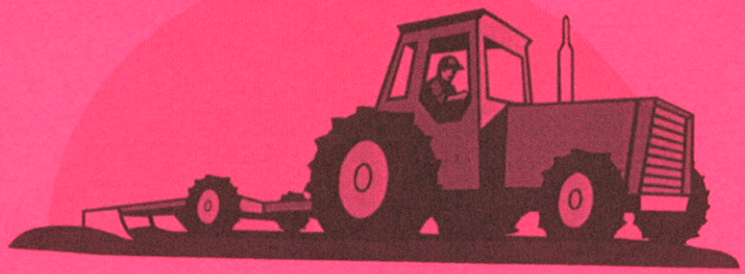
AG. REPORT NO. 24

TWENTY-FOURTH ANNUAL

2007 WESTERN DAKOTA CROPS DAY

RESEARCH REPORT



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24th Annual Western Dakota Crops Day

December 20, 2007

Hettinger Armory

MST

9:00 am Registration
Coffee and doughnuts. Free time to view exhibits and visit with Ag. Industry Program Sponsors.

10:00 Earlybird Drawing and Opening Announcements

10:15 Crop Variety Updates and Highlights of Ongoing Crop Production Research
Roger Ashley, Extension Agronomist, NDSU Dickinson Research Extension Center

Glenn Martin, Res. Specialist II, NDSU Dickinson Research Extension Center

Jeff Gunderson, Res. Specialist, NDSU Dickinson Research Extension Center

John Rickertsen, SDSU West River Ag Center, Rapid City

Eric Eriksmoen, NDSU Hettinger Research Extension Center

12:00 Lunch
Provided by Program Sponsors. Free time to visit with sponsors.

1:00 Ag Industry Update

1:30 Developing IPM for Wheat Stem Sawfly, Dr. David Weaver, Assoc. Prof., Montana State University, Bozeman

2:15 Impacts of Farming and Ranching on Pheasant Production, Ben Geaumont, PhD candidate, NDSU, Fargo

2:45 Conclusion
Drawing for door prizes, coffee and opportunity to visit with sponsors.

Acknowledgments

The Hettinger and Dickinson Research Extension Centers gratefully acknowledge and thank the following companies and organizations for their financial support and participation in this year's Western Dakota Crops Day. Those listed below have provided for the noon meal and have sponsored the event in total. We thank them for their commitment and support.

2007 Western Dakota Crops Day Sponsors

Hettinger Area Chamber of Commerce
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Proseed

We also acknowledge and thank the following individuals for their willingness to cooperate with us at off-station plot sites and in providing us with materials for this publication. Their participation has enabled us to compile the enclosed information which would not otherwise be possible.

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Keith Gietzen, Glen Ullin
Pat Doll, Hannover

YOUR VOICE

The 2007 Census of Agriculture is your chance to share your voice. Your response provides vital information that impacts decisions about community development, funding availability, farm policy and other key issues. By actively participating in the Census, you join with other voices to make positive changes.

Look for the Census in your mailbox in early January 2008. Complete and return it by February 4, 2008. Remember, when you lend your voice, you help ensure a better future for your operation, your family and your community.

2007 CENSUS OF AGRICULTURE

United States Department of Agriculture • National Agricultural Statistics Service

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Interpreting Statistical Analysis

Field research involves the testing of one or more variables such as crop varieties, fertilizers, weed control methods, etc. Field testing of such variables are conducted in order to determine which variety, fertilizer, herbicide, etc. is best for the particular area of production. The main objectives of crop production research are to determine the best means of producing a crop and how to maximize yield and economic return from farming.

Agricultural researchers use statistics as a tool to help differentiate production variables so that real and meaningful conclusions can be drawn from a relatively large amount of data gathered from relatively small research plots.

One of these tools is the Coefficient of Variability (C.V.). This statistic gives an indication of the amount of variation in an experimental trial and is a measure of the precision or effectiveness of the trial and the procedures used in conducting it. Attempts are made to control human error and some environmental conditions such as soil variability by replicating the variable in question. For example, there were four plots (replications) of the variety Reeder grown in the Hettinger HRSW variety trial. The plots are mixed and dispersed throughout the trial to help eliminate differences that might be a result of soil or other variations. The numbers that you see in the tables are an average of all four replications. The C.V. for yield in the 2007 Hettinger HRSW variety trial was 7.4 meaning that there was a 7.4 percent average variation between high and low yields among replications. In summation, a trial with a C.V. of 6 is more precise and more can be concluded from it than a trial with a C.V. of 16.

Another important statistical tool is the Least Significant Difference or LSD. If the yield of variety A exceeds variety B by more than the LSD value, you can conclude that under like environmental conditions, variety A is expected to significantly out-yield variety B. The LSD value allows you to separate varieties, fertilizers, herbicides, or any other variable and determine whether or not they are actually different. The LSD .01 or 1% value is always larger and gives you more precision than the LSD .05 or 5% value. Little confidence can be placed in a variety or treatment unless the results differ by more than the LSD value.

2007 Growing Conditions
Hettinger Research Extension Center

The area's four year drought finally broke, however, the monthly distribution of precipitation did not follow long term averages. For example, 2 ½ inches of rain fell in September 2006, an inch more than normal. This event sparked a huge interest in winter wheat. November, December and January received no precipitation. March was relatively dry and daytime temperatures were typically in the 50's and 60's. These conditions prompted many farmers to start planting. Cold temperatures and a blanket of snow during the first half of April delayed planting but had little effect, other than delayed emergence, on crops seeded in March. An abundance of rainfall during May (almost 6") and mild temperatures provided for almost perfect growing conditions and proved to be the winning combination, not only for spring seeded crops, but also for pastures, hay fields and alfalfa. A couple of drawback to this abundance of moisture was leaching of nitrogen fertilizer, especially in low lying and sandier soils, causing chlorosis (leaf yellowing) and an abundance of foliar diseases, especially leaf rust. July was hot and rainfall was spotty. Short season crops (barley, canola, field peas) were generally far enough along and had very good yields. These hot temperatures adversely affected seed filling of some later maturing small grain crops, lowering yields and test weights.

Weather conditions were generally favorable for late season crops (corn and sunflowers). A temperature dip on September 14 caused corn and sunflower leaves to freeze but left stems green through most of October which provided for generally higher test weights. Most of these crops were not harvested until November.

White sterile wheat heads caused by wheat stem maggot were again prevalent throughout the Western Dakota's. Wheat stem sawfly also continues to increase in both intensity and area and has quickly becoming a major production problem in wheat. Leaf rust was a widespread problem this year on susceptible wheat varieties. The widespread use of foliar fungicides as a crop protectant was practiced for the first time in SW ND and NW SD.

Most trials at the Hettinger Research Center were grown under a no-till system. Broadleaf crop trials were typically planted into wheat stubble and small grain trials were typically planted into field pea stubble. Residual soil fertility levels were determined and fertilizer was applied according to specific yield goals for each crop. Urea (46-0-0) was the primary nitrogen fertilizer source and was applied with a no-till drill prior to planting. Monoammonium phosphate (11-52-0) was typically applied directly with the seed during planting. All legume crops were treated with granular rhizobia innoculant during seeding.

HRSW, durum and barley trials were treated post-emergence for both wild oats and for broadleaf weeds (kochia, Russian thistle and wild buckwheat). Most broadleaf crops were treated with a pre-emergence burn down, and with either a pre-emergence or a post-emergence herbicide for grassy weeds and broadleaf weeds when possible.

Weather Data Summary - Hettinger

Frost Free Days			
	28 F	32 F	Normal 32 F
Date of last frost	April 15	May 24	May 18
Date of first frost	Sept. 14	Sept. 14	Sept. 20
Frost free days	153	113	125

Weather Data Summary - Hettinger

Precipitation					
Precipitation (inches)	2003 - 04	2004 - 05	2005 - 06	2006 - 07	52 Year Average
Sept. - Dec.	6.88	4.41	3.68	3.15	3.30
Jan. - March	1.83	0.98	2.34	2.18	1.43
April	0.54	0.75	2.12	1.09	1.64
May	1.00	2.30	0.97	5.97	2.55
June	0.46	5.10	2.53	3.04	3.33
July	3.43	1.31	0.58	1.62	2.03
August	1.13	1.38	1.75	3.65	1.63
Total	15.27	16.23	13.97	20.70	15.91

Air Temperature						
Average Temperature F°	2003	2004	2005	2006	2007	52 Year Average
April	46.7	45.4	45.5	47.8	40.2	42.9
May	52.9	51.3	50.7	55.6	56.2	53.9
June	60.2	59.5	64.0	65.2	62.7	63.3
July	72.4	69.2	71.9	77.3	75.4	70.1
August	73.7	63.4	68.0	71.3	68.8	68.9
September	57.6	60.2	60.4	56.4	60.9	57.6

Growing Degree Units - Corn						
Growing Degree Units (50-86)	2003	2004	2005	2006	2007	35 Year Average
May	212	242	226	323	272	266
June	349	371	430	465	452	424
July	612	558	609	678	672	588
August	655	441	513	593	533	538
September	294	335	388	276	353	312
Total	2186	1947	2166	2335	2282	2128

2007 Weather Summary for the Dickinson Research Extension Center Ranch Headquarters, Manning, ND.

	-----Maximum temp.-----		-----Minimum temp.-----		-----Precipitation -----		-----Small grains GDD[1]-----		-----Corn GDD[2] -----	
Month	Long Term 1983 - 2006	Current Year	Long Term 1983 - 2006	Current Year	Long Term 1983 - 2006	Current year	Long Term 1983 - 2007	Current year	Long Term 1983 - 2007	Current year
	----------oF ----------		---------- °F ----------		----- inches -----					
November - 06	38.9	41.9	18.3	19.5	0.68	0.33				
December - 06	27.7	32.7	8.0	12.4	0.35	0.04				
January	25.1	29.7	5.6	9.0	0.47	0.12				
February	30.6	21.3	10.9	4.0	0.40	1.21				
March	40.0	48.0	19.2	24.0	0.83	1.70				
April	55.7	50.7	29.7	28.2	1.42	1.58	363	517		
May	67.0	67.2	41.1	42.1	2.28	4.64	683	702	264	269
June	76.2	77.3	50.6	52.8	3.23	1.80	941	991	411	462
July	83.4	90.6	55.6	61.5	2.51	1.05	1163	1335	605	709
August	83.2	83.7	54.1	51.9	1.80	0.78	1137	1101	579	542
September	71.2	74.0	43.4	42.3	1.42	0.76	760	789	318	348
October	56.8	57.4	30.8	33.8	1.16	0.26				
Mean	54.6	56.2	30.6	31.8						
Total					16.54	14.27	5046	5435	2177	2329

[1] Small grains GDD, is growing degree days calculated with 95oF as the maximum temperature and 32oF as the base temperature.

[2] Corn GDD, is growing degree days calculated with 86oF as the maxium temperature and 50oF as the base temperature.

Source: Dickinson Research Extension Center. Data compiled by Garry Ottmar, Ranch Manager; Roger Ashley, Extension Agronomist; and Sheri Schneider, Information Processing Specialist.

2007 North Dakota hard red spring wheat variety description table, agronomic traits.

Variety	Agent or Origin[1]	Year Released	Beard	Height	Straw Strength	Maturity	Reaction to Disease[2]				
							Stem Rust	Leaf Rust	Foliar Disease	Root Rot	Head (Scab)
AC Superb	Can	2001	yes	sdwf	strg	m.early	R	S	S	M	S
AP 604 CL	**AgriPro**	**2007**	**yes**	**sdwf**	**m.strg**	**m.early**	**R**	**MS**	**MS**	**NA**	**NA**
Ada	MN	2006	yes	sdwf	strg	med	R	MR	MS	NA	MS
Alsen	ND	2000	yes	sdwf	strg	m.early	R	MR	S	M	MR
Bakker Gold	N. Star G.	2006	yes	med	NA	late	S	NA	NA	NA	NA
Banton	Trigen	2004	yes	sdwf	strg	m.early	R	MR	MS	NA	S
Bigg Red	WestBred	2004	yes	sdwf	med	med	R-MR	S	MS	NA	MR
Blade	**WestBred/Sabre**	**2007**	**yes**	**sdwf**	**m.strg**	**med**	**R**	**MR-MS**	**MS**	**NA**	**NA**
Briggs	SD	2002	yes	sdwf	med	m.early	R-MR	R	MS	S	S
Choteau	MT	2004	yes	sdwf	NA	m.early	NA	NA	NA	NA	NA
Cromwell	**Thunder Seed**	**2007**	**yes**	**sdwf**	**strg**	**m.late**	**NA**	**MR**	**MR**	**NA**	**NA**
Dapps	ND	2003	yes	sdwf	med	m.early	R	R	M	M	MS
Faller	**ND**	**2007**	**yes**	**sdwf**	**strg**	**med**	**R**	**R**	**MR**	**NA**	**MR**
FBC Dylan	FBC	2006	yes	sdwf	med	med	NA	MR	S	NA	NA
Fireball	N. Star G.	2006	yes	sdwf	NA	med	NA	R	NA	NA	NA
Freyr	AgriPro	2004	yes	sdwf	strg	med	R	MR-MS	MS	NA	MR
Glenn	ND	2005	yes	sdwf	strg	m.early	R	R	M	NA	MR
Granger	SD	2004	yes	sdwf	m.strg.	m.early	R	R	MS	NA	MS
Granite	WestBred	2002	yes	sdwf	v.strg	m.late	R-MR	MR	S	NA	MS
Gunner	AgriPro	1995	yes	med	m.strg.	med	R-MR	MS	M	S	M
Hanna	AgriPro	2002	yes	med	med	m.early	MR	MS/MR	MS	MS	MS
Howard	ND	2006	yes	sdwf	strg.	med	R	R	M	NA	M
Ingot	SD	1998	yes	sdwf	med	early	R	S	S	M	MS
Kelby	AgriPro	2006	yes	sdwf	strg.	m.early	MR	R	M	NA	MR
Keystone	WPB	2001	yes	med	med	m.early	R	MR	S	S	MS
Knudson	AgriPro	2001	yes	sdwf	strg	med	MR	MR	MR	MS	M
Kuntz	**AgriPro**	**2007**	**yes**	**sdwf**	**strg.**	**m.early**	**R**	**MR**	**MS**	**NA**	**NA**
Mercury	N. Star G.	1999	yes	sdwf	strg	m.early	R	MR	S	S	S
Norpro	AgriPro	1999	yes	sdwf	strg	med	R	MS-S	M	M	S
Norwell	**Thunder Seed**	**2007**	**yes**	**med**	**m.strg.**	**m.early**	**NA**	**MS**	**S**	**NA**	**NA**
Oklee	MN	2003	yes	sdwf	med	m.early	R	MS	MR	NA	M
Outlook	MT	2002	yes	sdwf	strg	m.early	NA	NA	NA	NA	NA
Oxen	SD	1996	yes	sdwf	strg.	m.early	MR	MS	S	MS	S
Parshall	ND	1999	yes	med	strg.	m.early	MR	S	M	MS	M
Polaris	N. Star G.	2003	yes	med	strg.	late	NA	MS	MS	NA	S
RB07	**MN**	**2007**	**yes**	**sdwf**	**m.strg.**	**m.early**	**R**	**R**	**MS**	**NA**	**NA**
Reeder	ND	1999	yes	sdwf	strg.	m.early	R	MS	S	M	S
Rush	WestBred	2006	yes	sdwf	strg.	m.early	NA	NA	NA	NA	NA
Russ	SD	1995	yes	med	med	m.early	R	MS	S	MS	S
Samson	**WestBred**	**2007**	**yes**	**sdwf**	**strg.**	**m.early**	**R**	**MR-MS**	**MR-MS**	**NA**	**S**
Saturn	N.Star G.	2003	yes	med	NA	m.late	NA	MR-MS	S	NA	S
Steele-ND	ND	2004	yes	sdwf	med	med	R	R	MS	MS	M
Traverse	SD	2006	yes	sdwf	med	m.early	R	MR	NA	NA	MR
Trooper	WestBred	2004	yes	sdwf	strg	m.early	R	MR	S	NA	S
Ulen	MN	2005	yes	sdwf	med	m.early	R	MR	MS	NA	S
Vantage	**WestBred**	**2007**	**yes**	**sdwf**	**v.strg**	**m.late**	**R**	**MR-MS**	**MS**	**NA**	**NA**
Walworth	SD	2001	yes	sdwf	med	m.early	R	S	S	M	S

1 Refers to agent or developer: Can = Agriculture Canada; CDC = Crop Development Center, University of Saskatchewan; FBC = Farm Breeders Club MN = University of Minnesota; MT = Montana State University; ND = ND State University; N. Star G. = North Star Genetics;. **2** R = resistant; MR = moderately resistant; M = intermediate; MS = moderately susceptible; S = susceptible; VS = very susceptible. **Bold** varieties are those released in 2007.

2007 Hard Red Spring Wheat - Recrop **Dickinson, ND**

Variety	Days to Head	Seeds per Pound	Plant Height	Test Weight	Protein	Grain Yield 2004	Grain Yield 2006	Grain Yield 2007	Returns	Average Yield 2 Year	Average Yield 3 Year
			in	lbs/bu	%	bu/ac	bu/ac	bu/ac	$/ac	bu/ac	bu/ac
AC Lillian	64	19,100	37	58.0	16.1	--	--	45.5	288.16	--	--
AC Superb	63	18,936	35	57.1	14.7	26.5	44.5	44.5	277.80	44.5	38.5
AP 603 CL	64	22,900	34	58.9	15.4	--	40.1	44.5	280.11	42.3	--
AP 604 CL	60	18,811	34	61.0	15.1	--	--	53.0	333.26	--	--
Alsen	62	18,061	32	60.9	14.2	27.5	40.1	51.5	321.23	45.8	39.7
Briggs	62	18,051	37	60.3	14.7	24.1	44.0	50.5	316.59	47.2	39.5
Choteau	62	19,026	30	59.0	14.8	18.3	41.2	48.5	304.75	44.8	36.0
FBC-Dylan	61	16,949	33	59.5	14.2	--	39.4	46.4	290.19	42.9	--
Faller	63	17,834	33	57.6	13.9	22.1	42.4	52.8	327.98	47.6	39.1
Freyr	63	17,776	33	60.1	14.7	29.7	42.9	50.4	315.87	46.7	41.0
Glenn	60	16,576	35	63.5	14.7	20.4	41.6	52.7	330.64	47.2	38.2
Granger	61	16,442	36	60.4	14.4	26.7	43.7	51.2	319.69	47.4	40.5
Granite	64	18,907	30	62.4	16.0	29.7	42.0	46.9	297.47	44.5	39.5
Gunner	65	20,556	33	60.3	15.2	27.5	43.7	42.4	267.18	43.1	37.9
Howard	62	17,674	34	60.1	13.6	27.5	43.6	53.6	332.09	48.6	41.6
Ingot	60	17,327	38	62.3	14.9	25.8	42.1	47.4	297.73	44.8	38.4
Kelby	61	18,125	29	61.1	15.3	--	38.1	53.6	337.64	45.8	--
Knudson	62	17,304	32	60.8	14.0	--	41.4	53.7	335.21	47.6	--
Kuntz	62	19,731	29	60.4	13.9	--	--	50.8	315.99	--	--
Mercury	62	16,519	29	59.8	13.4	30.2	41.1	52.1	321.18	46.6	41.1
Norpro	63	19,940	30	57.6	14.7	27.6	47.2	49.5	309.89	48.4	41.4
Oxen	60	19,380	32	58.8	14.2	28.3	46.1	51.2	319.48	48.6	41.8
Parshall	62	18,277	36	60.9	14.2	21.2	41.9	51.4	321.40	46.7	38.2
RB07	59	17,436	31	62.0	13.9	--	42.7	57.5	357.61	50.1	--
Reeder	64	21,856	34	59.5	15.0	28.4	40.8	43.8	275.03	42.3	37.7
Rush	60	17,423	32	62.6	15.4	--	36.9	45.6	287.01	41.2	--
Russ	62	18,531	35	58.9	14.5	25.7	43.3	49.7	311.23	46.5	39.6
Steele-ND	62	17,658	34	59.5	13.9	26.5	43.4	50.8	315.94	47.1	40.3
Traverse	61	17,893	34	58.1	13.0	--	41.3	53.9	330.61	47.6	--
Trooper	60	17,390	29	59.6	13.3	22.6	41.3	55.4	341.29	48.3	39.8
Vida	63	18,728	32	58.8	14.4	--	--	50.8	317.60	--	--
Trial Mean	62	18,373	34	59.9	14.7	24.0	41.3	50.5	316.00	--	--
CV %	0.8	6.4	2.7	1.6	4.6	17.8	7.9	6.7	--	--	--
LSD 0.05	1	1,653	1	1.4	1.4	NS	4.6	4.7	--	--	--

Planting Date: April 24, 2007 Harvest August 1, 2007

Previous Crop: Field Pea

Seeding Rate: 1.2 million live seeds/ac

Returns were calculated by multiplying the 2007 yield by protein premium or discount paid at the Southwest Grain Terminal located at Gladstone on September 4. The price paid on this date was $6.24/bu, assuming that grain protein concentration was 14%. An additional $.01/bu was paid for each additional 0.2% increase in grain protein up to 16%, above which an additional premium was not paid. Grain was discounted $0.02/bu for each 0.2% reduction in grain protein from 14% to 11%,below which no additional discount was not assigned. Returns factored in discounts for grain with a test weight <58 lb/bu [-$0.02/bu for 0.5 lb/bu between 58 and 57 lb/bu; -$0.03/bu for 0.5 lb/bu between 57 and 55 lb/bu; -$0.04/bu for 0.5 lb/bu between 55 and 52 lb/bu; and -$0.05/bu for 0.5 lb/bu between 52 and 51 lb/bu].

Hard Red Spring Wheat - Long Term Average Yields **Dickinson,ND**

Variety	Test Weight	Protein	Yield	Test Weight	Protein	Yield	years[1]
	lbs/bu	%	bu/ac	-----Percent of Reeder-----[2]			
Gunner	61.0	16.3	47.4	101.8	102.7	94.9	9
Ingot	62.8	15.9	49.0	104.8	100.2	96.7	9
Oxen	59.7	15.2	51.6	99.6	95.8	102.8	9
Parshall	60.7	15.9	47.7	101.2	100.0	93.9	9
Reeder	60.0	15.9	50.7	100.0	100.0	100.0	9
Russ	59.7	15.5	48.4	99.6	97.8	96.2	9
Alsen	60.8	16.2	46.8	102.2	100.3	97.4	8
Mercury	59.6	15.3	47.8	100.1	94.4	99.3	8
Norpro	59.6	15.6	50.0	100.1	96.3	103.7	8
AC Superb	58.8	16.1	43.6	99.1	97.7	97.9	6
Briggs	59.8	16.2	42.8	100.9	98.4	96.2	6
Knudson	60.8	15.7	44.3	102.6	95.3	98.7	6
Steele-ND	59.5	16.0	45.0	100.3	96.7	100.7	6
Glenn	60.4	16.3	44.7	102.8	97.7	97.3	5
Granite	61.7	17.1	43.3	105.0	103.1	97.8	5
Granger	60.0	15.8	47.6	102.9	94.8	105.9	4
Howard	58.5	15.6	46.9	100.3	94.0	105.6	4
Choteau	59.1	16.6	36.0	99.9	99.0	92.1	3
Faller	58.3	15.7	39.1	98.6	93.0	100.7	3
Freyr	60.1	15.9	41.0	101.6	94.6	108.3	3
Trooper	59.9	15.0	39.8	101.2	89.2	102.4	3

[1] Number of years the variety was grown and used to calculate averages.
Reliability of variety performance is greater with more years of data represented.
years included in averages are 2007, 2006, 2004, 2003, 2002, 2001, 2000, 1999, and 1998

[2] Percent of Reeder for each variety is based only on the years in which that variety was grown in common with Reeder.

2007 Hard Red Spring Wheat – Continuously Cropped - No-till Hettinger

Variety	Days to Head	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	*	inches	lbs/bu	%	---------- Bushels per acre ----------				
Oxen	63	35	59.2	15.2	49.8	38.5	43.5	41.0	43.9
Briggs	62	36	63.9	15.0	45.0	39.2	47.1	43.2	43.8
Reeder	64	36	58.0	16.3	50.2	40.8	38.5	39.6	43.2
RB07	62	32	61.8	15.8	52.2	35.8	39.0	37.4	42.3
Steele-ND	64	35	60.8	16.4	46.2	38.1	41.2	39.6	41.8
Mercury	65	31	60.6	15.7	47.2	37.8	39.7	38.8	41.6
Traverse	64	36	57.4	14.8	47.6	38.6	36.4	37.5	40.9
Granger	63	38	61.3	15.8	41.7	40.0	37.9	39.0	39.9
Freyr	64	34	55.7	15.2	46.0	38.0	35.7	36.8	39.9
Glenn	62	37	63.3	16.3	43.6	35.8	39.4	37.6	39.6
Faller	66	33	56.8	15.5	41.6	33.2	42.3	37.8	39.0
Parshall	64	39	60.3	15.4	42.3	37.3	37.4	37.4	39.0
Ingot	62	38	63.2	15.3	41.7	37.8	36.5	37.2	38.7
Norpro	66	30	55.9	16.0	45.8	36.6	33.2	34.9	38.5
Alsen	65	33	59.6	15.7	39.4	38.1	37.8	38.0	38.4
Howard	65	35	60.8	16.5	39.7	36.3	37.2	36.8	37.7
Russ	66	35	58.1	15.5	42.3	36.9	34.0	35.4	37.7
Trooper	62	31	58.6	16.0	41.3	36.8	33.1	35.0	37.1
Knudson	66	32	57.9	16.2	36.6	36.9	36.0	36.4	36.5
Granite	66	33	61.3	18.0	36.6	33.6	37.2	35.4	35.8
AP603CL	68	36	59.9	15.6	39.2	34.3	29.5	31.9	34.3
AC Superb	67	36	53.7	15.4	36.9	35.5	27.0	31.2	33.1
Gunner	68	36	57.6	15.6	38.3	34.5	25.9	30.2	32.9
Kelby	62	30	62.2	15.4		38.6	38.2	38.4	
Rush	62	34	64.3	15.8		31.0	35.4	33.2	
AP604CL	62	34	62.8	16.0			41.2		
FBC Dylan	66	35	59.1	15.7			38.0		
Knutz	66	30	56.7	14.6			37.4		
AC Vita	66	35	55.7	16.1			37.3		
Trial Mean	65	35	59.3	15.8	41.8	35.9	37.3	--	--
C.V. %	1.2	3.2	2.5	4.0	10.7	7.3	7.4	--	--
LSD .05	1	2	2.0	0.9	6.2	3.6	3.8	--	--
LSD .01	1	2	2.7	1.2	8.2	4.8	5.1	--	--

* Days to head = the number of days from planting to head emergence from the boot.

Planting Date: April 17, 2007
Harvest Date: July 27, 2007
Seeding Rate: 1.1 million live seeds / acre (approx. 1.6 bu/A).
Previous Crop: 2006 = field pea, 2005 & 2004 = soybean.

2007 HRSW Variety Trial - Continuously Cropped - No-till Scranton

Cooperators: Neal and Justin Freitag, Scranton

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	%	---------- Bushels per acre ----------				
Reeder	30	58.4	14.7	51.9	60.3	35.2	47.8	49.1
Howard	31	57.2	15.0	50.7	52.8	42.1	47.4	48.5
Steele-ND	31	57.1	15.0	50.1	57.3	36.1	46.7	47.8
Freyr	30	59.8	15.0	48.0	57.4	36.9	47.2	47.4
Glenn	34	61.1	15.0	47.3	52.9	38.2	45.6	46.1
Granger	32	59.9	14.3	41.8	49.9	41.9	45.9	44.5
Traverse	33	56.4	13.7		50.9	40.9	45.4	
Faller	30	57.0	14.9		44.1	36.2	40.2	
Kelby	26	61.5	15.1			32.6		
Kuntz	27	58.4	14.7			30.4		
Trial Mean	30	58.7	14.7	48.0	53.5	37.0	--	--
C.V. %	5.9	1.7	1.8	9.1	5.7	8.6	--	--
LSD .05	2	1.5	0.4	6.3	4.4	4.6	--	--
LSD .01	2	2.0	0.5	8.5	5.9	6.2	--	--

Planting Date: April 23, 2007 Harvest Date: August 7, 2007
Seeding Rate: 1.1 million live seeds / acre (approx. 1.6 bu/A).
Previous Crop: 2004 = lentil, 2005 & 2006 = hrww.

2007 HRSW Variety Trial - Continuously Cropped - No-till Regent

Cooperators: August and Perry Kirschmann, Regent

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	%	---------- Bushels per acre ----------				
Freyr	34	57.5	14.7	59.4	39.6	50.7	45.2	49.9
Howard	36	58.4	13.7	55.0	39.6	54.8	47.2	49.8
Glenn	37	60.4	14.1	61.1	38.0	48.0	43.0	49.0
Reeder	34	56.5	14.3	53.8	42.3	49.7	46.0	48.6
Steele-ND	34	59.2	13.5	55.3	43.2	43.0	43.1	47.2
Granger	38	59.2	14.0	59.4	36.4	44.7	40.6	46.8
Traverse	38	56.2	14.4		38.4	49.1	43.8	
Faller	35	56.6	13.8		35.8	49.6	42.7	
Kelby	30	60.5	14.4			58.5		
Kuntz	31	57.5	13.9			46.3		
Trial Mean	35	58.2	14.1	56.5	38.4	49.4	--	--
C.V. %	5.4	2.8	7.0	6.1	7.3	9.7	--	--
LSD .05	3	2.4	NS	5.0	5.1	1.4	--	--
LSD .01	4	3.2	NS	6.7	5.5	1.9	--	--

Planting Date: April 23, 2007 Harvest Date: August 7, 2007
Seeding Rate: 1.1 million live seeds / acre (approx. 1.6 bu/A).
Previous Crop: 2004 = lentil, 2005 & 2006 = hrsw.
NS = no statistical difference between varieties.

