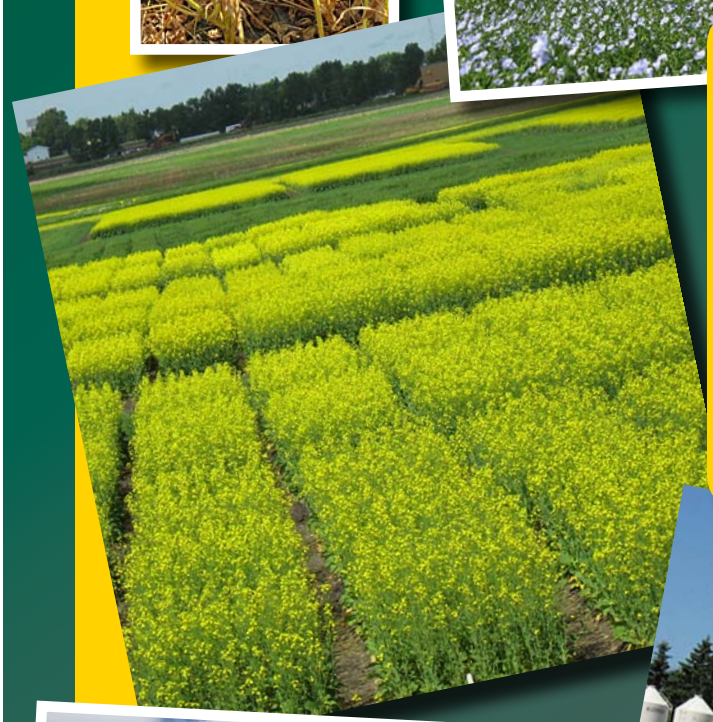


Langdon Research Extension Center

North Dakota State University

2012 Annual Research Report

NDSU

Langdon Research Extension Center
Annual Research Report No. 87
December 2012

Bryan Hanson, John Lukach,
Randy Mehlhoff, Richard Wilhelmi,
Naeem Kalwar and Lesley Lubenow

Table of Contents

The 2012 annual research report is intended to provide producers information to aid in selecting varieties and/or hybrids. Variety information and research reports on crop disease and production can also be found at our website www.ag.ndsu.edu/langdonrec/. Variety trial results from all NDSU Research Extension Centers and the Main Station at Fargo, along with crop extension bulletins, can be accessed on the web at www.ag.ndsu.edu/varietytrials/.

Choosing a variety is one of the most important decisions a producer makes in successful crop production. Characteristics to consider in selecting a variety may include yield potential, disease resistance, protein content when grown with proper fertility, straw strength, plant height, test weight, yield stability across years and locations, quality and economic profitability. A variety's performance may differ from year to year and from location to location within a year due to varying environmental conditions. When selecting a variety to grow it is best to consider a variety's performance over several years and locations.

The agronomic data presented in this publication are from replicated research plots using experimental designs that enable the use of statistical analysis. The trials are designed so that "real" yield and agronomic differences can be statistically separated from differences that occur by chance. The least significant difference (LSD) values given in the report are used for this purpose. For example, if the LSD 5% is 5 bushels, then if the difference between any two varieties is greater than 5 bushels they are said to be significantly different from one another 95 times out of 100 under those growing conditions. If the difference between two varieties is less than 5 bushels, they are not significantly different from one another. If there is a "NS" for LSD 5% value it means there was no real difference between any varieties or the trail was too variable to detect a real difference. The CV stands for coefficient of variation and is expressed as a percentage. The CV is a measure of variability in the trial. Large CVs mean that a large amount of variation could not be attributed to differences in the varieties or agronomic characteristic.

The NDSU Langdon Research Extension Center, in addition to its on-station research program, conducted variety research trails at several locations in 2012. Trial locations were at Cavalier, Park River, Vesleyville, Lakota, Devils Lake, Cando, Tolna and Willow City. These locations are in cooperation with the farmer, the Extension Service and the County Agricultural Improvement Association.

