	ND18650	23	73.3	73.3
22	2ND19098	26	73.7	73.7
23	2ND19119	20	73.0	73.0
24	2ND19929	26	73.7	73.7
25	6B99-6339	11	72.3	72.3
26	6B99-6639	11	72.3	72.3
27	6B99-6774	23	73.3	73.3
28	NEWDALE	29	74.7	74.7
29	BT485	20	73.0	73.0
30	BT490	5	71.7	71.7
AVERAGE			72.8	72.8

TABLE 16. AVE. STA. YIELD - MANITOBA, MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	8 STA. 8 STA.	CROOKSTN MINN	MORRIS MINN	FARGO ND	CARRNGTN ND	OSNABRCK ND	BOTTNEAU ND	HAMI OTA MANITOBA
1	BARBLESS	30	3719.1	3929.0	3498.4	3950.5	3519.9	3546.8	5500.5	2034.4
2	MOREX	29	3959.9	4397.2	3552.2	4198.1	3449.9	3686.8	5618.9	2185.1
3	ROBUST	28	4247.2	4843.9	3875.1	4892.4	4079.7	4090.4	6001.1	2222.8
4	LEGACY (6B93-2978)	20	4625.9	5667.4	4413.3	4666.3	4956.9	3993.5	6695.4	2201.3
5	DRUMMOND (ND15477)	21	4618.5	6173.3	3767.5	4903.1	5360.6	4138.9	6076.4	2222.8
6	LACEY (M98)	19	4627.3	5958.0	4144.2	4768.6	4983.9	3907.4	6959.1	2448.9
7	CONLON	26	4393.8	5258.3	5059.2	3202.4	4564.0	4225.0	6248.7	2142.1
8	TRADI TION(6B95-2482)	11	4711.4	6367.1	4413.3	4725.5	5457.5	4736.3	6259.4	2249.7
9	M109	7	4768.6	6243.3	4897.7	5000.0	5236.8	3336.9	6496.2	2637.2
10	6B98-9170	13	4679.8	6259.4	4790.1	4892.4	5134.6	4042.0	6533.9	2104.4
11	6B98-9339	16	4674.4	6098.0	4951.6	5317.5	5479.0	3869.8	6361.7	1797.6
12	M112	6	4780.7	6081.8	4251.9	4612.5	5274.5	4273.4	7012.9	2405.8
13	ND17643	12	4699.3	6189.5	4413.3	5016.1	5263.7	4467.2	6426.3	2163.6
14	ND17655	15	4675.1	5543.6	4036.6	4865.4	5721.2	4375.7	6684.6	2082.9
15	ND17711	25	4566.7	5721.2	4521.0	4983.9	4671.7	4574.8	5984.9	2276.6
16	M115	5	4829.1	6512.4	4305.7	4795.5	5807.3	3789.0	6959.1	2206.7
17	M116	8	4743.0	6550.1	4843.9	4908.5	4951.6	3153.9	7314.3	2346.6
18	M117	18	4628.6	5920.3	4467.2	4391.8	5016.1	4225.0	6975.2	1996.8
19	ND18578	22	4589.6	4967.7	3283.1	5193.8	5468.2	4704.0	6480.1	2131.3
20	ND18579	10	4737.6	5559.7	4036.6	4730.9	5839.6	4596.3	6410.1	2222.8
21	ND18650	17	4663.6	5667.4	4144.2	5209.9	5409.0	4709.4	6167.9	2152.9
22	2ND19098	9	4742.3	5796.6	3875.1	5296.0	4800.9	4020.5	7491.9	1964.5
23	2ND19119	24	4570.1	5059.2	4467.2	5075.3	4693.2	3762.1	6474.7	2319.7
24	2ND19929	27	4349.4	5274.5	4036.6	4752.4	5188.4	2938.6	6641.5	2045.2
25	6B99-6339	23	4584.2	6442.4	3982.8	4833.2	5096.9	3326.2	6528.5	2179.8
26	6B99-6639	14	4677.7	6259.4	4413.3	4827.8	5032.3	3692.1	6926.8	2131.3
27	6B99-6774	2	4981.8	6227.1	5113.0	5312.2	5495.2	3880.5	7088.3	2142.1
28	NEWDALE	1	5046.4	6011.8	5651.2	5236.8	5064.6	4101.2	7287.4	2185.1
29	BT485	4	4896.4	6582.3	4682.5	5376.7	5441.3	3681.4	6932.2	2292.8
30	BT490	3	4945.5	6151.8	5113.0	4784.7	4967.7	4289.6	7244.3	2260.5
AVERAGE			4624.4	5790.5	4366.7	4824.0	5047.5	4004.5	6592.8	2191.8