2007 HRSW Variety Trial - Continuously Cropped - No-till New Leipzig

Cooperator: Daryl Birdsall, New Leipzig

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	%	---------- Bushels per acre ----------				
Reeder	32	61.2	12.4	33.1	16.0	36.6	26.3	28.6
Glenn	35	61.4	12.6	28.0	15.0	32.0	23.5	25.0
Steele-ND	32	59.4	13.2	27.8	15.3	31.9	23.6	25.0
Howard	31	60.3	12.2	26.8	15.9	29.7	22.8	24.1
Freyr	31	60.4	12.3	31.7	9.6	28.7	19.2	23.3
Granger	35	60.5	12.3	30.2	10.1	28.2	19.2	22.8
Faller	31	57.6	12.2		12.1	32.6	22.4	
Traverse	33	57.5	11.4		10.2	31.0	20.6	
Kelby	28	61.3	12.7			28.6		
Kuntz	28	58.9	11.9			28.5		
Trial Mean	32	59.9	12.3	30.4	13.9	30.8	--	--
C.V. %	4.1	1.8	2.9	8.3	13.0	14.9	--	--
LSD .05	2	1.5	0.5	3.7	2.6	NS	--	--
LSD .01	3	2.1	0.7	4.9	4.8	NS	--	--

Planting Date: April 24, 2007 Harvest Date: August 1, 2007
Seeding Rate: 1.1 million live seeds / acre (approx. 1.6 bu/A).
Previous Crop: 2004 = lentil, 2005 & 2006 = hrww.
NS = no statistical difference between varieties.
Note: The 2006 trial sustained severe heat and moisture stress.

2007 HRSW Variety Trial - Continuously Cropped - No-till Selfridge

Cooperator: Nick Vollmuth, Selfridge

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	%	---------- Bushels per acre ----------				
Granger	36	54.1	15.7	50.1	24.1	35.8	39.0	42.7
Reeder	35	52.1	15.8	44.3	26.6	44.6	35.6	38.5
Freyr	32	53.6	15.6	52.6	25.3	36.8	31.0	38.2
Howard	35	54.1	15.8	45.6	25.7	39.9	32.8	37.1
Glenn	36	57.8	15.7	46.0	23.7	40.7	32.2	36.8
Steele-ND	34	53.4	15.7	43.3	29.3	36.8	33.0	36.5
Faller	34	53.1	14.8		28.6	38.8	33.7	
Traverse	35	51.3	15.0		22.6	36.2	29.4	
Kelby	31	57.1	16.0			42.7		
Kuntz	28	51.2	15.2			35.4		
Trial Mean	34	53.8	15.5	46.8	26.0	38.8	--	--
C.V. %	2.7	3.8	1.4	7.1	10.5	6.7	--	--
LSD .05	1	3.0	0.3	4.8	3.9	3.8	--	--
LSD .01	2	4.0	0.4	6.5	5.3	5.1	--	--

Planting Date: April 24, 2007 Harvest Date: August 4, 2007
Seeding Rate: 1.1 million live seeds / acre (approx. 1.6 bu/A).
Previous Crop: 2004 = lentil, 2005 & 2006 = hrww.

2007 Hannover Spring Wheat Recrop								Dickinson, ND
	Seeds				----Grain Yield----			2
	per	Plant	Test					Year
Variety	Pound	Height	Weight	Protein	2005	2007	Returns	Average
		in	lbs/bu	%	-----bu/ac-----		$/ac	bu/ac
Alsen	19,625	30	55.1	16.4	36.0	28.1	175.50	32.0
Briggs	20,239	33	55.4	15.6	--	28.4	176.60	--
Choteau	18,740	27	54.9	16.4	31.1	32.5	202.33	31.8
FBC Dylan	19,488	28	54.1	16.1	--	26.6	164.48	--
Faller	18,382	30	53.8	15.5	--	30.8	189.02	--
Freyr	18,820	31	55.6	15.5	37.7	31.8	198.41	34.8
Glenn	18,187	31	58.9	15.9	36.4	30.6	193.62	33.5
Howard	19,185	28	54.8	16.0	35.6	30.4	189.01	33.0
Kelby	19,368	26	56.0	16.4	--	28.6	179.85	--
Reeder	21,518	31	56.1	16.6	29.3	26.7	168.06	28.0
Steele-ND	18,402	29	54.8	15.9	32.3	29.8	185.41	31.0
Traverse	18,579	32	53.0	14.7	--	30.9	187.11	--
Trial Mean	19,211	30	55.2	15.9	35.7	29.6	184.12	--
CV %	3.8	4.2	0.8	--	11.9	8.6	--	--
LSD 0.05	1,050	3	0.7	--	6.1	3.7	--	--

Planting Date: April 30, 2007 Harvest Date: August 13, 2007
Seeding Rate: 1.2 million live seeds/ac

2007 Glen Ullin Spring Wheat								Dickinson, ND
	Seeds				----Grain Yield----			2
	per	Plant	Test					Year
Variety	Pound	Height	Weight	Protein	2005	2007	Returns	Average
		in	lbs/bu	%	-----bu/ac-----		$/ac	bu/ac
Alsen	15,274	30	58.8	16.1	62.0	35.2	223.23	48.6
Briggs	15,903	33	59.8	15.5	--	36.8	232.03	--
Choteau	15,214	27	58.5	15.9	53.7	39.3	248.76	46.5
FBC Dylan	16,172	27	57.8	15.7	--	28.4	179.15	--
Faller	14,289	30	57.6	15.3	--	37.3	234.51	--
Freyr	16,152	30	58.6	15.2	66.6	37.1	234.00	51.9
Glenn	15,719	30	60.8	16.1	66.6	35.5	224.87	51.0
Howard	15,651	30	58.5	16.2	57.7	38.2	242.03	47.9
Kelby	16,585	25	58.9	16.4	--	23.8	151.17	--
Reeder	17,449	33	59.0	16.1	56.2	33.1	209.98	44.7
Steele-ND	15,021	30	58.3	16.2	57.9	37.1	234.81	47.5
Traverse	15,526	30	56.1	14.4	--	39.7	246.03	--
Trial Mean	15,746	29	58.5	15.8	60.9	35.1	221.71	--
CV %	3.6	2.1	0.7	--	4.8	8.8	--	--
LSD 0.05	813	1	0.6	--	4.2	4.4	--	--

Planting Date: April 30, 2007 Harvest Date: August 13, 2007
Seeding Rate: 1.2 million live seeds/ac

Returns were calculated by multiplying the 2007 yield by protein premium or discount paid at the Southwest Grain Terminal located at Gladstone on September 4. The price paid on this date was $6.24/bu, assuming that grain protein concentration was 14%. An additional $.01/bu was paid for each additional 0.2% increase in grain protein up to 16%, above which an additional premium was not paid. Grain was discounted $0.02/bu for each 0.2% reduction in grain protein from 14% to 11%,below which no additional discount was not assigned. Returns factored in discounts for grain with a test weight <58 lb/bu [-$0.02/bu for 0.5 lb/bu between 58 and 57 lb/bu; -$0.03/bu for 0.5 lb/bu between 57 and 55 lb/bu; -$0.04/bu for 0.5 lb/bu between 55 and 52 lb/bu; and -$0.05/bu for 0.5 lb/bu between 52 and 51 lb/bu].

SDSU Hard Red Spring Wheat Variety Trial – Perkins County (Bison), 2007.

Variety	Height Inches	Lodging 0-9*	Test Wt. Lb/Bu	Yield Bu/A
FORGE	34	0	56.3	32.0
BRIGGS	34	0	58.1	**34.3**
GRANGER	35	0	58.4	29.6
WALWORTH	33	0	56.8	29.9
BANTON	32	0	59.8	32.0
HAT TRICK	31	0	59.7	28.1
EXP 06MSP3	29	0	61.1	31.4
FREYR	32	0	59.2	**33.1**
KUNTZ	30	0	59.2	30.2
KELBY	29	0	61.3	**32.7**
OXEN	31	0	59.3	**35.8**
RUSS	32	0	57.7	30.7
ULEN	34	0	58.8	30.7
CHRIS	35	0	59.2	23.4
GLENN	34	0	55.1	29.0
REEDER	31	0	59.1	**33.7**
STEELE-ND	33	0	53.4	29.8
ALSEN	30	0	59.7	32.2
TRAVERSE	33	0	57.5	30.8
HOWARD	31	0	55.6	34.5
ADA	30	0	58.1	28.1
RB07	31	0	61.9	**35.1**
FALLER	30	0	54.1	29.6
SD 3851 *	35	0	56.8	32.2
SD 3868 *	35	0	56.0	30.2
SD 3870 *	35	0	59.3	29.9
SD 3927 *	32	0	60.5	**32.8**
SD 3942 *	32	0	54.6	**35.2**
SD 3943 *	33	0	52.9	**34.3**
SD 3944	33	0	61.5	**36.0**
SD 3948	34	0	57.5	31.7
SD 3956	33	0	60.4	**32.5**
SD 3965	34	0	59.7	**32.8**
MN 01311-A-1	32	0	57.4	**32.8**
MN 00261-4	29	0	60.9	31.7
Average	32.3	0.0	58.1	31.7
LSD (P=.05)	1.6	0.0	3.2	3.6
CV	3.6	0.0	3.9	8.1

* 0=No lodging, 9 = 100% lodged.

Planted: April 23, 2007 Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A)
Harvested: July 23, 2007 Additional Nitrogen: None
Previous crop: Wheat, No-Till planted

SDSU Hard Red Spring Wheat Variety Trial - Harding County (Ralph), 2005-2007.

Variety	Height	Lodging	Test Wt.	Yield	Bu/A
	Inches	0-9*	Lb/Bu	2007	3 Year
FORGE	35	0	54.6	**41.2**	**37**
BRIGGS	33	0	55.4	37.6	**34**
GRANGER	35	0	60.1	38.5	**35**
WALWORTH	34	0	57.2	**42.4**	**35**
BANTON	33	0	57.6	35.3	33
HAT TRICK	32	0	57.7	34.1	--
EXP 06MSP3	32	0	57.9	**42.7**	--
FREYR	33	0	58.9	36.7	**36**
KUNTZ	32	0	57.9	28.1	--
KELBY	30	0	60.1	35.1	--
OXEN	31	0	56.5	38.8	**36**
RUSS	35	0	56.4	36.5	**34**
ULEN	34	0	57.7	33.8	32
CHRIS	39	0	55.8	24.9	24
GLENN	36	0	52.2	33.3	32
REEDER	32	0	50.5	33.3	**34**
STEELE-ND	35	0	54.6	**41.9**	**36**
ALSEN	33	0	55.7	36.0	33
TRAVERSE	34	0	55.4	**40.9**	**36**
HOWARD	35	0	53.9	**45.8**	**38**
ADA	32	0	58.5	38.5	--
RB07	33	0	59.1	**46.9**	--
FALLER	33	0	54.4	**44.3**	--
SD 3851 *	35	0	56.0	39.4	**37**
SD 3868 *	37	0	53.4	37.7	**36**
SD 3870 *	36	0	57.5	38.3	**35**
SD 3927 *	34	0	60.0	37.9	--
SD 3942 *	33	0	54.4	**40.9**	--
SD 3943 *	33	0	54.5	34.4	--
SD 3944	33	0	59.2	**41.8**	--
SD 3948	34	0	57.6	38.9	--
SD 3956	34	0	58.0	40.1	--
SD 3965	35	0	58.9	39.7	--
MN 01311-A-1	33	0	54.8	37.0	--
MN 00261-4	34	0	57.3	37.7	--
Average	33.7	0.0	56.6	38.2	34
LSD (P=.05)	2.9	0.0	2.3	6.3	4
CV	6.1	0.0	2.9	11.8	10

* 0=No lodging, 9 = 100% lodged.

Planted: April 23, 2007 Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A) + Puma ($^2/_3$ pint/A)

Harvested: August 9, 2007 Additional Nitrogen: 50 lb/A

Previous crop: Conventional fallow

2007 HRSW Variety Trial - Continuously Cropped - No-till Mandan

Cooperator: USDA-ARS, Mandan

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	%	---------- Bushels per acre ----------				
Glenn	38	64.6	14.4	63.7	30.2	64.6	47.4	52.8
Freyr	34	61.9	13.6	64.8	30.0	61.2	45.6	52.0
Granger	39	62.3	13.6	63.3	30.4	58.8	44.6	50.8
Howard	36	62.5	13.6	61.9	30.4	59.3	44.8	50.5
Steele-ND	36	61.7	13.9	62.0	29.6	58.2	43.9	49.9
Reeder	34	60.1	13.5	49.3	33.0	54.1	43.6	45.5
Traverse	39	60.0	12.9		31.6	52.2	41.9	
Faller	36	61.2	13.6		20.5	60.4	40.4	
Kelby	32	62.6	14.1			61.1		
Kuntz	31	62.1	13.4			60.1		
Trial Mean	36	61.9	13.7	58.7	29.7	59.0	--	--
C.V. %	2.7	0.9	2.2	7.3	9.3	5.3	--	--
LSD .05	1	0.9	0.5	7.2	4.7	5.3	--	--
LSD .01	2	1.3	0.7	9.8	6.3	7.3	--	--

Planting Date: April 24, 2007 Harvest Date: August 3, 2007
Seeding Rate: 1.1 million live seeds / acre (approx. 1.6 bu/A).
Previous Crop: 2004 = Lentil, 2005 & 2006 = hrww.

HRSW in the West River Region — Combined Means

Variety	Days to Head	Plant Height	Seeds / Pound	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
		inches	#	lbs/bu	%	---------- bushels per acre ----------				
Freyr	64	32	17,718	58.3	14.6	49.2	34.7	39.9	37.3	41.3
Granger	62	36	16,308	59.6	14.3	47.9	33.4	40.7	37.0	40.7
Glenn	61	35	17,500	59.9	15.0	47.1	33.7	40.4	37.0	40.4
Steele-ND	63	33	17,531	57.5	14.9	45.2	36.2	39.7	38.0	40.4
Reeder	64	33	20,507	57.3	15.0	44.4	37.1	39.0	38.0	40.2
Howard	64	33	18,014	57.8	14.7		34.8	41.9	38.4	
Traverse	62	34	17,359	56.3	13.8		33.2	40.2	36.7	
Faller	64	32	16,835	56.3	14.4			41.8		
Kelby	62	29	18,026	60.2	15.1			39.6		
Kuntz	64	30	19,731	58.0	13.9			38.6		
# of Locations*	2	11	4	11	9	9	8	11	19	28

* Locations: 2007 = Hettinger, Dickinson, Scranton, Regent, Selfridge, New Leipzig, Mandan, Hannover, Glen Ullin, Ralph & Bison, SD.
2006 = Hettinger, Dickinson, Scranton, Regent, New Leipzig, Selfridge, Mandan & Ralph, SD
2005 = Hettinger, Scranton, Regent, New Leipzig, Selfridge, Mandan, Hannover, Glen Ullin & Ralph, SD.

2007 Specialty Wheat Variety Trial - Continuously Cropped - No-till Hettinger

Variety	Type	Days to Head	Plant Height	Lodg.	Test Weight	Grain Protein	------ Grain Yield ------ 2006	2007	2yr Avg
	*		inches	0-9**	lbs/bu	%	---------- bu/A ----------		
Choteau	SF	64	31	0.0	57.4	15.7	33.8	38.0	35.9
Ernest	SF	65	39	0.3	55.0	17.4	28.8	30.8	29.8
Lolo	HW	64	30	0.0	54.8	15.2	34.6	37.2	35.9
AC Snowbird	HW	64	40	0.7	54.8	15.9	33.5	30.1	31.8
Loshsa	HW	63	33	0.3	51.1	15.9		37.7	
Reeder	HR	62	34	0.0	55.6	16.4	35.6	41.4	38.5
Glenn	HR	61	37	0.3	57.2	15.9	38.5	36.0	37.2
Steele-ND	HR	64	35	0.3	54.0	16.6		33.1	
Trial Mean		64	35	0.2	55.0	16.3	32.2	34.6	--
C.V. %		1.1	2.5	180	3.7	2.3	12.3	8.8	--
LSD 5%		1	1	NS	3.4	0.6	6.6	5.1	--
LSD 1%		2	2	NS	4.6	0.8	8.9	6.9	--

* Type: SF = sawfly tolerant, HW = hard white, HR = hard red.
Planting Date: April 19, 2007 Harvest Date: July 26, 2007
Previous Crop: HRSW
NS = no statistical difference between varieties.

2007 Specialty Wheat Variety Trial - Continuously Cropped - No-till Regent

Cooperator: Larry Willnow, Regent

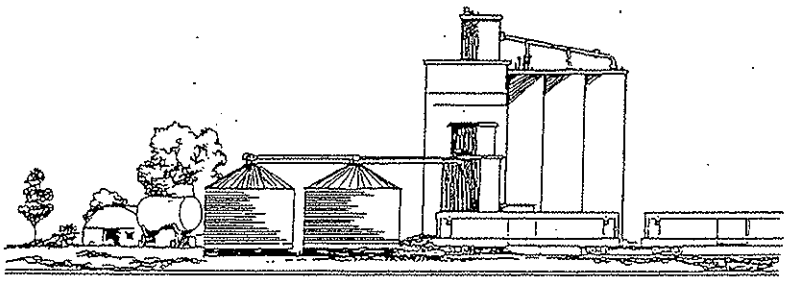
Variety	Type	Lodg	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	*	0-9**	lbs/bu	%	---------- Bushels per acre ----------				
AC Snowbird	HW	2.7	59.3	15.4	39.7	13.0	58.9	36.0	37.2
Lolo	HW	2.0	57.5	14.1	40.1	9.9	69.6	39.8	39.9
Agawam	HW	1.0	58.3	13.8			66.2		
Choteau	SF	1.3	58.8	15.6	51.3	29.5	76.5	53.0	52.4
Ernest	SF	2.7	57.9	15.0	42.1	27.6	46.9	37.2	38.9
Glenn	HR	0.7	61.2	16.0		19.7	65.0	42.4	
Steele-ND	HR	2.0	59.6	15.9			73.0		
Reeder	HR	1.0	59.3	15.2	52.0	23.1	64.5	43.8	46.5
Trial Mean		1.2	58.9	15.2	45.2	22.7	68.4	--	--
C.V. %		59.6	2.1	2.4	6.8	12.9	4.2	--	--
LSD .05		1.2	2.0	0.6	4.4	4.9	4.8	--	--
LSD .01		1.7	2.8	0.8	6.0	6.6	6.4	--	--

* Type: HW = hard white, SF = sawfly tolerant, HR = hard red.
** Lodging: 0 = none, 9 = lying flat on ground.
Planting Date: April 23, 2007 Harvest Date: August 7, 2007
Seeding Rate: 1.1 million live seeds / acre (approx. 1.6 bu/A).
Previous Crop: HRSW

2007 Commercial White Wheat - Recrop **Dickinson, ND**

Variety	Days to Head	Seeds per Pound	Plant Height in	Test Weight lbs/bu	Protein %	Grain Yield bu/ac
AC Karma	64	17,367	29	58.9	12.2	40.5
AC Snowbird	62	18,507	36	60.4	13.3	41.4
AC Vista	62	14,579	31	59.3	11.2	47.0
Agawam	58	12,952	29	63.1	11.6	49.9
Explorer	58	17,625	30	60.1	12.5	45.8
Glenn (hrsw)	60	15,499	34	64.5	11.9	49.4
Golden 86	59	14,304	27	61.4	11.9	45.8
Kantana	63	19,071	33	60.8	13.0	36.4
Lochsa	60	15,357	30	58.0	11.7	46.6
Lolo	62	14,581	30	61.1	11.7	47.8
Otis	62	16,550	33	60.8	11.8	46.4
Penewawa	65	18,190	28	58.6	11.0	42.3
Reeder (hrsw)	60	15,443	30	61.6	11.1	45.5
Snow Crest	58	15,371	24	60.3	12.2	40.8
Steele-ND (hrsw)	61	16,374	32	62.0	12.3	47.2
Waikea	59	13,159	31	58.6	11.5	52.6
Winsome	66	17,757	29	57.5	12.0	42.9
Trial Mean	61	16,109	30	60.6	11.9	44.9
CV %	1.2	4.1	3.5	0.8	3.4	5.6
LSD 0.05	1	944	1	0.7	0.8	3.6

Planting Date: April 23, 2007
Harvest Date: July 31, 2007
Previous Crop: Field Pea
Seeding Rate: 1.2 million live seeds/ac



2007 White Wheat Variety Trial – Continuously Cropped - No-till Hettinger

Variety	Days to Head	Plant Height	Test Weight	Grain Protein	--- Grain Yield --- 2006	2007	Avg.
		inches	lbs/bu	%	------ bu/ac ------		
AC Vista	63	36	57.9	14.5	40.9	58.5	49.7
CS3100L	69	28	59.0	14.9	41.7	45.6	43.6
Otis	65	39	58.7	15.0	38.3	45.1	41.7
CS3100Q	64	35	61.8	15.1	42.7	36.6	39.6
Penewawa-X	65	33	57.6	13.0	35.4	42.8	39.1
Lolo	64	32	58.6	14.0	36.7	39.9	38.3
MT9420	62	32	57.4	13.9	30.8	39.3	35.0
Golden 86	63	32	59.7	15.7	28.6	40.2	34.4
Explorer	62	33	58.2	14.3	30.4	37.2	33.8
AC Snowbird	62	39	57.1	15.5	32.0	35.6	33.8
Winsome	65	31	56.5	14.2	28.1	35.6	31.8
WB Snow Crest	62	28	56.5	15.2		47.0	
AC Karma	64	33	57.7	14.4		43.6	
Lochsa	63	33	59.9	15.1		43.5	
Waikea	62	35	54.8	16.0		42.9	
Agawam	62	32	60.5	14.9		42.0	
Kanata	62	38	58.8	16.4		38.8	
Hard Red Spring Wheat							
Glenn	61	38	62.0	15.9	42.1	48.7	45.4
Reeder	62	35	59.9	14.9	36.9	49.0	43.0
Steele-ND	63	35	57.3	15.3		39.3	
Trial Mean	63	34	58.5	14.9	36.0	42.6	--
C.V. %	1.3	4.3	3.3	6.4	8.3	10.5	--
LSD .05	1	2	3.1	1.6	4.9	7.4	--
LSD .01	2	3	4.2	2.1	6.6	9.9	--

Planting Date: April 18, 2007
Harvest Date: August 1, 2007
Seeding Rate: 1.1 million live seeds / acre
Previous Crop: hrsw

North Dakota durum wheat variety descriptions, agronomic traits.

Variety	Agent or Origin[1]	Year Released	Chaff Color	Height	Straw Strength	Maturity	Reaction to Disease[2]			
							Stem Rust	Leaf Rust	Foliar Disease	Scab
AC Avonlea	Can.	1997	white	med	med.	med.	R	R	M	S
AC Melita	Can.	1995	white	tall	med.	med.	R	NA	NA	S
AC Morse	Can.	1996	white	s.dwf.	strong	med.	R	R	M	NA
AC Navigator	Can.	1999	white	s.dwf.	weak	med.	R	R	M	S
AC Pathfinder	Can.	1999	white	med.	weak	med.	R	R	M	S
Alkabo	ND	2005	white	med.	v.strong	med.	R	R	M	MS
Alzada	WB	2004	White	s.dwf	strong	early	R	NA	NA	NA
Belzer	ND	1997	white	tall	med.	late	R	R	M	MR
Ben	ND	1996	white	med.	strong	med.	R	R	MR	S*
Cando	ND	1975	tan	s.dwf.	v.strong.	med.	R	R	M	VS
Dilse	ND	2002	white	med.	strong	late	R	R	M	MS
Divide	ND	2005	white	med.	strong	med.	R	R	M	MR
Dressler	AgriPro	1996	white	tall	med.	med.	R	MR	NA	VS
Fjord	AgriPro	1986	white	tall	strong	m.early	R	R	M	S
Grande D'Oro	WB/DGP	2005	white	med.	m.strong	med.	R	R	M	NA
Grenora	ND	2005	white	med.	strong	med.	R	R	M	MS
Kari	AgriPro	1998	white	med	strong	med	R	R	M	S
Kyle	Can.	1984	white	tall	weak	med.	R	MR	M	NA
Laker	WB	1985	white	s.dwf.	strong	med.	R	MR	S	S
Lebsock	ND	1999	white	med	strong	med	R	R	M	MS
Lloyd	ND	1983	white	s.dwf.	v.strong	med.	R	MR	S	VS
Maier	ND	1998	white	med	strong	m-late	R	R	M	S*
Medora	Can.	1983	white	tall	strong	m.early	R	R	MS	VS
Monroe	ND	1985	white	tall	med.	early	R	R	M	VS
Mountrail	ND	1998	white	med	strong	late	R	R	M	S*
Munich	ND	1995	white	med.	v.strong	med.	R	R	MR	S*
Pierce	ND	2001	white	med.	m.strong	med.	R	R	MS	S
Plaza	ND	1999	white	s.dwf.	v. strong	late	R	R	M	MS
Plenty	Can.	1990	white	tall	weak	late	R	R	MR	MS
Primo D'Oro	WB/DGP	2004	white	tall	med.	m.early	R	R	MS	NA
Renville	ND	1988	white	tall	med.	med.	R	R	M	S*
Rugby	ND	1973	tan	tall	strong	m.early	R	R	MR	S*
Vic	ND	1979	white	tall	med.	m.early	R	R	MR	S*
Voss	AgriPro	1994	white	s.dwf.	v.strong	med.	R	MR	MS	S

1 Refers to agent or developer: WB = Westbred, ND = North Dakota, DGP = Dakota Growers Pasta.

2 R = resistant; MR = moderately resistant (slow rusters); M = intermediate; MS = moderately susceptible; S = susceptible; VS = very susceptible; Foliar Disease = reaction to tan spot and septoria leaf spot complex. Letter ratings for head blight (scab) based on visual head symptoms. * Indicates yields and/or quality have often been higher than would be expected based on visual symptoms.

2007 Durum - Recrop **Dickinson, ND**

Variety	Days to Head	Seeds per Pound	Plant Height	Test Weight	Protein	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Returns	Average Yield 2 Year	Average Yield 3 Year
			in	lbs/bu	%	bu/ac	bu/ac	bu/ac	$/ac	bu/ac	bu/ac
AC Commander	65	14,101	31	58.3	15.4	--	--	61.4	417.63	--	--
AC Napoleon	66	13,914	35	57.3	15.9	--	--	46.9	315.22	--	--
AC Navigator	66	14,376	30	58.8	15.3	45.8	54.9	48.3	327.31	51.6	49.7
Alkabo	66	14,408	33	59.0	15.1	47.4	54.6	46.9	319.24	50.8	49.7
Ben	65	13,851	34	59.0	15.4	47.7	47.2	45.1	308.19	46.2	46.7
Dilse	67	14,625	34	58.0	16.4	47.3	48.3	46.8	320.11	47.5	47.5
Divide	67	13,569	34	58.5	15.5	50.3	50.4	44.7	303.11	47.5	48.4
Grenora	65	14,400	31	58.5	14.8	50.2	52.2	47.8	322.52	50.0	50.1
Lebsock	65	15,235	32	59.5	14.9	48.6	50.1	45.9	312.80	48.0	48.2
Maier	66	14,287	32	58.5	15.6	51.3	49.8	45.2	306.50	47.5	48.8
Mountrail	66	14,680	33	59.0	15.2	48.5	53.2	46.6	316.08	49.9	49.5
Pierce	66	14,385	34	59.3	15.2	49.6	49.1	46.5	319.01	47.8	48.4
Rugby	65	14,927	35	58.5	15.8	41.0	46.5	43.6	295.93	45.1	43.7
Strongfield	66	14,958	34	56.5	16.2	--	54.6	46.7	313.38	--	--
Trial Mean	66	14,051	34	59.6	15.3	47.3	49.6	48.4	330.01	--	--
CV %	0.9	5.5	3.1	0.6	1.4	8.8	11.7	6.7	6.9	--	--
LSD 0.05	1	1,564	1	0.7	0.4	5.81	NS	4.57	31.86	--	--

Planting Date: April 24, 2007
Harvest Date: August 2, 2007
Previous Crop: Field Pea
Seeding Rate: 1.2 million live seeds/ac
Returns were calculated by multiplying the 2007 yield by the test weight discount paid at the Southwest Grain Terminal located at Gladstone on September 4. The price paid on this date was $7.30/bu for grain with a minimum test weight of 60 lb/bu. Grain was discounted $.02/bu for each 0.5 lb reduction in test weight between 60 and 58 lb/bu,$.04/bu per 0.5 lb reduction between 58 and 54 lb/bu, and $0.05/bu per 0.5 lb/bu reduction between 54 and 50 lb/bu.

2007 Durum Variety Trial – Continuously Cropped - No-till Hettinger

Variety	Days to Head	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	*	inches	lbs/bu	%	---------- Bushels per acre ----------				
Grenora	68	38	61.9	17.1	47.8	35.3	36.9	36.1	40.0
Mountrail	69	36	58.7	17.3	45.8	34.5	38.4	36.4	39.6
Ben	67	40	59.0	16.1	43.0	34.9	40.1	37.5	39.3
Pierce	68	39	56.6	15.9	45.1	32.2	36.3	34.2	37.9
Alkabo	67	36	59.4	16.5	45.3	30.5	37.5	34.0	37.8
Divide	69	39	56.6	18.0	42.3	34.2	30.7	32.4	35.7
Dilse	68	38	59.0	19.4	37.0	30.9	37.7	34.3	35.2
Rugby	69	41	56.0	16.3	33.0	31.1	30.1	30.6	31.4
Alzada	65	32	57.2	16.1		35.6	40.7	38.2	
Maier	67	38	57.1	16.1	49.7		40.6		
AC Commander	68	31	59.1	15.8			43.3		
AC Navigator	68	33	57.0	16.3			37.1		
AC Napoleon	68	38	59.2	18.2			33.7		
Trial Mean	68	38	58.4	17.0	44.2	31.6	36.6	--	--
C.V. %	1.1	3.6	2.9	5.6	8.2	8.4	13.0	--	--
LSD .05	1	2	2.4	0.4	5.1	3.7	6.6	--	--
LSD .01	1	2	3.2	0.6	6.7	4.9	8.8	--	--

* Days to Head = the number of days from planting to head emergence from the boot.
Planting Date: April 18, 2007 Harvest Date: July 26, 2007
Seeding Rate: 1.25 million live seeds / acre (approx. 2.2 bu/A).
Previous Crop: 2006 = HRSW, 2005 & 2004 = soybean.

