

**MISSISSIPPI VALLEY UNIFORM REGIONAL  
BARLEY NURSERY**

**1999**

**FOR OFFICIAL USE ONLY**

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

---

**MISSISSIPPI VALLEY UNIFORM REGIONAL BARLEY NURSERY 1999**

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 which have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. Confirmed results will be published through established channels. The report is primarily a tool for use of cooperators and their official staffs and to those persons having direct and special interest in the development of agricultural research programs.

This report includes data furnished by the State Agricultural Experiment Stations, 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.

---

**ACKNOWLEDGEMENT:** The computer program used to evaluate and compile the data for most of this report was developed by Dr. James Hammond [Department of Crop and Weed Sciences, North Dakota State University].

---

**Michael C. Edwards  
USDA-ARS Cereal Crops Research Unit  
Northern Crop Science Laboratory  
1307 18<sup>TH</sup> Street North  
Fargo, ND 58105-5677  
medwards@badlands.nodak.edu  
edwardsm@fargo.ars.usda.gov  
voice: 701-239-1337  
fax: 701-239-1369**

## 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 1970-1999.....	8
Table 4. Average station yield (all stations).....	9
Table 5. Information on plot type.....	10
Table 6. Period of years summary for yield.....	11
Table 7. Test weight.....	12
Table 8. Period of years summary for test weight.....	13
Table 9. Plant height.....	14
Table 10. Period of years summary for plant height.....	15
Table 11. Lodging.....	16
Table 12. Period of years summary for lodging.....	17
Table 13. Date headed.....	18
Table 14. Period of years summary for date headed.....	19
Table 15. Date ripe.....	20
Table 16. Average station yield for Manitoba, Minnesota, North Dakota, and South Dakota.....	21
Table 17. Period of years summary for yield (Manitoba, Minnesota, North Dakota, South Dakota).....	22
Table 18. Percent plump (over 6/64).....	23
Table 19. Fusarium head blight ratings and DON values.....	24
Table 20. Foliar disease ratings from the Cereal Research Centre, AAFC.....	25
Table 21. Parentage and origin of entries in the 1999 nursery.....	26

List of Stations and Cooperators

1999 Mississippi Valley Uniform Regional Barley Nursery

<u>Stations</u>	<u>Cooperators</u>
Aberdeen, Idaho	D. Wesenberg, USDA, Agricultural Research Service
Brandon, Manitoba	M. C. Therrien, Agriculture Canada
Winnipeg, Manitoba	J. Gilbert, A. Tekauz, Agriculture Canada
Caro, Michigan	R. D. Freed, Michigan State University
Crookston, Minnesota	D. C. Rasmusson, Kevin Smith, University of Minnesota
Morris, Minnesota	D. C. Rasmusson, Kevin Smith, University of Minnesota
Mead, Nebraska	P.S. Baenziger, University of Nebraska
Park River, North Dakota	T. Larson, Busch Agricultural Resources
Carrington, North Dakota	R. D. Horsley, J. D. Franckowiak, B. Steffenson, North Dakota State University
Fargo, North Dakota	R. D. Horsley, J. D. Franckowiak, B. Steffenson, North Dakota State University
Osnabrock, North Dakota	R. D. Horsley, J. D. Franckowiak, B. Steffenson, North Dakota State University
Saskatoon, Saskatchewan	B. L. Harvey, University of Saskatchewan
Watertown, South Dakota	D. L. Reeves, L. Hall, South Dakota State University
Madison, Wisconsin	H. Kaeppler, R. D. Duerst, University of Wisconsin

## 1999 Mississippi Valley Barley Nursery

### Summary

Seven locations contributed useable data for this year's report. The Busch Agricultural Resources site was moved to Park River, ND this year. Previous difficulties associated with import restrictions in Canada were resolved and allowed planting of nurseries at Saskatoon, Brandon, and Winnipeg. Data from Mead (Nebraska), Caro (Michigan), Saskatoon, and Watertown (South Dakota) were not submitted. Data from Fargo (North Dakota) were not used; the nursery had to be abandoned due to poor uniformity. Reliable data from the Langdon site have been difficult to obtain for the past five years. Therefore, this year the nursery was moved about 12 miles east near the town of Osnabrock, ND. The reader is referred to the "Nursery Conditions" section immediately following this summary for other comments concerning specific locations.

Average planting date was 11 days later than the 30-year average, while average heading date was about five days later. The average planting date of May 7<sup>th</sup> was much later than last year (April 24<sup>th</sup>). Heading date (June 28<sup>th</sup>) was eight days later than last year.

Average yield (4021 kg/ha or 75 bu/a) was nearly identical to that of last year. Entries with the best yields were M105, M98, BT463, 6B96-3636, and M104.

Five stations reported test weight. The average of 66.1 kg/hl was nearly identical to that of last year's thirty year high. As might be expected, two-row selections comprised three of the five best entries for test weight. The greatest test weights were recorded for 2ND16880, 2ND16092, M98, 2ND16461, 6B96-3636.

Lodging data were reported from four locations, including Park River, Osnabrock, Crookston, and Morris. The five entries with the least lodging were ND15477, M105, M104, 6B95-2482, ND16301. ND15477 was best in lodging resistance last year as well. 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 be somewhat skewed by the 1996 data. Average plant height was 81.9 cm, just under the thirty year average. Shortest entries were M105, M104, Stander, M102, and 6B95-2482.

Kernel plumpness data were reported from Park River and Brandon. Please refer to Table 18 for further information.

Detailed disease data were obtained from the Winnipeg nursery for net blotch, spot blotch, scald, and *Septoria*. An estimation of *Fusarium* head blight severity was made at the Osnabrock location. These notes appear in Tables 19 and 20.

# NURSERY CONDITIONS

MANITOBA:		
BRANDON:	Previous crop:	.
	Soil type:	Pipestone clay (heavy).
	Fertilizer available:	.
	added:	70 N -30 P - 0 K lbs/ac.
	Remarks:	Herbicides (Refine Extra and Lontrel) and fungicide (Tilt) added at recommended levels. Moisture excessive throughout the season (2.5 times normal precipitation [600 vs. 250 mm]). Relatively poor emergence and extremely heavy disease pressure (high FHB levels; stem rust).
MICHIGAN:		
CARO:	Previous crop:	.
	Soil type:	.
	Fertilizer available:	.
	added:	.
	Remarks:	No data.
MINNESOTA:		
MOORHEAD:	Previous crop:	.
	Soil type:	.
	Fertilizer available:	.
	added:	.
	Remarks:	Moved to Park River, ND.
CROOKSTON:	Previous crop:	.
	Soil type:	.
	Fertilizer available:	.
	added:	.
	Remarks:	.
MORRIS:	Previous crop:	.
	Soil type:	.
	Fertilizer available:	.
	added:	.
	Remarks:	.
NEBRASKA:		
MEAD:	Previous crop:	.
	Soil type:	.
	Fertilizer available:	.
	added:	.
	Remarks:	no data.
NORTH DAKOTA:		
CARRINGTON:	Previous crop:	hard red spring wheat.
	Soil type:	Heimdahl loam, medium

	Fertilizer available: added: Remarks:	54 lbs/a N; 40 lbs/a P; 540 lbs/a K 50 lbs/a N Sowing was delayed about one week from normal due to wet soil conditions. Precipitation from late June to mid-July favored the development of fungal and bacterial diseases on the leaves and spikes of plants. It was difficult to determine if the kernel blight observed on spikes was due to fungal or bacterial pathogens. Harvest was about one week later than average.
FARGO:	Previous crop: Soil type: Fertilizer available: added: Remarks:	soybeans Fargo, silty clay loam  115 lbs/a N; 9 lbs/a P; 380 lbs/a K . Excessive precipitation after sowing resulted in saturated soils and soil crusting. Plant emergence was sparse and nonuniform. The site was abandoned because of poor plot uniformity.
OSNABROCK:	Previous crop: Soil type: Fertilizer available: added: Remarks:	hard red spring wheat. . NA. NA. Reliable data from the Langdon yield trial site have been difficult to obtain for the past five years. Above average precipitation during the past seven years has resulted in a high watertable at the Langdon site. A consequence of the high water table has been excessive salts in the soil that severely affect plant emergence and growth. Because of nonuniform plant growth, data have not been reliable. This year the yield trials were moved about 12 miles east near the town of Osnabrock, ND. The soil in which the yield trials were sown did not have excessive salts and plant growth was uniform. Yield trials will continue to be grown at this site next year. Precipitation from late June through early July favored the development of Fusarium head blight and Septoria leaf blotch.
PARK RIVER:	Previous crop: Soil type: Fertilizer available: added: Remarks:	Potatoes. . . . Busch Agricultural Resources site (replaced Moorhead, MN).
SOUTH DAKOTA:		
WATERTOWN:	Previous crop: Soil type: Fertilizer available: added:	. . . . .