TABLE 16. AVE. STA. YIELD - MANITOBA, MINNESOTA, NORTH DAKOTA, SOUTH DAKOTA

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	8 STA.	KERNEN SASK
1	BARBLESS	30	3719.1	3772.9
2	MOREX	29	3959.9	4591.0
3	ROBUST	28	4247.2	3972.0
4	LEGACY (6B93-2978)	20	4625.9	4413.3
5	DRUMMOND (ND15477)	21	4618.5	4305.7
6	LACEY (M98)	19	4627.3	3848.2
7	CONLON	26	4393.8	4451.0
8	TRADI TION(6B95-2482)	11	4711.4	3482.2
9	M109	7	4768.6	4300.3
10	6B98-9170	13	4679.8	3681.4
11	6B98-9339	16	4674.4	3519.9
12	M112	6	4780.7	4332.6
13	ND17643	12	4699.3	3654.5
14	ND17655	15	4675.1	4090.4
15	ND17711	25	4566.7	3799.8
16	M115	5	4829.1	4257.3
17	M116	8	4743.0	3875.1
18	M117	18	4628.6	4036.6
19	ND18578	22	4589.6	4488.7
20	ND18579	10	4737.6	4504.8
21	ND18650	17	4663.6	3848.2
22	2ND19098	9	4742.3	4693.2
23	2ND19119	24	4570.1	4709.4
24	2ND19929	27	4349.4	3918.2
25	6B99-6339	23	4584.2	4284.2
26	6B99-6639	14	4677.7	4138.9
27	6B99-6774	2	4981.8	4596.3
28	NEWDALE	1	5046.4	4833.2
29	BT485	4	4896.4	4181.9
30	BT490	3	4945.5	4752.4
AVERAGE			4624.4	4177.8

TABLE 17 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	STA YR	ADJ. YRS	MEAN	RANK
AVE. YIELD (KG/HA) - MANITOBA, MINN, ND, AND SD															
1	BARBLESS	4034	3472	3209	3505	3497	3269	3329	3885	3004	3719	10	68	3500.3	30
2	MOREX	4335	3629	3475	3646	3552	4109	3538	3818	3034	3960	10	68	3709.4	29
3	ROBUST	4796	4021	3745	3929	3984	4134	4094	4343	3568	4247	10	68	4088.7	28
BASE AVERAGES		4389	3707	3476	3694	3677	3837	3654	4015	3202	3975				
4	LEGACY (6B93-2978)			4003	4097	4230	4412	4413	4316	3687	4626	8	56	4310.5	24
5	DRUMMOND (ND15477)				3848	4416	4306	3972	4567	3602	4619	7	50	4233.7	25
6	LACEY (M98)					4431	4523	4379	4592	3819	4627	6	42	4440.7	16
7	CONLON										4394	1	8	4162.6	26
8	TRADITION(6B95-2482						4348	4388	4529	4151	4711	5	35	4457.6	15
9	M109								4699	3906	4769	3	21	4496.8	9
10	6B98-9170									4060	4680	2	14	4562.3	8
11	6B98-9339									3899	4674	2	14	4487.6	13
12	M112									4378	4781	2	14	4762.5	2
13	ND17643									4093	4699	2	14	4588.5	6
14	ND17655									3869	4675	2	14	4474.9	14
15	ND17711									3778	4567	2	14	4370.8	20
16	M115										4829	1	8	4574.9	7
17	M116										4743	1	8	4493.3	10
18	M117										4629	1	8	4385.0	19
19	ND18578										4590	1	8	4348.0	21
20	ND18579										4738	1	8	4488.2	12
21	ND18650										4664	1	8	4418.1	18
22	2ND19098										4742	1	8	4492.7	11
23	2ND19119										4570	1	8	4329.5	23
24	2ND19929										4349	1	8	4120.5	27
25	6B99-6339										4584	1	8	4342.9	22
26	6B99-6639										4678	1	8	4431.5	17
27	6B99-6774										4982	1	8	4719.6	3
28	NEWDALE										5046	1	8	4780.8	1
29	BT485										4896	1	8	4638.7	5
30	BT490										4946	1	8	4685.2	4
NO. OF STATIONS		6	6	6	8	7	6	8	7	6	8				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 3766.1 /BASE AVERAGE FOR SAME YEAR

Table 18. Percent plump (over 6/64).