2007 Durum Variety Trial - Continuously Cropped - No-till Scranton

Cooperators: Neal and Justin Freitag, Scranton

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	Lbs/bu	%	---------- Bushels per acre ----------				
Divide	30	58.2	14.3	53.0	52.1	28.4	40.2	44.5
Alkabo	27	59.9	14.1	50.4	54.3	26.7	40.5	43.8
Mountrail	28	58.3	14.9	54.6	55.2	21.0	38.1	43.6
Ben	29	60.9	14.3	52.0	53.1	21.9	37.5	42.3
Grenora	26	58.8	14.2	49.6	55.8	18.2	37.0	41.2
Trial Mean	28	59.2	14.4	50.9	53.8	23.3	--	--
C.V. %	4.1	1.4	1.8	7.2	3.9	9.1	--	--
LSD .05	2	1.3	0.4	NS	NS	3.3	--	--
LSD .01	3	1.8	0.6	NS	NS	4.6	--	--

Planting Date: April 23, 2007 Harvest Date: August 7, 2007
Seeding Rate: 1.25 million live seeds / acre (approx. 2.2 bu/A).
Previous Crop: 2004 = Lentil, 2005 & 2006 = hrww
NS = no statistical difference between varieties.

2007 Durum Variety Trial - Continuously Cropped - No-till Regent

Cooperators: August and Perry Kirschmann, Regent

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	%	---------- Bushels per acre ----------				
Grenora	36	56.1	16.3	48.1	35.1	55.6	45.4	46.3
Alkabo	38	57.1	16.8	52.8	29.8	52.2	41.0	44.9
Mountrail	40	54.4	17.4	54.3	29.7	47.2	38.4	43.7
Divide	40	55.0	17.0	49.4	31.1	46.7	38.9	42.4
Ben	40	55.5	17.1	51.1	29.7	45.2	37.4	42.0
Trial Mean	39	55.6	16.9	50.8	31.2	49.4	--	--
C.V. %	2.5	2.4	1.9	7.1	5.3	4.7	--	--
LSD .05	1	NS	0.5	NS	2.5	3.6	--	--
LSD .01	2	NS	0.7	NS	3.5	5.0	--	--

Planting Date: April 23, 2007
Harvest Date: August 7, 2007
Seeding Rate: 1.25 million live seeds / acre (approx. 2.2 bu/A).
Previous Crop: 2004 = Lentil, 2005 & 2006 = hrww.
NS = no statistical difference between varieties.

2007 Durum Variety Trial - Continuously Cropped - No-till Mandan

Cooperator: USDA-ARS, Mandan

Variety	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
		lbs/bu	%	---------- Bushels per acre ----------				
Ben	37	62.1	13.3	68.7	28.6	61.6	45.1	53.0
Mountrail	38	62.8	13.0	67.2	27.3	59.6	43.4	51.4
Alkabo	38	61.6	12.4	69.1	28.1	56.1	42.1	51.1
Grenora	37	63.8	13.7	67.6	25.7	57.3	41.5	50.2
Divide	38	62.4	12.6	67.0	26.7	54.2	40.4	49.3
Trial Mean	38	62.5	13.0	68.0	27.3	57.8	--	--
C.V. %	3.6	0.6	1.4	2.4	7.6	4.5	--	--
LSD .05	NS	0.7	0.3	NS	NS	4.9	--	--
LSD .01	NS	1.1	0.5	NS	NS	NS	--	--

Planting Date: April 24, 2007
Harvest Date: August 3, 2007
Seeding Rate: 1.25 million live seeds / acre (approx. 2.2 bu/A).
Previous Crop: 2004 = Lentil, 2005 & 2006 = hrww.
NS = no statistical difference between varieties.

2007 Hannover Durum Recrop — **Dickinson, ND**

Variety	Seeds per Pound	Plant Height	Test Weight	Protein	----Grain Yield---- 2005	2007	Returns	2 Year Average
		in	lbs/bu	%	-----bu/ac-----		$/ac	bu/ac
Alkabo	13,115	33	57.3	15.3	39.6	38.6	276.75	39.1
Ben	12,453	33	57.5	16.1	41.0	38.3	275.20	39.6
Divide	14,120	33	55.6	16.3	38.4	37.5	263.38	38.0
Grenora	14,046	31	55.3	15.7	42.7	37.5	262.80	40.1
Mountrail	14,421	33	56.4	15.7	40.6	40.3	285.75	--
Trial Mean	13,631	33	56.4	15.8	40.4	38.5	272.78	--
CV %	3.2	2.0	0.9	--	9.1	4.5	4.8	--
LSD 0.05	675	NS	0.8	--	NS	NS	NS	--

Planting Date: April 30, 2007
Harvest Date: August 13, 2007
Seeding Rate: 1.2 million live seeds/ac

2007 Glen Ullin Durum — **Dickinson, ND**

Variety	Seeds per Pound	Plant Height	Test Weight	Protein	----Grain Yield---- 2005	2007	Returns	2 Year Average
		in	lbs/bu	%	-----bu/ac-----		$/ac	bu/ac
Alkabo	12,023	31	58.6	15.3	57.6	35.7	258.90	46.7
Ben	12,078	32	58.9	16.2	60.5	42.4	307.28	51.4
Divide	12,318	32	57.8	16.1	59.1	36.2	260.22	47.7
Grenora	12,910	31	56.4	15.6	62.3	38.4	272.41	50.3
Mountrail	12,548	31	58.6	15.9	--	44.6	322.98	--
Trial Mean	12,375	32	58.1	15.8	60.3	39.5	284.36	--
CV %	4.3	1.3	0.7	--	6.5	8.6	8.8	--
LSD 0.05	NS	NS	0.7	--	NS	5.2	38.7	--

Planting Date: April 30, 2007
Harvest Date: August 13, 2007
Seeding Rate: 1.2 million live seeds/ac

Returns were calculated by multiplying the 2007 yield by the test weight discount paid at the Southwest Grain Terminal located at Gladstone on September 4. The price paid on this date was $7.30/bu for grain with a minimum test weight of 60 lb/bu. Grain was discounted $0.02/bu for each 0.5 lb reduction in test weight between 60 and 58 lb/bu, $0.04/bu per 0.5 lb reduction between 58 and 54 lb/bu, and $0.05/bu per 0.5 lb/bu reduction between 54 and 50 lb/bu.

SDSU Durum Wheat Variety Trial - Perkins County (Bison), 2007.

Variety	Height Inches	Lodging 0-9*	Test Wt Lb/Bu	Yield Bu/A
ALKABO	29	0	60.2	**32.7**
BEN	31	0	56.8	29.2
DIVIDE	30	0	58.3	29.3
GRENORA	30	0	58.2	**34.4**
LEBSOCK	29	0	--	4.5
MAIER	30	0	58.1	**33.5**
MOUNTRAIL	30	0	55.5	**31.9**
VIC	32	0	57.4	26.1
Average	30.1	0.0	57.8	27.7
LSD (P=.05)	2.3	0.0	2.3	4.8
CV	5.3	0.0	2.7	11.7

* 0 = no lodging, 9 = 100% lodged.

Planted: April 23, 2007 Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A)
Harvested: August 9, 2007 Additional Nitrogen: None
Previous crop: Wheat, No-Till planted

SDSU Durum Wheat Variety Trial – Harding County (Ralph), 2004-2007.

Variety	Height Inches	Lodging 0-9*	Test Wt Lb/Bu	Yield 2007	Bu/A 4 Year
ALKABO	34.0	0	59.7	**41.1**	--
BEN	35.5	0	59.1	**34.7**	**32.1**
DIVIDE	35.5	0	58.7	**37.2**	--
GRENORA	31.0	0	58.4	**35.9**	--
LEBSOCK	31.3	0	--	7.6	25.9
MAIER	33.5	0	59.4	**35.7**	29.8
MOUNTRAIL	33.5	0	58.5	**34.6**	**34.0**
VIC	36.3	0	60.2	30.3	**30.5**
Average	33.8	0.0	59.1	32.1	30.5
LSD (P=.05)	2.3	0.0	2.4	6.7	4.0
CV	4.6	0.0	2.8	14.1	18.5

* 0=No lodging, 9 = 100% lodged.

Planted: April 23, 2007 Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A) + Puma ($^2/_3$ pint/A)
Harvested: August 9, 2007 Additional Nitrogen: 50 lb/A
Previous crop: Conventional fallow

Durum - Long Term Average Yields **Dickinson,ND**

Variety	Test Weight	Protein	Yield	Test Weight	Protein	Yield	years[1]
	lbs/bu	%	bu/ac	-----Percent of Ben-----[2]			
Ben	60.3	15.5	44.5	100.0	100.0	100.0	10
Dilse	59.6	16.0	48.1	98.9	103.4	109.2	10
Lebsock	60.6	15.0	45.2	100.6	96.8	102.3	10
Maier	59.7	15.7	47.3	99.1	101.2	106.5	10
Mountrail	59.1	15.0	48.3	98.0	96.7	109.5	10
Pierce	60.0	15.0	48.0	99.6	96.7	108.3	10
Rugby	59.5	15.6	42.5	98.6	100.5	96.5	10
Alkabo	60.3	14.7	46.3	100.0	95.1	110.3	8
AC Navigator	60.2	14.9	46.7	100.4	97.6	107.3	7
Divide	59.3	15.5	44.3	98.7	99.2	103.9	7
Grenora	59.2	15.1	46.9	98.5	96.7	110.6	7

[1] Number of years the variety was grown and used to calculate averages.
Reliability of variety performance is greater with more years of data represented.
years included in averages are 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, and 1998

[2] Percent of Ben for each variety is based only on the years in which that variety was grown in common with Ben.

Durum in the West River Region **Combined Means**

Variety	Days to Head	Plant Height	Seeds / Pound	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
		inches	#	lbs/bu	%	---------- Bushels per acre ----------				
Grenora	66	32	13,928	58.6	15.4	52.3	39.4	39.3	39.4	43.7
Alkabo	66	33	12,744	59.2	15.1	51.7	37.9	40.1	39.0	43.2
Mountrail	68	34	14,062	57.9	15.7	49.0	37.9	39.7	38.8	42.2
Ben	66	35	13,344	58.7	15.5	48.6	37.4	39.2	38.3	41.7
Divide	68	35	13,837	57.8	15.7	48.2	38.2	37.5	37.8	41.3
# of Locations*	2	8	3	8	6	8	6	9	15	23

* Locations: 2007 = Hettinger, Dickinson, Scranton, Regent, Mandan, Hannover, Glen Ullin, Ralph & Bison, SD.
2006 = Hettinger, Dickinson, Scranton, Regent, Mandan & Ralph, SD.
2005 = Hettinger, Dickinson, Scranton, Regent, Mandan, Hannover, Glen Ullin & Ralph, SD.

2007 North Dakota barley variety descriptions.

Variety	Use[1]	Origin[2]	Year Released	Awn Type.[3]	Rachilla Hair Length[4]	Aleurone Color	Height	Straw Strength	Relative Maturity	Reaction to Disease[5]			
										Stem Rust	Loose Smut	Spot Blotch	Net Blotch
Six-rowed													
Azure	M/F	ND	1982	S	L	blue	med.	m.strg.	m.early	S	S	MR-R	MS-S
Drummond	M/F	ND	2000	S	L	white	m.short	v.strg.	med.	S	S	MR-R	MS-S
Excel	M/F	MN	1990	S	L	white	m.short	strg.	med.	S	S	MR-R	MS-S
Foster	M/F	ND	1995	S	L	white	m.short	strg.	med.	S	S	MR-R	MS-S
Hazen	F	ND	1984	S	L	white	med.	m.strg.	med.	S	S	MR-R	MS-S
Lacey	M/F†	MN	1999	S	S	white	m.short	strg.	med.	S	S	MR-R	MS-S
Legacy	M/F†	BARI	2000	S	L	white	med.	strg.	m.late	S	S	MR-R	MS-S
MNBrite*	F	MN	1997	S	S	white	tall	med.	early	S	S	MR-R	MS-S
Morex	M/F	MN	1978	S	S	white	tall	med.	early	S	S	MR	S
Robust	M/F	MN	1983	S	S	white	med.	m.strg.	med.	S	S	MR-R	MS-S
Stander	F	MN	1993	S	S	white	m.short	v.strg.	m.late	S	S	MR-R	MS-S
Stellar-ND	M/F†	ND	2005	S	L	white	m.short	v.strg.	med.	S	S	MR-R	MS-S
Tradition	M/F†	BARI	2003	S	L	white	m.short	v.strg.	med.	S	S	MR-R	MS-S
Two-rowed													
AC Metcalfe	M†	Can	1997	R	L	white	med.	med.	late	S	NA	MS	MS
Bowman	F	ND	1984	S	L	white	m.short	med.	early	S	S	MS-S	S-MS
CDC Copeland	M†	Can	1999	R	L	white	tall	med.	m.late	S	S	MS	MR
Conlon[6]	M/F†	ND	1996	S	L	white	m.short	med.	early	S	S	MS	MR-R
Conrad	M	BARI	2007	R	L	white	tall	m.weak	late	S	NA	NA	NA
Eslick	F	MT	2003	R	L	white	med.	m.weak	m.late	S	NA	MS	NA
Gallatin	F	MT	1986	R	L	white	med.	med.	late	S	S	MS-S	MS
Harrington[7]	F	Can	1981	R	L	white	med.	m.weak	v.late	S	S	S	MS
Haxby	F	MT	2003	R	L	white	med.	med.	med.	S	NA	MS	NA
Logan	F	ND	1995	S	L	white	med.	strg.	med.	S	S	MR	MR
Pinnacle	F	ND	2006	S	L	white	med.	strg.	m. late	S	S	MR	MS
Rawson	F	ND	2005	R	L	white	med.	med.	med.	S	S	MR	MS
Scarlett	M	Germany	1995	R	L	white	short	med.	late	S	NA	NA	NA
Stark	F	ND	1991	S	L	white	m.tall	med.	late	S	S	S-MS	MS-S
Valier	F	Can	1999	R	L	white	med.	m.weak	m.late	S	NA	MS	NA
Specialty													
Wanubet	SP	MT	1990	R	L	white	med.	weak	late	S	S	S	S

†Not being used by all major U.S. brewers.
*Moderately resistant to Fusarium head blight.
1 M = malting; F = feed; SP = special uses (hulless)
2 BARI = Busch Agricultural Resources, Inc.; MN = University of Minnesota; MT = Montana State University; ND = North Dakota State University
3 R = rough, S = smooth.
4 S = short, L = long.
5 R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible; NA = not available.
6 Lower DON accumulations than other varieties tested.
7 Recommended as a malting barley in western U.S.

2007 Barley - Recrop **Dickinson, ND**

Variety	Days to Head	Seeds per Pound	Plant Height	Test Weight	Protein	% Plump	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Returns	Average Yield 2 Year	Average Yield 3 Year
			in	lbs/bu	%	>6/64	bu/ac	bu/ac	bu/ac	$/ac	bu/ac	bu/ac
Six Row												
Drummond	59	14,559	31	43.8	12.6	72	95.4	89.9	71.2	227.20	80.6	85.5
Lacey	59	14,055	32	44.5	11.9	71	97.7	88.4	79.3	254.40	83.8	88.5
Legacy	61	16,964	30	38.6	12.3	56	94.8	76.0	68.1	204.11	72.0	79.6
Robust	60	14,294	34	43.8	12.8	67	93.2	89.8	70.8	225.68	80.3	84.6
Stellar-ND	59	14,056	31	41.6	12.6	66	101.5	83.8	69.3	215.49	76.5	84.8
Tradition	59	14,389	32	44.2	12.4	67	88.0	82.3	75.4	241.84	78.8	81.9
Two Row												
AC Metcalfe	63	13,225	28	43.2	12.5	77	85.1	88.6	70.9	225.31	79.7	81.5
Bowman	56	10,973	30	46.8	13.0	92	69.2	85.8	70.6	229.49	78.2	75.2
CDC Copeland	65	14,356	27	39.9	12.6	77	--	80.9	68.7	209.20	74.8	--
Conlon	56	10,936	28	46.2	12.8	74	76.0	82.3	63.9	207.58	73.1	74.1
Conrad	64	13,466	26	43.3	12.7	83	--	--	76.3	242.43	--	--
Eslick	64	12,651	28	44.5	11.3	70	100.8	98.1	78.7	252.68	88.4	92.5
Geraldine	65	13,572	25	42.0	12.6	58	--	--	70.8	220.85	--	--
Harrington	65	14,223	28	43.6	12.2	71	75.4	78.6	63.3	201.48	71.0	72.4
Haxby	60	11,475	27	48.1	11.7	81	83.9	94.0	76.7	249.39	85.4	84.9
Hockett	61	12,330	27	44.4	11.8	82	--	--	71.9	230.74	--	--
Pinnacle	60	10,963	27	46.3	11.8	90	--	--	69.3	225.07	--	--
Rawson	61	9,436	29	47.6	12.2	95	91.6	91.1	66.4	215.91	78.8	83.1
Scarlett	65	15,118	23	43.4	12.1	84	--	--	76.7	243.24	--	--
Trial Mean	60	13,319	29	44.1	12.2	76	90.1	87.7	71.8	228.48	--	--
CV %	1.5	7.9	5.2	3.8	6.2	16.7	5.9	11.1	9.7	10.7	--	--
LSD 0.05	1	1,486	2	2.4	NS	18	7.4	13.6	NS	NS	--	--

Planting Date: April 23, 2007
Harvest Date: July 24, 2007
Previous Crop: Field Pea
Seeding Rate: 1.2 million live seeds/ac
Returns were calculated by multiplying the 2007 yields by the price paid for feed barley minus the test weight discount paid at the Southwest Grain Terminal located at Gladstone on September 4. The price paid on this date was $3.25/bu for grain with test weights heavier than 45 lb/bu. Grain with a test weight of 45 lb/bu was discounted $.03/bu, with an additional discount of $.04/bu per pound down to 42 lb/bu. Below 42 lb/bu, an additional discount of $.05/bu occurred per pound.

2007 Barley Variety Trial – Continuously Cropped - No-till — Hettinger

Variety	Days to Head	Plant Height	Lodging	Test Weight	% Plump	Grain Protein	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Avg. Yield 2 yr	Avg. Yield 3 yr
	*	Inches	**	lbs/bu	>6/64	%	Bushels per acre				
2 Row Types											
Haxby	65	38	4	49.2	66	15.6	76.8	84.6	97.6	91.1	86.3
Bowman	62	39	4	49.4	87	14.6	66.8	80.3	95.1	87.7	80.7
Rawson	62	41	1	47.9	91	13.4	65.2	75.5	90.9	83.2	77.2
Eslick	68	37	4	43.8	54	14.5	63.6	77.4	90.7	84.0	77.2
Pinnacle	66	36	1	43.9	73	13.8	71.9	82.2	75.6	78.9	76.6
Conlon	60	38	2	48.9	86	14.5	63.9	78.3	78.0	78.2	73.4
AC Metcalf	66	39	3	43.0	38	17.9	60.6	74.7	75.9	75.3	70.4
Harrington	70	37	3	42.4	42	16.9	52.6	59.7	74.3	67.0	62.2
Conrad	68	36	2	43.9	67	15.8			89.8		
Geraldine	70	36	2	43.0	47	15.4			85.7		
Hockett	67	37	4	43.7	65	14.8			82.8		
CDC Copeland	69	38	4	41.0	40	16.9			76.1		
Scarlett	70	32	4	40.8	61	15.6			76.0		
6 Row Types											
Lacey	63	38	8	43.6	47	15.2	65.4	79.3	88.9	84.1	77.9
Stellar-ND	63	38	2	41.6	60	13.2	60.1	74.0	86.4	80.2	73.5
Drummond	64	38	4	43.5	51	15.2	64.5	72.1	81.7	76.9	72.8
Tradition	64	36	3	44.8	57	14.8	56.7	73.9	87.1	80.5	72.6
Legacy	66	39	5	41.2	39	15.2	55.4	77.1	78.0	77.6	70.2
Robust	65	40	4	46.9	51	15.1	52.8	70.8	79.5	75.2	67.7
Uniculm Morex	62	49	0	47.0	81	15.8			17.7***		
Trial Mean	65	38	3	44.4	60	15.2	64.6	76.0	81.8	--	--
C.V. %	1.6	3.9	43.7	3.9	21.6	6.7	10.5	9.7	7.6	--	--
LSD .05	1	2	2	2.5	18	1.4	9.5	10.4	8.8	--	--
LSD .01	2	3	3	3.3	24	1.9	12.6	13.8	11.7	--	--

* Days to Head = the number of days from planting to head emergence from the boot.
** Lodging: 0 = none, 9 = lying flat on ground.
*** Very low yields caused by severe bird depredation.

Planting Date: April 17, 2007
Harvest Date: July 25, 2007
Seeding Rate: 750,000 live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2006 = field pea, 2005 = fallow, 2004 = soybean.
Notes: Hot and dry weather conditions in July caused a reduction in test weights.

2007 Barley Variety Trial - Continuously Cropped - No-till — Scranton

Cooperators: Neal and Justin Freitag, Scranton

Variety	Plant Height	Test Weight	% Plump	Grain Protein	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Average Yield 2 yr	Average Yield 3 yr
	inches	lbs/bu	>6/64	%	bushels per acre				
2 Row Types									
Eslick	28	46.8	85	13.1	76.7	94.8	72.7	83.8	81.4
Haxby	27	48.2	83	13.1	68.9	94.7	71.1	82.9	78.2
Rawson	30	46.8	94	12.2	66.7	90.5	65.4	78.0	74.2
Conlon	26	47.0	92	13.8	39.9	82.0	42.1	62.0	54.7
Pinnacle	27	47.7	90	11.9		85.5	59.6	72.6	
6 Row Types									
Drummond	30	46.1	88	13.8	65.6	82.9	66.3	74.6	71.6
Stellar-ND	29	45.2	82	12.6	67.2	77.3	68.7	73.0	71.1
Robust	32	46.5	78	13.7	62.6	77.9	43.1	60.5	61.2
Trial Mean	29	46.8	87	13.0	64.6	85.2	61.1	--	--
C.V. %	4.3	1.6	8.8	2.3	10.3	6.0	5.4	--	--
LSD .05	2	1.1	NS	0.4	9.8	7.4	4.9	--	--
LSD .01	2	1.5	NS	0.6	13.3	10.1	6.6	--	--

Planting Date: April 23, 2007 Harvest Date: August 7, 2007
Seeding Rate: 750,000 live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2006 & 2005 = HRWW, 2004 = lentil.
NS = no statistical difference between varieties.

2007 Barley Variety Trial - Continuously Cropped - No-till — Regent

Cooperators: August and Perry Kirschmann, Regent

Variety	Plant Height	Test Weight	% Plump	Grain Protein	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Average Yield 2 yr	Average Yield 3 yr
	inches	lbs/bu	>6/64	%	bushels per acre				
2 Row Types									
Haxby	39	47.9	61	14.0	73.5	70.4	91.8	81.1	78.6
Eslick	36	45.9	42	14.2	74.3	64.0	84.2	74.1	74.2
Rawson	41	48.8	94	13.1	65.1	61.0	86.0	73.5	70.7
Conlon	37	50.1	91	14.2	53.7	57.5	84.2	70.8	65.1
Pinnacle	40	47.0	81	13.4		54.3	84.8	69.6	
6 Row Types									
Drummond	38	44.2	46	13.9	68.3	57.1	75.2	66.2	66.9
Stellar-ND	38	41.8	37	13.7	70.4	53.8	69.0	61.4	64.4
Robust	41	45.4	39	14.5	60.6	48.3	64.5	56.4	57.8
Trial Mean	39	46.4	62	13.8	66.5	57.4	80.0	--	--
C.V. %	4.5	3.2	20.6	5.2	6.8	5.5	4.5	--	--
LSD .05	3	2.2	19	NS	6.7	4.6	5.3	--	--
LSD .01	4	2.9	25	NS	9.1	6.2	7.2	--	--

Planting Date: April 24, 2007 Harvest Date: August 1, 2007
Seeding Rate: 750,000 live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2004 = lentil, 2005 = hrww, 2006 = hrsw.
NS = no statistical difference between varieties.

2007 Barley Variety Trial - Continuously Cropped - No-till — New Leipzig

Cooperator: Daryl Birdsall, New Leipzig

Variety	Plant Height	Test Weight	% Plump	Grain Protein	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Average Yield 2 yr	Average Yield 3 yr
	inches	lbs/bu	>6/64	%	Bushels per acre				
2 Row Types									
Haxby	26	47.8	56	9.9	71.7	31.5	77.8	54.6	60.3
Eslick	27	45.7	36	11.1	63.2	34.9	77.7	56.3	58.6
Ransom	28	49.9	88	10.2	53.6	30.3	59.0	44.6	47.6
Conlon	27	48.1	86	12.1	41.5	25.7	45.9	35.8	37.7
Pinnacle	30	49.6	84	10.1		26.4	63.9	45.2	
6 Row Types									
Drummond	30	47.9	55	10.6	55.5	29.3	65.9	47.6	50.2
Stellar-ND	30	45.4	49	10.9	49.4	24.7	66.8	45.8	47.0
Robust	34	47.6	44	10.3	47.4	24.9	58.0	41.4	43.4
Trial Mean	29	48.0	62	10.6	53.6	28.2	64.4	--	--
C.V. %	7.0	1.8	8.6	3.9	12.0	9.8	4.7	--	--
LSD .05	3	1.3	8	0.6	9.5	4.0	4.4	--	--
LSD .01	4	1.8	11	0.8	12.9	5.5	6.0	--	--

Planting Date: April 24, 2007 Harvest Date: August 1, 2007
Seeding Rate: 750,000 live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2004 = lentil, 2005 & 2006 = hrww.
Note: The 2006 trial sustained severe heat and moisture stress.

2007 Barley Variety Trial - Continuously Cropped - No-till — Selfridge

Cooperator: Nick Vollmuth, Selfridge

Variety	Plant Height	Test Weight	% Plump	Grain Protein	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Average Yield 2 yr	Average Yield 3 yr
	inches	lbs/bu	>6/64	%	Bushels per acre				
2 Row Types									
Eslick	29	44.1	56	14.9	71.9	51.7	77.9	64.8	67.2
Haxby	33	44.5	53	15.0	75.7	53.1	69.6	61.4	66.1
Conlon	31	42.5	70	15.0	66.4	47.8	59.2	53.5	57.8
Rawson	35	40.5	72	12.9	68.5	47.1	54.6	50.8	56.7
Pinnacle	32	37.8	49	14.4		44.3	46.2	45.2	
6 Row Types									
Drummond	35	42.3	57	14.0	71.4	32.4	67.9	50.2	57.2
Stellar-ND	32	38.8	54	14.5	72.9	25.7	51.4	38.6	50.0
Robust	37	40.7	58	15.1	60.8	26.4	48.0	37.2	45.1
Trial Mean	33	41.4	59	14.5	70.1	40.5	59.3	--	--
C.V. %	3.9	4.7	16.5	3.0	4.5	10.9	6.8	--	--
LSD .05	2	2.9	14	0.6	4.7	6.5	5.9	--	--
LSD .01	3	3.9	19	0.9	6.3	8.8	8.0	--	--

Planting Date: April 24, 2007 Harvest Date: August 4, 2007
Seeding Rate: 750,000 live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2004 = lentil, 2005 & 2006 = hrww.

SDSU Spring Barley Variety Trial - Perkins County (Bison), 2007.

Variety	Height Inches	Lodging 0-9*	Test Wt Lb/Bu	Yield Bu/A
TWO ROW				
CONLON	33	0	45.2	**45.9**
ESLICK	27	0	41.2	45.0
RAWSON	32	0	45.3	**49.2**
PINNACLE	30	0	41.5	**45.9**
SIX ROW				
LACEY	34	0	42.6	**47.4**
TRADITION	33	0	43.0	**51.4**
STELLAR-ND	33	0	39.4	**45.6**
DRUMMOND	34	0	42.3	**47.4**
ROBUST	34	0	41.7	39.9
LEGACY	33	0	38.2	42.7
M122	33	0	42.1	**46.5**
M109	31	0	41.0	**48.5**
Average	32.2	0.0	41.9	46.3
LSD (P=.05)	2.1	0.0	1.8	6.2
CV	4.5	0.0	2.9	9.3

* 0 = no lodging, 9 = 100% lodged.

Planted: April 23, 2007 Harvested: July 23, 2007 Additional Nitrogen: None
Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A)
Previous crop: Wheat, No-Till planted

SDSU Spring Barley Variety Trial - Harding County (Ralph), 2005-2007.

Variety	Height Inches	Lodging 0-9*	Test Wt Lb/Bu	Yield 2007	Bu/A 3 Year
TWO ROW					
CONLON	28	0	--	**59.6**	33
ESLICK	35	0	47.2	**66.6**	54
RAWSON	31	0	45.7	38.2	--
PINNACLE	28	0	44.9	48.3	--
SIX ROW					
LACEY	32	0	46.7	54.2	50
TRADITION	31	0	48.0	**58.4**	51
STELLAR-ND	31	0	44.3	52.1	43
DRUMMOND	33	0	46.0	49.2	46
ROBUST	34	0	47.9	43.1	37
LEGACY	25	0	43.0	47.5	44
M122	33	0	45.6	52.3	--
M109	32	0	47.5	57.6	--
Average	30.9	0.0	46.1	52.3	45
LSD (P=.05)	8.8	0.0	2.0	8.3	**NS**
CV	19.7	0.0	3.0	11.0	13

* 0 = no lodging, 9 = 100% lodged.

Planted: April 23, 2007 Harvested: August 9, 2007 Additional Nitrogen: 50 lb/A
Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A) + Puma ($^2/_3$ pint/A)
Previous crop: Conventional fallow

Barley - Long Term Average Yields — **Dickinson,ND**

Variety	Test Weight	Protein	% Plump	Yield	Test Weight	Protein	% Plump	Yield	years[1]
	lbs/bu	%	>6/64	bu/ac	-------Percent of Drummond-------[2]				
Six Row									
Drummond	44.3	14.9	75.7	83.1	100.0	100.0	100.0	100.0	10
Legacy	42.3	14.3	69.7	82.3	95.3	96.0	91.2	101.1	10
Robust	45.5	14.8	74.3	80.3	102.5	99.0	98.9	97.2	10
Lacey	44.7	14.5	77.4	82.6	101.1	95.0	101.6	102.0	9
Stellar-ND	42.6	14.4	79.0	81.0	96.9	95.3	104.8	99.9	8
Tradition	44.5	14.8	70.5	82.8	100.1	97.2	102.1	100.8	5
Two Row									
Bowman	47.4	15.0	86.1	75.1	107.0	100.9	115.9	93.7	10
Conlon	47.4	14.4	88.8	74.4	106.9	96.3	120.0	89.2	10
Harrington	43.6	15.0	66.2	72.2	98.3	100.2	87.4	88.6	10
Rawson	49.1	13.5	95.0	83.2	110.4	89.0	139.8	100.8	5
AC Metcalfe	45.5	15.3	79.4	75.5	102.7	102.8	110.0	101.9	4
Eslick	46.5	14.4	72.0	85.2	105.1	96.3	98.2	114.3	4
Haxby	48.3	14.6	74.4	81.8	109.1	97.6	101.9	113.0	4
Pinnacle	47.1	13.2	87.7	89.3	106.7	94.3	127.4	103.8	3

[1] Number of years the variety was grown and used to calculate averages.
Reliability of variety performance is greater with more years of data represented.
years included in averages are 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, and 1998
[2] Percent of Drummond for each variety is based only on years in which that variety was grown in common with Drummond.