Remarks: No data.

WISCONSIN:

MADISON: Previous crop: alfalfa, grass  
Soil type: St. Charles, loam  
Fertilizer  
available: .  
added: none  
Remarks: Timely planting was made into a good seedbed, although some compacting of the soil caused by later excessive rainfall resulted in some slight emergence difficulties. More than ample rainfall during the growing period promoted good plant growth and tillering. Yields and test weights were again reduced by early season lodging.

SASKATCHEWAN:

SASKATOON: Previous crop: .  
Soil type: .  
Fertilizer  
available: .  
added: .  
Remarks: No data.



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

<b>Variety/ Selection</b>	<b>Yield<sup>1</sup> (kg/ha)</b>	<b>Test Wt<sup>2</sup> (kg/hl)</b>	<b>Height<sup>3</sup> (cm)</b>	<b>Lodging<sup>4</sup> (%)</b>	<b>Heading<sup>5</sup> (5/31=0)</b>	<b>Ripe<sup>6</sup> (5/31=0)</b>
<b>BARBLESS</b>	<b>3217.0</b>	<b>65.2</b>	<b>90.3</b>	<b>46.9</b>	<b>28.9</b>	<b>79.0</b>
<b>LARKER</b>	<b>3374.6</b>	<b>66.0</b>	<b>83.5</b>	<b>43.0</b>	<b>27.2</b>	<b>79.7</b>
<b>MOREX</b>	<b>3881.3</b>	<b>64.3</b>	<b>88.5</b>	<b>46.9</b>	<b>26.5</b>	<b>79.0</b>
<b>ROBUST</b>	<b>3845.9</b>	<b>66.8</b>	<b>86.4</b>	<b>37.9</b>	<b>28.5</b>	<b>79.7</b>
<b>STANDER</b>	<b>4008.2</b>	<b>65.6</b>	<b>77.7</b>	<b>30.7</b>	<b>28.7</b>	<b>80.3</b>
<b>FOSTER</b>	<b>4255.0</b>	<b>65.2</b>	<b>81.5</b>	<b>31.9</b>	<b>27.7</b>	<b>80.0</b>
<b>GB93-2978</b>	<b>4128.9</b>	<b>66.3</b>	<b>81.8</b>	<b>31.5</b>	<b>29.4</b>	<b>80.7</b>
<b>MERITE</b>	<b>3657.5</b>	<b>67.0</b>	<b>84.5</b>	<b>34.6</b>	<b>29.1</b>	<b>78.3</b>
<b>ND15477</b>	<b>4048.1</b>	<b>66.1</b>	<b>81.8</b>	<b>17.8</b>	<b>27.6</b>	<b>79.3</b>
<b>GB94-7378</b>	<b>3828.2</b>	<b>65.6</b>	<b>79.9</b>	<b>31.1</b>	<b>29.7</b>	<b>81.3</b>
<b>M08</b>	<b>4368.8</b>	<b>67.9</b>	<b>80.1</b>	<b>29.2</b>	<b>27.6</b>	<b>79.3</b>
<b>GB94-8253</b>	<b>3952.8</b>	<b>64.4</b>	<b>82.4</b>	<b>26.9</b>	<b>29.1</b>	<b>80.7</b>
<b>M01</b>	<b>4145.8</b>	<b>66.9</b>	<b>81.0</b>	<b>32.1</b>	<b>29.3</b>	<b>80.3</b>
<b>M02</b>	<b>4083.5</b>	<b>66.7</b>	<b>77.7</b>	<b>29.2</b>	<b>29.3</b>	<b>81.3</b>
<b>M03</b>	<b>4170.4</b>	<b>65.9</b>	<b>80.5</b>	<b>29.5</b>	<b>27.8</b>	<b>80.7</b>
<b>M04</b>	<b>4271.1</b>	<b>65.3</b>	<b>72.3</b>	<b>21.2</b>	<b>28.8</b>	<b>80.7</b>
<b>M05</b>	<b>4430.3</b>	<b>65.4</b>	<b>72.2</b>	<b>19.5</b>	<b>29.1</b>	<b>81.0</b>
<b>ND16169</b>	<b>4001.2</b>	<b>66.2</b>	<b>86.1</b>	<b>31.6</b>	<b>28.2</b>	<b>80.3</b>
<b>ND16301</b>	<b>3924.3</b>	<b>65.5</b>	<b>79.1</b>	<b>22.5</b>	<b>27.8</b>	<b>80.0</b>
<b>ND16303</b>	<b>4114.3</b>	<b>65.7</b>	<b>86.5</b>	<b>29.8</b>	<b>28.2</b>	<b>80.0</b>
<b>2ND16092</b>	<b>4084.3</b>	<b>68.6</b>	<b>79.2</b>	<b>25.0</b>	<b>25.4</b>	<b>79.7</b>
<b>2ND16461</b>	<b>3889.7</b>	<b>67.8</b>	<b>80.0</b>	<b>29.5</b>	<b>27.9</b>	<b>81.0</b>
<b>2ND16880</b>	<b>3921.3</b>	<b>68.8</b>	<b>84.6</b>	<b>22.6</b>	<b>26.7</b>	<b>78.7</b>
<b>GB95-2482</b>	<b>4011.2</b>	<b>65.8</b>	<b>78.5</b>	<b>21.9</b>	<b>27.5</b>	<b>81.0</b>
<b>GB96-3636</b>	<b>4324.9</b>	<b>67.1</b>	<b>82.4</b>	<b>36.5</b>	<b>28.2</b>	<b>79.3</b>
<b>GB96-3733</b>	<b>4177.3</b>	<b>64.2</b>	<b>83.9</b>	<b>32.1</b>	<b>28.2</b>	<b>81.3</b>
<b>BT462</b>	<b>4112.7</b>	<b>66.3</b>	<b>88.7</b>	<b>33.3</b>	<b>29.9</b>	<b>81.0</b>
<b>BT463</b>	<b>4364.1</b>	<b>64.4</b>	<b>81.7</b>	<b>38.8</b>	<b>30.1</b>	<b>80.7</b>
<b>HIGH MEAN</b>	<b>4430.3</b>	<b>68.8</b>	<b>90.3</b>	<b>46.9</b>	<b>30.1</b>	<b>81.3</b>
<b>LOW MEAN</b>	<b>3217.0</b>	<b>64.2</b>	<b>72.2</b>	<b>17.8</b>	<b>25.4</b>	<b>78.3</b>
<b>EXP MEAN</b>	<b>4021.2</b>	<b>66.1</b>	<b>81.9</b>	<b>30.8</b>	<b>28.3</b>	<b>80.2</b>
<b>C. V. %</b>	<b>11.1</b>	<b>3.0</b>	<b>3.3</b>	<b>25.3</b>	<b>4.7</b>	
<b>LSD 5%</b>	<b>469.2</b>	<b>2.4</b>	<b>2.8</b>	<b>11.0</b>	<b>1.5</b>	
<b>LSD 1%</b>	<b>616.7</b>	<b>3.2</b>	<b>3.7</b>	<b>14.5</b>	<b>2.0</b>	
<b># of Loc</b>	<b>7</b>	<b>5</b>	<b>7</b>	<b>4</b>	<b>6</b>	<b>1</b>