2012 Weather Summary

The 2012 growing season was warmer and dryer compared to the 30-year average from 1981 to 2010. Fall recharge at Langdon for September through October 2011 was 4.24 inches, 1.00 inch above normal. Precipitation from November 2011 through March 2012 was 1.60 inches, 1.65 inches below normal. Snowfall for the 2011-2012 was 26.1 inches, 6.8 inches below normal. General spring planting started around mid-April across the region and progressed quickly due to the warm dry spring. Rainfall ranged from 60-90 percent of normal across the region from April-September while temperatures averaged 0-3 degrees above normal. This was especially favorable for the warm season crops. Yields varied across the region but benefited from adequate moisture in the soil profile given the below normal rainfall. Harvest conditions were excellent in August thru the first week of October. By the end of September the entire region was considered to be in a moderate to severe drought.

2012 Crop Management - Langdon						
Field Trial	**Previous Crop**	**Seeding Rate Unit/Acre**	**Yield Goal**	**Planting Date**	**Harvest Date**	**Row Spacing**
Barley	soybean	1.25 million pls	100 bu	April 25	Aug. 2	6
Canola - LL, CL	soybean	610,000 pls	2500 lb	May 2	Aug. 17	6
Canola - RR	soybean	610,000 pls	2500 lb	May 2	Aug. 17	6
Corn	soybean	28,000 thinned	180 bu	May 10	Oct. 22	30
Durum	soybean	1.50 million pls	60 bu	April 24	Aug. 13	6
Drybean	wheat	70-90,000 pls	2000 lb	May 22	Sept. 11	30
Field Pea	soybean	300,000 pls	60 bu	May 7	Aug. 20	6
Flax	soybean	2.8 million pls	40 bu	May 1	Aug. 29	6
HRSW	soybean	1.50 million pls	60 bu	April 24	Sept. 10	6
HRWW	canola	1.2 million pls	100 bu	Sept 28,2011	July 27	7
Oats	soybean	1.0 million pls	120 bu	April 25	Aug. 13	6
Soybean - Conventional	wheat	200,000 pls	60 bu	May 22	Sept. 28	6
Soybean - RR	wheat	200,000 pls	60 bu	May 21	Sept. 27	6
Sunflower - Confection	wheat	17,000 thinned	2500 lb	May 16	Oct. 2	30
Sunflower-Oil	wheat	20,000 thinned	2500 lb	May 16	Oct. 2	30
Soil Type - Svea-Barnes loam						

Special thanks to our local cooperators and Extension Agents for their efforts in our off-station variety testing.

Allan Wood-Cando
Crystal Martodam -Towner County Agent
Dave Hankey - Park River
Brad Brummond - Walsh County Agent
Kent Schluchter - Cavalier
Lesley Lubenow – Area Extension Agent
Scott Nelson – Lakota
Lucas Walter - Nelson County Agent
Mitch Guss – Willow City
Winfield Solutions – Devils Lake
Grant Tweed - Tolna

2012 Off-Station Crop Management						
Location(County/ Field Trial	**Previous Crop**	**Seeding Rate Unit/Acre**	**Yield Goal**	**Planting Date**	**Harvest Date**	**Row Spacing**
Cavalier (Pembina)						
HRSW	wheat	1.50 million pls	60 bu	April 18	Hailed out	6
Soybeans	wheat	200,000 pls	60 bu	May 15	Oct. 1	6
Drybean	wheat	70,000-90,000 pls	2000 lb	May 15	Sept. 18	30
Park River, Vesleyville (Walsh)						
HRSW	fallow	1.50 million pls	60 bu	April 19	Aug. 1	6
Barley	fallow	1.25 million pls	100 bu	April 19	July 27	6
Soybean (Velseyville)	wheat	200,000 pls	60 bu	May 14	Sept. 18	6
Lakota (Nelson)						
HRSW	drybean	1.50 million pls	60 bu	April 20	Aug. 14	6
Durum	drybean	1.50 million pls	60 bu	April 20	Aug. 14	6
Soybean	wheat	200,000 million pls	60 bu	May 17	Sept. 24	6
Cando (Towner)						
HRSW	soybean	1.50 million pls	60 bu	April 23	Aug. 16	6
Durum	soybean	1.50 million pls	60 bu	April 23	Aug. 16	6
Barley	soybean	1.25 million pls	100 bu	April 23	July 24	6
Devils Lake(Ramsey)						
HRWW	canola	1.2 million pls	100 bu	Sept27,2011	July 20	7
Tolna (Nelson)						
HRWW	wheat	1.2 million pls	100 bu	Sept24,2011	July 23	7
Willow City(Bottineau)						
HRWW	wheat	1.2 million pls	100 bu	Sept26,2011	July 25	7
Location	**Soil Type**					
Cavalier	Borup silt loam					
Park River, Vesleyville	Glyndon silt loam, Bearden silty clay					
Lakota	Small grains – Balaton-Wyard loam,					
Cando	Barnes loam					