Barley in the West River Region — Combined Means

Variety	Days to Head	Plant Height	Seeds / Pound	Test Weight	Grain Protein	% Plump	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Average Yield 2 yr	Average Yield 3 yr
		inches	#	lbs/bu	%		---------- Bushels per acre ----------				
2 Row Types											
Haxby	62	33	11,836	47.5	13.5	64	71.2	66.2	81.6	73.9	73.0
Eslick	66	31	12,870	45.0	13.6	55	73.4	66.9	73.5	70.2	71.3
Rawson	62	34	9,159	46.5	12.4	88	70.0	62.6	63.3	63.0	65.3
Conlon	58	31	10,574	47.0	13.9	85	54.1	58.6	59.3	59.0	57.3
Pinnacle	63	32	10,963	44.6	12.7	75			60.6		
6 Row Types											
Drummond	62	34	14,672	44.6	13.5	59	63.2	58.6	64.8	61.7	62.2
Stellar-ND	61	33	14,706	42.4	13.0	56	68.4	54.2	62.9	58.6	61.8
Robust	62	35	13,941	45.2	13.7	54	58.9	53.6	53.7	53.6	55.4
# of Locations*	2	7	2	7	5	5	8	7	8	15	23

* Locations: 2007 = Hettinger, Dickinson, Scranton, Regent, Selfridge, New Leipzig, Ralph & Bison, SD.
2006 = Hettinger, Dickinson, Scranton, Regent, New Leipzig, Selfridge, & Mandan.
2005 = Hettinger, Dickinson, Scranton, Regent, New Leipzig, Selfridge, Mandan, & Ralph, SD.

2007 North Dakota oat variety descriptions.

Variety	Origin	Year Released	Grain Color	Height	Straw Strength	Maturity[1]	Reaction to Diseases				
							Stem Rust[2]	Crown Rust[2]	Barley Y.Dwf[3]	Bu/Wt	Protein[4]
AC Assiniboia	Can. Proven Seed	1997	red	med	strong	L	S	S	T	good	ML
AC Gwen	Can. SeCan	2000	hulless	tall	strong	L	S	S	R	good	L
AC Kaufman	Can.	2000	yellow	tall	strong	L	S	S	MT	v.good	ML
AC Medallion	Can. Cargill	1997	white	tall	med.	L	S	S	MT	good	ML
AC Morgan	Can. SeCan	1999	white	med.	strong	L	S	S	S	v.good	ML
AC Pinnacle	Can. QAS	1999	white	tall	med.	L	S	S	S	v.good	L
AC Ronald	Can. SeCan	2001	white	m. short	v. strong	L	S	S	T	v.good	M
Beach	ND	2004	white	tall	m.strg.	ML	S	MR/MS	MS	v.good	M
Buff	SD	2002	hulless	med.	m.strg.	L	S	MR/MS	MT	good	H
CDC Boyer	Sask. Value Added	1994	white	tall	m.strg.	L	S	MS	S	v.good	ML
CDC Dancer	Can. Cargill	2000	white	tall	strong	L	S	MS	S	v.good	M
CDC Orrin	Can. QAS Cargill	2001	white	tall	strong	L	S	S	S	good	ML
CDC Pacer	Sask. Value Added	1996	white	tall	m.strg.	L	S	S	S	good	L
CDC Weaver	Can	2005	yellow	med.			R	R	S	good	
Drumlin	WI	2003	yellow	med.	strong	M	S	MR	VT	good	M
Ebeltoft	ND	1999	white	tall	strong	V	S	MS	S	v.good	M
Excel	IN	2006	white	med.	strong	M	S	MR	T	v.good	M
Furlong	AAFC Winnipeg	2003	red	tall	m.strg.	L	S	S	T	v.good	M
HiFi	ND	2001	white	tall	strong	L	MR/MS	R	T	good	M
Hytest	SD	1986	white	tall	m.strg.	E	S	MS	S	v.good	H
Jerry	ND	1994	white	tall	strong	M	S	MS	MT	v.good	M
Jud	ND	1997	ivory	tall	med.	L	R	MR/MS	T	good	MH
Killdeer	ND	2000	white	med.	strong	M	S	MS	MT	good	M
Leggett	AAFC Winnipeg	2005	white	tall	m.strg.	L	MR	R	S	good	M
Leonard	MN	2001	yellow	tall	m.strg.	L	S	S	T	fair	ML
Loyal	SD	2000	ivory	tall	m.strg.	L	S	MR	T	good	MH
Maida	ND	2005	yellow	med.	strong	M	R	S	MS	v.good	MH
Monida	MT/ID	1985	white	m.tall	strong	L	S	S	NA	good	ML
Morton	ND	2001	white	tall	v.strong	L	S	R	MT	v.good	M
Otana	MT	1977	white	m.tall	m.weak	L	S	S	S	v.good	ML
Paul	ND	1994	hulless	v.tall	strong	L	R	MR/MS	T	good	H
Reeves	SD	2002	white	m.tall	med.	E	S	MR	MT	good	H
Sesqui	MN	2001	yellow	m.tall	strong	L	S	S	T	good	M
Souris	ND	2006	white	med.	strong	M	MS	R	MS	v.good	M
Stallion	SD	2006	white	tall	med.	L	S	MR	NA	v.good	M
Stark	ND	2004	hulless	tall	m.strg.	L	R	MR/MS	T	v.good	M
Vista	WI	2000	yellow	tall	strong	L	S	R	MT	good	M
Youngs	ND	1999	white	med.	strong	L	S	MS/S	MT	good	M

1 E = early; M = medium; L = late; V = very.
2 R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible.
3 S = susceptible; MS = moderately susceptible; MT = moderately tolerant; T = tolerant; V = very; NA = not available
Varieties rated MT or T have a relatively good degree of protection against barley yellow dwarf virus.
4 H = high; M = medium; L = low; V = very; VL = very low.

2007 Oat - Recrop **Dickinson, ND**

Variety	Days to Head	Seeds per Pound	Plant Height	Test Weight	Grain Yield 2005	Grain Yield 2006	Grain Yield 2007	Returns	Average Yield 2 Year	Average Yield 3 Year
			in	lbs/bu	bu/ac	bu/ac	bu/ac	$/ac	bu/ac	bu/ac
AC Assiniboia	65	13,773	32	33.6	130.1	95.1	116.0	161.67	105.5	113.7
AC Pinnacle	66	14,951	34	33.6	135.8	108.1	108.5	152.60	108.3	117.5
AC Ronald	66	16,517	35	33.8	124.2	97.6	99.2	138.59	98.4	107.0
Beach	63	15,829	36	36.2	121.9	94.4	102.4	155.82	98.4	106.2
Buff*	61	17,037	32	36.8	80.1	60.9	71.5	109.34	66.2	70.8
CDC Dancer	64	16,082	36	35.5	121.8	96.0	112.2	165.47	104.1	110.0
CDC Pacer	64	15,763	35	32.1	119.2	107.4	104.7	139.58	106.1	110.4
CDC Weaver	66	12,636	33	31.6	107.5	98.7	104.4	137.54	101.6	103.5
HiFi	64	16,519	34	33.1	114.5	87.9	93.9	128.08	90.9	98.8
HiFi-9	64	16,887	33	33.9	--	89.5	106.2	149.47	97.9	--
Hytest	62	14,735	37	36.9	101.2	90.5	96.3	147.38	93.4	96.0
Jerry	62	16,253	36	36.0	115.2	90.5	110.0	162.69	100.2	105.2
Killdeer	63	15,816	31	34.2	137.9	93.5	115.6	162.80	104.6	115.7
Maida	64	15,055	35	34.2	118.0	84.2	100.6	142.47	92.4	100.9
Monida	66	18,605	32	28.1	131.8	104.8	96.5	109.11	100.7	111.0
Morton	63	15,643	38	33.7	121.7	97.2	104.6	147.15	100.9	107.9
Otana	65	17,431	38	33.7	124.3	96.3	109.7	153.80	103.0	110.1
Paul*	66	17,951	38	39.7	82.9	58.5	81.7	128.26	70.1	74.4
Souris	63	16,587	31	35.1	123.8	97.0	112.9	164.88	105.0	111.3
Stallion	63	17,292	37	34.2	--	100.2	109.5	155.23	104.8	--
Stark*	65	18,473	36	35.3	89.0	68.1	73.3	107.23	70.7	76.8
Youngs	65	12,764	37	32.9	114.3	98.0	116.8	157.93	107.4	109.7
Trial Mean	64	15,569	35	34.6	116.5	93.0	104.3	148.96	--	--
CV %	1.3	8.9	2.8	4.1	10.6	9.8	10.1	13.3	--	--
LSD 0.05	1	1,951	1	2.0	17.4	12.7	14.8	27.78	--	--

Planting Date: April 24, 2007
Harvest Date: July 30, 2007
* Hulless
Previous Crop: Barley
Seeding Rate: 1 million live seeds/ac
Returns were calculated by multiplying the 2007 yield by the test weight discount paid at the Southwest Grain Terminal located in Gladstone on September 4. The price paid was $1.60/bu for grain with a test weight greater than 37 lb/bu. Grain with a test weight of 37 lb/bu was discounted $.04/bu, with an additional discount of $.04/bu per pound to 30 lb/bu. Below 30 lb/bu, an additional discount of $.07/bu occurred per pound.

2007 Oat Variety Trial – Continuously Cropped - No-till — Hettinger

Variety	Days to Head	Plant Height	Lodging	Test Weight	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	*	inches	0 – 9**	lbs/bu	---------- Bushels per acre ----------				
Killdeer	68	35	2	37.4	89.3	104.7	78.0	91.4	90.7
Souris	68	37	1	38.4	100.6	82.3	74.7	78.5	85.9
AC Pinnacle	72	37	2	35.0	81.0	103.4	72.9	88.2	85.8
HiFi	70	39	1	36.5	98.1	88.6	69.0	78.8	85.2
Hytest	66	43	0	42.7	91.2	88.2	70.5	79.4	83.3
Jerry	65	40	0	39.2	84.9	92.4	70.4	81.4	82.6
Monida	72	38	3	37.2	79.9	100.0	67.6	83.8	82.5
AC Assiniboia	71	36	1	34.3	83.1	95.7	63.6	79.6	80.8
Beach	67	41	2	37.8	87.5	87.9	65.9	76.9	80.4
AC Ronald	70	37	0	37.5	87.2	86.8	63.1	75.0	79.0
Maida	66	41	1	37.6	77.7	90.0	68.9	79.4	78.9
Youngs	70	42	3	34.3	82.7	87.5	64.9	76.2	78.4
Morton	69	43	0	37.4	76.0	79.0	74.3	76.6	76.4
CDC Pacer	70	39	1	33.2	85.3	82.8	60.2	71.5	76.1
CDC Dancer	70	40	0	36.8	74.2	77.4	64.7	71.0	72.1
Otana	70	41	1	37.1	82.3	84.6	47.4	66.0	71.4
CDC Weaver	72	36	0	33.5	87.1	75.7	50.7	63.2	71.2
Buff***	62	34	0	44.5	78.5	67.2	52.2	59.7	66.0
Stark***	72	40	0	38.9	59.2	63.6	47.8	55.7	56.9
Paul***	72	39	1	38.6	44.8	40.6	29.2	34.9	38.2
Stallion	68	42	1	37.7		109.8	77.1	93.4	
Trial Mean	69	40	1	37.2	82.2	87.3	65.6	--	--
C.V. %	1.1	4.5	105	4.2	10.4	7.6	10.3	--	--
LSD .05	1	3	2	2.2	12.0	9.3	9.5	--	--
LSD .01	1	3	2	3.0	15.8	12.3	12.6	--	--

*Days to Head = the number of days from planting to emergence of panicle.
** Lodging: 0 = none, 9 = laying flat on ground.
*** Naked (hulless) type.

Planting Date: April 17, 2007 Harvest Date: August 1, 2007
Seeding Rate: 750,000 live seeds / acre (approx. 1.7 bu/A).
Previous Crop: 2006 = HRSW, 2005 = fallow, 2004 = soybean.

2007 Oat Variety Trial - Continuously Cropped - No-till New Leipzig

Cooperator: Daryl Birdsall, New Leipzig

Variety	Plant Height	Test Weight	------ Grain Yield ------ 2003	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	---------- Bushels per acre ----------				
Killdeer	29	38.9	72.7	25.8	65.1	45.4	54.5
Morton	34	39.1	50.4	22.3	63.9	43.1	45.5
Maida	31	38.3		24.2	80.4	52.3	
Jerry	32	39.6		25.0	71.4	48.2	
Beach	33	37.8		23.1	59.5	41.3	
Souris	28	39.2		15.2	66.8	41.0	
Stark*	33	42.8			33.7		
Trial Mean	31	39.4	57.7	22.6	63.0	--	--
C.V. %	2.7	2.5	12.9	13.8	11.9	--	--
LSD .05	1	1.5	11.5	4.7	11.1	--	--
LSD .01	2	2.0	16.1	6.5	15.2	--	--

* Naked (hulless) type

Planting Date: April 24, 2007 Harvest Date: August 1, 2007

Seeding Rate: 750,000 live seeds / acre (approx. 1.7 bu/A).

Previous Crop: 2002 = lentil, 2005 & 2006 = hrww.

NS = no statistical difference between varieties.

Note: The 2006 trial sustained severe heat and moisture stress.

2007 Oat Variety Trial - Continuously Cropped - No-till Selfridge

Cooperator: Nick Vollmuth, Selfridge

Variety	Plant Height	Test Weight	------ Grain Yield ------ 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	---------- Bushels per acre ----------				
Killdeer	41	30.9	110.2	38.3	117.6	78.0	88.7
Souris	38	34.1	99.4	36.3	118.4	77.4	84.7
Beach	45	34.7	92.3	35.0	107.1	71.0	78.1
Maida	46	33.3	101.0	21.0	96.1	58.6	72.7
Morton	47	32.2	97.7	28.1	89.6	58.8	71.8
Jerry	44	34.7		40.0	100.7	70.4	
Stark*	43	33.3			65.8		
Trial Mean	43	33.3	101.4	33.1	99.3	--	--
C.V. %	3.6	2.3	8.4	11.2	4.8	--	--
LSD .05	2	1.1	NS	5.6	7.1	--	--
LSD .01	3	1.6	NS	7.7	9.7	--	--

*Naked (hulless) type.

Planting Date: April 24, 2007 Harvest Date: August 4, 2007

Seeding Rate: 750,000 live seeds / acre (approx. 1.7 bu/A).

Previous Crop: 2004 = lentil, 2005 & 2006 = hrww.

NS = no statistical difference between varieties.

Note: The 2006 trial sustained severe heat and moisture stress.

2007 Oat Variety Trial - Continuously Cropped - No-till Mandan

Cooperator: USDA-ARS NGP Research Center, Mandan

Variety	Plant Height	Test Weight	Grain Yield 2004	Grain Yield 2006	Grain Yield 2007	Average Yield 2 yr	Average Yield 3 yr
	inches	lbs/bu	Bushels per acre				
Killdeer	35	38.0	86.1	53.3	124.5	88.9	88.0
Beach	41	36.9	64.2	44.4	126.1	85.2	78.2
Morton	43	37.2	60.8	47.0	119.9	83.4	75.9
Souris	37	38.0		50.4	141.5	96.0	
Maida	41	38.5		51.1	136.8	94.0	
Jerry	37	37.6		54.8	111.5	83.2	
Stark*	40	38.5			87.7		
Trial Mean	39	37.8	67.0	50.2	121.9	--	--
C.V. %	3.3	3.9	9.5	11.3	6.5	--	--
LSD .05	2	NS	11.6	NS	13.9	--	--
LSD .01	3	NS	16.5	NS	19.3	--	--

*Naked (hulless) type.

Planting Date: April 24, 2007 Harvest Date: August 3, 2007

Seeding Rate: 750,000 live seeds / acre (approx. 1.7 bu/A).

Previous Crop: 2003 = barley, 2005 & 2006 = hrww.

NS = no statistical difference between varieties.

Note: The 2006 trial sustained moderate heat and moisture stress.

SDSU Oat Variety Trial - Perkins County (Bison), 2007.

Variety	Height Inches	Lodging 0-9*	Test Wt Lb/Bu	Yield Bu/A
BUFF (hulless)	30	0	37.9	51.5
STARK (hulless)	33	0	35.1	32.9
BEACH	34	0	33.5	59.6
DON	33	0	33.7	68.1
HIFI	32	0	29.7	56.1
HYTEST	35	0	38.7	62.6
JERRY	33	0	33.5	64.8
LOYAL	33	0	33.3	60.2
MORTON	35	0	32.4	63.4
REEVES	37	0	35.7	67.0
SOURIS	29	0	32.2	64.0
STALLION	34	0	30.5	67.0
Average	33.0	0.0	34.7	64.1
LSD (P=.05)	1.9	0.0	1.8	5.0
CV	4.1	0.0	3.8	5.6

* 0 = No Lodging, 9 = 100% lodged.

Planted: April 23, 2007 Harvested: July 23, 2007 Additional Nitrogen: None

Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A)

Previous crop: Wheat, No-Till planted

Oat - Long Term Average Yields — **Dickinson, ND**

Variety	Test Weight	Yield	Test Weight	Yield	years[1]
	lbs/bu	bu/ac	-----Percent of Jerry-----[2]		
AC Assiniboia	32.8	103.1	92.9	106.7	10
Hytest	37.5	93.8	106.1	96.9	10
Jerry	35.3	98.5	100.0	100.0	10
Killdeer	33.9	110.8	95.9	114.3	10
Monida	30.8	112.2	87.1	115.9	10
Morton	34.0	101.3	96.4	104.1	10
Otana	34.2	111.0	96.7	115.5	10
Paul*	40.1	69.8	113.7	72.4	10
Youngs	32.1	108.8	90.9	112.2	10
Beach	36.0	106.0	101.6	107.4	9
CDC Pacer	32.8	112.2	92.6	114.9	9
HiFi	33.2	101.3	93.9	103.0	9
Stark*	36.5	86.5	103.2	88.7	9
Souris	33.9	105.7	96.2	111.5	8
AC Ronald	33.7	94.3	97.5	103.0	6
AC Pinnacle	33.0	107.5	95.3	113.4	5
Buff*	39.4	70.6	114.1	73.2	5
CDC Dancer	34.3	95.5	98.1	106.7	4
Maida	33.8	87.3	96.7	96.9	4

[1] Number of years the variety was grown and used to calculate averages.
Reliability of variety performance is greater with more years of data represented.
years included in averages are 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, and 1998
[2] Percent of Jerry for each variety is based only on the years in which that variety was grown in common with Jerry.
* Hulless

Oat in the West River Region — Combined Means

Variety	Days to Head	Plant Height	Seeds / Pound	Test Weight	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
		inches	#	lbs/bu	---------- Bushels per acre ----------				
Killdeer	66	34	16,864	35.9	112.5	63.1	100.2	81.6	91.9
Maida	65	39	15,523	36.4	98.9	54.1	96.6	75.4	83.2
Beach	65	38	16,336	36.2	100.6	57.0	86.8	71.9	81.5
Morton	66	40	16,440	35.3	98.5	54.7	86.0	70.4	79.7
Souris	66	33	18,151	36.2		56.2	96.4	76.3	
Jerry	64	37	16,364	36.8		60.5	88.1	74.3	
Stark (hulless)	68	38	18,473	37.3			56.9		
# of Locations*	2	6	2	6	3	5	6	11	14

* Locations: 2006 = Hettinger, Dickinson, New Leipzig, Selfridge, Mandan & Bison, SD.
2005 = Hettinger, Dickinson, New Leipzig, Selfridge & Mandan.
2005 = Hettinger, Dickinson & Selfridge.

Origin, year of release and agronomic traits of hard red winter wheat varieties, 2007.

Variety	Agent or Origin	Year	Quality[1]	Leaf Rust[2]	Stem Rust	Scab[3]	Maturity	Straw Strength	Height	Winter[4] Hardiness
Agassiz	ND	1983	Average	S	R	NA	Med.	Med.	Med.	Good
Alice[5]	SD	2006	Good	S	MR	S	Early	M. strong	Short	Fair
Alliance	NE	1997	Poor	S	NA	NA	Early	Strong	Short	Good
Arapahoe	NE	1989	Poor	MS	MR	MS	Med.	Med.	Med.	Fair
CDC Buteo	Can/WB†	2004	Average	MS	NA	S	Med.	Med.	Med.	Good
CDC Falcon	Can/WB	2000	Average	MS	NA	S	Med.	M. strong	Short	Good
CDC Kestrel	Can.	1994	Poor	S	S	NA	Med.	M. strong	Med.	Good
CDC Raptor	Can.	2002	NA	MS	NA	NA	Med.	M. strong	M. short	Good
Crimson	SD	1997	Good	S	MS	NA	Med.	M. strong	Med.	Fair-Good
Culver	NE	1998	Poor	MS	MR	NA	M. early	M. strong	Med.	Good
Darrell	SD	2006	Average	MS	R	MS	Med.	Strong	Med.	NA
Elkhorn	ND	1995	Average	MR	R	NA	Med.	Med.	Med.	Good
Erhardt	MT	1996	NA	S	R	NA	Med.	Strong	Med.	Good
Expedition	SD	2002	Average	MS	R	S	Med.	Strong	Med.	Good
Goodstreak	NE	2002	Average	S	MR	S	M. early	Med.	Tall	Fair
Harding	SD	1999	Average	MS	NA	S	Med.	M. strong	Med.	Good
Harry	NE	2002	Poor	MR	MR	NA	Med.	Strong	Med.	Poor
Jagalene	Agripro	2002	Average	S	MR	VS	Early	Strong	Short	Fair
Jerry	ND	2001	Good	MR	R	MS	Med.	Strong	Med.	Good
McClintock	Can	2003	Average	S	NA	S	Med.	Strong	Med.	Fair
Millennium	NE/SD	1999	Average	MR	MR	S	Med.	Strong	M. short	Fair
Morgan	WB†	1996	NA	S	NA	NA	Med.	M. strong	Med.	Good
Nekota	SD/NE	1997	Good	MS	MR	NA	Early	V. strong	V. short	Good
Norstar	Can.	1977	Average	S	S	NA	Late	Med.	Tall	Good
NuDakota[5]	Agripro	2006	Average	MR	MR	NA	M. early	Strong	Short	Fair
Nuplains[5]	NE	2000	Average	S	MS	VS	Med.	M. strong	Short	Fair-Poor
NuSky[5]	MT	2001	Avg-Good	S	NA	S	Med.	M. strong	Med.	Fair
Paul	MT	2003	Average	S	NA	NA	Med.	Med.	Med.	Fair
Radiant[6]	Can	2005	Average	S	S	S	Late	V. strong	Tall	Good
Rampart[7]	MT	1996	NA	S	R	NA	Med.	Strong	Med.	Poor
Ransom	ND	1998	Good	MR	NA	S	M. early	Med.	Med.	Good
Rose	SD	1981	Poor	S	MS	NA	Early	V. strong	Short	Fair
Roughrider	ND	1975	Good	S	R	MS	Med.	M. strong	Med.	Good
Seward	ND	1987	Poor	S	R	NA	Med.	M. strong	Med.	Good
Tandem	SD	1997	Good	S	NA	NA	Early	Med.	Med.	Fair
Wahoo	NE/WY	2001	Poor	S	R	S	Med.	M. strong	Med.	Fair
Wendy[5]	SD	2004	NA	MS	MR	S	M. early	M. strong	Short	Fair-Good
Wesley	NE/SD/WY	2000	Average	MS	R	VS	M. early	M. strong	Short	Fair
Windstar	NE	1997	Average	MS	NA	NA	Early	Med.	Med.	Fair-Good
Yellowstone	MT	2005	NA	NA	S	VS	Med.	Med.	Med.	Good

[1]NA = data not available, or data insufficient to give rating
[2]R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible; VS = very susceptible
[3]Primarily based on data collected in 2005 from several locations
[4]Varieties with less than good winter hardiness should be seeded only in tall stubble
[5]White wheat
[6]Curl mite resistant
[7]Saw fly resistant
†WB = Westbred

2007 Winter Wheat - Recrop **Dickinson, ND**

Variety	Heading Date[1]	Seeds per Pound	Plant Height	Test Weight	Protein	Grain Yield 2003	Grain Yield 2005	Grain Yield 2007	Returns	Average Yield[2] 2 Year	Average Yield[2] 3 Year
	June		in	lbs/bu	%	bu/ac	bu/ac	bu/ac	$/ac	bu/ac	bu/ac
Alice	9	16,190	30	59.2	11.9	--	--	79.0	474.76	--	--
CDC Buteo	13	17,590	35	60.8	12.3	--	58.3	82.7	500.22	70.5	--
CDC Falcon	14	21,173	31	55.9	12.4	83.4	61.4	79.8	474.80	70.6	74.9
Darrell	13	16,299	35	58.5	12.2	--	54.0	79.9	481.79	--	--
Expedition	9	15,135	31	57.9	12.1	70.8	52.4	71.0	427.44	61.7	64.7
Goodstreak	13	16,905	32	53.9	12.0	--	--	77.6	448.52	--	--
Harding	12	16,958	37	57.5	13.4	70.3	65.6	74.0	448.52	69.8	70.0
Jagalene	11	18,736	32	54.5	12.9	76.2	38.9	64.5	380.74	51.7	59.9
Jerry	14	15,379	38	58.9	13.0	76.7	66.0	82.9	502.95	74.4	75.2
McClintock	14	18,344	39	58.6	13.3	83.8	50.2	66.7	406.44	58.5	66.9
Millennium	11	15,572	36	60.3	12.5	79.4	69.0	86.7	525.13	77.8	78.3
NuDakota	10	17,355	29	55.6	12.4	--	--	80.2	477.83	--	--
Paul	16	19,466	34	54.3	12.7	--	--	83.3	487.25	--	--
Radiant	16	18,072	36	54.7	12.6	--	--	70.7	415.66	--	--
Ransom	13	17,419	38	56.7	13.0	80.3	60.7	73.2	441.33	67.0	71.4
Roughrider	15	17,143	38	60.0	13.7	66.6	46.9	63.3	387.53	55.1	58.9
Wendy	8	17,066	30	59.1	12.4	--	44.1	77.5	468.59	60.8	--
Wesley	10	14,823	30	57.6	13.4	65.9	48.7	78.9	479.76	63.8	64.5
Yellowstone	15	16,608	33	54.6	12.8	--	41.1	75.4	444.61	58.2	--
Trial Mean	12	17,050	34	57.4	12.7	75.0	53.3	77.7	456.52	--	--
CV %	10.0	6.3	2.5	2.4	3.4	9.5	9.3	10.4	--	--	--
LSD 0.05	2	1,521	1	1.9	0.9	10.0	7.0	11.4	--	--	--

Planting Date: September 20, 2006
Harvest Date: July 31, 2007
[1]Winterkill notes were not recorded since little winter injury was observed.
[2]Average yields are from 2003, 2005, and 2007 since winter wheat was not grown in 2004 and 2006.
Previous Crop: Field Pea
Seeding Rate: 75 pounds per acre
Returns were calculated by multiplying the 2007 yield by protein premium or discount paid at the Southwest Grain Terminal located at Gladstone on September 4. The price paid on this date was $6.04/bu for a grain protein concentration was 12%. $.01/bu was paid for each additional 0.2% increase in grain protein up to 14%, above which an additional premium was not paid. Grain was discounted $0.03/bu for each 0.2% reduction in grain protein from 12% to 10%, below which no additional discount was assigned. Returns factored in discounts for grain with a test weight < 60 lb/bu [-$0.01/bu for 0.5 lb/bu between 60 and 58 lb/bu; -$0.02/bu for 0.5 lb/bu between 58 and 57 lb/bu; -$0.03/bu for 0.5 lb/bu between 57 and 55 lb/bu; -$0.04/bu for 0.5 lb/bu between 55 and 52 lb/bu; and -$0.05/bu for 0.5 lb/bu between 52 and 51 lb/bu].

2007 Winter Wheat Variety Trial - Continuously Cropped - No-till — Hettinger

Variety	Winter Surv.	Heading Date	Plant Height	Lodg	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	%	June	inches	0-9*	Lbs/bu	%	---------- Bushels per acre ----------				
CDC Buteo	99	10	39	0.8	64.2	13.4	65.8	36.9	60.1	48.5	54.3
Harding	99	9	38	0.8	61.2	13.6	71.1	27.0	59.5	43.2	52.5
Jerry	99	9	41	0.5	61.4	14.5	70.8	24.8	59.3	42.0	51.6
Ransom	98	10	40	1.8	58.6	14.0	64.5	30.4	56.4	43.4	50.4
Yellowstone	98	11	35	0.0	60.4	13.2	68.2	20.4	59.3	39.8	49.3
Wesley	98	7	28	0.0	59.6	14.4	68.7	19.1	57.8	38.4	48.5
Wendy**	99	4	30	0.0	62.6	13.8	61.7	18.9	62.8	40.8	47.8
Jagalene	98	8	31	0.0	63.7	13.0	61.3	20.9	60.5	40.7	47.6
CDC Falcon	98	8	33	0.0	61.2	12.8	66.7	8.7	65.9	37.3	47.1
Millennium	98	8	37	0.8	62.6	13.8	66.9	8.7	63.0	35.8	46.2
Roughrider	99	11	44	1.8	61.8	14.9	60.8	28.3	49.5	38.9	46.2
Expedition	98	4	34	1.5	61.9	13.5	55.7	19.4	60.5	40.0	45.2
McClintock	96	11	40	0.2	62.2	13.6	63.3	8.9	50.8	29.8	41.0
Radiant	99	11	38	0.0	59.9	12.2		41.7	59.5	50.6	
Paul	98	11	34	0.2	58.8	13.4		22.4	57.6	40.0	
Goodstreak	95	11	35	0.2	60.3	12.0		17.8	55.8	36.8	
Alice**	97	6	29	0.2	60.3	13.4		14.7	54.3	34.5	
Willow Creek#	99	19	50	1.2	59.4	14.6		21.4	32.3	26.8	
Hawken	98	5	30	0.0	62.5	13.2			63.0		
Darrell*	98	9	35	0.8	62.3	13.6			57.0		
NuDakota	95	8	27	0.0	62.8	12.4			55.5		
Trial Mean	98	9	35	0.6	61.4	13.4	64.0	22.1	58.1	--	--
C.V. %	1.4	0.7	4.5	73	2.6	6.9	4.5	46.1	6.7	--	--
LSD .05	2	1	2	0.7	2.2	1.3	4.7	17.0	5.5	--	--
LSD .01	2	2	3	0.9	2.9	1.7	6.3	NS	7.2	--	--

* Lodging: 0 = none, 9 = lying flat on ground.
** Hard white winter wheat.
# Forage winter wheat.
NS = No Statistical difference between varieties.