Entry#	Variety / Line	Crookston	Morris	Sidney	Hamiota	Kernen
1	Barbless	85.0	83.0	96.4	83.2	79.9
2	Morex	78.0	77.0	96.6	86.3	84.4
3	Robust	92.0	88.0	96.2	57.5	92.7
4	Legacy(6B93-2978)	92.0	87.0	94.8	90.2	91.5
5	Drummond(ND15477)	93.0	93.0	96.6	95.3	90.0
6	Lacey (M98)	95.0	86.0	97.1	96.4	95.0
7	Conlon	96.0	98.0	96.5	85.5	95.6
8	Tradition(6B95-2482)	93.0	81.0	95.3	80.3	93.4
9	M109	92.0	91.0	96.3	87.5	94.4
10	6B98-9170	96.0	95.0	95.9	83.2	95.3
11	6B98-9339	91.0	91.0	95.4	85.5	93.8
12	M112	97.0	91.0	97.5	86.0	96.1
13	ND17643	96.0	88.0	98.1	96.8	94.7
14	ND17655	97.0	89.0	96.4	77.0	96.3
15	ND17711	95.0	86.0	96.4	81.3	91.6
16	M115	93.0	94.0	96.9	84.7	95.9
17	M116	92.0	91.0	96.6	85.8	95.2
18	M117	93.0	90.0	96.9	98.3	96.2
19	ND18578	90.0	91.0	98.1	84.6	95.6
20	ND18579	91.0	90.0	98.0	97.5	89.4
21	ND18650	94.0	91.0	98.1	89.0	92.1
22	2ND19098	96.0	91.0	98.3	81.4	82.0
23	2ND19119	93.0	97.0	98.5	85.6	93.7
24	2ND19929	92.0	96.0	98.6	80.7	93.9
25	6B99-6339	91.0	87.0	96.6	82.7	96.5
26	6B99-6639	98.0	96.0	97.1	87.8	84.3
27	6B99-6774	94.0	89.0	97.8	89.2	93.7
28	Newdale	74.0	89.0	94.2	89.9	92.4
29	BT485	88.0	91.0	96.5	70.3	94.1
30	BT490	90.0	86.0	93.6	90.4	90.3

Table 19. DON levels – Carrington, ND.

Entry	DON (ppm)
Barbless	0.4
Morex	0.6
Robust	0.4
Legacy(6B93-2978)	0.5
Drummond (ND15477)	0.4
Lacey (M98)	0.5
Conlon	0.3
Tradition(6B95-2482)	0.6
M109	0.5
6B98-9170	0.4
6B98-9339	0.4
M112	0.6
ND17643	0.5
ND17655	0.5
ND17711	0.4
M115	0.5
M116	0.5
M117	0.6
ND18578	0.4
ND18579	0.5
ND18650	0.5
2ND19098	0.2
2ND19119	0.2
2ND19929	0.1
6B99-6339	0.7
6B99-6639	0.6
6B99-6774	0.5
Newdale	0.4
BT485	0.6
BT490	0.6

Table 20. FHB and DON ratings - Brandon, MB.

ENTRY	NAME	FHB Rating	DON
1	Barbless	4.7	14.5
2	Morex	2.2	10.7
3	Robust	2.7	16.4
4	Legacy(6B93-2978)	3.8	15.3
5	Drummond (ND15477)	2.5	17.1
6	Lacey (M98)	2.5	18.3
7	Conlon	2.7	7.4
8	Tradition(6B95-2482; BT 954)	3.2	17.1
9	M109	3.7	13.3
10	6B98-9170	3.8	17.9
11	6B98-9339	4.8	30.2
12	M112	3.3	14.3
13	ND17643	3.0	20.0
14	ND17655	3.0	18.8
15	ND17711	2.5	12.0
16	M115	2.8	17.8
17	M116	3.0	26.8
18	M117	3.3	12.4
19	ND18578	3.5	18.9
20	ND18579	3.7	27.8
21	ND18650	2.3	16.4
22	2ND19098	2.0	10.4
23	2ND19119	2.3	14.1
24	2ND19929	2.3	17.9
25	6B99-6339	3.7	25.5
26	6B99-6639	4.2	19.0
27	6B99-6774	3.8	33.5
28	Newdale	3.5	13.8
29	BT485	3.3	16.3
30	BT490	4.3	25.2

<u>Checks</u>	<u>FHB Rating</u>			<u>DON</u>		
	Mean	SE	n	Mean	SE	n
AC Metcalfe	2.7	0.2	5	16.0	1.8	5
CI4196	1.1	0.1	5	7.1	2.5	5
Stander	3.8	0.6	5	18.4	2.5	5
CDC Sisler	2.5	0.2	5	14.0	2.1	5
Chevron	0.8	0.1	5	9.1	1.7	5
Robust	2.8	0.4	5	15.0	2.0	5