**1 all**

**2 Park River, Carrington, Osnabrock, Brandon, Madison**

**3 all**

**4 Park River, Osnabrock, Crookston, Morris**

**5 Carrington, Osnabrock, Brandon, Crookston, Morris, Madison**

**6 Brandon**

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

<b>Variety/ Selection</b>	<b>Yield<sup>1</sup> (kg/ha)</b>	<b>Test W<sup>2</sup> (kg/hl)</b>	<b>Height<sup>3</sup> (cm)</b>	<b>Lodging<sup>4</sup> (%)</b>	<b>Heading<sup>5</sup> (5/31=0)</b>	<b>Ripe<sup>6</sup> (5/31=0)</b>
<b>BARBLESS</b>	3268.7	67.4	90.0	46.9	32.0	79.0
<b>LARKER</b>	3615.9	69.0	83.5	43.0	30.0	79.7
<b>MOREX</b>	4109.3	67.1	88.5	46.9	29.2	79.0
<b>ROBUST</b>	4134.4	70.4	86.3	37.9	30.8	79.7
<b>STANDER</b>	4394.5	68.7	78.1	30.7	30.6	80.3
<b>FOSTER</b>	4582.9	68.6	81.6	31.9	30.3	80.0
<b>6B93-2978</b>	4411.6	69.3	81.7	31.5	31.9	80.7
<b>MERITE</b>	3948.7	70.7	84.7	34.6	31.3	78.3
<b>ND15477</b>	4305.7	68.7	82.6	17.8	30.0	79.3
<b>6B94-7378</b>	4172.9	68.6	80.9	31.1	31.9	81.3
<b>M08</b>	4522.8	70.4	79.6	29.2	30.4	79.3
<b>6B94-8253</b>	4201.7	66.7	82.8	26.9	31.3	80.7
<b>M01</b>	4452.8	70.4	80.1	32.1	31.6	80.3
<b>M02</b>	4378.4	69.9	78.1	29.2	31.9	81.3
<b>M03</b>	4600.8	69.2	81.4	29.5	30.3	80.7
<b>M04</b>	4561.4	68.4	72.1	21.2	30.8	80.7
<b>M05</b>	4678.0	68.6	72.4	19.5	31.7	81.0
<b>ND16169</b>	4171.2	68.8	86.2	31.6	30.8	80.3
<b>ND16301</b>	4226.8	69.0	79.4	22.5	30.4	80.0
<b>ND16303</b>	4257.3	68.5	86.5	29.8	31.0	80.0
<b>2ND16092</b>	4402.6	71.6	79.2	25.0	28.3	79.7
<b>2ND16461</b>	4163.1	70.6	79.6	29.5	31.3	81.0
<b>2ND16880</b>	4077.9	71.9	84.2	22.6	29.8	78.7
<b>6B95-2482</b>	4347.9	68.4	79.0	21.9	29.8	81.0
<b>6B96-3636</b>	4564.9	69.6	82.6	36.5	30.9	79.3
<b>6B96-3733</b>	4496.8	67.2	84.2	32.1	30.9	81.3
<b>BT462</b>	4272.5	69.1	89.0	33.3	32.4	81.0
<b>BT463</b>	4600.8	66.8	81.3	38.8	32.6	80.7
<b>HIGH MEAN</b>	4678.0	71.9	90.0	46.9	32.6	81.3
<b>LOW MEAN</b>	3268.7	66.7	72.1	17.8	28.3	78.3
<b>EXP MEAN</b>	4282.9	69.1	82.0	30.8	30.9	80.2
<b>C. V. %</b>	10.1	2.9	3.3	25.3	3.8	
<b>LSD 5%</b>	487.2	2.8	3.1	11.0	1.5	
<b>LSD 1%</b>	640.3	NS	4.0	14.5	1.9	
<b># of Loc</b>	6	4	6	4	5	1

**Locations were:**

**1 all**

**2 Park River, Carrington, Osnabrock, Brandon**

**3 all**

**4 Park River, Osnabrock, Crookston, Morris**

**5 Carrington, Osnabrock, Brandon, Crookston, Morris**

**6 Brandon**

TABLE 3. 1970-1999 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	4-12	1976	6-13	1985	67.0	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	14.2	1992
4502	1994	63.1	1997	19	1971	15	1988	76.3	1974	15.6	1983
4337	1993	63.0	1977	19	1985	16	1971	76.4	1995	16.2	1980
4274	1990	62.7	1984	19	1987	16	1980	76.6	1978	17.1	1984
4255	1995	62.4	1985	20	1992	16	1987	76.7	1991	17.8	1981
4251	1984	62.0	1976	21	1980	20	1998	77.4	1997	18.4	1975
4056	1989	61.7	1996	23	1989	21	1982	77.5	1977	19.0	1994
4046	1997	61.6	1995	23	1973	21	1994	78.5	1976	21.1	1989
4021	1999	61.2	1986	23	1977	22	1973	79.0	1994	21.3	1979
4017	1998	61.0	1988	24	1998	22	1991	79.5	1996	21.8	1976
3986	1981	60.6	1980	25	1990	23	1992	80.7	1989	21.8	1978
3884	1982	60.2	1989	25	1991	23	1970	81.8	1970	23.9	1986
3882	1987	60.2	1971	26	1982	23	1978	81.9	1999	24.2	1985
3806	1980	60.1	1981	27	1994	24	1989	83.1	1972	26.6	1973
3728	1977	59.9	1994	28	1970	24	1990	83.9	1980	27.1	1977
3566	1996	59.7	1974	29	1972	24	1981	84.1	1973	27.2	1974
3519	1973	59.7	1978	29	1993	25	1972	85.3	1975	27.7	1970
3492	1979	59.4	1983	30	1978	25	1975	85.8	1971	27.7	1995
3432	1976	59.2	1992	30	1983	25	1984	86.8	1990	28.1	1997
3370	1978	59.2	1973	30	1986	26	1986	87.7	1984	29.2	1990
3363	1972	59.2	1982	5-1	1984	27	1974	88.6	1993	29.3	1991
3357	1971	59.2	1987	2	1974	28	1999	89.1	1986	31.0	1999
3136	1988	58.9	1975	2	1975	29	1993	89.3	1998	35.0	1972
3113	1983	58.6	1972	4	1995	30	1979	89.4	1992	38.6	1998
3094	1975	58.1	1970	7	1996	7-1	1983	90.5	1981	40.8	1971
3064	1991	57.5	1993	5-7	1999	7-2	1997	91.5	1982	42.6	1993
2975	1970	57.5	1990	7	1979	7-4	1995	92.3	1983	48.2	1982
2792	1974	54.3	1991	11	1997	7-4	1996	93.0	1985	0.0	1996
3814	AVE.	60.6	AVE.	4-26	AVE.	6-23	AVE.	82.6	AVE.	24.1	AVE.

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

KG/HL TO LB/BU x .776815

**TABLE 4. AVE. STA. YIELD (KG/HA). 1999 MISSISSIPPI VALLEY BARLEY NURSERY**

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	PARK RIVR 7 STA.	CARRNGIN ND	OSNABECK ND	BRANDON MANITOBA	CROOKSTN MNN	MORRIS MNN	MADISON WISC
1	BARBLESS	28	3217.0	3347.7	3385.4	3347.7	1431.6	3907.4	2906.4
2	LARKER	27	3374.6	3912.8	3880.5	3132.4	2712.6	4343.4	1926.8
3	MOREX	23	3881.3	3670.6	3600.6	3665.2	4176.5	4757.8	2513.5
4	ROBUST	24	3845.9	3536.1	3799.8	4531.8	3627.6	5118.4	4192.7
5	STANDER (M64)	17	4008.1	3772.9	3848.2	4800.9	3143.2	6017.2	1690.0
6	FOSTER (ND11055)	6	4255.0	3859.0	3815.9	4838.5	4386.4	5597.4	2287.4
7	6B93- 2978	10	4128.9	3912.8	4225.0	4574.8	4284.2	5699.7	2432.7
8	MERRITE (MS85)	26	3657.5	3283.1	3826.7	4079.7	2454.3	5215.3	4833.2
9	ND15477	15	4048.1	4052.7	3794.4	4531.8	2664.2	5656.6	5134.6
10	6B94- 7378	25	3828.2	3670.6	3885.9	4607.1	2938.6	5134.6	4800.9
11	M08	2	4368.8	3702.9	4149.6	4865.4	3293.9	5678.1	5446.7
12	6B94- 8253	19	3952.8	3826.7	3950.5	4790.1	1996.8	5866.5	4779.3
13	M01	9	4145.8	3740.6	3643.7	4251.9	4214.2	5565.1	5301.4
14	M02	14	4083.5	3934.3	3579.1	4811.6	2831.0	6243.3	4870.8
15	M03	8	4170.4	3799.8	4273.4	4854.7	3390.7	6237.9	5048.4
16	M04	5	4271.1	4128.1	4128.1	4268.0	3374.6	6173.3	5296.0
17	M05	1	4430.3	3982.8	3713.7	4434.9	4262.6	6227.1	5446.7
18	ND16169	18	4001.2	3638.3	3880.5	4526.4	3310.0	5086.1	4585.6
19	ND16301	20	3924.3	3746.0	3374.6	4219.6	3487.6	5925.7	4607.1
20	ND16303	11	4114.3	3611.4	4138.9	4461.8	2427.3	6103.3	4800.9
21	2ND16092	13	4084.3	3466.1	3988.2	4833.2	3740.6	5958.0	4429.5
22	2ND16461	22	3889.7	3396.1	3891.3	4354.1	2922.5	6060.3	4354.1
23	2ND16880	21	3921.3	3293.9	3735.2	4940.8	2852.5	5532.8	4111.9
24	6B95- 2482	16	4011.2	3853.6	4128.1	4488.7	2798.7	6216.4	4601.7
25	6B96- 3636	4	4324.9	3654.5	3907.4	4504.8	3907.4	6243.3	5172.2
26	6B96- 3733	7	4177.3	3810.5	3756.7	4790.1	4106.6	6173.3	4343.4
27	BT462	12	4112.7	4015.1	4225.0	5091.5	2583.4	5791.2	3929.0
28	BT463	3	4364.1	4079.7	3966.6	4757.8	4085.0	6006.5	4709.4
AVERAGE		4021.2	3739.2	3874.8	4477.0	3264.5	5662.0	4680.1	2450.6