Planting Date: September 11, 2006 Harvest Date: July 25, 2007
Seeding Rate: 1 million live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2004 = barley, 2005 = soybean, 2006 = field pea.
Notes: The 2006 trial sustained severe late season heat and moisture stress.

2007 Winter Wheat Variety Trial - Continuously Cropped - No-till Mandan

Cooperator: USDA-ARS, Northern Great Plains Research Lab., Mandan

This Trial was funded by Ducks Unlimited, Bismarck

Variety	Winter Surv.	Plant Height	Test Weight	Grain Protein	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	%	inches	Lbs/bu	%	---------- Bushels per acre ----------				
Millennium	97	35	63.6	10.5	40.0	36.9	84.2	60.6	53.7
Harding	96	36	62.6	10.9	52.8	36.5	69.1	52.8	52.8
Jerry	97	38	58.7	11.4	46.1	39.1	60.5	49.8	48.6
CDC Buteo	96	33	62.8	10.5	32.8	38.3	70.7	54.5	47.3
Roughrider	98	40	61.4	11.4	36.1	37.2	66.0	51.6	46.4
Wesley	97	29	58.6	10.9	12.8	41.1	73.1	57.1	42.3
Ransom	97	38	59.7	10.5	32.2	30.9	63.6	47.2	42.2
Wendy**	98	29	59.1	11.2	17.8	39.5	66.8	53.2	41.4
Expedition	94	31	59.6	10.6	27.4	36.9	55.7	46.3	40.0
McClintock	95	40	61.5	10.7	21.7	35.7	54.1	44.9	37.2
CDC Falcon	97	30	55.6	12.0	16.9	37.4	54.1	45.8	36.1
Yellowstone	98	33	55.4	11.7	12.5	34.5	50.6	42.6	32.5
Alice**	98	29	59.1	10.5		43.5	61.6	52.6	
Jagalene	97	32	57.1	10.7		42.0	60.1	51.0	
Paul	97	34	55.7	11.1		41.5	59.3	50.4	
Goodstreak	95	33	55.3	9.8		34.5	65.2	49.8	
Radiant	97	35	59.1	11.0		36.5	55.7	56.1	
Hawken	98	30	61.5	10.8			74.3		
Darrell**	97	35	60.2	9.9			73.5		
NuDakota	97	30	57.8	9.6			67.2		
Willow Creek#	98	50	--	14.2			24.9		
Trial Mean	96	34	59.1	10.9	27.4	37.5	62.7	--	--
C.V. %	3.5	4.1	2.1	5.9	20.7	16.5	14.3	--	--
LSD .05	6	2	2.0	1.1	9.5	NS	14.7	--	--
LSD .01	NS	3	2.7	1.4	12.9	NS	19.6	--	--

** Hard white winter wheat.
# Forage winter wheat.
NS = No Statistical difference between varieties.

Planting Date: September 30, 2006 Harvest Date: August 3, 2007
Seeding Rate: 1 million live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2004 = lentil, 2005 & 2006 = HRWW.

SDSU Hard Winter Wheat Variety Trial - Perkins County (Bison), 2007

Variety	Height	Lodging	Test Wt	Yield
	Inches	0-9*	Lb/Bu	Bu/A
Hard Red				
ARAPAHOE	36	0	61.8	48.9
CDC FALCON	37	0	63.5	47.6
DARRELL	35	0	61.2	48.6
EXPEDITION	32	0	61.0	51.7
HARDING	37	0	60.2	43.8
HATCHER	31	0	62.9	54.7
HAWKEN	31	0	64.9	**59.1**
JAGALENE	32	0	65.6	51.4
JERRY	38	0	58.8	36.5
MILLENNIUM	36	0	62.8	52.4
OVERLAND	34	0	64.3	**57.9**
OVERLEY	32	0	65.1	54.1
RIPPER	28	0	61.4	52.0
TANDEM	36	0	64.1	52.0
WAHOO	34	0	60.4	52.3
WESLEY	29	0	62.8	**57.3**
NI04420	33	0	62.9	49.6
SD96240-3-1	31	0	61.7	48.6
SD01058	36	0	61.5	51.5
SD01273	35	0	61.3	47.1
SD03171	32	0	62.3	49.4
SD00111-9	36	0	63.9	52.6
Hard White				
ALICE	30	0	64.5	**55.5**
DANBY	33	0	63.8	**56.2**
NUDAKOTA	29	0	63.2	**60.8**
WENDY	29	0	65.0	**56.4**
TREGO	32	0	63.2	**57.0**
SD98W175-1	35	0	63.7	50.9
SD98W175-1-14	32	0	64.2	51.1
SD01W064	36	0	62.3	45.6
Average	33.1	0.0	62.8	51.8
LSD (P=.05)	1.9	0.0	2.0	5.1
CV	4.0	0.0	2.3	7.0

* 0 = no lodging, 9 = 100% lodged.

Planted: September 19, 2006 Herbicide: Glean ($^1/_3$ oz/A)
Harvested: July 23, 2007 Additional Nitrogen: 30 lb/A
Previous crop: Wheat, No-Till planted

2007 North Dakota winter rye variety descriptions.

Variety	Origin	Year Released	Height	Straw Strength	Maturity	Seed Color	Seed Size	Test Weight	Winter Hardiness
AC Rifle	Can	1994	short	v.good	med.	blue	med.	med.	v.good
AC Remington	Can	1998	short	v.good	med.	--	med.	good	good
Dacold	ND	1989	med.	good[1]	v.late	bl-grn.	med.	low	good
Frederick	SD	1984	tall	fair	late	tan	med.	high	good
Hancock	WI	1979	tall	good	med.	tan	large	high	fair[2]
Musketeers	Can	1980	tall	good	m.early	blue	large	med.	v.good
Prima	Can	1984	tall	good	med.	blue	large	med.	v.good
Rymin	MN	1973	tall	v.good	late	grn-gray	large	high	fair[2]
Spooner	WI	1993	tall	v.good	med.	tan	large	high	good
Wheeler	MI	1971	tall	fair	med.	--	large	low	good

[1] Under certain environments, lodging has been observed.
[2] Varieties with fair winter hardiness should not be seeded on bare soil.

2007 Winter Rye Variety Trial - Continuously Cropped - No-till Hettinger

Variety	Winter Surv.	Heading Date	Plant Height	Lodging	Test Weight	----- Grain Yield ----- 2006	2007	Avg.
	%		inches	0-9*	lbs/bu	- bushels per acre -		
Dacold	99	June 4	46	1	55.5	51.8	61.4	56.6
DR 02	99	May 26	46	2	56.3	52.0	60.4	56.2
Remington	98	May 26	46	2	55.1	47.6	52.1	49.8
Musketeer	98	May 28	49	2	56.3	37.7	48.6	43.2
Hancock	98	May 25	47	2	55.8	41.4	43.3	42.4
Spooner	98	May 23	46	2	55.8	41.9	42.8	42.4
Wheeler	98	June 4	46	3	49.5	13.2	14.1	13.6
Trial Mean	98	May 28	47	2	54.9	41.0	46.1	--
C.V. %	0.7	0.1	5.2	17.3	2.2	7.5	7.7	--
LSD .05	NS	1	NS	1	1.8	4.5	5.2	--
LSD .01	NS	1	NS	1	2.5	6.2	7.2	--

*Lodging: 0 = none, 9 = lying flat on ground.
NS = no statistical difference between varieties.
Planting Date: September 11, 2006
Harvest Date: July 25, 2007
Seeding Rate: 1 million live seeds / acre (approx. 1.4 bu/A).
Previous Crop: 2006 = field pea, 2005 = soybean.

SDSU Spring Triticale Variety Trial - Perkins County (Bison), 2007.

Variety	Height Inches	Lodging 0-9*	Test Wt Lb/Bu	Yield Lb/A
TRICAL 118	28	0	54.4	**1950**
TRIMARK 303	33	0	46.7	1445
TRICAL 2700	41	0	49.2	**1702**
2601	34	0	47.6	**1905**
27218 GAB	36	0	46.1	**1719**
TRIMARK 37812	26	0	51.0	1604
TRIMARK 61307	32	0	49.7	**1764**
183054	39	0	46.5	**1640**
1596	36	0	43.5	1489
03T63037	25	0	48.9	1453
03T63063	30	0	48.2	**1728**
03T63053	27	0	47.5	1480
01T40205	26	0	50.5	**1772**
01T40207ADF	26	0	49.5	1595
03T63111	29	0	49.3	**1675**
02T71206	28	0	42.1	1250
02T71211	26	0	49.2	1232
02T71213	26	0	44.7	1117
BRIGGS (sp. wheat)	33	0	55.0	1575
GLENN (sp. wheat)	33	0	53.7	1622
Average	30.5	0.0	48.7	1586
LSD (P=.05)	2.1	0.0	3.0	319
CV	4.9	0.0	4.4	14.2

* 0 = No Lodging, 9 = 100% lodged.

Planted: April 23, 2007 Herbicide: Starane NXT (27.4 oz/A) + MCPA Ester (8 oz/A)
Harvested: August 9, 2007 Additional Nitrogen: None
Previous crop: Wheat, No-Till planted

2007 Spring Triticale Variety Trial – Continuously Cropped No-till, Hettinger

Variety	Days to Head	Plant Height	Test Weight	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
		inches	lbs/bu	---------- bushels per acre ----------				
RSi 310	60	44	53.3	45.0	40.6	62.4	51.5	49.3
Companion	62	50	51.2	39.3	36.7	48.8	42.8	41.6
Wapiti	62	50	51.4	41.0	39.9	39.7	39.8	40.2
Laser	62	47	54.0	30.3	31.7	51.8	41.8	37.9
Trical 2700	64	48	52.4	28.8	32.2	51.9	42.0	37.6
Marvel	62	46	46.4	30.0	28.1	41.2	34.6	33.1
Trial Mean	62	47	51.5	35.7	34.9	49.3	--	--
C.V. %	0.8	2.2	2.3	8.6	9.9	5.9	--	--
LSD .05	1	2	1.8	4.7	5.2	4.4	--	--
LSD .01	1	2	2.5	6.4	7.2	6.0	--	--

Planting Date: April 17, 2007
Harvest Date: July 31, 2007
Seeding Rate: 1 million live seeds / acre.
Previous Crop: 2004 & 2005 = soybean, 2006 = field pea.

2007 Emmer Variety Trial – Continuously Cropped - No-till Hettinger

Variety	Days to Head	Plant Height	Lodging	Test Weight	Grain Yield
		inches	0 – 9**	lbs/bu	lbs/A
Lucilla	73	38	3.0	34.8	1573
ND Common	71	38	3.2	31.7	1263
Trial Mean	72	38	3.1	33.2	1415
C.V. %	0	11.1	38.6	7.9	8.7
LSD .05	1	NS	NS	NS	278
LSD .01	1	NS	NS	NS	NS

* Lodging: 0 = none, 9 = laying flat on ground.

Planting Date: April 17, 2007
Harvest Date: August 1, 2007
Seeding Rate: 100 lbs / acre
Previous Crop: durum

2007 North Dakota flax variety descriptions.

Variety[1]	Origin	Year Released	Relative Maturity[2]	Seed Color	Plant Height	Wilt[3]
NorLin	Can.	1982	early	brown	med.	MS
AC Watson	Can.	1996	early	brown	short	MR
CDC Valour	Can.	1996	early	brown	short	MR
Linton	ND	1985	early	brown	med.	R
Prompt	SD	1988	early	brown	med.	MR
Hanley	Can.	2002	med. early	brown	med.	R
AC Emerson	Can.	1994	med.	brown	med.	R
CDC Normandy	Can.	1995	med.	brown	short	MR
Cathay	ND	1998	med.	brown	med.	MR
Pembina	ND	1998	med.	brown	med.	MR
Carter	ND	2004	med.	yellow	med.	R
Neche	ND	1988	med.	brown	med.	R
Omega	ND	1989	med.	yellow	med.	MS
Rahab 94	SD	1994	med.	brown	med.	MR
CDC Arras	Can.	1999	med.	brown	med.	MR
Prairie Thunder	Can.	2006	med.	brown	short	NA
CDC Bethune	Can.	1999	med. late	brown	med. tall	MR
AC Carnduff	Can.	1998	med. late	brown	med. tall	MR
CDC Mons	Can.	2003	med. late	brown	med.	MR
Taurus	Can.	2003	med. late	brown	med.	MR
Prairie Blue	Can.	2003	med. late	brown	med.tall	MR
Flanders	Can.	1989	late	brown	med.	MS
Webster	SD	1998	late	brown	tall	MR
McDuff	Can.	1993	late	brown	med. tall	MR
AC Linora	Can.	1993	late	brown	tall	R
Selby	SD	2000	late	brown	tall	MR
York	ND	2002	late	brown	med.	R
Nekoma	ND	2002	late	brown	med.	MR
AC Lightning	Can.	2002	late	brown	med. tall	R

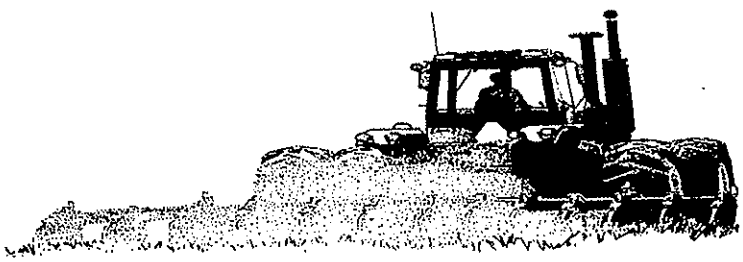
1 All varieties have resistance to prevalent races of rust; all have good oil yield and oil quality.
2 Varieties listed in order of maturity.
3 R = resistant; MR = moderately resistant; MS = moderately susceptible; NA = not available.

2007 Flax Variety Trial - Continuously Cropped - No-till Hettinger

Variety	Test Weight	----- Grain Yield -----			Average Yield	
		2004	2006	2007	2 yr	3 yr
	lbs/bu	---------- Bushels per acre ----------				
CDC Arras	54.4	19.9	14.8	20.4	17.6	18.4
Webster	55.0	19.9	12.3	18.7	15.5	17.0
Nekoma	56.3	16.6	14.4	18.1	16.2	16.4
Neche	58.2	13.7	14.4	19.5	17.0	15.9
York	56.3	17.5	12.5	17.3	14.9	15.8
Prairie Blue	56.6	16.9	11.3	18.6	15.0	15.6
CDC Bethune	56.8	18.6	11.4	16.6	14.0	15.5
Hanley	57.7	17.0	12.0	15.8	13.9	14.9
Pembina	55.8	14.9	11.3	15.8	13.6	14.0
Carter*	56.8	16.1	9.9	14.6	12.2	13.5
Rahab 94	57.5	9.6	12.9	17.0	15.0	13.2
Omega*	57.4	5.4	6.2	9.7	8.0	7.1
Prairie Thunder	57.1			17.5		
Scorpion	53.9			15.5		
Cathay	53.3			13.2		
Trial Mean	56.2	16.2	12.1	16.5	--	--
C.V. %	2.9	27.8	11.2	10.9	--	--
LSD .05	2.4	6.4	2.0	2.6	--	--
LSD .01	3.2	8.5	2.6	3.4	--	--

*Yellow seed type

Planting Date: April 25, 2007
Harvest Date: August 8, 2007
Seeding Rate: 32 lbs / acre.
Previous Crop: 2003 & 2006 = hrsw, 2005 = soybean.



2007 Oil Type Sunflower Variety Trial – Continuously Cropped, No-till Hettinger, N. Dakota

Brand	Hybrid	Oil Type & Traits *	Days to Bloom	Days to Mature	Plant Height	Test Weight	Oil Content	Seed Yield
					inches	lbs/bu	%	lbs/ac
Croplan	356 NS	NS	76	123	50	31.7	45.4	1701
Genetics	528 CL,DMR,NS	NS, DMR, CL	74	120	56	32.8	45.2	1545
	3080 DMR,NS	NS, DMR	73	124	49	31.8	47.7	1319
	803 DMR,NS	NS, DMR	72	118	51	32.6	48.2	1172
	564 CL,NS	NS, CL	78	120	46	34.7	47.0	940
	378 DMR,NS	NS, DMR	73	123	52	31.0	44.3	903
Dekalb	DKF38-45	NS	76	125	51	35.0	47.7	1637
	DKF34-33	NS, DMR	74	120	50	33.5	48.4	1381
	DKF34-80CL	NS, DMR, CL	75	120	53	32.6	45.2	1262
	DKF37-31	NS	75	125	49	32.8	45.3	1141
	DKF35-10	NS, DMR	72	124	50	31.4	41.4	1033
	DKF29-30	NS, DMR	72	119	56	28.3	45.0	997
Garst Seed	XF07NC68	NS, CL	76	124	54	29.8	46.3	1192
	XF06NS16	NS	72	123	51	31.1	43.6	1098
	XF07NC82	NS, CL	74	120	50	31.5	42.6	964
Integra Seed	Int. 737 NSCLDM	NS, DMR, CL	77	126	51	29.0	42.4	1392
	Int. 536 NSDM	NS, DMR	73	125	52	31.4	41.4	1138
	Int. 735 NSCLDM	NS, DMR, CL	74	122	48	32.7	42.1	1014
Interstate	IS4704 NS	NS	72	124	48	27.5	40.0	1383
Seed	IS4575 NS/CL	NS, CL	74	125	48	31.4	45.2	1173
	IS7120 HO/DM	HO, DMR	73	124	48	28.4	45.4	1171
	IS4668 NS/CL	NS, CL	76	124	58	27.3	40.3	1127
	IS5770 NS/DM	NS, DMR	74	123	52	31.3	43.8	1095
	IS6131 NS/DM	NS, DMR	72	123	49	30.9	45.2	1012
	IS5880 NS/CL	NS, CL	74	126	50	30.9	44.4	874
Monsanto	MH6643	NS, DMR	74	123	51	30.4	45.3	1712
	MH6641	NS, DMR	75	124	50	31.4	45.0	1687
	MH6642	NS, DMR	73	123	51	30.1	42.7	1207
Mycogen	8N337DM	NS, DMR	72	122	50	31.5	48.1	1904
Seeds	8N510	NS	77	125	52	30.3	45.5	1605
	8N358CL	NS, CL	74	124	48	32.6	48.5	1447
	8N453DM	NS, DMR	75	122	51	35.1	49.0	1374
	8N337DM	NS, DMR	72	122	50	31.5	48.1	1232
	8H419CL	HO, CL	76	126	51	28.3	46.6	1088
Proseed	EE-3	HO, DMR	76	118	54	31.2	39.8	1470
	6481	NS	76	120	60	31.7	45.6	1380
	6004	NS, CL	78	120	55	34.0	44.3	1257
	EE-1	HO, DMR	76	120	52	29.8	43.2	1250

continued

Brand	Hybrid	Oil Type & Traits *	Days to Bloom	Days to Mature	Plant Height	Test Weight	Oil Content	Seed Yield
					inches	lbs/bu	%	lbs/ac
Proseed	EE-2	HO, DMR	75	119	60	31.6	42.0	1148
	6294	HO, CL	77	118	61	34.1	46.0	1101
Seeds 2000	Blazer	NS	76	120	49	31.7	45.0	2021
	Sierra	HO	81	126	50	29.4	43.2	1929
	Firebird NS-SU	NS, SU	79	122	49	30.3	44.4	1647
	Barracuda	NS, CL	77	124	55	32.4	46.0	1485
Triumph Seed	TRX 7449	NS, DMR	78	124	48	29.3	43.9	1920
	s678	NS	79	128	46	27.6	44.6	1839
	TRXs 7426HO	HO	78	124	48	29.7	46.4	1640
	s675	NS	81	127	35	29.8	48.6	959
Trial Mean			75	123	51	31.1	44.9	1333
CV %			1.1	1.1	5.5	4.4	2.6	13.3
LSD .05			1	2	4	1.9	1.6	248
LSD .01			2	2	5	2.5	2.2	328

* Oil Type: NS = NuSun, HO = high oleic
Traits: CL = Clearfield, DMR = downy mildew resistant, SU = Express herbicide tolerant
Planting Date: May 15, 2007
Harvest Date: October 25, 2007
Seeding Rate: 21,000 seeds / acre, thinned to 18,650 plants / acre.
Row Spacing: 28" Previous Crop: HRSW Soil Type: Sandy Loam
Notes: Oil content and seed yields are based on 10% moisture.

2007 Canola Variety Trial – Continuously Cropped – No-till — Hettinger

Brand	Variety	Type*	Days to Bloom	Duration of Flowering	Days to Mature	Plant Height	Test Weight	Oil Content	Seed Yield
				days		inches	lbs/bu	%	lbs/A
Roundup Ready Varieties									
Croplan	HyCLASS 924	H	54	20	86	46	55.8	38.1	1643
Genetics	HyCLASS 778	S	56	17	88	48	54.2	39.6	1396
	HyCLASS 431	S	55	18	88	47	56.8	37.8	1355
	HyCLASS 712	S	58	16	89	48	55.2	40.1	1314
	HyCLASS 410	S	56	18	89	50	58.1	39.2	1314
Dekalb	DKL 52-10	H	56	18	88	44	59.9	36.6	1520
	DKL 52-41	H	56	18	88	49	56.2	38.2	1314
	DKL 38-25	H	56	17	87	49	61.0	38.7	1273
Interstate	IS357 Mag	H	52	20	87	37	57.0	38.0	1930
Seed	IS3057RR	H	52	20	86	43	56.3	41.0	1725
	IS7145RR	H	56	16	88	45	54.3	40.1	1602
Monsanto	MB52142	H	54	18	87	48	57.4	39.9	2054
	MB52155	H	54	18	88	49	57.7	39.4	1848
	MB51240	H	54	18	88	46	54.3	39.9	1725
	Z 5395	H	55	18	86	39	57.2	38.7	1396
Proseed	50 Calibre	H	54	18	87	47	54.4	38.2	1396
	30 Calibre	S	57	17	88	53	55.1	39.6	1232
	2066	H	56	18	87	45	57.2	37.8	1150
Liberty Link Varieties									
Croplan Gen.	Freedom 84901LL	S	60	14	86	44	57.4	42.2	2054
Trial Mean			55	18	87	46	56.6	39.1	1539
C.V. %			0.9	3.2	0.7	6.5	2.9	2.6	15.2
LSD .05			1	1	1	4	2.4	1.4	333
LSD .01			1	1	1	6	3.2	1.9	443

* Type: H = Hybrid, S = Synthetic

Planting Date: April 18, 2007
Harvest Date: July 24, 2007
Previous Crop: HRSW

2007 Safflower Variety Trial – Continuously Cropped - No-till, Hettinger

Variety	Days to Bloom	Test Weight	*Oil Content	---- Seed Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
		lbs/bu	%	---------- pounds per acre ----------				
Linoleic Types								
Cardinal	86	40.1	35.9	1493	1387	2270	1828	1717
S-541	86	35.0	42.1	1567	967	2279	1623	1604
Finch	85	40.1	37.2	1627	847	1958	1402	1477
NutraSaff	84	31.0	45.3	1680	127	1400	764	1069
Oleic Types								
Montola 2004	82	39.7	34.2	1753	773	2055	1414	1527
MonDak	86	38.9	35.2	1780	978	1801	1390	1520
Montola 2003	86	38.4	37.7	1907	622	1994	1308	1508
Montola 2000	83	36.2	37.5	1367	860	1500	1180	1242
Trial Mean	84	37.1	38.2	1736	870	1815	--	--
C.V. %	0.9	3.8	1.6	8.8	13.6	9.7	--	--
LSD .05	1	2.0	0.9	221	171	253	--	--
LSD .01	1	2.7	1.2	298	230	342	--	--

* Oil content is adjusted to an 8% moisture basis and is adjusted by oil type.

Planting Date: April 25, 2007 Harvest Date: August 22, 2007
Seeding Rate: 300,000 live seeds / acre (approx. 22 lbs/A).
Previous Crop: 2004 & 2005 = barley, 2006 = hrsw.
Notes: The 2006 trial sustained moderate moisture stress.

2007 Crambe Variety Trial - Continuously Cropped - No-Till Hettinger

Variety	Days to Bloom	Days to Mature	Plant Height	Test Weight	Oil Content	Seed Yield 2006	2007	2 yr Avg.
			inches	lbs/bu	%	-------- lbs/A --------		
Bel Ann	30	58	42	31.0	30.3	933	1837	1385
Meyer	25	52	38	30.8	30.2	1176	1111	1144
Trial Mean	26	55	42	30.4	28.4	1089	1459	--
C.V. %	3.0	2.0	6.9	5.2	7.9	14.6	13.7	--
LSD .05	1	1	NS	NS	NS	230	286	--
LSD .01	1	2	NS	NS	NS	NS	382	--

Planting Date: April 25, 2007
Harvest Date: August 2, 2007
Previous Crop: 2006 = soybean, 2005 = barley.
NS = no statistical difference between varieties.

2007 Tame Mustard Variety Trial - Continuously Cropped - No-till Hettinger

Variety	Days to Bloom	Duration of Bloom	Days to Mature	Plant Height	Lodg	Yield 2004	Yield 2006	Yield 2007	Avg. Yield 2 yr	Avg. Yield 3 yr
				Inches	0-9*	lbs / ac				
Yellow Types										
Tilney	51	23	86	35	1.8	1180	625	1027	826	944
Andante	51	23	86	39	2.2	1187	927	616	772	910
Ace	51	22	87	40	2.0	1260	722	534	628	839
AC Pennant	52	22	87	37	1.8	1033	570	821	696	808
Oriental Type										
Forge	53	22	88	53	1.0	1160	404	863	634	809
Brown Types										
Duchess	54	21	88	49	1.2			1109		
Commercial	56	20	88	44	1.2			945		
Trial Mean	53	22	87	42	1.6	1186	650	845	--	--
C.V. %	1.5	3.6	0.8	7.3	39.0	16.6	10.7	20.6	--	--
LSD .05	1	1	1	5	NS	NS	107	259	--	--
LSD .01	2	2	NS	6	NS	NS	150	354	--	--

* Lodging: 0 = none, 9 = lying flat on ground.

Planting Date: April 18, 2007 Harvest Date: July 14, 2007
Seeding rate: 610,000 pls/A (approx. Yellow = 12 lbs/A, Oriental & Brown = 6 lbs/A)
Previous Crop: 2003 & 2005= hrsw, 2006 = soybean
NS = no statistical difference between varieties.
Note: The 2006 trial sustained severe heat and moisture stress.

2007 Camelina Variety Trial - Continuously Cropped - No-Till, Hettinger

Variety	Test Weight	Oil Content	Seed Yield
	lbs/bu	%	lbs/A
Robinson	43.6	29.5	1707
Pleasure	36.3	28.6	800
Blaine Creek	47.9	31.6	1013
Suneson	46.0	32.0	1173
Celine	50.8	32.9	1173
Galena	47.4	33.0	1387
Ligena	46.0	32.1	1360
Robby	50.8	32.2	1227

Planting Date: April 26, 2007 Harvest Date: July 26, 2007
Seeding Rate: 6 lbs/A Previous Crop: barley
Note: This is an unreplicated trial.

2007 RR Soybean Variety Trial – Continuously Cropped, No-till — Hettinger

Brand	Variety	Maturity Group	Days to Bloom	Plant Height	Oil Content	Protein Content	Seed Yield
				inches	%	%	bu/A
Monsanto	AG0301	0.3	55	14	21.1	33.2	23.8
	AG00603	00.8	56	13	20.7	33.5	19.8
Peterson Farms Seed	0509RR	0.9	58	15	19.6	35.8	30.7
	0806RR	0.6	58	16	19.7	35.3	22.7
Proseed	RR70-30	0.3	58	14	19.4	36.0	22.4
	RR60-40	0.4	58	15	20.1	36.3	22.0
NDSU	RG604RR	0.4	55	15	20.2	35.2	18.9
	RG601NRR	0.1	56	15	19.8	35.1	18.4
	RG603RR	0.3	55	15	20.0	35.6	15.3
	RG600RR	0.0	58	14	20.6	35.0	15.1
	RG7008RR	00.8	57	13	19.4	36.6	10.9
	RG200RR	0.0	56	14	18.8	37.9	10.2
	RG6008RR	00.8	58	13	19.4	36.2	9.6
Trial Mean			57	14	19.9	35.5	18.4
C.V. %			1.7	12.2	2.5	2.6	14.8
LSD .05			1	NS	0.7	1.3	3.9
LSD .01			2	NS	1.0	1.8	5.2

Planting Date: May 9, 2007
Harvest Date: September 26, 2007
Seeding Rate: 250,000 pls/A (approx. 1.5 bu/A)
Previous Crop: HRSW

Origin, traits, and disease reactions for field pea entries tested in 2006.