*Data are from irrigated/ artificially inoculated disease nurseries located at Brandon. To obtain infection, corn infected with *F. graminearum* was applied. DON analysis was conducted via ELISA technique at ECORC, Ottawa. **0** = no infection; **1** = incidence low, up to 5% of spikes (severity low, 1 or 2 kernels per spike affected [up to 7% of head]); **2** = incidence low to moderate, 5 to 15% of spikes infected (severity low to moderate, 1 to 4 kernels [up to 15% of head]); **3** = incidence moderate, 15 to 30% of heads (severity moderate, 2 to 8 kernels [up to 25% of head]); **4** = incidence moderate to high, 30 to 50% of spikes infected (severity moderate to high, 4 to 12 kernels [up to 40% of head]); **5** = incidence high, 50% or more spikes affected (severity high, 5 to 15+ kernels [up to 50%+ of head diseased]).

Table 21. Foliar Diseases (Net blotch & Spot Blotch) - Brandon, MB

ENTRY	NAME	Net Blotch	Spot Blotch
1	Barbless	4.0	1.5
2	Morex	7.0	1.5
3	Robust	5.0	1.5
4	Legacy(6B93-2978)	4.5	1.0
5	Drummond (ND15477)	4.5	1.5
6	Lacey (M98)	5.5	2.0
7	Conlon	1.5	2.5
8	Tradition(6B95-2482; BT 954)	6.5	3.0
9	M109	5.5	2.5
10	6B98-9170	4.5	1.5
11	6B98-9339	5.0	5.5
12	M112	4.5	1.5
13	ND17643	3.5	2.0
14	ND17655	3.0	2.5
15	ND17711	6.5	4.0
16	M115	6.0	4.5
17	M116	5.0	2.5
18	M117	5.0	2.0
19	ND18578	5.0	1.5
20	ND18579	5.5	1.5
21	ND18650	5.5	1.0
22	2ND19098	2.0	4.5
23	2ND19119	4.0	5.5
24	2ND19929	1.0	3.0
25	6B99-6339	3.5	2.0
26	6B99-6639	5.0	5.0
27	6B99-6774	4.5	3.0
28	Newdale	1.5	2.0
29	BT485	5.0	1.5
30	BT490	2.0	1.0

Check Means

	<u>Net Blotch</u>			<u>Spot Blotch</u>		
	Mean	SE	N	Mean	SE	N
ARGYLE	4.7	0.2	5	1.5	0.2	5
C2-83-6-12	1.5	0.2	5	1.2	0.2	5
TR251	1.5	0.0	5	2.3	0.2	5
HARRINGTON	4.2	0.2	5	7.2	0.2	5
TR236	2.0	0.3	5	5.6	0.5	5

Leaf disease data are from irrigated/ artificially inoculated disease nurseries located at Brandon. Inoculation was by spreading infected straw onto hill plots. Net Blotch = *Pyrenophora teres* (Net-form of net blotch), rating scale 1-9 where 9 is susceptible (rated July 28). Spot Blotch = *Cochliobolus sativus*, rating scale 1-9 where 9 is susceptible (rated Aug. 12).

Table 22. QCCJ Stem Rust Ratings - Brandon, MB

ENTRY	NAME	Rating
1	Barbless	68.8
2	Morex	68.8
3	Robust	70.8
4	Legacy(6B93-2978)	60.7
5	Drummond (ND15477)	45.7
6	Lacey (M98)	65.8
7	Conlon	68.6
8	Tradition(6B95-2482; BT 954)	65.7
9	M109	63.7
10	6B98-9170	65.8
11	6B98-9339	65.7
12	M112	68.7
13	ND17643	48.6
14	ND17655	70.8
15	ND17711	68.8
16	M115	68.7
17	M116	65.7
18	M117	65.6
19	ND18578	65.8
20	ND18579	53.8
21	ND18650	50.6
22	2ND19098	70.8
23	2ND19119	60.6
24	2ND19929	55.6
25	6B99-6339	70.8
26	6B99-6639	65.7
27	6B99-6774	70.7
28	Newdale	73.7
29	BT485	70.8
30	BT490	65.7

Checks	Mean
BONANZA	71.7
KLAGES	72.6
Q21861	9.3

Entries infected with stem rust race QCCJ.

Rating x.y where x = % severity and y = infection type.

Trace=T, R=.1, RMR=.2, MR=.3, MRMS=.4, MRMS-S=.5, MS=.6, MS-S=.7 and S=.8

Table 23. Stem rust field data - Nolette, MB.