pls=pure live seeds

Record of Climatological Observation
Langdon, ND

	Precipitation		Dep. from		Temperature		Dep. from
	Normal*	2012	Normal		Normal*	2012	Normal
April	1.24	0.87	-0.37	April	38.3	42.9	+4.6
May	2.26	1.76	-0.50	May	51.5	53.0	+1.5
June	3.24	4.65	+1.41	June	60.8	62.9	+2.1
July	2.87	3.94	+1.07	July	66.4	70.8	+4.6
August	2.61	1.73	-0.88	August	64.4	65.8	+1.4
September	2.00	0.08	-1.92	Sept.	54.3	55.3	+1.0
Total	14.22	13.03	-1.19	Ave.	56.0	58.5	+2.5

*110 year average

Monthly Growing Degree Days and Normals-Langdon

	Wheat Growing Degree Days			Corn Growing Degree Days			Sunflower Growing Degree Days		
	2012	Normal	Deviation	2012	Normal	Deviation	2012	Normal	Deviation
April	376	274	+102	--	--	--	--	--	--
May	665	613	+52	231	219	+12	342	314	+28
June	934	875	+59	415	346	+69	579	519	+60
July	1196	1018	+178	634	484	+150	824	685	+139
August	1029	962	+67	488	440	+48	658	642	+16
September	703	671	+32	300	255	+45	416	358	+58
Total	4903	4413	+490	2068	1744	+324	2819	2518	+301

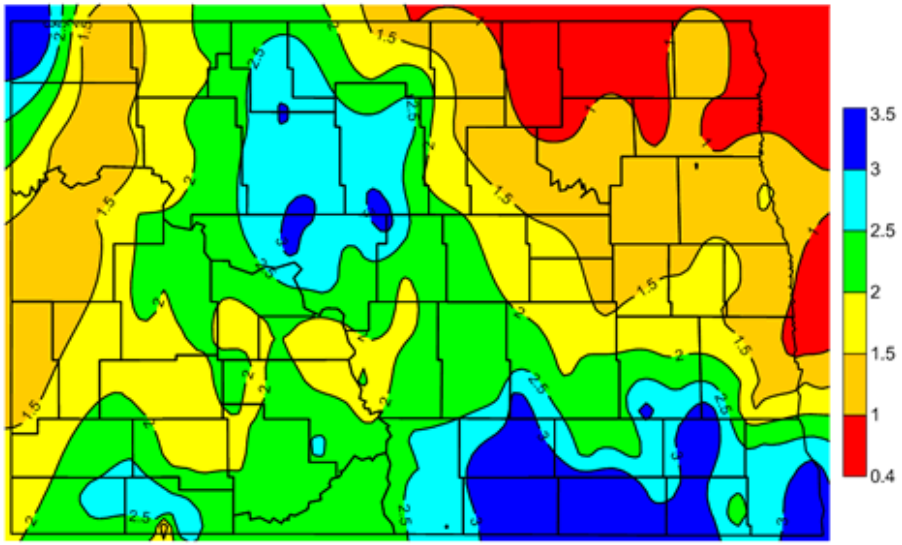
Frost Dates, Langdon and Selected Cities