Variety	Rel.* mat.	Seed color	Leaf# type	Ht.## (inch)	Lodging (0-10)~	Powdery mildew@	Mycos-phaerella blight@	Fusarium Wilt@	Seeds per lb	PVP$ or PBR Status
DS-Admiral	E	Yellow	SL	25	1	VG	F	F	2000	Yes
Aragorn	M	Green	SL	-	-	-	-	-	2200	
AP-18	M	Green	SL	22	1	-	-	-	2100	
SW Cabot	E	Yellow	SL	-	-	P	P	P	1900	
Camry	M	Green	SL	19	1	VG	F	F	2000	Yes
CEB 1093	M	Green	SL	-	-	-	-	-	1700	
SW Capri	E	Yellow	SL	-	-	P	F	P	2200	
Carneval	M	Yellow	SL	22	0	F	F	P	2100	Yes
Cooper	L	Green	SL	26	0	VG	F	F	1700	Yes
Cruiser	M	Green	SL	24	3	P	F	P	2200	
Eclipse	M	Yellow	SL	23	1	VG	F	F	1900	Yes
Fusion	M	Yellow	SL	-	-	-	-	-	2000	
Grande	M	Yellow	N	28	6	P	F	P	2300	Yes
Integra	E	Yellow	SL	25	1	P	P	F	1900	
K2	M	Green	SL	-	-	-	-	-	2200	
Majoret	E	Green	SL	24	1	P	F	P	2100	Yes
SW Marquee	E	Yellow	SL	26	0	-	-	-	2300	
SW Midas	E	Yellow	SL	24	0	VG	F	F	2200	Yes
CDC Mozart	M	Yellow	SL	22	4	VG	P	F	2100	
Polstead	M	Yellow	SL	-	-	-	-	-	1900	
SW Salute	E	Yellow	SL	26	3	VG	F	P	2000	Yes
Stratus	M	Green	SL	21	5	VG	F	P	1900	Yes
CDC Striker	M	Green	SL	-	-	F	F	G	1900	
Tamora	L	Green	SL	-	-	-	-	-	1700	
Topeka	E	Yellow	SL	21	6	VG	F	P	2100	Yes
Tudor	M	Yellow	SL	27	0	VG	P	F	1700	Yes

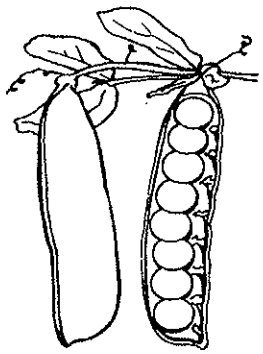
$ Plant variety protection (PVP, US) or Plant breeders rights (PBR, CAN) application is pending or anticipated.

* Early- E, medium- M, or late- L maturity.

Normal- N or semi-leafless- SL leaf type.

~ 1 = all plants erect, 3 = 50% lodged at 45° angle, 5 = all flat.

** Very good- VG, good- G, fair- F, poor- P disease resistance.



2007 Field Pea Variety Trial – Continuously Cropped - No-till

Hettinger

Brand	Variety	Days to Bloom	Duration of Bloom	Days to Mature	Plant Height	Lodg.	1000 Seed wt.	Test Weight	--- Seed Yield ---- 2005	2006	2007	Avg. Yield 2 yr	3 yr
			days		inches	0-9*	grams	lbs/bu	-------- bushels per acre --------				
Yellow Cotyledon													
Crop Dev. Ctr.	CDC Mozart	59	6	79	19	5.5	169	62.2	72.3	56.8	47.4	52.1	58.8
Farm Pure Seeds	Eclipse	59	8	79	22	5.5	140	63.1	68.3	53.7	50.1	51.9	57.4
	Polstead	58	8	80	16	8.0	182	61.8		54.4	48.7	51.6	
	Tudor	60	5	79	23	2.8	193	63.8		50.5	50.0	50.0	
	Noble	59	7	80	22	4.2	157	64.8			43.2		
	Ceb 4163	60	8	80	24	7.8	174	61.4			40.8		
Legume Logic	SW Midas	59	7	78	24	4.0	152	62.9			45.7		
Meridian Seeds	SW Capri	59	6	77	21	0.0	173	63.3			46.3		
	Fusion	58	8	79	22	7.5	184	62.3			42.4		
Norsask Seeds	CDC Golden	60	7	78	24	2.0	181	62.2		53.0	48.3	50.6	
	CDC Meadow	58	7	78	24	3.2	166	61.4			49.7		
Pulse USA	DS Admiral	58	6	78	26	1.8	163	63.9	59.1	59.0	50.5	54.8	56.2
	Miami	58	8	77	21	5.5	195	61.0		53.0	45.9	49.4	
	97113	56	8	76	21	8.0	168	63.5			48.1		
	86010	59	6	78	27	2.2	204	62.1			47.7		
USDA	PS01102958	61	5	81	17	7.8	186	61.8			42.2		
Green Cotyledon													
DLF Trifolium	Nitouche	59	6	82	22	2.0	185	61.5	66.4	52.6	50.1	51.4	56.4
Farm Pure Seeds	Camry	60	5	82	18	5.8	181	63.0		52.4	49.3	50.8	
	Tamora	62	3	83	22	5.0	197	62.7		51.1	48.6	49.8	
Legume Logic	K2	58	7	80	23	0.5	167	63.5			47.2		
Meridian Seeds	Cooper	61	5	83	22	5.5	208	62.8			49.2		
Norsask Seeds	CDC Striker	59	5	80	24	0.8	194	63.4		50.9	48.3	49.6	
	CDC Sage	60	6	82	23	6.5	157	62.0		41.9	46.2	44.0	
Pulse USA	Cruiser	60	6	80	20	4.2	160	62.3	67.7	48.8	49.4	49.1	55.3
	Majoret	60	5	81	21	1.8	174	64.3	66.4	50.7	48.6	49.6	55.2
	93018	57	7	80	25	3.0	170	63.0			47.0		
	711446	58	7	80	22	6.5	169	62.6			41.3		
	61758	58	6	80	13	9.0	150	61.5			35.2		
USDA	Medora	60	6	80	23	0.5	153	62.1			38.7		
Trial Mean		59	6	80	22	4.4	174	62.6	59.6	51.1	46.4	--	--
C.V. %		1.0	13.5	0.8	6.4	44.9	4.0	1.8	8.9	6.0	9.3	--	--
LSD .05		1	1	1	2	2.8	10	1.6	7.5	4.4	6.1	--	--
LSD .01		1	2	1	3	3.7	13	2.1	10.0	5.8	8.0	--	--

* Lodging: 0 = none, 9 = lying flat on ground.

Planting Date: April 25, 2007 Harvest Date: July 24, 2007 Seeding Rate: 250,000 live seeds / acre. Previous Crop: HRSW

2007 Field Pea Variety Trial – Continuously Cropped - No-till Wilton

Cooperator: Legume Logic

Variety	1000 KWT	Test Weight	---- Seed Yield ---- 2004	2006	2007	Average Yield 2 yr	3 yr
	g	lbs/bu	---------- bushels per acre ----------				
Yellow Cotyledon Types							
CDC Mozart	196	63.0	80.9	64.9	75.0	70.0	73.6
SW Marquee	169	63.1	79.4	50.7	79.2	65.0	69.8
SW Salute	182	63.9	82.0	49.6	70.0	59.8	67.2
SW Midas	228	62.3	75.9	52.7	73.5	63.1	67.4
SW Circus	170	63.2	72.0	60.4	66.0	63.2	66.1
DS Admiral	197	63.1	69.2	56.5	70.4	63.4	65.4
Lasso	222	62.8		64.4	85.2	74.8	
Spider	207	64.1		56.9	75.6	66.2	
Eclipse	188	62.9		56.6	74.5	65.6	
Miami	226	63.4		49.5	71.3	60.4	
Green Cotyledon Types							
Majoret	199	62.9	74.6	52.3	72.7	62.5	66.5
Nitouche	222	62.9	72.4	50.4	73.1	61.8	65.3
Cruiser	167	63.2	64.9	51.0	72.2	61.6	62.7
Matrix	200	62.2		51.0	82.1	66.6	
Aragorn	170	63.6		51.5	73.6	62.6	
K2	192	63.4		48.2	72.5	60.4	
Arcadia	174	62.9			75.1		
Medora	156	60.0			49.8		
Marrow Fat							
Orka	287	61.7		50.1	71.3	60.7	
Trial Mean	--	62.6	73.6	54.1	72.1	--	--
C.V. %	--	1.3	7.5	11.1	6.5	--	--
LSD .05	--	1.1	7.7	8.4	6.6	--	--
LSD .01	--	1.5	10.2	11.1	8.6	--	--

Planting Date: April 27, 2007
Harvest Date: August 3, 2007
Seeding Rate: 300,000 live seeds / acre.
Previous Crop: 2003 = triticale, 2005 & 2006 = hrsw.

2006 Field Pea Variety Trial – Continuously Cropped - No-till Scranton

Cooperators: Justin and Neal Freitag, Scranton

Variety	Plant Height	1000 Seed wt.	--- Grain Yield --- 2006	2007	Avg.
	inches	grams	------ bu/ac ------		
Yellow Cotyledon Types					
DS Admiral	20	154	37.7	29.3	33.5
Carneval	17	159	30.5	26.4	28.4
CDC Mozart	15	185		38.7	
Green Cotyledon Types					
Cruiser	17	156	39.8	46.3	43.0
Majoret	16	151	34.2	35.2	34.7
Nitouche	17	181		17.6	
Trial Mean	17	164	35.7	32.3	--
C.V. %	8.9	4.9	9.0	17.0	--
LSD .05	2	12	4.9	8.3	--
LSD .01	3	17	6.7	11.4	--

Planting Date: April 23, 2007 Harvest Date: August 7, 2007
Seeding Rate: 250,000 live seeds / acre
Previous Crop: hrww

2007 Field Pea Variety Trial - Continuously Cropped - No-till Regent

Cooperator: August and Perry Kirschmann, Regent

Variety	Plant Height	Test Weight	1000 Seed Weight	----- Seed Yield ----- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	grams	---------- Bushels per acre ----------				
Yellow Cotyledon Types								
DS Admiral	22	61.4	197	35.9	33.1	41.1	37.1	36.7
Carneval	21	61.8	151		30.4	35.2	32.8	
CDC Mozart	17	63.8	191			38.9		
Green Cotyledon Types								
Majoret	20	60.7	166	46.2	38.0	36.0	37.0	40.1
Cruiser	22	61.8	168	40.5	35.6	40.5	38.0	38.9
Nitouche	23	59.2	184			30.4		
Trial Mean	21	61.3	176	34.7	32.7	37.0	--	--
C.V. %	11.0	1.5	7.9	9.4	14.2	9.1	--	--
LSD .05	3	1.6	21	4.9	7.0	5.1	--	--
LSD .01	NS	2.3	29	6.8	9.7	7.0	--	--

Planting Date: April 23, 2007 Harvest Date: August 7, 2007
Seeding Rate: 250,000 pls / acre.
Previous Crop: 2004 = lentil, 2005 = hrww, 2006 = hrsw.
NS = no statistical difference between varieties.

2007 Field Pea Variety Trial – Continuously Cropped - No-till New Leipzig

Cooperator: Daryl Birdsall, New Leipzig

Variety	Plant Height	Test Weight	1000 Seed wt.	--- Grain Yield --- 2005	2007	Avg.
	inches	lbs/bu	grams	------ bu/ac ------		
Yellow Cotyledon						
DS Admiral	19	62.5	123	26.1	41.1	33.6
CDC Mozart	16	63.1	141	28.9	35.5	32.2
Carneval	20	62.4	114		30.7	
Green Cotyledon						
Majoret	20	60.5	140	24.4	33.9	29.2
Cruiser	19	62.0	143	17.4	33.6	25.5
Nitouche	20	59.7	138		26.7	
Trial Mean	19	61.6	133	24.3	33.6	--
C.V. %	11.1	--	17.0	18.1	9.1	--
LSD .05	NS	--	NS	NS	4.6	--
LSD .01	NS	--	NS	NS	6.4	--

Planting Date: April 24, 2007 Harvest Date: August 1, 2007
Seeding Rate: 250,000 live seeds / acre
Previous Crop: 2004 = lentil, 2006 = hrww.
NS = no statistical difference between varieties.

2007 Field Pea Variety Trial - Continuously Cropped - No-till Selfridge

Cooperator: Nick Vollmuth, Selfridge

Variety	Plant Height	Test Weight	1000 Seed Weight	----- Seed Yield ----- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	grams	---------- Bushels per acre ----------				
Yellow Cotyledon Types								
DS Admiral	15	61.6	113	39.4	19.3	56.5	37.9	38.4
Carneval	23	62.0	102		17.4	24.8	21.1	
CDC Mozart	16	64.5	121			54.7		
Green Cotyledon Types								
Cruiser	13	62.2	107	36.3	21.0	47.7	34.4	35.0
Majoret	10	62.1	106	39.1	14.3	43.7	29.0	32.4
Nitouche	16	60.9	141			43.5		
Trial Mean	15	62.2	115	35.1	17.3	45.2	--	--
C.V. %	12.7	1.7	11.1	10.2	13.3	6.8	--	--
LSD .05	3	1.6	19	NS	3.5	4.6	--	--
LSD .01	4	2.2	26	NS	4.8	6.4	--	--

Planting Date: April 24, 2007 Harvest Date: August 4, 2007
Seeding Rate: 250,000 pls / acre.
Previous Crop: 2004 = lentil, 2005 & 2006 = hrww.
NS = no statistical difference between varieties.
Note: The 2006 trial sustained severe heat and moisture stress.

SDSU Field Pea Variety Trial – Perkins County (Bison), 2007.

Variety	Height Inches	Lodging 0-9*	Test Wt Lb/Bu	Yield Bu/A
Yellow Cotyledon				
CDC GOLDEN	26	1	55.0	25.5
CDC MEADOW	28	1	55.0	26.0
CDC MOZART	22	5	55.8	24.6
CEB 4152	26	0	55.0	**28.8**
DS ADMIRAL	27	1	55.0	**29.0**
ECLIPSE	25	4	52.3	**27.0**
FUSION	27	5	53.3	24.5
SW CAPRI	24	1	55.4	25.8
SW CIRCUS	24	1	55.7	25.4
SW MARQUEE	26	0	56.0	25.7
SW MIDAS	25	3	52.3	26.3
SW SALUTE	28	7	55.3	**27.2**
Green Cotyledon				
CDC SAGE	24	1	53.7	20.1
CDC STRIKER	26	0	56.7	25.2
MATRIX	25	0	53.7	24.0
COOPER	25	1	52.9	23.9
CRUISER	26	3	55.1	24.0
K2	24	2	57.0	25.2
Average	25.4	2.0	54.7	25.5
LSD (P=.05)	2.4	1.3	2.1	2.4
CV	6.7	46.0	2.7	6.6

* 0 = no lodging, 9 = 100% lodged.
Planted: April 23, 2007 Harvested: July 23, 2007
Additional Nitrogen: Inoculated Herbicide: Prowl (3 ½ Pint/A)
Previous crop: Wheat, No-Till planted

Field Peas in the West River Region **Combined Means**

Variety	Plant Height	Test Weight	1000 Seed wt.	---- Grain Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
	inches	lbs/bu	grams	---------- bushels per acre ----------				
Yellow Cotyledon Types								
DS Admiral	22	61.2	158	43.2	41.1	45.4	43.2	43.2
CDC Mozart	18	62.1	167			45.0		
Green Cotyledon Types								
Majoret	17	62.1	156	44.9	37.9	45.0	41.4	42.6
Cruiser	19	61.1	150			44.8		
Nitouche	20	60.8	175			40.2		
# of Locations*	6	6	6	5	5	7	12	17

* Locations:2007 = Hettinger, Scranton, Regent, New Leipzig, Selfridge, Wilton & Bison, SD.
2006 = Hettinger, Scranton, Regent, Selfridge & Wilton.
2005 = Hettinger, Regent, Selfridge, New Leipzig & Wilton.

2007 Chickpea Variety Trial – Continuously Cropped - No-till

Hettinger

Variety	Days to Bloom	Duration of Bloom	Days to Mature	Plant Height	Disease	1000 Seed wt.	Test Weight	Seed Size (mm)			Seed Yield				
								>9	8-9	<8	2005	2006	2007	2 yr	3 yr
		days		inches	0 – 9*	grams	lbs/bu	%			pounds per acre				
Large Kaboli Types															
Dylan	55	8	87	12	1.0	545	50.6	30	38	32	2492	1634	1576	1605	1901
Sierra	56	7	87	15	5.0	545	55.4	25	42	33	2399	1550	1726	1638	1892
Troy	56	7	89	14	1.8	580	56.0	43	31	26		980	1874	1427	
CDC Xena	54	12	87	14	5.5	525	53.9	19	39	42			1972		
Small Kaboli Type															
CDC Frontier	55	10	86	15	1.0	294	56.1	--	--	--			2599		
Desi Type															
CDC Anna	54	11	87	13	1.0	171	50.2	--	--	--			2569		
Trial Mean	55	9	87	14	2.5	469	53.2	30	36	34	2864	1652	1984	--	--
C.V. %	0.5	6.2	1.4	10.3	42.3	6.4	3.4	17.7	16.9	18.1	7.2	6.8	9.7	--	--
LSD .05	1	1	2	NS	1.6	45	2.6	8	9	9	311	168	283	--	--
LSD .01	1	1	2	NS	2.1	61	3.6	11	13	13	430	233	385	--	--

* Disease (ascochyta blight): 0 = no disease, 9 = plants completely dead.

Planting Date: April 30, 2007
Harvest Date: August 8, 2007
Seeding Rate: 175,000 live seeds / acre.
Previous Crop: 2004 & 2005 = barley, 2006 = hrsw.
NS = no statistical difference between varieties.

2007 Lentil Variety Trial – Continuously Cropped - No-till — Hettinger

Variety	Days to Bloom	Days to Mature	Plant Ht.	1000 Seed wt.	---- Seed Yield ---- 2005	2006	2007	Average Yield 2 yr	3 yr
			inches	grams	---------- pounds per acre ----------				
Large Green Types									
Pennell	57	85	13	55	1908	1453	1494	1474	1618
CDC Sovereign	58	85	12	53	1794	1599	1444	1522	1612
CDC Sedley	57	85	12	56	1883	1494	896	1195	1424
CDC Glamis	61	89	13	47	1745	1567	797	1182	1370
Laird	60	90	11	54	1534	1404	672	1038	1203
CDC Plato	59	86	13	46		1737	1070	1404	
Riveland	54	78	12	60		1258	1095	1176	
CDC Grandora	60	88	13	54		1161	1046	1104	
Medium Green Types									
CDC Richlea	56	84	12	46	2143	2135	1742	1938	2007
CDC Meteor	56	83	12	45		2054	1394	1724	
Small Green Types									
CDC Viceroy	58	83	12	35	2386	1972	1693	1832	2017
CDC Milestone	55	77	10	35	2378	2102	1145	1624	1875
Small Red Types									
CDC Redberry	56	78	10	34	2492	1997	1593	1795	2027
CDC Rouleau	54	77	12	35	2508	1526	1195	1360	1743
Crimson	56	77	7	37	1981	1989	1046	1518	1672
CDC Blaze	56	76	10	35	2370	1875	697	1286	1647
Extra Small Red Type									
CDC Robin	55	76	11	31	1956	2029	1095	1562	1693
Small Brown Type									
Pardina	52	76	7	40	2378	2029	896	1462	1768
French Green Type									
CDC LeMay	57	77	10	35	2135	1591	797	1194	1508
Trial Mean	56	82	11	44	2060	1727	1130	--	--
C.V. %	1.4	0.8	13.7	7.1	8.5	6.2	12.5	--	--
LSD .05	1	1	3	5	251	151	232	--	--
LSD .01	2	1	3	7	335	200	309	--	--

Planting Date: April 30, 2007
Harvest Date: August 8, 2007
Seeding Rate: 550,000 live seeds / acre.
Previous Crop: 2004 & 2005 = barley, 2006 = hrsw

Corn grain test weight, moisture content at harvest, and yield of selected corn varieties, Golden Valley Conservation Farm, Beach, ND, 2007.

Variety	Company	GDD[1] Units	Test wt[2]	Moisture[3]	-------- Yield[4] --------		
					High[5]	Low[6]	Average
			lb/bu	%	bu/a	bu/a	bu/a
DKC33-11	Dekalb	2150	52.3	13.9	106.1	18.2	53.4
DKC35-51	Dekalb	2250	49.9	13.4	83.6	66.6	76.9
DKC33-72	Dekalb	2200	52.4	13.7	86.7	52.5	64.7
DKC29-99	Dekalb	2040	52.1	14.8	85.5	40.3	61.9
1807ARR	Rea	-	47.8	13.6	86.4	16.0	55.6
1817ARR	Rea	-	46.4	16.2	97.5	73.1	83.8
1796ARR	Rea	2042	53.5	17.5	68.9	26.7	50.9
1823ARR	Rea	2103	47.4	15.0	84.8	44.0	62.1
6780R	Integra	1930	52.5	14.2	95.7	51.8	75.4
6683R	Integra	1955	47.1	14.2	89.4	36.2	65.2
6385R	Integra	2060	50.4	14.3	99.8	19.5	67.1
6385RR	Integra	2060	49.6	16.2	91.6	41.7	59.3
37T79RR	PFS	1925	49.8	15.9	130.2	52.7	91.9
25F84	PFS	2050	51.5	15.0	117.1	60.7	84.5
24M83	PFS	2030	51.0	13.9	124.4	38.2	90.6
34M83	PFS	2030	50.4	13.9	77.8	10.1	60.5
5882RR/3C882	Nutech	2060	48.5	13.7	85.1	51.9	67.4
5383RR/3C383	Nutech	2090	47.8	14.9	92.3	38.1	71.1
5883RR/3C883	Nutech	2080	51.3	13.9	75.1	28.0	42.9
Mean			50.08	14.6			67.63
CV			2.8	5.8			33.58
LSD .05			2.0	1.2			NA
SE			0.700	0.425			11.355
Trt F Prob			<0.0001	<0.0001			0.169
Rep F Prob			0.918	0.857			0.0021

[1] GDD is growing degree days to black layer

[2] Test wt adjusted to 15.5% moisture.

[3] Moisture is grain moisture content of grain at harvest, Oct 10.

[4] Grain yields adjusted to 15.5% moisture.

[5] High is the highest yield of the four replications at this site.

[6] Low is the lowest yield of the four replications at this site.

*** Deer damaged this trial and therefore yield data is highly variable.**

2007 Roundup Ready Corn Trial - Continuously Cropped - No-till, Hettinger

Brand	Hybrid	GDU's	Relative Maturity	Days to Silk	Ear Height	Test Weight	Harvest Moisture	Grain Yield
		*	days		inches	lbs/bu	%	bu/Ac
IntegraSeed	6780R	1930	80	76	31	58.4	16.1	82.4
	6385R	2060	85	80	33	58.1	15.0	78.8
Mycogen	2J272	2240	87	80	36	56.7	16.6	78.5
	2D326	2370	92	81	38	56.6	16.6	68.6
Proseed	781RR	1900	81	78	33	54.2	15.4	87.7
	581RRBtCRW	2000	83	81	36	61.0	16.0	59.8
	787RRCRW	2030	87	78	31	57.8	14.4	64.7
Trial Mean				79	34	57.6	15.7	74.4
C.V. %				3.2	6.1	1.7	5.8	7.5
LSD 5%				1	3	1.5	1.3	8.3
LSD 1%				1	4	2.0	NS	11.4

*Growing Degree Units to Black Layer. NS = no statistical difference between hybrids.
Planting Date: May 3, 2007 Harvest Date: October 3, 2007
Seeding Rate: 26,500 seeds / acre, thinned to 24,000 plants / acre.
Row Spacing: 28" Previous Crop: HRSW
Note: Yields are adjusted to 13.5% moisture.

2007 Roundup Ready Corn Trial - Continuously Cropped - No-till, Regent

Cooperators: August and Perry Kirschmann

Brand	Hybrid	GDU's	Relative Maturity	Ear Height	Test Weight	Harvest Moisture	Grain Yield
		*	days	inches	lbs/bu	%	bu/Ac
Integra Seed	6780R	1930	80	30	58.4	20.4	78.8
	6385R	2060	85	30	57.0	21.9	78.0
Mycogen	2J272	2240	87	33	55.6	24.9	73.1
	2D326	2370	92	34	48.6	28.0	71.0
	2P174	2220	85	28	55.4	21.1	62.5
Peterson Farms	34M83	2030	83	30	52.3	23.6	77.0
	25F84	2080	84	29	55.2	21.0	74.2
Proseed	787RRCRW	2030	87	29	55.3	21.0	76.2
	781RR	1900	81	33	50.6	21.0	71.8
	581RRBtCRW	2000	83	35	53.6	22.6	64.0
Trial Mean				31	54.2	22.6	72.7
C.V. %				6.4	3.7	6.4	8.2
LSD 5%				3	2.9	3.7	8.7
LSD 1%				4	4.0	4.9	11.7

*Growing Degree Units to Black Layer.
Planting Date: May 3, 2007 Harvest Date: October 3, 2007
Seeding Rate: 26,500 seeds / acre, thinned to 24,000 plants / acre.
Row Spacing: 28" Previous Crop: HRSW
Note: Yields are adjusted to 13.5% moisture.

2007 Skip Row Corn Trial - No-till — Hettinger

Row Configuration	Days to Silk	Ear Height	Test Weight	Harvest Moisture	- Grain Yield - 2005	2007	Avg. Yield
		inches	lbs/bu	%	-- bushes per acre --		
Conventional 28" rows	83	29	55.7	15.1	32.2	34.3	33.2
1 planted x 1 skipped	82	30	57.4	15.8	40.6	72.2	56.1
2 planted x 1 skipped	84	31	56.8	15.8	44.9	72.0	58.4
2 planted x 2 skipped	83	31	55.5	15.8	22.8	66.9	44.8
Trial Mean	83	30	56.4	15.6	35.1	61.4	--
C.V. %	0.7	11.2	1.6	2.1	16.3	10.9	--
LSD 5%	NS	NS	NS	NS	10.9	21.3	--

Planting Date: May 3, 2007
Harvest Date: October 3, 2007
Hybrid = Mycogen 2P174
Plant Population: 18,000 plants / acre.
Note: Yields are adjusted to 13.5% moisture.
NS = no statistical difference between planting configurations.

Dickinson "Organic" Corn Trial*

Brand	Variety	% Root Lodging	% Stalk Lodging	% Moisture at Harvest	Test Weight (lb/bu)	Mean Yield (bu/ac)
Blue River	08K18	0	0	15.3	55	56
Blue River	30B19	0	0	17.2	55	54
Blue River	22F20	0	0	15.5	58	54
Unity	5995	0	0	17.5	51	53
Unity	5975	0	0	15.1	57	49
Blue River	11K96	0	0	15.6	58	48
Blue River	19B16	0	0	14.8	57	47
Unity	US 6103	0	0	28.6	48	47
	Wachichu	3	3	25.2	53	24
Trial Mean				18.3	55	55
CV (%)				27.5	6	20
LSD p=0.05				8.0	1	8

*This trial makes use of varieties developed for organic systems, but was not managed organically.

2007 Proso Millet Variety Trial - Continuously Cropped - No-till, Hettinger

Variety	Days to Head	Plant Height	Lodg.	Test Weight	Seed Yield
		inches	0-9*	lbs/bu	lbs/Ac
Horizon	65	33	1.0	55.3	2530
Sunrise	65	35	1.8	57.0	2280
Sunup	65	32	0.0	55.7	2032
Trial Mean	65	33	0.9	56.0	2281
C.V. %	0.9	4.3	31.5	0.7	10.5
LSD 5%	NS	NS	0.5	0.7	415
LSD 1%	NS	NS	0.8	1.0	NS

* Lodging: 0 = none, 9 = lying flat on ground

Planting Date: May 23, 2007
Harvest Date: September 26, 2007
Previous Crop: hrsw
NS = no statistical difference between varieties.

Forage yield of selected alfalfa varieties on the Conservation District Farm, Beach, ND, 2007.

Variety	Agent or origin	Yield[1]	
		lbs/acre	tons/acre
Vernal	Public	909.3	0.45
Bullseye	ABI	1125.5	0.56
Rugged	Target Seed LLC	1212.9	0.60
TS4002	Target Seed LLC	1163.5	0.58
CW054038	Cal West Seeds	960.2	0.48
CW14032/PGI 437	Cal West Seeds/PGI	1224.3	0.61
CW34024/PGI 424	Cal West Seeds/PGI	1408.3	0.70
CW24044/PGI 459	Cal West Seeds/PGI	1321.4	0.66
CW044024	Cal West Seeds	1365.4	0.68
CW064027	Cal West Seeds	1563.9	0.78
Mean		1225.5	0.61
CV%		23.9	23.90
LSD .05		NS	NS
SE		146.18	0.073
Trt F Prob		0.0994	0.0994
Rep F Prob		0.5480	0.548

[1] Yield on a dry matter basis
Planted 22 June 2007
Harvested 30 Aug 2007
Rainfall 22 June - 30 Aug: 3.29 inches

2007 Hay Barley Variety Trial - Continuously Cropped – No-till — Hettinger

Variety	Days to Head	Plant Height	Lodging	Harvest Moisture	Crude Protein	ADF	NDF	TDN	RFV	Yield 2005	Yield 2006	Yield 2007	Yield 2 yr	Yield 3yr
		inches	0-9*	%	%	%	%	%		Tons / acre**				
Stockford	66	40	1.2	81	15.9	32	51	66	116	3.97	2.33	1.86	2.10	2.72
Haybet	64	37	3.8	75	13.9	33	59	65	99	3.65	2.33	1.60	1.96	2.53
Westford	69	38	1.0	80	15.6	32	56	67	107	2.25	2.21	1.65	1.93	2.04
Bestford	66	38	1.8	83	15.0	34	57	64	103	2.44	2.03	1.00	1.52	1.82
Drummond	61	41	2.8	79	12.5	29	53	70	117		1.93	1.67	1.80	
Rawson	61	41	0.8	81	13.2	32	52	66	116			1.74		
Trial Mean	65	40	1.3	80	14.4	33	56	65	107	3.09	2.17	1.67	--	--
C.V. %	1.2	4.0	96.4	3.5	--	--	--	--	--	13.8	7.8	13.5	--	--
LSD .05	1	2	1.8	NS	--	--	--	--	--	0.63	0.26	0.33	--	--
LSD .01	2	3	2.4	NS	--	--	--	--	--	0.85	NS	0.44	--	--

* Lodging: 0 = none, 9 = lying flat on ground.
** Forage yields reported on a dry matter (DM) basis.
ADF = Acid Detergent Fiber
NDF = Neutral Detergent Fiber
TDN = Total Digestible nutrients
RFV = Relative Feed Value using NFTA guidelines
NS = no statistical difference between varieties

Planting Date: April 18, 2007
Harvest Date: July 3, 2007 (late milk)
Seeding Rate: 750,000 live seeds/acre.
Previous Crop: 2004 & 2005 = soybean, 2006 = hrsw.