**TABLE 5. INFORMATION ON PLOT TYPE.**

LOCATION	# REPS	DATE SOWN	LSD 5%		METERS HARVESTED	CM BET. ROWS	DATE HARVESTED
			KG/HA	BU/A			
BRANDON	?	6-5	312.1	5.8	?	?	9-10
CARO	DATA NOT SUBMITTED						
PARK RIVER (BUSCH)	3	5-1	245.3	4.56	2.9	20	8-11
CARRINGTON	4	4-28	613.3	11.4	3	30	8-5
FARGO	4	5-3	ABANDONED		3	30	
OSNABROCK	4	4-29	451.9	8.4	3	30	8-11
CROOKSTON	3		844.7	15.7	2.8	19	
MADISON	3	4-19	502.5	9.34	4.9	30	7-29
MEAD	DATA NOT SUBMITTED						
MORRIS	3		726.3	13.5	?	18	
WATERTOWN	DATA NOT SUBMITTED						
SASKATOON	DATA NOT SUBMITTED						

TABLE 6 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	STA YR	ADJ. YRS	MEAN	RANK
YIELD - AVERAGE KILOGRAMS PER HECTARE															
1	BARBLESS	4007	2510	4509	3818	3823	3596	3072	3455	3328	3217	10	84	3562.9	28
2	LARKER	4051	2953	4702	3654	3829	3710	3073	3638	3561	3375	10	84	3675.9	27
3	MOREX	4010	2668	4922	3702	4070	3747	3319	3778	3400	3881	10	84	3767.3	26
BASE AVERAGES		4022	2710	4711	3725	3907	3684	3155	3624	3429	3491				
4	ROBUST	4464	3172	5457	4328	4573	4161	3437	3940	3793	3846	10	84	4138.5	21
5	STANDER (M64)			5682	4395	4800	4465	3592	3999	4220	4008	8	67	4334.1	10
6	FOSTER (ND11055)	4752	3085	5524	4685	4750	4407	3396	4080	3872	4255	10	84	4307.8	13
7	6B93-2978							3752	4166	3986	4129	4	33	4287.5	16
8	MERITE (MS85)								3913	3823	3658	3	25	3968.7	25
9	ND15477								3870	4206	4048	3	25	4192.0	20
10	6B94-7378								4381	4026	3828	3	25	4280.9	17
11	M8									4175	4369	2	15	4525.3	4
12	6B94-8253									4304	3953	2	15	4392.1	6
13	M01										4146	1	7	4356.9	9
14	M02										4083	1	7	4291.4	15
15	M03										4170	1	7	4382.7	8
16	M04										4271	1	7	4488.6	5
17	M05										4430	1	7	4655.8	1
18	ND16169										4001	1	7	4205.0	19
19	ND16301										3924	1	7	4124.2	22
20	ND16303										4114	1	7	4323.7	11
21	2ND16092										4084	1	7	4292.2	14
22	2ND16461										3890	1	7	4087.8	24
23	2ND16880										3921	1	7	4120.9	23
24	6B95-2482										4011	1	7	4215.5	18
25	6B96-3636										4325	1	7	4545.1	3
26	6B96-3733										4177	1	7	4390.0	7
27	BT462										4113	1	7	4322.1	12
28	BT463										4364	1	7	4586.3	2
NO. OF STATIONS		10	7	8	9	8	9	8	10	8	7				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 3668.7 /BASE AVERAGE FOR SAME YEARS

**TABLE 7. AVE. STA. TEST WEIGHT (KG/HL). 1999 MSS. VALLEY BARLEY NURSERY**

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	5 STA.	PARK RIVR ND	CARRINGTON ND	OSNABECK ND	BRANDON MANITOBA	MADISON WISC
1	BARELESS	23	65.2	60.8	66.3	62.4	79.9	56.8
2	LARKER	14	66.0	62.7	66.9	63.7	82.8	54.1
3	MOREX	27	64.3	59.3	63.7	61.8	83.7	52.9
4	ROBUST	8	66.8	63.1	69.5	63.7	85.2	52.4
5	STANDER (M64)	19	65.6	62.6	65.7	64.4	82.1	53.3
6	FOSTER (ND11055)	24	65.2	61.3	63.1	68.9	81.2	51.6
7	6B93-2978	10	66.3	61.8	66.9	66.3	82.1	54.5
8	MERRITE (M85)	6	67.0	63.6	69.5	66.9	82.6	52.1
9	ND15477	13	66.1	62.7	63.7	65.7	82.9	55.7
10	6B94-7378	18	65.6	61.9	63.7	65.7	83.0	53.8
11	M08	3	67.9	62.9	66.9	66.9	84.8	57.8
12	6B94-8253	26	64.4	62.3	61.8	62.4	80.2	55.4
13	M01	7	66.9	62.8	65.7	69.5	83.4	52.9
14	M02	9	66.7	64.0	66.3	66.9	82.4	54.1
15	M03	15	65.9	64.0	60.5	65.0	87.3	52.7
16	M04	22	65.3	63.1	63.7	63.1	83.7	52.8
17	M05	21	65.4	61.4	65.7	63.7	83.5	52.7
18	ND16169	12	66.2	63.1	66.3	62.4	83.5	55.5
19	ND16301	20	65.5	62.4	66.3	63.7	83.4	51.6
20	ND16303	17	65.7	63.9	64.4	65.7	79.9	54.7
21	2ND16092	2	68.6	67.2	65.7	65.0	88.7	56.4
22	2ND16461	4	67.8	66.3	64.4	66.3	85.5	56.8
23	2ND16880	1	68.8	66.4	66.9	69.5	84.6	56.8
24	6B95-2482	16	65.8	62.8	66.9	61.8	82.0	55.4
25	6B96-3636	5	67.1	65.8	65.7	62.4	84.7	57.2
26	6B96-3733	28	64.2	61.9	64.4	60.5	82.1	52.1
27	BT462	11	66.3	61.5	70.2	66.3	78.4	55.1
28	BT463	25	64.4	62.3	64.4	59.9	80.6	55.1
AVERAGE			66.1	63.0	65.5	64.7	83.0	54.4

TABLE 8 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	STA YR	YRS	ADJ. MEAN	RANK
TEST WEIGHT (KILOGRAMS PER HECTOLITER)															
1	BARBLESS	57.7	53.0	55.1	56.7	59.6	60.0	62.0	62.4	61.8	65.2	10	44	60.0	25
2	LARKER	60.4	54.1	56.1	57.7	60.5	61.0	61.8	62.8	66.3	66.0	10	44	61.4	13
3	MOREX	56.0	51.0	59.0	55.5	58.8	60.7	62.1	61.8	63.8	64.3	10	44	59.9	26
BASE AVERAGES		58.0	52.7	56.7	56.6	59.6	60.5	61.9	62.3	63.9	65.1				
4	ROBUST	58.2	56.6	59.3	57.7	60.7	61.9	61.8	64.2	66.5	66.8	10	44	61.9	8
5	STANDER (M64)			60.0	58.2	59.1	61.8	60.6	62.8	66.1	65.6	8	37	61.3	15
6	FOSTER (ND11055)	57.0	53.6	59.8	57.1	59.0	61.1	61.2	61.8	64.3	65.2	10	44	60.6	23
7	6B93-2978							61.7	62.1	65.5	66.3	4	20	61.0	18
8	MERITE (MS85)								63.9	65.2	67.0	3	16	61.9	10
9	ND15477								62.4	66.3	66.1	3	16	61.6	11
10	6B94-7378								63.4	68.0	65.6	3	16	62.3	5
11	M8									67.0	67.9	2	11	63.1	3
12	6B94-8253									66.2	64.4	2	11	61.3	16
13	M01										66.9	1	5	62.0	7
14	M02										66.7	1	5	61.9	9
15	M03										65.9	1	5	61.1	17
16	M04										65.3	1	5	60.5	24
17	M05										65.4	1	5	60.6	22
18	ND16169										66.2	1	5	61.4	14
19	ND16301										65.5	1	5	60.7	21
20	ND16303										65.7	1	5	60.9	20
21	2ND16092										68.6	1	5	63.6	2
22	2ND16461										67.8	1	5	62.9	4
23	2ND16880										68.8	1	5	63.8	1
24	6B95-2482										65.8	1	5	61.0	19
25	6B96-3636										67.1	1	5	62.3	6
26	6B96-3733										64.2	1	5	59.5	28
27	BF462										66.3	1	5	61.5	12
28	BF463										64.4	1	5	59.8	27
NO. OF STATIONS		5	2	3	5	4	5	4	5	6	5				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 60.4 /BASE AVERAGE FOR SAME YEARS