	Last Spring Frost		First Fall Frost		Frost Free Days	
Langdon	32^0F	28^0F	32^0F	28^0F	32^0F	28^0F
Normal	21-May	8-May	17-Sep	28-Sep	118	142
2012	26-Apr	26-Apr	18-Sep	22-Sep	145	149
Cavalier						
Normal	16-May	5-May	23-Sep	3-Oct	129	151
2012	16-May	26-Apr	14-Sep	14-Sep	121	141
Grafton						
Normal	9-May	30-Apr	24-Sep	4-Oct	138	157
2012	30-May	26-Apr	14-Sep	15-Sep	107	142
Lakota						
Normal	10-May	10-Apr	26-Sep	6-Oct	138	158
2011	26-Apr	26-Apr	14-Sep	18-Oct	141	175

Normals are from the NWS, 2012 frost dates from nearest reporting NDAWN station.

North Dakota April 2012 Precipitation (inches)

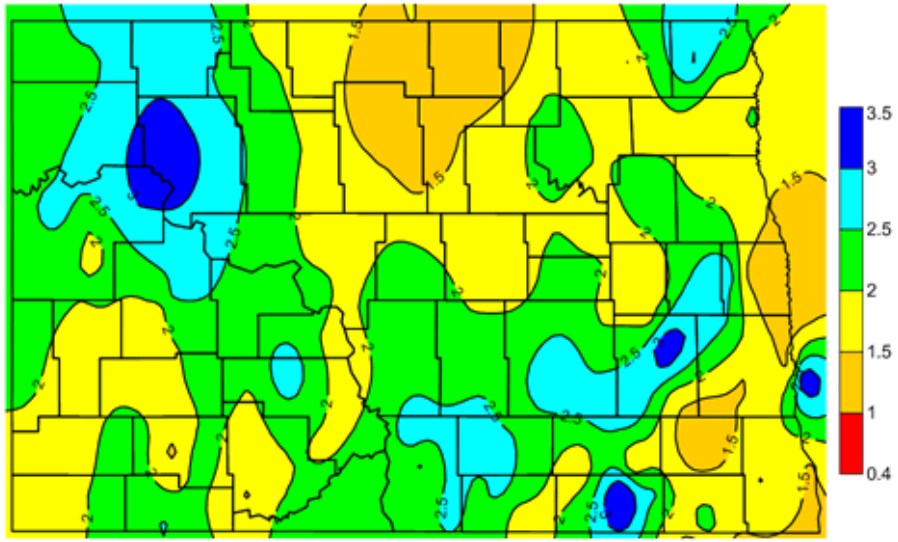
(Data from NWS Cooperative Network and North Dakota Agricultural Weather Network (NDAWN))



ND State Climate Office

North Dakota May 2012 Precipitation (inches)

(Data from NWS Cooperative Network and North Dakota Agricultural Weather Network (NDAWN))

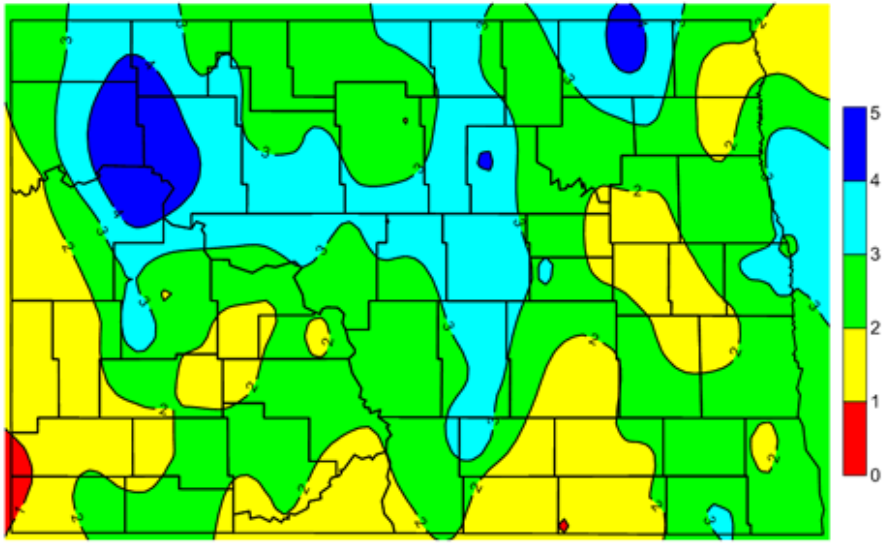


ND State Climate Office

7

North Dakota June 2012 Precipitation (inches)