Integrated Crop-Livestock Systems - Dickinson

Jeff J. Gunderson, Patrick M. Carr, Glenn B. Martin

The historical success of integrated crop-livestock systems in semi-arid regions of Australia, where legume pasture is rotated with small grains, has indicated a potential for application in southwestern North Dakota. Maintenance of this system, referred to as ley farming in Australia, is dependent on the easy and consistent establishment of the legume phase of the rotation, as well as the ability of the legume phase to produce adequate forage for grazing. Ideally, legumes are used which will reseed naturally from the seedbank after the wheat phase of the rotation.

Legume suitability screening and methods for establishment

To evaluate the efficacy of integrated crop-livestock systems for southwestern North Dakota it was necessary to identify suitable legume species based on the conditions above that are adapted to local climatic conditions. In order to determine forage yield potential in the region eight legume species were evaluated at the Dickinson Research Extension Center, as well as at a site in northwestern South Dakota (data combined; Table 1). Additionally, it was necessary to determine the appropriate techniques for seeding and maintaining productive legume pasture. The effect of tillage linked with seeding method on seedling density and dry matter yield of rigid medic (cv. WY-SA-10343) and birdsfoot trefoil (cv. Norcen) was investigated (Fig. 1 and 2). These species were chosen due to their potential for regeneration from the soil seedbank after the small grain phase of a rotation. Rigid medic has a prostrate growth habit that makes haying of this species impractical. Still, trials in Wyoming have identified this legume as has having potential in legume pastures. The influence of different tillage regimes, including 'conventional till' (spring and fall tillage), 'reduced till' (spring tillage only) and 'no till', on the seedling density and dry matter yield of alfalfa (cv. Travois) and birdsfoot trefoil (cv. Norcen) was also investigated (Fig. 3 and 4).

Table 1. Mean fall- and spring-seeded legume yields (lb/ac).

Variety	Fall Seeded	Spring Seeded
Hairy vetch	1549*a*†	1334*a*
Austrian winter pea	125*b*	2286*a*
Woolypod vetch	0*c*	2549*a*
Rigid medic	0*c*	2106*a*
Alfalfa	--	1428*a*
Annual sweetclover	--	1062*a*
Norcen trefoil	--	895*a*
Leo trefoil	--	837*a*
CV%	>100	74

† Treatments in the same column with the same letter are not significantly different at $p = 0.05$.

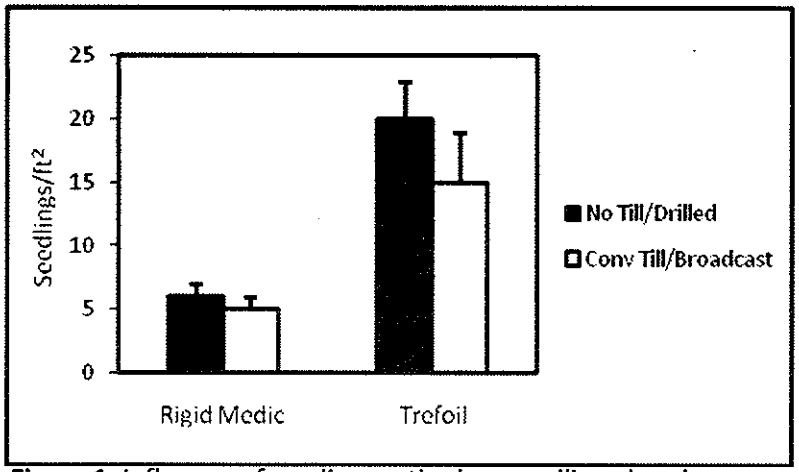


Figure 1. Influence of seeding method on seedling abundance.
Rigid Medic seeding rate: 46 seeds/ft^2 (2,000,000/acre)
Trefoil seeding rate: 138 seeds/ft^2 (6,000,000/acre)

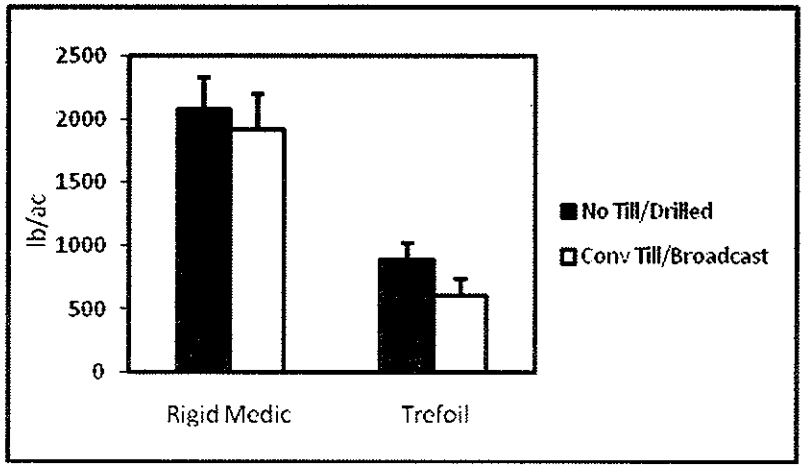


Figure 2. Influence of seeding method on legume yield.

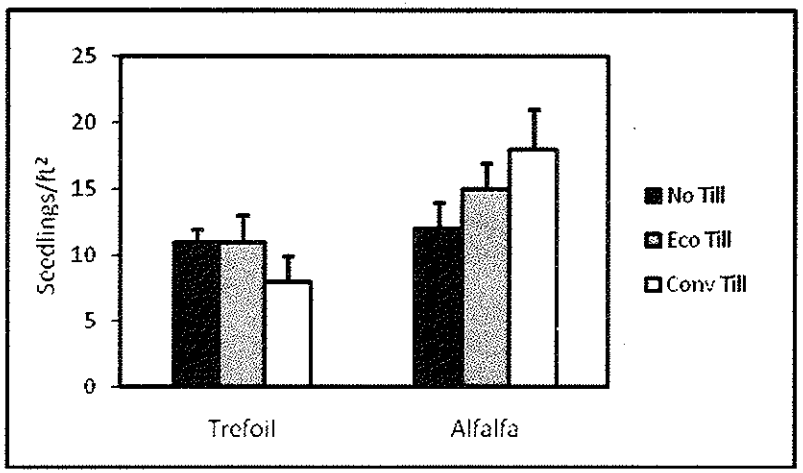


Figure 3. Influence of tillage on seedling density.
Alfalfa seeding rate: 69 seeds/ft^2 (3,000,000/acre)
Trefoil seeding rate: 138 seeds/ft^2 (6,000,000/acre)

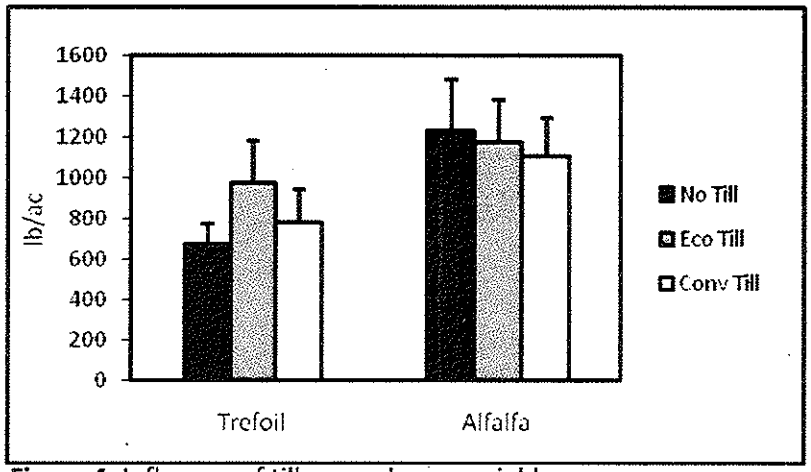


Figure 4. Influence of tillage on legume yield.

As indicated by Table 1, hairy vetch was the only fall-seeded legume to produce adequate amounts of forage for grazing in the year subsequent to seeding. When spring seeded, however, hairy vetch performed no better than any other variety. Woolypod vetch tended toward greater forage production among the spring-seeded varieties, while both trefoil cultivars tended to produce less forage. However, the absence of statistically significant differences between forage yields makes it difficult to draw strong conclusions as to the best performing variety. The lack of statistical significance is the result of each variety producing largely variable yields, which is indicated by the high coefficient of variation (CV).

Seeding method, whether drilling into a no till bed or broadcasting onto a tilled bed, had no significant effect on the seedling density of rigid medic or birdsfoot trefoil (Fig. 1 and 2). In earlier studies rigid medic was fall planted, but this resulted in almost complete winter kill of seedlings. When spring-seeded, however, this species generated significantly higher yields than birdsfoot trefoil under both seeding methods, even though seedling density was significantly lower. Incidentally, seedling density was very low for both species. Based on the amount of live seed planted germination rates were approximately 10% for rigid medic and slightly less for trefoil. The most probable explanation for these low germination rates was inadequate moisture at the time of seeding.

Tillage system did not affect the seedling density or forage yield of alfalfa or birdsfoot trefoil, although alfalfa produced higher yields overall (Fig. 3 and 4). Alfalfa seedling density was enhanced by conventional till as compared to trefoil, but no differences were apparent between the two species in the other two tillage systems.

Large Plot Ley Farming Study - Dickinson

An integrated crop-livestock system was implemented at the Dickinson Research Extension Center. The system included three crop rotations: wheat-alfalfa-alfalfa (WAA), wheat-birdsfoot trefoil-birdsfoot trefoil (WTT) and wheat-pea (WP). In the wheat-alfalfa rotation grazing took place in both alfalfa years, while in the wheat-trefoil rotation, grazing took place only in the second trefoil year. In the wheat-pea rotation, both crops were harvested for grain.

The effect of rotation on wheat yields was determined (Table 2). In four out of the five individual years no effect of rotation was seen on wheat yields. In 2004, however, wheat yields in both the WTT and WAA rotations were significantly less compared to the WP rotation. Additionally, 2004 wheat yields from the WAA rotation were significantly less than wheat yields from the WTT rotation. These differences in 2004 contributed to an overall reduction in wheat yields in the WAA rotation as compared to the WP rotation when all years were combined.

The effect of rotation on nitrate nitrogen (NO_3) levels as sampled the fall before each wheat phase was also determined (Fig. 5). Although NO_3 levels at the 0-6 in depth did not differ significantly in every year of the study, a trend towards significantly lower NO_3 levels in 2003 and 2004 was apparent at the 0-6 in depth in the WAA rotation. Trends in NO_3 levels over time did not differ between rotations in the 6-24 in depth; however, when both depths were combined trends in NO_3 levels in the entire 0-24 in depth echoed the trends in the 0-6 in depth (data not shown). The downward trend in NO_3 levels in the WAA rotation is further evidenced by the significantly greater amounts of fertilizer needed per year to achieve a 40 bu/ac yield goal in this rotation (Table 3). It should be noted that wheat yields in any rotation never reached 40 bu/ac; this attests to the fact that this yield goal is overly ambitious and must be adjusted to mitigate instances of overfertilization.

Rotational system was also observed to have an effect on soil bulk density, with soils in the WTT rotation possessing a higher bulk density than those in the WAA rotation (Table 4).

Table 2. Influence of rotation on wheat yields.

Rotation	Year					
	2003	2004	2005	2006	2007	All Years
	(bu/ac)					
WP	33*a*†	33*a*	35*a*	36*a*	31*a*	33*a*
WTT	29*a*	27*b*	36*a*	25*a*	24*a*	28*ab*
WAA	29*a*	19*c*	35*a*	27*a*	27*a*	27*b*

†Within columns, means followed by the same letter are not significantly different at $p = 0.05$.

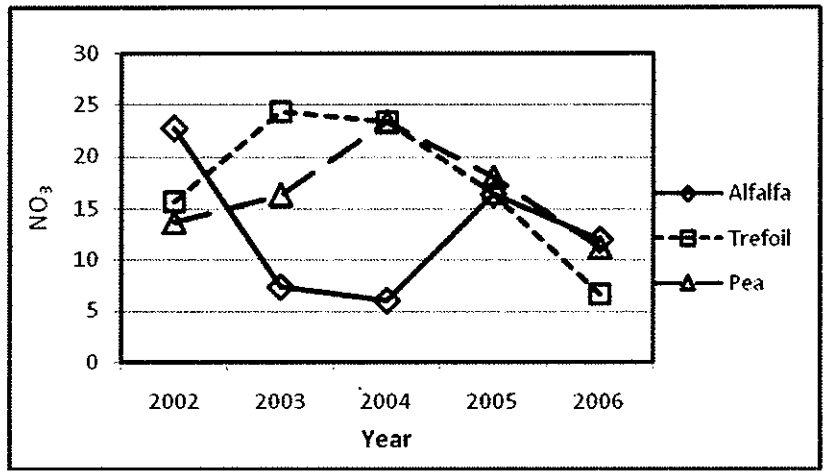


Figure 5. Nitrate levels (0-6 in) previous to wheat as influenced by crop rotation.

Table 3. Average amount of fertilizer (11-52-0 and 34-0-0), based on fall-sampled soil tests, needed per acre in the wheat year of each rotation to achieve a 40 bu/ac yield goal from 2003 to 2006.

Rotation	Fertilizer Applied (lbs)
WAA	283a†
WTT	199b
WP	152b

†Within columns, means followed by the same letter are not significantly different at $p = 0.05$.

Table 4. Influence of crop rotation on soil bulk density

Rotation	Soil Bulk Density
WTT	1.4a†
WP	1.3ab
WAA	1.2b

†Within columns, means followed by the same letter are not significantly different at $p = 0.05$.

Legume grazing preference

Cattle preference for several legumes identified above as potential species for use in crop-livestock systems was determined. Heifers were given equal access to swards of rigid medic (cv. WY-SA-10343), birdsfoot trefoil (cv. Norcen), alfalfa (cv. Travois) and annual sweetclover (cv. Hubam) and allowed to graze for 48 hr. Forage consumption was determined by sampling crop stands before and after the grazing period (Table 5) and by observing the cattle for periods during daylight hours and noting their location with respect to crop species (Table 6).

According to the crop sampling method for determining preference rigid medic was grazed more heavily than birdsfoot trefoil or sweetclover. No significant difference in preference was observable between rigid medic and alfalfa. Visual observation of cattle during grazing periods again revealed a greater preference by cattle for rigid medic as compared to birdsfoot trefoil or sweetclover. In conjunction, this method also indicated a greater preference for rigid medic compared with alfalfa.

Table 5. Grazing preference in as determined by crop biomass sampling.

Species	Preference Score
Medic	52*a*
Alfalfa	38*ab*
Trefoil	34*b*
Sweetclover	12*b*

†Within columns, means followed by the same letter are not significantly different at $p = 0.05$.

Table 6. Grazing preference in as determined by visual observation.

Cultivar	Mean % of time spent grazing
Medic	11.47*a*
Alfalfa	8.39*b*
Trefoil	6.79*b*
Sweetclover	6.68*b*

†Within columns, means followed by the same letter are not significantly different at $p = 0.05$.

Georgia-Pacific Liquid fertilizer study from Dickinson, 2007.

This study was conducted just northwest of Dickinson, ND on a field operated by the Dickinson Research and Extension Center, designated 113-6, east 1/3. The field was in barley in 2006. The experimental design was a randomized complete block, with thirteen treatments and four replications.

The soil test results prior to fertilizer application were:

Depth	nitrate-N	P	K	OM
	lb/a	ppm	ppm	%
0-6 inch	7	10	80	2.2
6-24 inch	27			
24-48 inch	12			

Glyphosate at the rate of 0.5 lb a.i/acre plus AMS at the rate of 0.56 lb/acre was applied on April 23. Soil fertilizer treatments were applied in the previous crop's standing stubble prior to seeding using a tractor mounted field sprayer equipped with streamer nozzles on April 27. The plots were seeded to Parshall spring wheat at 1.225 million live seeds April 27 using a no-till seeder. Significant rainfall (>0.25 inches) did not occur until May 5 (0.74 inches).

0.8 pt Bronate Advanced plus 0.66 pt Puma were applied for weed control May 21. Weed control was excellent throughout the season.

Foliar fertilizer treatments were applied at flag-leaf on June 20 with a hand held boom plot sprayer equipped with flat fan nozzles. Weather conditions at the time of application, 2:00 – 2:40 PM were temperature @ 88.4oF, relative humidity @ 44.7%, wind speed average @ 1.8 mph with a clear sky. Harvest was July 31using a Massy Fuguson 8XP combine. Test weight, protein, and yield were adjusted to 12% moisture prior to analysis with SAS 9.0 statistical software.

Treatments-

1	Check
2	30 lb N 28-0-0
3	30 lb N GP Nitramin 25%/28-0-0 75%*
4	60 lb N 28-0-0
5	60 lb N GP Nitramin 25%/28-0-0 75%
6	90 lb N 28-0-0
7	90 lb N GP Nitramin 25%/28-0-0 75%
8	120 lb N 28-0-0
9	120 lb N GP Nitramin 25%/28-0-0 75%
10	150 lb N 28-0-0
11	150 lb N GP Nitramin 25%/28-0-0 75%
12	60 lb N 28-0-0, plus 30 lb N 28-0-0 at flag-leaf
13	60 lb N 28-0-0, plus 30 lb N GP Nitramin at flag-leaf

Results-

Treatment effects on spring wheat, Dickinson, 2007.

Treatment	Plant ht inches	Test weight, lb/bu	Protein, %	Yield, bu/a
Check	27.9 a	62.8 g	12.2 a	25.7 a
30 28%	31.7 c	62.4 g	12.3 a	33.1 b
30 GPblend	30.5 b	62.5 g	12.4 ab	33.1 b
60 28%	32.4 cde	61.5 f	13.3 c	37.1 cd
60 GPblend	32.8 cde	61.5 f	13.1 c	34.9 bc
90 28%	32.8 cde	60.9 def	14.2 d	38.2 cd
90 GPblend	32.0 cd	60.5 cde	13.9 cd	36.2 bcd
120 28%	32.2 cde	60.3 bcd	15.0 ef	36.6 bcd
120 GPblend	32.0 cd	60.1 abc	14.6 cde	36.8 cd
150 28%	32.9 de	59.8 ab	15.7 f	39.3 d
150 GPblend	33.2 e	59.5 a	15.1 ef	36.8 cd
60 early +30 28% FL	32.1 cd	61.0 ef	14.4 de	34.7 bc
60 early + 30 GP FL	32.1 cd	61.4 ef	13.4 c	35.3 bc

Column numbers followed by the same letter are not significantly different at P=0.05 as determined by Tukey's multiple range test.

Plant height was increased by N treatments, with greatest height achieved with 60 lb N blend, 90 lb N 28-0-0, and 150 lb N both 28-0-0 and blend.

Test weight decreased with N rate, with lowest test weights provided by 150 lb N as both 28-0-0 and blend.

Protein increased with N rate, with highest protein achieved with the 150 lb N as both 28-0-0 and the blend. Protein was increased with the flag-leaf application of 28-0-0 compared with the blend at flag-leaf.

Yield increased with N rate, with highest yields achieved with the 120 lb N blend, the 60 lb N 28-0-0, and the 150 lb N 28-0-0 and blend treatments.
There was a slight tendency of 28-0-0 to perform better than the blend in several similar N rate comparisons, although this was not universally so. The dry, hot weather in late June and July was probably instrumental in reducing the rate of release of the slower-release product in this trial. Early rains helped to set the crop up for better than average yields, however there was little rainfall after June 15. The heat began about June 15, with few days thereafter with lower than 80 degree daytime temperatures.

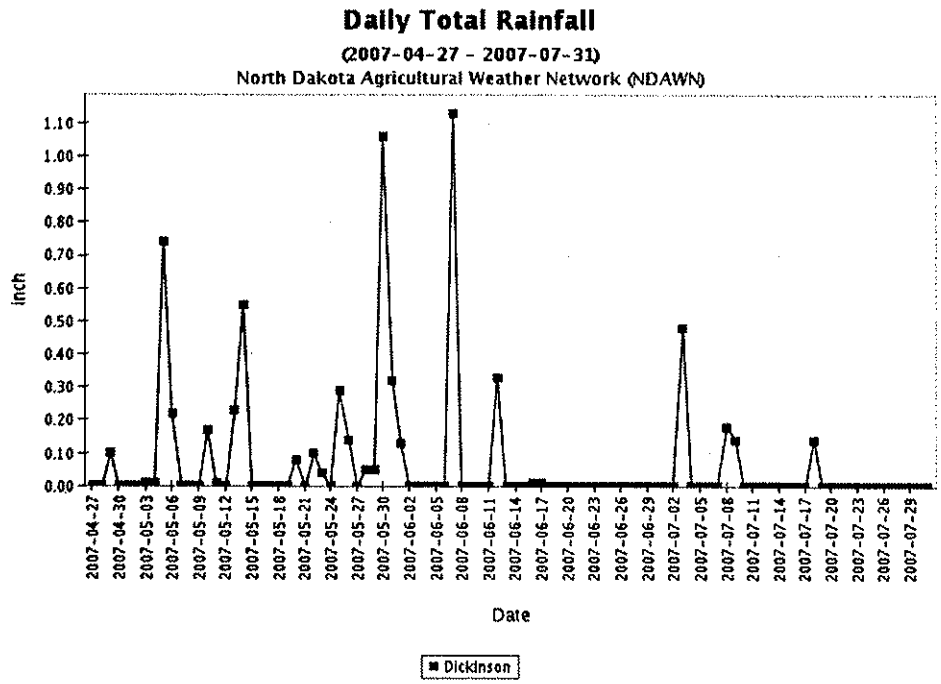


Figure 2. Daily rainfall from seeding to harvest, Dickinson GP trial, 2007.

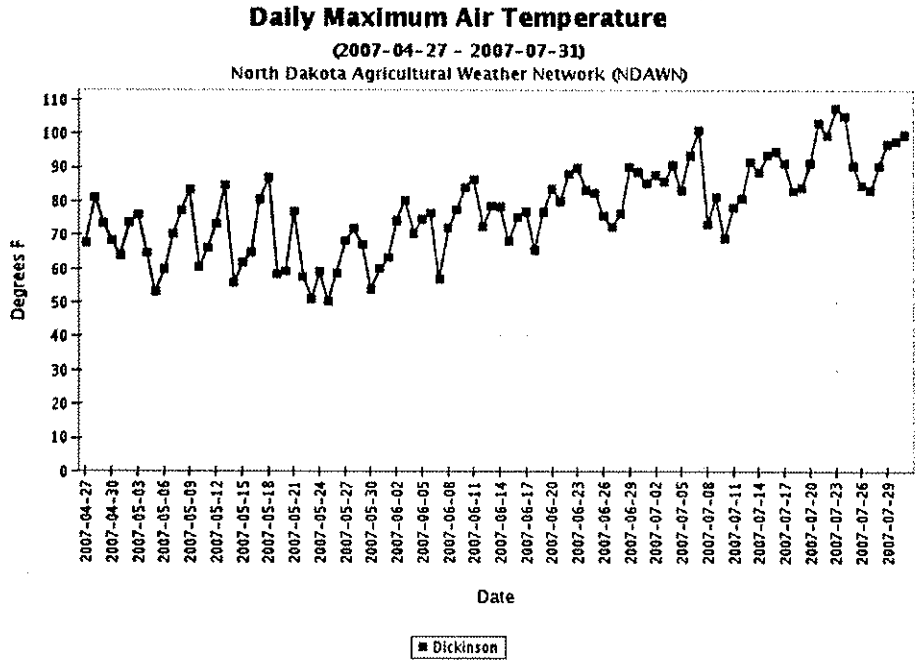


Figure 3. Daily maximum air temperature at Dickinson, GP N trial, 2007.

Summary

The study conducted near Dickinson compared the application of 28-0-0 liquid fertilizer to a blend of 25% Georgia Pacific Nitramin and 75% 28-0-0 both applied prior to seeding. Both products increased plant height, protein and yield, with yields maximized generally about 60 lb N/acre for the 28% solution treatment and the 90 lb N/acre for the blend. Flag-leaf application of 28-0-0 increased grain protein more than the blend flag-leaf treatment. Mid-season dry, hot weather likely prevented the maximum expression of N in the blend

2007 Spring Wheat Variety Tolerance to Foliar Diseases at Hettinger

Nathan Bird, IPM Crops Scout, Dickinson Res. Ext. Center

Variety	------ Leaf Rust ------		---- TS/Septoria* ----	
	Incidence	Severity	Incidence	Severity
	%	%	%	%
Faller	60	2	100	4
Howard	80	1	100	3
Glenn	60	1	100	6
Steele-ND	10	1	100	10
Reeder	100	16	100	4
Parshall	100	5	100	4
Alsen	100	5	100	4
Traverse	100	10	100	8
Granger	100	4	100	8
Rush	100	6	100	10
Briggs	50	1	100	8
Ingot	100	30	100	12
Oxen	100	4	100	8
Gunner	60	6	100	4
Russ	100	4	100	10
Kelby	100	1	100	12
Freyr	100	3	100	6
Knudson	20	1	100	6
Norpro	100	4	100	8
AP603CL	100	15	100	12
AP604CL	100	8	100	8
Trooper	100	5	100	6
Granite	100	5	100	4
Mercury	40	1	100	8
AC Superb	100	20	100	10
AC Vita	100	8	100	10
FBC Dylan	100	10	100	8
RB07	20	1	100	8

*TS/Septoria = tan spot and septoria complex.
Disease Incidence = percent of plants infected with disease.
Disease Severity = percent of flag leaf area infected by disease.

Date of observations: July 13 – late milk stage
Planting Date: April 17, 2007
Previous Crop: Field pea

2007 Winter Wheat Variety Tolerance to Foliar Diseases at Hettinger

Nathan Bird, IPM Crops Scout, Dickinson Res. Ext. Center

Variety	------ Leaf Rust ------		---- TS/Septoria* ----	
	Incidence	Severity	Incidence	Severity
	%	%	%	%
Wesley	10	2	100	2
Jerry	10	2	100	5
Wendy	90	2	100	2
Millennium	30	2	100	3
Roughrider	80	6	100	3
CDC Falcon	80	4	100	3
Jagalenė	100	8	100	1
Yellowstone	60	4	100	3
Expedition	80	8	100	2
CDC Buteo	100	6	100	2
Paul	100	10	100	2
Harding	20	2	100	2
McClintock	100	6	100	2
Alice	100	6	100	2
Ransom	30	4	100	3
Darrel	100	6	100	2
Radiant	100	4	100	4
Goodstreak	100	10	100	4
NuDakota	50	2	100	3
Hawken	0	0	100	3
Willow Creek	80	8	100	2

*TS/Septoria = tan spot and septoria complex.
Disease Incidence = percent of plants infected with disease.
Disease Severity = percent of flag leaf area infected by disease.

Date of observations: June 21 – milk stage
Planting Date: September 11, 2006
Previous Crop: Field pea

2007 Evaluation of Foliar Fungicides on HRSW at Hettinger

Eric Eriksmoen and Nathan Bird

'Reeder' hard red spring wheat was seeded on May 1. Treatments 1 through 3 were applied on May 28 to 4 leaf wheat. Treatments 4 and 5 were applied with sequential treatments, with the first application on May 28 to 4 leaf wheat and the second application on July 6 to flowering wheat. Treatment 6 was applied on June 20, shortly after flag leaf emergence. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 20 gpa at 40 psi to 5 foot wide by 20 foot long plots. The experiment was a randomized complete block design with four replications. Plots were evaluated for foliar diseases on the flag leaf on June 21 and on July 13. The trial was harvested on July 28.

	Treatment	Application Timing	Product Rate	June 21 (flag leaf)				July 13 (late milk)				Test Weight	Grain Yield
				TS/Sep.		L. Rust		TS/Sep.		L. Rust			
			oz/A	inc.	sev.	inc.	sev.	inc.	sev.	inc.	sev.	lbs/bu	bu/A
1	Headline + NIS	4 leaf	3.0 + 0.25%	100	2	85	1	100	4	100	6	49.6	27.4
2	Tilt + NIS	4 leaf	2.0 + 0.25%	100	2	100	2	100	4	100	16	51.1	26.8
3	Stratego + NIS	4 leaf	5.0 + 0.25%	100	3	98	2	100	4	100	7	54.9	27.4
4	Headline+NIS / Caramba+NIS	4 leaf / Flowering	3.0+0.25% / 13.5+0.25%	100	2	100	1	100	4	100	6	52.3	28.2
5	Headline+NIS / Folicur+NIS	4 leaf / Flowering	3.0+0.25% / 4.0 + 0.25%	100	2	100	2	100	4	100	8	50.2	29.0
6	Headline + NIS	Flag leaf	6.0 + 0.25%	100	4	100	4	100	4	100	4	50.6	31.1
7	Untreated	--	0	100	4	100	3	100	5	100	28	53.0	24.2
			C.V. %	0	41	6.8	37	0	32	0	65	7.5	8.2
			LSD .05	NS	NS	10	1	NS	NS	NS	10	NS	3

TS/Sep. = tan spot / septoria complex. L.Rust = leaf rust.
inc. = % of all flag leaves infected with disease. sev. = % of flag leaf area infected with disease.
NS = no statistical difference between treatments.

Summary

Crop injury caused by fungicides was not observed (data not shown). Tan spot / septoria was observed on all treatment flag leaves, however, the severity of infection was relatively minor and no significant differences were detected between fungicide treatments. 'Reeder' spring wheat is very susceptible to leaf rust and was initially observed on almost all flag leaves. The severity of infection was initially minor, however, significant differences between fungicide treatments and the untreated check were observed by July 13. Weather conditions were generally favorable for the spread of this disease. On the July 13 evaluation date, all fungicide treatments had significantly less leaf rust than the untreated check and all fungicide treatments except for the Tilt (trt 2) treatment at the 4 leaf stage, provided comparable leaf rust control. The Tilt treatment had significantly higher levels of leaf rust on this date than the other fungicide treatments. All treatments except for the Tilt treatment also resulted in significant yield increases over the untreated check. The Headline at flag leaf application (trt 6) had yields significantly higher than the three treatments with only 4 leaf applications (trts 1, 2, 3). Test weights did not correlate with disease severity and no significant differences were detected between treatments. Grain yields tended to correlate with leaf rust severity.