Entry	Line	Sr Severity	Sr reaction
1	Barbless	7	msmr
2	Morex	3	r
3	Robust	2	r
4	Legacy (6B93-2978)	1	r
5	Drummond (ND 15477)	1	r
6	Lacey (M98)	5	rmr
7	Conlon	1	r
8	Tradition (6B95-2482)	5	rmr
9	M109	5	rmr
10	6B98-9170	2	r
11	6B98-9339	3	r
12	M112	3	r
13	ND17643	2	r
14	ND17655	1	r
15	ND17711	1	r
16	M115	1	r
17	M116	2	r
18	M117	3	r
19	ND18578	2	r
20	ND18579	2	r
21	ND18650	1	r
22	2ND19098	2	r
23	2ND19119	1	r
24	2ND19929	2	r
25	6B99-6339	10	ms
26	6B99-6639	2	r
27	6B99-6774	1	r
28	Newdale	1	r
29	BT485	2	r
30	BT490	2	r

A composite of 10 isolates (TMRTK, RHTSK, QTHJT, RKQSR, TPMKR, RKQSH, QTHST, TMRTH, RTHJT, and MCCFR) was used and infection was rated under field conditions. Field reactions are summarized based on % severity and also by infection type (R, MR, MS, S).

Table 24. Foliar Diseases – Kernen

	Net Blotch	Spot Blotch
1 Barbless	1	4
2 MOREX	1	3
3 ROBUST	3	4.5
4 Legacy(6B93-2978)	2	3
5 Drummond (ND15477)	3	5
6 Lacey (M98)	1	5
7 Conlon	2	4
8 Tradition(6B95-2482)	2	6
9 M109	1	5
10 6B96-9170	1	5
11 6B98-9339	1	5
12 M112	1	4
13 ND17643	1	4
14 ND17655	1	3
15 ND17711	2	5
16 M115	3	3
17 M116	5	4
18 M117	3	4
19 ND18578	1	5
20 ND18579	1	4
21 ND18650	1	3
22 2ND19098	1	5
23 2ND19119	3	5
24 2ND19929	1	4
25 6B99-6339	2	4
26 6B99-6639	3	6
27 6B99-6774	3	4
28 Newdale	1	5
29 BT485	1	5
30 BT490	1	4

Table 25. Parentage and origin of entries in the 2003 Mississippi Valley Uniform Regional Nursery.

Entry#	CI # or Contributor	Name	Parentage
1.	5105	Barbless	Oderbrucker/Lion
2.	15773	Morex	Cree/Bonanza
3.	476976	Robust	Morex/Manker
4.	Busch Ag. Res.	Legacy(6B93-2978)	Bumper/Karl//Bumper/Manker/3/Bumper/Karl/4/Excel
5.	PI 615584	Drummond (ND15477)	ND9712//Stander/ND12200
6.	PI 613603	Lacey (M98)	M78/M79
7.	North Dakota	Conlon	Bowman*2/Brigitta mutant//ND10232
8.	Busch Ag.	Tradition(6B95-2482)	6B89-2126/ND10981
9.	Minnesota	M109	Lacey/M95
10.	Busch Ag. Res.	6B98-9170	6B92-7098//6B92-7098/M75
11.	Busch Ag. Res.	6B98-9339	B1614//B1614/M75
12.	Minnesota	M112	M93-121/M81
13.	North Dakota	ND17643	ND15245/ND15377
14.	North Dakota	ND17655	ND15245/ND15377
15.	North Dakota	ND17711	ND15246/ND15377
16.	Minnesota	M115	M94-33/M94-111
17.	Minnesota	M116	M104/M81
18.	Minnesota	M117	M94-33/M94-5
19.	North Dakota	ND18578	ND15483/ND15614
20.	North Dakota	ND18579	ND15483/ND15614
21.	North Dakota	ND18650	ND15483/ND15925
22.	North Dakota	2ND19098	ND16680//CMB85-533-H/ND15403-3
23.	North Dakota	2ND19119	ND15403-3/ND15368//ND16453
24.	North Dakota	2ND19929	TR258/ND17437
25.	Busch Ag. Res.	6B99-6339	6B92-8177/6B94-7862
26.	Busch Ag. Res.	6B99-6639	B1614//6B92-7166/B1614
27.	Busch Ag. Res.	6B99-6774	Legacy/6B94-7862
28.	Manitoba	Newdale	CDC Stratus//TR236/WM862-6
29.	Saskatchewan	BT485	M85/SM94021
30.	Saskatchewan	BT490	SM95096/SM94043

*Entries 16-30 are new for 2003.