TABLE 9. AVE. STA. HEIGHT (CM). 1999 MISSISSIPPI VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	PARK RIVR 7 STA.	CARRINGTON ND	OSNABECK ND	BRANDON ND	MANITOBA ND	CROOKSTON MNN	MORRIS MNN	MADISON WISC
1	BARELESS	28	90.3	103.3	91.9	71.8	93.0	97.0	83.0	92.0
2	LARKER	19	83.5	97.4	80.8	66.0	86.0	92.0	79.0	83.0
3	MOREX	26	88.5	107.5	80.9	65.8	95.0	98.0	84.0	88.0
4	ROBUST	24	86.4	102.5	82.9	64.3	95.0	94.0	79.0	87.0
5	STANDER (M64)	3	77.7	94.0	75.1	59.1	83.5	86.0	71.0	75.0
6	FOSTER (ND11055)	13	81.5	94.8	80.9	61.1	85.0	89.0	79.0	81.0
7	6B93-2978	15	81.8	98.2	79.0	61.6	88.5	90.0	73.0	82.0
8	MERRITE (MS85)	21	84.5	98.2	81.5	64.0	92.5	92.0	80.0	83.0
9	ND15477	16	81.8	99.1	76.6	64.1	83.0	94.0	79.0	77.0
10	6B94-7378	8	79.9	97.4	82.4	62.3	78.5	91.0	74.0	74.0
11	M08	10	80.1	94.8	76.9	60.8	86.0	85.0	74.0	83.0
12	6B94-8253	17	82.4	101.6	77.0	65.9	86.0	91.0	75.0	80.0
13	M01	12	81.0	94.0	77.4	60.4	87.0	89.0	73.0	86.0
14	M02	4	77.7	93.1	72.8	59.4	83.5	87.0	73.0	75.0
15	M03	11	80.5	95.7	78.0	61.4	88.5	89.0	76.0	75.0
16	M04	2	72.3	87.2	68.9	55.3	81.0	80.0	60.0	74.0
17	M05	1	72.2	88.9	66.9	54.8	79.5	80.0	64.0	71.0
18	ND16169	23	86.1	105.0	82.1	66.8	81.0	98.0	84.0	86.0
19	ND16301	6	79.1	96.5	75.8	63.6	77.5	90.0	73.0	77.0
20	ND16303	25	86.5	105.0	82.8	66.4	86.5	93.0	85.0	87.0
21	2ND16092	7	79.2	93.1	80.5	63.6	80.0	84.0	74.0	79.0
22	2ND16461	9	80.0	93.1	76.9	63.3	83.5	86.0	75.0	82.0
23	2ND16880	22	84.6	98.2	80.9	63.3	86.5	93.0	83.0	87.0
24	6B95-2482	5	78.5	99.9	72.3	60.0	79.0	86.0	77.0	75.0
25	6B96-3636	18	82.4	96.5	75.5	65.8	90.0	89.0	79.0	81.0
26	6B96-3733	20	83.9	100.8	78.9	62.4	91.0	92.0	80.0	82.0
27	BT462	27	88.7	108.4	86.0	67.3	93.5	97.0	82.0	87.0
28	BT463	14	81.7	95.7	79.4	62.9	87.0	91.0	72.0	84.0
AVERAGE			81.9	97.9	78.6	63.0	86.0	90.1	76.4	81.2

TABLE 10 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	STA YR	ADJ. YRS	MEAN	RANK
HEIGHT (CENTIMETERS)															
1	BARBLESS	92.0	82.6	101.8	96.8	83.7	85.2	90.1	88.1	96.2	90.3	10	76	90.4	28
2	LARKER	88.4	78.0	91.2	90.3	82.5	81.1	82.4	80.6	91.3	83.5	10	76	84.8	22
3	MOREX	90.1	79.9	94.0	94.3	84.5	81.6	85.4	81.8	93.9	88.5	10	76	87.2	26
BASE AVERAGES		90.1	80.1	95.6	93.8	83.5	82.6	85.9	83.5	93.8	87.4				
4	ROBUST	88.9	78.5	92.2	91.6	82.5	81.0	82.1	79.8	93.8	86.4	10	76	85.5	23
5	STANDER (M64)			88.0	85.8	73.4	73.8	76.0	74.2	86.7	77.7	8	57	78.7	5
6	FOSTER (ND11055)	84.9	75.6	87.4	88.0	78.7	75.4	77.9	75.8	90.3	81.5	10	76	81.4	14
7	6B93-2978							80.0	77.5	90.3	81.8	4	26	82.2	16
8	MERITE (MS85)								79.7	92.4	84.5	3	20	84.7	21
9	ND15477								75.2	89.3	81.8	3	20	81.3	13
10	6B94-7378								77.6	88.7	79.9	3	20	81.3	13
11	M8									86.2	80.1	2	13	80.3	9
12	6B94-8253									88.9	82.4	2	13	82.7	18
13	M01										81.0	1	7	81.1	11
14	M02										77.7	1	7	77.8	3
15	M03										80.5	1	7	80.6	10
16	M04										72.3	1	7	72.4	2
17	M05										72.2	1	7	72.2	1
18	ND16169										86.1	1	7	86.2	24
19	ND16301										79.1	1	7	79.1	6
20	ND16303										86.5	1	7	86.6	25
21	2ND16092										79.2	1	7	79.3	7
22	2ND16461										80.0	1	7	80.1	8
23	2ND16880										84.6	1	7	84.6	20
24	6B95-2482										78.5	1	7	78.5	4
25	6B96-3636										82.4	1	7	82.5	17
26	6B96-3733										83.9	1	7	84.0	19
27	BF462										88.7	1	7	88.8	27
28	BF463										81.7	1	7	81.8	15
NO. OF STATIONS		10	9	8	7	8	8	6	7	6	7				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 87.5 /BASE AVERAGE FOR SAME YEARS

**TABLE 11. AVE. STA. LODGING (IN %). 1999 MISSISSIPPI VALLEY BARLEY NURSERY**

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	4 STA.	PARK RIVR ND	OSNABECK ND	CROOKSTN MNN	MORRIS MNN
1	BARELESS	28	46.9	36.7	75.0	43.0	33.0
2	LARKER	26	43.0	30.0	75.0	37.0	30.0
3	MOREX	28	46.9	36.7	75.0	43.0	33.0
4	ROBUST	24	37.9	36.7	55.0	33.0	27.0
5	STANDER (M64)	14	30.7	36.7	33.0	30.0	23.0
6	FOSTER (ND11055)	18	31.9	16.7	45.0	33.0	33.0
7	6B93-2978	16	31.5	30.0	43.0	30.0	23.0
8	MERRITE (MS85)	22	34.6	33.3	45.0	33.0	27.0
9	ND15477	1	17.8	3.3	25.0	20.0	23.0
10	6B94-7378	15	31.1	23.3	48.0	30.0	23.0
11	M08	10	29.2	16.7	43.0	37.0	20.0
12	6B94-8253	8	26.9	16.7	38.0	30.0	23.0
13	M01	20	32.1	23.3	45.0	37.0	23.0
14	M02	10	29.2	36.7	33.0	20.0	27.0
15	M03	11	29.5	30.0	35.0	30.0	23.0
16	M04	3	21.2	16.7	25.0	23.0	20.0
17	M05	2	19.5	10.0	28.0	20.0	20.0
18	ND16169	17	31.6	13.3	53.0	33.0	27.0
19	ND16301	5	22.5	10.0	33.0	27.0	20.0
20	ND16303	13	29.8	13.3	43.0	30.0	33.0
21	2ND16092	7	25.0	10.0	40.0	20.0	30.0
22	2ND16461	12	29.5	0.0	58.0	33.0	27.0
23	2ND16880	6	22.6	3.3	30.0	27.0	30.0
24	6B95-2482	4	21.9	6.7	35.0	23.0	23.0
25	6B96-3636	23	36.5	20.0	63.0	30.0	33.0
26	6B96-3733	20	32.1	23.3	45.0	30.0	30.0
27	BT462	21	33.3	23.3	50.0	33.0	27.0
28	BT463	25	38.8	40.0	55.0	33.0	27.0
AVERAGE			30.8	21.3	45.4	30.3	26.4