Injury, disease ratings, grain yield, test weight, and protein of Reeder HRSW for various foliar fungicide applications on the Mayer Farm, Mott, ND, 2007.

Treatment[1]	Rate	FGS2 App	Tan spot		FGS9 App	Leaf spotting diseases		FGS10.51 App	Leaf rust		Yield	Test weight	Protein
		Injury	I[2]	S[2]	Injury	I	S	Injury	I	S			
	fl oz/acre	----------			----------	%		----------			bu/acre	lb/bu	%
Check	-	0.0	92.5	28.0	0.0	47.5	3.0	0.0	100.0	75.0	38.4	56.2	15.9
Stratego FGS2	4	0.0	17.5	1.3	0.0	30.0	2.0	0.0	100.0	75.0	41.2	55.4	15.7
Stratego FGS9	8	0.0	95.0	26.5	0.0	0.0	0.0	0.0	97.5	8.0	45.6	58.3	16.7
Prosaro421 SC + Induce FGS9	6.5 + 0.125%v/v	0.0	95.0	28.0	0.0	0.0	0.0	0.0	17.5	0.8	48.3	58.3	16.6
Prosaro 421SC + Induce FGS10.51	6.5 + 0.125%v/v	0.0	90.0	26.3	0.0	27.5	1.8	0.0	82.5	11.0	42.8	58.4	16.1
Stratego FGS2 /Prosaro 421SC + Induce FGS10.51	4 - 6.5+ 0.125%v/v	0.0	7.5	0.5	0.0	32.5	1.0	0.0	90.0	8.5	42.3	57.8	16.3
Stratego FGS9/ Prosaro 421SC + Induce FGS 10.51	8 - 6.5 + 0.125%v/v	0.0	97.5	25.5	0.0	0.0	0.0	0.0	40.0	3.5	47.9	58.9	16.6
Mean		0.0	70.7	19.4	0.0	19.6	1.1	0.0	75.4	26.0	43.8	57.6	16.3
CV		-	13.6	14.4	-	26.8	59.4	-	14.7	23.2	8.5	1.3	1.1
LSD .05		-	14.3	4.2	-	7.8	1.0	-	16.5	8.9	5.5	1.1	0.3
SE		-	4.8	1.4	-	2.6	0.3	-	5.5	3.0	1.85	0.36	0.09
Trt F Prob		-	<.0001	<.0001	-	<.0001	<.0001	-	<.0001	<.0001	0.0124	<.0001	<.0001
Rep F Prob		-	0.4703	0.0393	-	0.2484	0.5402	-	0.6413	0.6402	0.0643	0.5644	0.8455

[1] FGS2 = Feeks growth stage 2 or 4 to 5 leaf stage of crop development, FGS9 = Feeks growth stage 9 or flag leaf stage of crop development, FGS10.51 = Feeks growth stage 10.51 or beginning of flowering.

[2] I = Incidence or the percent of plants exhibiting at least one tan spot lesion. S = Severity indicates the percent of leaf covered by lesions.

Yield, test weight, and bunted kernel count for CDC Buteo winter wheat treated with various seed treatments, Dickinson, ND.

Seed Treatment	Yield	Test weight	Bunt
	bu/a	lb/bu	kernels/g
Check	44.2	54.0	0.925
Vincit Minima + Thiram(1.92)	51.3	54.9	0.145
Vincit Minima + Thiram(3.3)	47.1	54.6	0.135
Vincit F	46.5	55.0	0.390
Vincit FS	51.0	56.1	0.025
Raxil MD	42.9	53.0	1.255
Mean	46.8	54.6	0.479
CV	9.9	4.27	88.9
LSD .05	14.2	3.5	0.642
SE	2.3206	1.1651	0.21298
Rep F Prob	0.0710	0.0462	0.7641
Trt F Prob	0.0471	0.5619	0.0045

Variety = CDC Buteo
Treated at NDSU by Joel Ransom
Seed divided, packaged, and inoculated by Nathan Bird on September 28, 2006
Border seed was not inoculated.
Fertilizer Applied 11/52/0 @ seeding 125.32 grams per 22.6 feet x 7 openers or (114 pounds/acre of material 12.5 lb N/A + 59 lb P_2O_5/acre)
Seeding on October 3, 2006
Broadcast Urea on October 16, 2006 @ 90 pounds per acre (41.4 lbs N/Acre)
Herbicide Application May 5, 2007
Herbicide = Maestro D @ 16 oz per acre (Bromoxnyl @ 2lb/gallon + 2,4-D @ 1.9 lb/gallon) + LV6 @ 5.3 floz/acre+Affinity @ 1/2 floz/acre + Headline Fungicide @ 3 fl oz/acre+Libreate Spray Adjuvant @ 16floz/100 gallons of spray solution applied at the rate of 10 gallons/acre.
Harvested August 3, 2007

Evaluation of Everest Herbicide for Tough Grassy Weed Control in HRSW

Eric Eriksmoen, Hettinger, ND

'Reeder' HRSW was seeded on May 1. Pre-emergence (PRE) treatments were applied on May 8 to one leaf wild oats (wiot) and to one leaf Japanese brome (jabr) with 60° F, 60% RH, clear sky and west wind at 5 mph. Post emergence (POST) treatments were applied on May 24 to 3 ½ leaf wheat and to 4 leaf wild oat, 2 leaf Persian darnel (peda) and to 5 leaf Japanese brome with 58° F, 38% RH, mostly clear sky and NW wind at 9 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was sprayed with 16 oz/acre Buctril + 8 oz/A Starane to control broadleaf weeds on May 28. The trial was a randomized complete block design with four replications. Wild oat, Persian darnel and Japanese brome populations averaged 2, 18 and 5 plants per square foot, respectively. Plots were evaluated for crop injury on June 9 and June 25, for plant height on July 5 and for grassy weed control on June 25 and July 27. The trial was harvested on July 30.

Summary

Crop injury was not observed. All herbicide treatments except for Everest applied pre-emergence (trt 2) provided excellent season long wild oat control. Everest herbicide does have some activity on Persian darnel but control tended to be inconsistent and no trends could be discerned. Discover NG and Axial provided excellent control of Persian darnel but had no activity on Japanese brome. The split applications of Everest and Discover NG (trts 5 & 6) provided excellent control of wild oats, Persian darnel and Japanese brome even when Discover NG was applied at a half rate (trt 6). All Everest treatments provided excellent season long control of Japanese brome and significantly better control than Rimfire (trt 8). Downy brome (dobr) was spotty throughout this trial, and evaluations were taken when observed. Plant heights were not significantly different between treatments. The trial was infected with leaf rust which severely affected test weights. Everest split applications 0.3 oz/A followed by 0.3 oz/A (trt 3), 0.4 oz/A Everest followed by 0.2 oz/A (trt 4), 0.4 oz/A Everest followed by 6.4 oz/A Discover (trt 6) and the Axial + Adigor (trt 9) treatment all had grain yields significantly higher than the untreated check. Rimfire (trt 8) had a grain yield significantly lower than the untreated check.

	Treatment	Product rate	App. timing	June 9	June 25				Plant height	July 27				Test weight	Grain yield
				inj	inj.	wiot	peda	jabr		wiot	peda	jabr	dobr		
		oz/A		% control					inches	% control				lbs/bu	bu/A
1	Untreated	--		0	0	0	0	0	30	0	0	0	0	49.7	33.8
2	Everest + BB*	0.4 + 1%	PRE	0	0	96	0	96	29	55	0	99	--	50.7	34.3
3	Everest + BB /	0.3 + 1% /	PRE												
	Everest + BB	0.3 + 1%	POST	0	0	99	74	97	29	98	94	99	0	48.8	37.0
4	Everest + BB /	0.4 + 1% /	PRE												
	Everest + BB	0.2 + 1%	POST	0	0	99	20	94	29	95	0	98	99	50.5	38.2
5	Everest + BB /	0.4 + 1%	PRE												
	Discover NG	12.8	POST	0	0	99	97	95	29	99	99	99	--	49.6	32.8
6	Everest + BB	0.4 + 1%	PRE												
	Discover NG	6.4	POST	0	0	99	99	96	29	94	99	97	--	49.2	37.0
7	Everest + BB	0.6 + 1%	POST	0	0	99	12	99	29	99	0	99	0	50.8	31.1
8	Rimfire + BB	1.75 + 1%	POST	0	0	99	0	92	30	96	0	88	0	51.2	28.4
9	Axial + Adigor	8 + 9.6	POST	0	0	99	99	0	29	99	99	0	0	49.4	37.1
10	Everest + BB /	0.3 + 1% /	PRE												
	Everest + BB	0.2 + 1%	POST	0	0	99	25	91	29	93	8	98	50	50.2	32.5
11	Everest + BB /	0.25 + 1%	PRE												
	Everest + BB	0.25 + 1%	POST	0	0	99	25	96	30	97	0	99	99	48.6	34.3
	C.V. %			0	0	1.4	42.5	4.4	3.4	10.2	13.4	2.3	--	3.3	5.4
	LSD 5%			NS	NS	2	25	5	NS	12	7	3	--	NS	2.7

* Basic Blend adjuvant.
NS = no statistical difference between treatments.

Evaluation of Everest + glyphosate and Banvel for Weed Control in HRSW

Eric Eriksmoen, Hettinger, ND

Pre-plant (PP) treatments were applied on April 30 to tillering downy brome (dobr) and to bolting tansy mustard (tamu) with 53° F, 66% RH, partly cloudy sky and south wind at 5 mph. 'Reeder' HRSW was seeded on May 1. Post emergence (POST) treatments were applied on May 24 to 3 ½ leaf wheat and to flowering downy brome, tansy mustard in full bloom, 1" kochia (kocz) and to 5" field bindweed (fibw) with 55° F, 46% RH, mostly clear sky and NW wind at 8 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was a randomized complete block design with four replications. Downy brome, tansy mustard, kochia and field bindweed populations averaged 16, 7, 2 and 0.5 plants per square foot, respectively. Plots were evaluated for crop injury on June 11 and June 27, for plant height on July 5 and for weed control on June 11, June 27 and July 27. The trial was harvested on July 30.

Summary

Crop injury was initially observed on all herbicide treatments except for glyphosate / Puma + Bronate Advance (trt 2). All pre-plant treatments containing glyphosate (trts 2, 4–10) provided excellent downy brome control. Pre-plant Everest alone (trt 3) and post-applied Everest treatment (trt 11) provided only marginal control of downy brome. All herbicide treatments provided excellent season long control of tansy mustard. Pre-plant treatments containing Banvel did not provide adequate control of kochia. Post applied treatments containing Banvel provided excellent season long control of kochia. Pre-plant Everest + glyphosate + Banvel followed by post applied Everest + Banvel (trt 10) and post applied Everest + Banvel (trt 11) provided excellent season long control of field bindweed. All treatments except for pre-plant Everest alone (trt 3) and pre-plant Everest + glyphosate followed by post applied Everest (trt 7) had grain yields significantly higher than the untreated check. Both of these treatments also had relatively high initial crop injury ratings.

	Treatment	Product rate	App. timing	June 11			June 27					Plant height	July 27				Grain yield
				inj	dobr	tamu	inj.	dobr	tamu	kocz	fibw		dobr	tamu	kocz	fibw	
		oz/A		% control								inches	% control				bu/A
1	Untreated	--		0	0	0	0	0	0	0	0	24	0	0	0	0	6.5
2	glyphosate + * /	16 /	PP														
	Puma + Bro. Adv.	10.5 + 12.8	POST	0	96	100	0	95	99	99	86	26	98	99	94	82	25.4
3	Everest + *	0.3	PP	8	56	95	8	70	97	0	0	21	48	99	0	0	9.4
4	glyph + Banvel + *	16 + 4	PP	5	98	97	1	98	94	0	0	27	99	99	32	18	20.0
5	Everest + glyph + *	0.3 + 16	PP	4	99	99	10	99	99	18	0	25	99	99	8	0	18.9
6	Everest+glyph+Banv+*	0.3 + 16 + 4	PP	3	97	98	14	97	97	52	8	24	97	99	18	0	16.7
7	Everest + glyph + * /	0.3 + 16 /	PP														
	Everest + BB**	0.2 + 1%	POST	15	96	99	11	96	99	0	0	24	96	98	5	0	6.9
8	Everest+glyph+Banv+*	0.3+16+4	PP														
	Everest + BB	0.2 + 1%	POST	5	98	98	14	98	99	42	20	23	99	99	22	0	15.2
9	Everest + glyph + *	0.3 + 16	PP														
	Everest + Banv + BB	0.2 + 3 + 1%	POST	5	95	99	2	94	99	99	26	26	88	99	91	72	27.2
10	Everest+glyph+Banv+*	0.3+16+4	PP														
	Everest + Banv + BB	0.2 + 3 + 1%	POST	9	92	99	10	88	99	97	94	24	94	99	90	90	18.5
11	Everest + Banvel + BB	0.6 + 3 + 1%	POST	2	48	96	0	25	99	97	92	20	25	98	92	89	12.7
	C.V. %			102	10	2	140	12	3	22	31	9	16	1	28	36	18.4
	LSD 5%			7	12	3	NS	14	4	15	16	3	17	1	17	17	4.3

* 0.25% NIS + 1 lb/A AMS
** Basic Blend adjuvant.
NS = no statistical difference between treatments.

Evaluation of Tank Mixes with Axial Herbicide for Grassy Weed Control in HRSW

Eric Eriksmoen, Hettinger, ND

'Reeder' HRSW was seeded on May 1. Treatments were applied on May 24 to 3 ½ leaf wheat and to 2 leaf wild oat (wiot), 2 leaf Persian darnel (puda), 3 leaf Japanese brome (jabr) and 5 leaf downy brome (dobr) with 59° F, 37% RH, mostly clear sky and west wind at 9 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was sprayed with 16 oz/acre Buctril + 8 oz/A Starane to control broadleaf weeds on May 28. The trial was a randomized complete block design with four replications. Wild oat, Persian darnel, Japanese brome and downy brome populations averaged 2, 10, 5 and 5 plants per square foot, respectively. Plots were evaluated for crop injury on June 9 and were evaluated for grassy weed control on June 25 and July 27. The trial was harvested on July 30.

Summary

Crop injury was very minor when noted. All herbicide treatments provided excellent season long wild oat control except for Amber (trt 7). All herbicide treatments provided excellent season long Persian darnel control except for Olympus (trt 3), Maverick (trt 4), Everest (trt 6) and Amber (trt 7) which had no efficacy on this weed. All herbicide treatments provided excellent season long Japanese brome control except for Axial alone (trt 2), Amber (trt 7), Discover NG (trt 10) and Axial + Amber (trt 15). Downy brome stands were inconsistent however, Olympus alone (trt 3), Axial + Olympus Flex (trt 16) and Axial + Osprey (trt 17) provided excellent season long control. Axial + Olympus Flex (trt 16) and Axial + Osprey (trt 17) provided excellent season long control of all of the grassy weeds present in this trial. The trial was infested with leaf rust and sustained late season moisture stress causing very poor and non-significant differences in test weight and grain yield.

	Treatment	Application Rate	June 9	June 25			July 27				Test	Grain
			Inj	wiot	puda	jabr	wiot	puda	jabr	dobr	weight	yield
		oz/A Product	% Control								lbs/bu	bu/A
1	Untreated	--	0	0	0	0	0	0	0	0	52.3	25.8
2	Axial + Adigor	8.2 + 9.6	0	99	99	0	99	99	0	0	52.4	28.8
3	Olympus + NIS	0.6 + 0.5%	0	97	0	20	90	0	99	99	49.7	23.9
4	Maverick + NIS	0.66 + 0.5%	0	97	30	99	94	0	99	--	53.1	25.2
5	Rimfire + MSO	1.75 + 24	0	99	90	99	98	99	99	--	52.6	27.5
6	Everest + NIS	0.5 + 0.25%	0	99	0	99	99	0	99	--	53.9	24.5
7	Amber + NIS	0.56 + 0.25%	0	0	15	0	8	0	0	0	52.3	25.4
8	Olympus Flex + MSO	3 + 24	1	99	99	99	99	99	--	--	52.6	24.5
9	Osprey + MSO	4.75 + 24	1	99	99	97	99	99	99	--	52.0	27.1
10	Discover NG	12.8	0	99	99	0	99	99	0	0	53.3	24.0
11	Axial + Adigor + Olympus	8.2 + 9.6 + 0.6	0	98	99	50	98	99	99	80	52.7	21.9
12	Axial + Adigor + Maverick	8.2 + 9.6 + 0.66	0	98	99	30	98	99	99	50	52.6	23.9
13	Axial + Adigor + Rimfire	8.2 + 9.6 + 1.75	0	99	99	0	99	99	99	0	52.0	24.8
14	Axial + Adigor + Everest	8.2 + 9.6 + 0.5	0	99	98	90	99	99	99	0	52.0	23.8
15	Axial + Adigor + Amber	8.2 + 9.6 + 0.56	0	99	99	0	99	99	0	0	52.7	25.6
16	Axial + Adigor + Olympus Flex	8.2 + 9.6 + 3	0	99	99	99	99	99	99	99	52.2	26.0
17	Axial + Adigor + Osprey	8.2 + 9.6 + 4.75	0	99	99	94	99	99	99	99	53.2	23.1
18	Discover NG + Olympus	12.8 + 0.6	0	97	99	90	96	99	99	50	51.6	22.2
19	Discover NG + Rimfire	12.8 + 1.75	0	99	97	94	96	99	97	0	52.9	24.5
	C.V. %		228	2.1	11.2	2.3	4.5	0	0	--	5.0	14.6
	LSD 5%		NS	3	12	2	6	1	1	--	NS	NS

NS = no statistical difference between treatments.

Evaluation of Various Herbicide Treatments on Flax

Eric Eriksmoen, Hettinger, ND

'Carnduff' flax was seeded on April 30. Pre-emergence (PRE) treatments were applied on May 8 with 54° F, 76% RH, sunny sky and NW wind at 3 mph. Post emergence (POST) treatments were applied on May 24 to 8 node flax (3 ½") and to 1" kochia (kocz), 1" Russian thistle (ruth) and to 4 leaf wild oat (wiot) with 49° F, 54% RH, mostly clear sky and an E wind at 8 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was a randomized complete block design with four replications. Kochia, Russian thistle and wild oat populations averaged 15, 6 and 2 plants per square foot, respectively. Plots were evaluated for weed control on June 9, June 26 and July 20. The trial was harvested on August 8.

	Treatment	Product rate	App. timing	6/9 kocz	6/26 kocz	July 20 kocz	July 20 ruth	July 20 wiot	Grain yield
		oz/A		% Control					bu/A
1	Untreated	--		0	0	0	0	0	9.7
2	Bronate Adv.+Assure II + COC*	11.4 + 8 + 1%	POST	91	89	78	72	86	13.0
3	Spartan + glyphosate /	6 + 16 /	PRE						
	Assure II + COC	8 + 1%	POST	97	93	84	79	98	16.1
4	Spartan + glyphosate /	6 + 16 /	PRE						
	Bronate Adv.+Assure II+COC	11.4 + 8 + 1%	POST	98	99	97	99	96	17.7
	C.V. %			4.4	5.1	9.9	14.5	12.9	15.6
	LSD 5%			5	6	10	14	14	3.5

* Crop Oil Concentrate adjuvant.

Summary

All herbicide treatments were initially quite effective at controlling kochia, however, the Bronate Advance + Assure II treatment alone (trt 2) did not provide control of regrowth and/or additional flushes. The Spartan + glyphosate / Assure II treatment (trt 3) provided very good control of kochia through June, however, this control started to break towards the end of the season. The pre-emergence application of Spartan + glyphosate followed by a post applied treatment of Bronate Advance + Assure II (trt 4) provided excellent season long control of kochia, Russian thistle and wild oat, and also provided for the highest grain yields.

Evaluation of Tank Mixes with Orion Herbicide for Broadleaf Weed Control at Hettinger

Eric Eriksmoen

'Reeder' HRSW was seeded on May 1. Treatments were applied on May 21 to 3 ½ leaf wheat and to 1" kochia (kocz), 1" Russian thistle (ruth) and to 3" wild buckwheat (wibw) with 74° F, 59% RH, clear sky and south wind at 12 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 40 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was sprayed with 16 oz/acre Discover NG to control grassy weeds on May 28. The trial was a randomized complete block design with four replications. Kochia, Russian thistle and wild buckwheat populations were 8, 6 and 0.3 plants per square foot, respectively. Plots were evaluated for crop injury on June 9 and were evaluated for broadleaf weed control on June 26 and July 25. The trial was harvested on July 30.

	Treatment	Application Rate		------ June 26 ------			-- July 25 --		Test	Grain
			inj	kocz	ruth	wibw	kocz	ruth	wt.	yield
		oz/Ac	---------- % Control ----------						lbs/bu	bu/Ac
1	Orion	17	0	59	75	81	80	94	50.1	27.4
2	Orion + MCPA est.	17 + 2.2	0	60	85	91	55	96	46.1	33.4
3	Orion + Starane	17 + 5.3	0	94	88	90	95	88	47.2	35.4
4	Orion + Starane	17 + 10.6	0	99	95	96	97	91	51.9	25.4
5	Orion + Buctril	17 + 16	0.2	94	97	96	97	99	50.2	29.8
6	Orion + Stinger	17 + 5.3	0	97	92	96	76	96	47.4	27.0
7	Orion + Axial XL	17 + 16.4	0	97	98	96	75	94	50.3	24.7
8	Orion + Axial XL + Tilt	17 + 16.4 + 2	0	85	98	96	66	94	49.9	37.4
9	Bronate Advance	12.8	0	68	68	69	81	88	51.0	28.0
10	WideMatch + MCPA est.	16 + 8	0	98	90	96	96	82	48.6	31.9
11	Affinity TM + MCPA est.	0.6 + 8	0.2	94	99	85	80	99	49.0	33.9
12	Untreated	--	0	0	0	0	0	0	47.4	24.3
C.V. %			497	11.3	10.7	11.7	10.3	5.7	5.2	15.8
LSD .05			NS	13	13	14	11	7	NS	6.8

Summary

Crop injury was very minor when noted. Like all ALS inhibiting herbicides, Orion did not control ALS resistant kochia biotypes. The addition of Starane (trts 3 and 4) or Buctril (trt 5) enhanced overall kochia control. Orion alone was quite effective on Russian thistle and marginal on wild buckwheat control. Tank mixtures enhanced wild buckwheat control. The trial was infested with leaf rust and sustained late season moisture stress causing very poor test weights. Grain yields did not correlate well with weed control and may have been affected by non-uniform soil types (gravel seams).

Efficacy of Starane Hi-Load Herbicide for Broadleaf Weed Control at Hettinger

Eric Eriksmoen

'Reeder' HRSW was seeded on May 1. Treatments were applied on May 21 to 3 ½ leaf wheat and to 1" kochia (kocz), 1" Russian thistle (ruth), 3" wild buckwheat (wibw) and to 4" field bindweed (fibw) with 75° F, 58% RH, clear sky and south wind at 11 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was sprayed with 16 oz/acre Discover NG to control grassy weeds on May 28. The trial was a randomized complete block design with four replications. Kochia, Russian thistle, wild buckwheat and field bindweed populations were 8, 6, 0.3 and 0.2 plants per square foot, respectively. Plots were evaluated for crop injury on June 9, June 26 and on July 25, were evaluated for wheat head deformity on July 25 and were evaluated for broadleaf weed control on June 26 and on July 25. The trial was harvested on July 30.

		Product	6/9	June 26				July 25		Test	Grain
	Treatment	Rate	inj.	kocz	ruth	wibw	fibw	kocz	ruth	Weight	Yield
		oz/A	% control							lbs/bu	bu/A
1	GF-1784	4	0	99	91	94	92	96	88	47.2	35.5
2	Starane	8	0	99	86	92	92	99	82	51.7	29.7
3	GF-1784+Affinity TM+NIS	4+0.6+0.25%	0	99	98	96	96	99	99	48.7	34.3
4	Starane+Affinity TM+NIS	8+0.6+0.25%	0	97	98	97	96	96	99	52.1	29.6
5	GF-1784 + Bronate Adv.	2.67 + 12.8	0	99	99	96	97	99	99	49.9	29.4
6	Starane + Bronate Adv.	5.33 + 12.8	0	99	98	96	97	99	99	46.8	31.1
7	Untreated	--	0	0	0	0	0	0	0	48.7	21.5
	C.V.%		0	1.0	2.9	3.8	2.8	4.6	1.9	2.4	4.4
	LSD .05		NS	1	4	5	3	6	2	1.8	2.0

Summary

Crop injury was not observed for any treatment (June 26, July 25 and head deformity data not shown). GF-1784 and Starane treatments provided comparable weed control. All herbicide treatments provided excellent efficacy on kochia, Russian thistle, wild buckwheat and field bindweed and provided excellent season long kochia control. GF-1784 and Starane tank mix treatments (trts 3 – 6) also provided excellent season long Russian thistle control. Test weights were very poor due to a leaf rust infestation and did not correlate with herbicide treatments or weed control. Grain yields were significantly higher for all herbicide treatments than the untreated check. GF-1784 alone (trt 1) and GF-1784 + Affinity TM (trt 3) were significantly higher yielding than the other treatments.

ET Herbicide Tank Mixtures for Preplant Burndown Applications at Hettinger, ND

Eric Eriksmoen

Treatments were applied on May 24 to 3 ½ leaf wheat (hrsw), 1" kochia (kocz), 3" wild buckwheat (wibw) and to 5" field bindweed (fibw) with 43° F, 68% RH, clear sky and NW wind at 12 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 30 psi through PK-01E80 nozzles to a 5 foot wide area the length of 10 by 28 foot plots. The trial was a randomized complete block design with four replications. HRSW, kochia, wild buckwheat and field bindweed populations were 15, 8, 2 and 0.5 plants per square foot, respectively. Plots were evaluated for control on June 9, June 21 and on July 5.

	Treatment*	Product Rate	June 9				June 21				July 5			
			hrsw	kocz	wibw	fibw	hrsw	kocz	wibw	fibw	hrsw	kocz	wibw	fibw
		oz/A	% Control											
1	R'up Orig. Max	32	100	100	97	92	100	99	95	91	98	96	88	90
2	ET + R'up	1 + 32	100	100	97	96	100	98	94	94	99	94	91	90
3	R'up + 2,4-D	32 + 16	100	100	96	94	100	98	96	93	99	94	92	91
4	ET+R'up+2,4-D	1+32+16	100	100	97	95	100	96	96	90	98	91	92	88
5	ET + 2,4-D	1 + 16	62	96	92	92	45	97	92	94	32	94	99	98
6	Untreated	--	0	0	0	0	0	0	0	0	0	0	0	0
	C.V.%		5.1	1.2	4.0	4.1	5.5	2.8	3.3	6.5	7.3	4.3	3.3	7.4
	LSD .05		6	2	5	5	6	3	4	8	8	5	4	8

* All herbicide treatments also included 0.25% NIS and 2% AMS.

Summary

All treatments containing Roundup (trts 1-4) provided excellent control of spring wheat volunteers. All herbicide treatments had comparable season long control of kochia. Roundup alone (trt 1) tended to have less season long control of wild buckwheat than the other herbicide treatments and the ET + 2,4-D treatment (trt 5) provided significantly higher season long control of wild buckwheat than the other herbicide treatments. Treatments containing Roundup (trts 1-4) provided similar season long control of field bindweed. The ET + 2,4-D treatment (trt 5) provide better season long control of field bindweed than the other herbicide treatments.

2006 Adjuvants with glyophosate at Hettinger, Eric Eriksmoen

Treatments were applied on May 25 to 4 leaf wheat, heading downy brome (dobr), 9" tall blooming tansy mustard (tamu) and to 6" long field bindweed (fibw) with 67° F, 52% RH, sunny sky and NW wind at 4 mph. Treatments were applied with a tractor mounted CO_2 propelled plot sprayer delivering 10 gpa at 30 psi to 5 foot wide by 20 foot long plots. Weed populations per ft^2 were 2.5 for wheat, 15 for downy brome, 2.75 for tansy mustard and 1.5 for field bindweed. The experiment was a randomized complete block design with four replications. Plots were evaluated for weed control on June 7 and on June 23.

	Treatment	Rate	June 7				June 23			
			hrsw	dobr	tamu	fibw	hrsw	dobr	tamu	fibw
	R'up Origional Max +	% of solution	% Control							
1	alone	4 oz/A	90	94	18	7	86	97	32	8
2	AMS	1	95	98	50	10	94	99	70	30
3	R-11	0.5	90	94	25	5	91	97	30	30
4	Preference	0.5	85	92	12	5	72	99	20	11
5	Liberate	0.5	69	94	22	8	64	96	38	11
6	APSA-80	0.5	85	91	15	3	85	97	30	32
7	Purity 100	0.5	84	94	15	5	80	97	30	28
8	Premier 90	0.5	74	94	10	3	68	97	22	11
9	Wet-Sol	0.5	69	92	22	8	62	97	32	9
10	Class Act NG	2.5	92	98	35	5	95	99	80	32
11	Surfate	1	92	98	25	3	91	99	70	40
12	Alliance + Preference	1.25 + 0.5	94	98	40	16	91	99	66	52
13	Choice + Liberate	0.5 + 0.5	92	94	14	12	75	99	20	22
14	BroncMax + R-11	0.5 + 0.5	92	96	20	3	89	94	32	30
15	Quest + Preference	0.5 + 0.5	92	96	30	11	74	97	45	20
16	Citron + Preference	2.2 lbs + 0.5	93	98	27	2	94	98	53	15
17	N-Tense	0.5	96	96	32	5	97	98	50	24
18	Herbolyte	1	90	98	12	8	91	98	25	12
19	R-11 + AMS	0.5 + 1	92	98	22	3	92	99	32	32
20	Dispatch AMS	2.5	95	98	31	12	94	99	70	55
21	Weather Guard	0.25	92	94	18	3	60	98	25	12
22	Flame	0.25	65	95	19	5	62	98	22	9
	C.V. %		9.0	3.1	33.4	71.5	13.0	3.2	30.6	43.4
	LSD .05		11	4	11	7	15	NS	18	15

Summary

Liberate, Premier 90, Wet-Sol and Flame adjuvants with glyphosate appear to be antagonistic for hrsw control. Downy brome control was excellent and adjuvants did not significantly enhance or decrease control. In general, adjuvants containing ammonium sulfate (AMS) tended to significantly enhance tansy mustard and field bindweed control, while non-AMS containing adjuvants tended to be less efficacious on these broadleaf weeds.

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