TABLE 12 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	STA YR	ADJ. YRS	MEAN	RANK
LODGING (PERCENT)															
1	BARBLESS	58.3	55.7	31.8	62.1	48.4	40.0	0.0	64.8	52.7	46.9	10	37	50.3	28
2	LARKER	51.8	47.4	29.8	63.5	51.4	45.0	0.0	58.8	54.3	43.0	10	37	48.0	27
3	MOREX	37.5	40.5	26.3	60.6	41.3	37.5	0.0	44.0	54.0	46.9	10	37	42.0	26
BASE AVERAGES		49.2	47.8	29.3	62.0	47.0	40.8	.000	55.8	53.6	45.6				
4	ROBUST	18.3	30.2	14.1	44.2	25.1	32.5	0.0	24.0	35.3	37.9	10	37	28.0	10
5	STANDER (M64)			10.6	44.5	14.0	17.5	0.0	16.0	32.0	30.7	8	28	23.5	7
6	FOSTER (ND11055)	22.0	24.9	11.1	38.0	15.5	37.5	0.0	20.5	40.7	31.9	10	37	25.0	8
7	6B93-2978							0.0	32.0	39.7	31.5	4	12	30.8	19
8	MERITE (MNS85)								22.8	38.3	34.6	3	11	28.4	11
9	ND15477								13.3	23.7	17.8	3	11	16.1	1
10	6B94-7378								26.3	47.7	31.1	3	11	30.7	18
11	M8								34.3	29.2		2	7	29.9	13
12	6B94-8253								33.7	26.9		2	7	28.4	12
13	M01									32.1		1	4	32.9	22
14	M02									29.2		1	4	29.9	14
15	M03									29.5		1	4	30.2	15
16	M04									21.2		1	4	21.7	3
17	M05									19.5		1	4	20.0	2
18	ND16169									31.6		1	4	32.4	20
19	ND16301									22.5		1	4	23.1	5
20	ND16303									29.8		1	4	30.6	17
21	2ND16092									25.0		1	4	25.6	9
22	2ND16461									29.5		1	4	30.2	16
23	2ND16880									22.6		1	4	23.1	6
24	6B95-2482									21.9		1	4	22.5	4
25	6B96-3636									36.5		1	4	37.4	24
26	6B96-3733									32.1		1	4	32.9	22
27	BF462									33.3		1	4	34.2	23
28	BF463									38.8		1	4	39.7	25
NO. OF STATIONS		4	5	5	5	4	2	1	4	3	4				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 46.7 /BASE AVERAGE FOR SAME YEARS

TABLE 13. AVE. STA. HEADING (FROM MAY 31). 1999 MSS. VALLEY BARLEY NURSERY

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK	6 STA.	CARRINGTON ND	OSNABECK ND	BRANDON MANITOBA	CROOKSTON MNN	MORRIS MNN	MADISON WISC
1	BARELESS	19	28.9	28.0	34.8	46.0	28.0	23.0	13.3
2	LARKER	4	27.2	25.3	30.8	49.0	25.0	20.0	13.3
3	MOREX	2	26.5	24.8	30.0	46.0	25.0	20.0	13.3
4	ROBUST	16	28.5	26.0	30.3	50.5	25.0	22.0	17.3
5	STANDER (M64)	17	28.7	25.8	30.3	49.0	25.0	23.0	19.0
6	FOSTER (ND11055)	8	27.7	25.5	30.3	49.5	24.0	22.0	14.7
7	6B93-2978	25	29.4	26.3	31.8	49.5	28.0	24.0	16.7
8	MERRITE (MS85)	22	29.1	26.5	31.0	50.0	27.0	22.0	18.3
9	ND15477	7	27.6	24.8	30.0	49.0	25.0	21.0	16.0
10	6B94-7378	26	29.7	27.0	32.0	51.5	26.0	23.0	18.7
11	M08	7	27.6	25.5	30.3	49.0	25.0	22.0	14.0
12	6B94-8253	20	29.1	26.0	31.8	51.5	26.0	21.0	18.3
13	M01	24	29.3	26.0	30.3	50.5	27.0	24.0	18.0
14	M02	23	29.3	26.8	31.3	51.5	27.0	23.0	16.0
15	M03	9	27.8	25.5	30.5	49.5	25.0	21.0	15.0
16	M04	18	28.8	25.5	30.0	49.5	25.0	24.0	18.7
17	M05	22	29.1	26.0	30.5	52.0	25.0	25.0	16.3
18	ND16169	15	28.2	25.3	30.8	50.0	26.0	22.0	15.3
19	ND16301	10	27.8	23.8	30.3	51.0	25.0	22.0	14.7
20	ND16303	13	28.2	25.5	31.3	51.0	26.0	21.0	14.3
21	2ND16092	1	25.4	23.5	30.0	43.0	23.0	22.0	10.7
22	2ND16461	11	27.9	25.8	31.5	52.0	24.0	23.0	11.3
23	2ND16880	3	26.7	25.5	31.5	46.0	24.0	22.0	11.0
24	6B95-2482	5	27.5	25.3	29.3	49.5	24.0	21.0	15.7
25	6B96-3636	14	28.2	26.0	31.0	50.5	25.0	22.0	14.7
26	6B96-3733	12	28.2	26.0	30.8	50.5	25.0	22.0	14.7
27	BT462	27	29.9	27.3	32.8	50.0	29.0	23.0	17.0
28	BT463	28	30.1	26.8	31.8	51.5	29.0	24.0	17.3
AVERAGE			28.3	25.8	31.0	49.6	25.6	22.3	15.5

TABLE 14 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	STA YR	ADJ. YRS	MEAN	RANK
DATE HEADED - FROM MAY 31															
1	BARBLESS	23.4	22.7	24.6	29.6	21.6	34.8	35.8	33.8	21.3	28.9	10	69	27.5	22
2	LARKER	21.4	21.1	22.0	28.6	20.9	32.9	33.0	30.3	19.1	27.2	10	69	25.6	4
3	MOREX	21.7	20.6	22.2	28.9	19.5	32.8	32.5	30.3	18.9	26.5	10	69	25.4	3
BASE AVERAGES		22.1	21.4	22.9	29.0	20.6	33.5	33.7	31.4	19.7	27.5				
4	ROBUST	23.0	22.5	23.5	29.5	21.7	34.4	34.1	31.7	19.9	28.5	10	69	26.8	15
5	STANDER (M64)			24.1	30.1	21.8	34.7	34.2	32.6	20.1	28.7	8	52	27.1	17
6	FOSTER (ND11055)	22.5	22.1	22.7	28.6	20.3	33.3	33.8	30.8	19.4	27.7	10	69	26.1	5
7	6B93-2978							33.9	33.4	21.1	29.4	4	24	27.4	20
8	MERITE (MS85)								32.8	20.7	29.1	3	18	27.4	21
9	ND15477								31.3	19.8	27.6	3	18	26.1	7
10	6B94-7378								33.2	21.3	29.7	3	18	27.9	26
11	M8									19.7	27.6	2	11	26.2	8
12	6B94-8253									20.3	29.1	2	11	27.4	19
13	M01										29.3	1	6	27.8	25
14	M02										29.3	1	6	27.8	24
15	M03										27.8	1	6	26.4	9
16	M04										28.8	1	6	27.3	18
17	M05										29.1	1	6	27.7	23
18	ND16169										28.2	1	6	26.8	16
19	ND16301										27.8	1	6	26.4	10
20	ND16303										28.2	1	6	26.8	13
21	2ND16092										25.4	1	6	24.1	1
22	2ND16461										27.9	1	6	26.5	11
23	2ND16880										26.7	1	6	25.3	2
24	6B95-2482										27.5	1	6	26.1	6
25	6B96-3636										28.2	1	6	26.8	14
26	6B96-3733										28.2	1	6	26.8	12
27	BT462										29.9	1	6	28.4	27
28	BT463										30.1	1	6	28.6	28
NO. OF STATIONS		9	8	7	9	6	6	6	7	5	6				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 26.2 /BASE AVERAGE FOR SAME YEARS

**TABLE 15. AVE. STA. RIPE (FROM MAY 31). 1999 MISSISSIPPI VALLEY BARLEY NURSERY**

<b>ENT. NO.</b>	<b>VARIETY OR SELECTION</b>	<b>AVERAGE RANK</b>	<b>1 STA.</b>	<b>BRANDON MANITOBA</b>
1	BARELESS	4	79.0	79.0
2	LARKER	10	79.7	79.7
3	MOREX	4	79.0	79.0
4	ROBUST	10	79.7	79.7
5	STANDER (M4)	16	80.3	80.3
6	FOSTER (ND11055)	13	80.0	80.0
7	6B93-2978	21	80.7	80.7
8	MWBRITE (MS85)	1	78.3	78.3
9	ND15477	7	79.3	79.3
10	6B94-7378	28	81.3	81.3
11	M08	7	79.3	79.3
12	6B94-8253	21	80.7	80.7
13	M01	16	80.3	80.3
14	M02	28	81.3	81.3
15	M03	21	80.7	80.7
16	M04	21	80.7	80.7
17	M05	25	81.0	81.0
18	ND16169	16	80.3	80.3
19	ND16301	13	80.0	80.0
20	ND16303	13	80.0	80.0
21	2ND16092	10	79.7	79.7
22	2ND16461	25	81.0	81.0
23	2ND16880	2	78.7	78.7
24	6B95-2482	25	81.0	81.0
25	6B96-3636	7	79.3	79.3
26	6B96-3733	28	81.3	81.3
27	BT462	25	81.0	81.0
28	BT463	21	80.7	80.7
<b>AVERAGE</b>			<b>80.2</b>	<b>80.2</b>

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

ENT. NO.	VARIETY OR SELECTION	AVERAGE RANK 6 STA.	PARK RIVR ND	CARRINGTON ND	OSNABECK ND	BRANDON MANITOBA	CROOKSTON MINN	MORRIS MINN
1	BARELESS	28 3268.7	3347.7	3385.4	3347.7	1431.6	3907.4	4192.7
2	LARKER	27 3615.9	3912.8	3880.5	3132.4	2712.6	4343.4	3713.7
3	MOREX	24 4109.3	3670.6	3600.6	3665.2	4176.5	4757.8	4784.7
4	ROBUST	23 4134.4	3536.1	3799.8	4531.8	3627.6	5118.4	4192.7
5	STANDER (M64)	12 4394.5	3772.9	3848.2	4800.9	3143.2	6017.2	4784.7
6	FOSTER (ND11055)	4 4582.9	3859.0	3815.9	4838.5	4386.4	5597.4	5000.0
7	6B93-2978	10 4411.6	3912.8	4225.0	4574.8	4284.2	5699.7	3772.9
8	MERRITE (MS85)	26 3948.7	3283.1	3826.7	4079.7	2454.3	5215.3	4833.2
9	ND15477	15 4305.7	4052.7	3794.4	4531.8	2664.2	5656.6	5134.6
10	6B94-7378	20 4172.9	3670.6	3885.9	4607.1	2938.6	5134.6	4800.9
11	M08	7 4522.8	3702.9	4149.6	4865.4	3293.9	5678.1	5446.7
12	6B94-8253	19 4201.7	3826.7	3950.5	4790.1	1996.8	5866.5	4779.3
13	M01	9 4452.8	3740.6	3643.7	4251.9	4214.2	5565.1	5301.4
14	M02	13 4378.4	3934.3	3579.1	4811.6	2831.0	6243.3	4870.8
15	M03	3 4600.8	3799.8	4273.4	4854.7	3390.7	6237.9	5048.4
16	M04	6 4561.4	4128.1	4128.1	4268.0	3374.6	6173.3	5296.0
17	M05	1 4678.0	3982.8	3713.7	4434.9	4262.6	6227.1	5446.7
18	ND16169	21 4171.2	3638.3	3880.5	4526.4	3310.0	5086.1	4585.6
19	ND16301	18 4226.8	3746.0	3374.6	4219.6	3487.6	5925.7	4607.1
20	ND16303	17 4257.3	3611.4	4138.9	4461.8	2427.3	6103.3	4800.9
21	2ND16092	11 4402.6	3466.1	3988.2	4833.2	3740.6	5958.0	4429.5
22	2ND16461	22 4163.1	3396.1	3891.3	4354.1	2922.5	6060.3	4354.1
23	2ND16880	25 4077.9	3293.9	3735.2	4940.8	2852.5	5532.8	4111.9
24	6B95-2482	14 4347.9	3853.6	4128.1	4488.7	2798.7	6216.4	4601.7
25	6B96-3636	5 4564.9	3654.5	3907.4	4504.8	3907.4	6243.3	5172.2
26	6B96-3733	8 4496.8	3810.5	3756.7	4790.1	4106.6	6173.3	4343.4
27	BT462	16 4272.5	4015.1	4225.0	5091.5	2583.4	5791.2	3929.0
28	BT463	3 4600.8	4079.7	3966.6	4757.8	4085.0	6006.5	4709.4
AVERAGE		4282.9	3739.2	3874.8	4477.0	3264.5	5662.0	4680.1



TABLE 17 . PERIOD OF YEARS SUMMARY - MISSISSIPPI VALLEY.

ENT NO.	VARIETY/ SELECTION	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	STA YR	ADJ. YRS	MEAN	RANK
AVE. YIELD (KG/HA) - MANITOBA, MNN, ND, AND SD															
1	BARBLESS	4403	2749	4616	4111	4034	3472	3209	3505	3497	3269	10	65	3703.2	28
2	LARKER	4340	3248	4867	3989	4168	3434	3365	3559	3705	3616	10	65	3842.7	27
3	MOREX	4289	2879	4980	3949	4335	3629	3475	3646	3552	4109	10	65	3895.1	26
BASE AVERAGES		4344	2959	4821	4016	4179	3512	3349	3570	3585	3665				
4	ROBUST	4774	3458	5577	4721	4796	4021	3745	3929	3984	4134	10	65	4323.4	23
5	STANDER (M64)			5853	4954	5261	4316	3990	3949	4500	4395	8	52	4612.3	10
6	FOSTER (ND11055)	5198	3402	5602	5189	5111	4203	3630	3929	4095	4583	10	65	4498.5	14
7	6B93-2978							4003	4097	4230	4412	4	27	4496.2	15
8	MERITE (MNS85)								3794	4032	3949	3	21	4147.9	25
9	ND15477								3848	4416	4306	3	21	4413.0	19
10	6B94-7378								4279	4251	4173	3	21	4488.4	16
11	M8									4431	4523	2	13	4710.6	6
12	6B94-8253									4558	4202	2	13	4626.5	9
13	M01										4453	1	6	4633.9	8
14	M02										4378	1	6	4556.4	12
15	M03										4601	1	6	4787.9	3
16	M04										4561	1	6	4746.9	5
17	M05										4678	1	6	4868.2	1
18	ND16169										4171	1	6	4340.8	21
19	ND16301										4227	1	6	4398.7	20
20	ND16303										4257	1	6	4430.4	18
21	2ND16092										4403	1	6	4581.6	11
22	2ND16461										4163	1	6	4332.4	22
23	2ND16880										4078	1	6	4243.7	24
24	6B95-2482										4348	1	6	4524.7	13
25	6B96-3636										4565	1	6	4750.6	4
26	6B96-3733										4497	1	6	4679.6	7
27	BF462										4273	1	6	4446.3	17
28	BF463										4601	1	6	4787.9	3
NO. OF STATIONS		7	6	7	6	6	6	6	8	7	6				

ADJ. MEAN = VARIETY TOTAL FOR YEARS GROWN X 3813.7 /BASE AVERAGE FOR SAME YEARS

TABLE 18. Percent plump (over 6/64). 1999 Mississippi Valley Barley Nursery.

ENTRY	BRANDON	PARK RIVER
Barbless	74.6	67.9
Larker	81.3	77.2
Morex	83.6	54.2
Robust	85.0	73.6
Stander	86.6	75.9
Foster	84.5	78.9
6B93-2978	86.8	71.8
MNBrite	80.8	75.6
ND15477	80.6	75.9
6B94-7378	84.9	73.5
M98	86.9	75.9
6B94-8253	92.9	82.0
M101	90.3	71.9
M102	85.7	71.4
M103	88.4	78.0
M104	91.3	72.1
M105	91.8	67.6
ND16169	88.4	81.2
ND16301	86.0	81.9
ND16303	84.5	88.1
2ND16092	89.0	87.8
2ND16461	78.2	84.4
2ND16880	84.2	87.1
6B95-2482	86.8	75.5
6B96-3636	89.6	81.5
6B96-3733	84.8	80.2
BT462	84.4	79.6
BT463	91.6	70.7

TABLE 19. Fusarium head blight severity ratings and DON values for entries grown at Osnabrock and Carrington, ND.

ENTRY #	VARIETY/SELECTION	FHB severity (%)	DON (ppm)	
		Osnabrock	Osnabrock	Carrington
1	Barbless	6.8	13	2.4
2	Larker	16.3	16.2	1.9
3	Morex	17.4	15.3	1.7
4	Robust	6.3	7.4	1.9
5	Stander	9	14	2.8
6	Foster	10.4	10.8	2.4
7	6B93-2978	8.5	13.3	2.5
8	MNBrite	4.2	5.7	1.6
9	ND15477	4.8	9.2	2.9
10	6B94-7378	7.9	10.8	3
11	M98	6.9	8	1.9
12	6B94-8253	10.1	12.5	2.1
13	M101	8.4	13	2
14	M102	6.5	10.3	1.8
15	M103	9.2	6	1.8
16	M104	6.7	12.1	2.9
17	M105	8.5	11.3	2.1
18	ND16169	10.3	9.1	1.8
19	ND16301	6.4	9.1	2.3
20	ND16303	6.7	8.5	2
21	2ND16092	4.3	2.2	0.7
22	2ND16461	6.1	2.5	0.4
23	2ND16880	5.8	2.1	0.9
24	6B95-2482	6.8	6.7	1.8
25	6B96-3636	7.6	13.1	1
26	6B96-3733	5	6	1.1
27	BT462	12.1	13.3	1.1
28	BT463	4.1	6.1	0.6

Table 20. Foliar disease ratings from the Cereal Research Centre, Agriculture and Agri-Food Canada, Winnipeg, MB (A. Tekauz).

Entry	102 <sup>a</sup>	858 <sup>a</sup>	857 <sup>b</sup>	1493 <sup>c</sup>	692 <sup>d</sup>	1903 <sup>e</sup>
BARBLESS	9 <sup>f</sup>	8	5	S <sup>g</sup>	S <sup>h</sup>	7 <sup>i</sup>
LARKER	10	8	8	S	S	8
MOREX	10	9	7	S	S	8
ROBUST	10	8	5	S	S	8
STANDER	10	8	5	S	S	9
FOSTER	10	9	7	S	S	8
6B93-2978	9	9	5	S	S	9
MNBRITE	8	8	7	S	S	8
ND15477	8	8	7	S	S	8
6B94-7378	8	8	7	S	S	6
M98	9	8	7	S	S	8
6B94-8253	9 (1 )	9	8	S	S	9
M101	10	9	7	S	S	8
M102	9	8	7	S	S	7
M103	9	9	7	S	S	8
M104	9	9	5	S	S	8
M105	10	9	7	S	S	7
ND16169	10	8	5	S	S	9
ND16301	9	9	?	S	S	9
ND16303	9	9	?	S	S	8
2ND16092	9	9	?	S	S	8
2ND16461	7	10	5	S	S	9
2ND16880	4	9	3	S	S	9
6B95-2482	9	9	7	S	S	6
6B96-3636	9	10	7	S	S	7
6B96-3733	9	9	7	S	S	6
BT 462	2	7	2	S	S	8
BT 463	9	10	7	S	S	6

a Pyrenophora teres net-form isolates

b Pyrenophora teres spot-form isolate

c Rhynchosporium secalis isolate

d Septoria passerinii isolate

e Cochliobolus sativus isolate

f Reaction categories: 10=VS, 9=S, 7=MS, 5=MR-MS, 3=MR, 1=R

g Reaction categories: R, MR, MS, S

h Reaction categories: R, (MR), (MS), S; ( ) rarely-used categories

i Reaction categories: 0-9 scale: 0=no visible lesions; 4= small; 9= very large, coalescing  
x/y = segregating; x(y)= one plant segregating or seed mix; "-" = no reading (poor or no growth); B= blotchy symptoms; ? = equivocal, based on one plant only or plants small

TABLE 21. Parentage and origin of entries in the 1999 Mississippi Valley Uniform Regional Barley Nursery.

Entry #	Cl# or Contributor	Name	Parentage
1.	5105	Barbless	Oderbrucker/Lion
2.	10648	Larker	Titan/Kindred/3/Newal/Peatland//Montcalm
3.	15773	Morex	Cree/Bonanza
4.	476976	Robust	Morex/Manker
5.	Minnesota	Stander (M64)	Robust 2*/3/Cree/Bonanza//Manker/4/Robust/Bumper
6.	PI 592758	Foster (ND11055)	Robust/3/ND5570//Glenn/Karl
7.	Busch Ag. Res. 6B93-2978		Bumper/Karl//Bumper/Manker/3/Bumper/Karl/4/Excel
8.	PI 603050	MNBrite (MNS85)	M90-89/M69
9.	North Dakota	ND15477	ND9712//Stander/ND12200
10.	Busch Ag.	6B94-7378	Azure/6B82-2618//Excel
11.	Minnesota	M98	M78/M79
12.	Busch Ag.	6B94-8253	B1614/Stander
13.	Minnesota	M101	M81/M89-358
14.	Minnesota	M102	M84/M81
15.	Minnesota	M103	M84/M81
16.	Minnesota	M104	M92-211/M83
17.	Minnesota	M105	M92-211/M83
18.	North Dakota	ND16169	ND10981/ND12868
19.	North Dakota	ND16301	Foster//ND12200/6B88-3213
20.	North Dakota	ND16303	Foster//ND12200/BT438
21.	North Dakota	2ND16092	ND13297/ND14701
22.	North Dakota	2ND16461	ND13296/ND14760
23.	North Dakota	2ND16880	ND14599/4/Black Bowman/ ND11177//ND11231-12/3/Zhedar 1
24.	Busch Ag.	6B95-2482	6B89-2126/ND10981
25.	Busch Ag.	6B96-3636	B3213//6B88-3275/B1614
26.	Busch Ag.	6B96-3733	B3213//6B89-2126/Foster
27.	Saskatchewan	BT462	BT409/Foster
28.	Saskatchewan	BT463	M67/CDCSisler

\*Entries 13-28 are new for 1999.

#### ADDITIONAL PEDIGREE INFORMATION:

##### Minnesota parents:

M55 = M46/M44

M66 and M69 = M44/Excel

M78 = M66/M55

M79 = M66/Stander

M84 = Cheri/M66//Excel/3/Stander

M89-358 = Excel\*/M60

M92-211 = Femina/3\*M66

##### North Dakota 6-row:

ND9712 = Hazen\*2/WPG821

ND12200 = ND9256/Azure

ND9256 = Bumper/Hazen

ND10981 = Hazen/3/Hazen 'sib'//Glenn/Karl

ND12868 = Azure/3/Glenn/M46//Excel

##### North Dakota 2-row:

ND13296 = ND10419//ND9034/AC Oxbow

ND13297 = ND10419//ND9034/AC Oxbow

ND14599 = ND10277\*2/Shyri

ND14701 = ND12671/ND11894

ND14760 = ND586/Ciho2376//ND4880/3/  
4\* Bowman / 4/ C M B 8 4 A - 1 6 5 1 - A Q -  
2M/5/ND10278

ND12671 = ND10242/4/ND586/Ciho2376//

ND4880/3/3\*Bowman

ND11894 = ND10071//ND8923/ND7556

ND11177 = ND7556/5/ND6869/Crystal/4/

ND5835//ND4064/ND2199/3/Bowman

ND11231 = Logan sib (ND7085/Bowman  
sib//ND7556)

ND10419 = Harrington//ND4758/M37/3/

Bowman/4/ND5835//ND4064/ND2199/3/

Bowman

ND10277 and ND10278 =

Ellice//ND4873/ND4873/3/Bowman

ND10242 = MT81616//ND7169/Bowman sib

##### Busch parents:

6B89-2126 = Robust/3/M35/ND2470/3/B1603

B3213 = NDSU Bulk Selection/M30//

Robust/3/B1602

6B88-3275 = M74-10/6R Hi Extract Bulk//

6B80-719/6B80-884