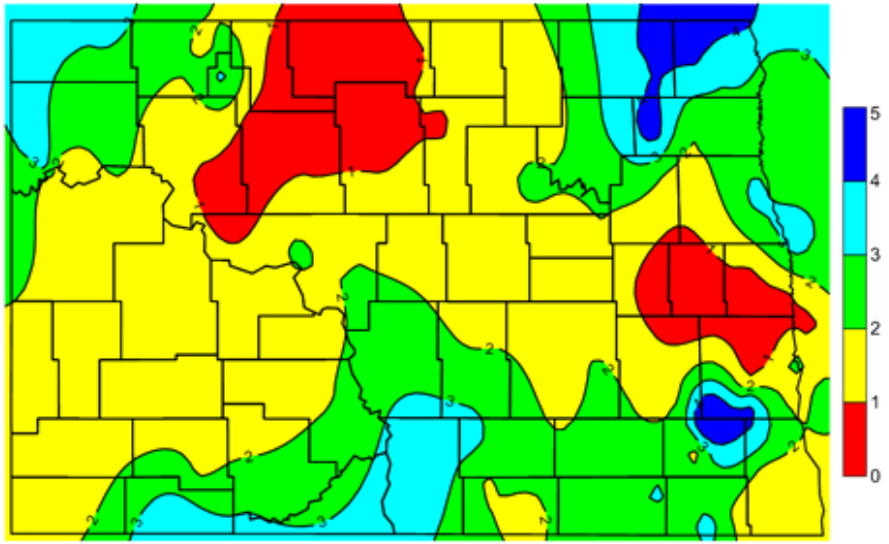
(Data from NWS Cooperative Network and North Dakota Agricultural Weather Network (NDAWN))



ND State Climate Office

North Dakota July 2012 Precipitation (inches)

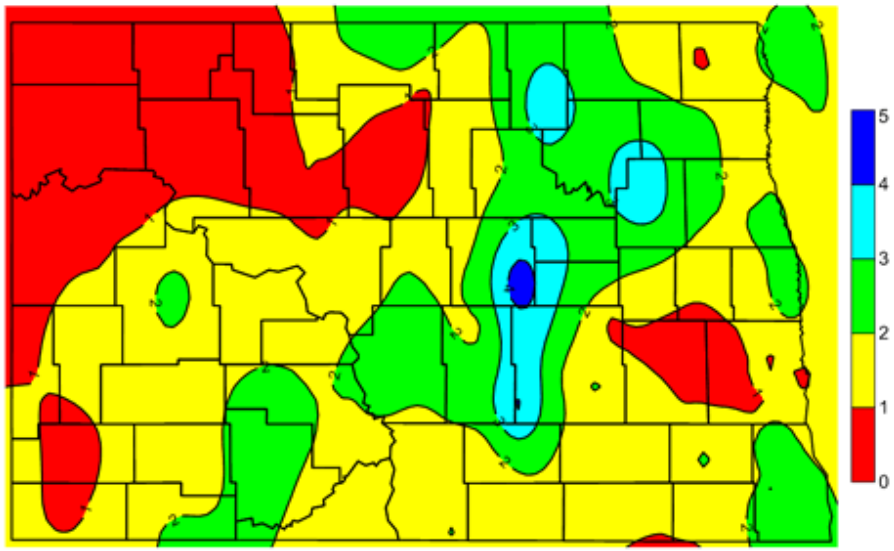
(Data from NWS Cooperative Network and North Dakota Agricultural Weather Network (NDAWN))



ND State Climate Office

North Dakota August 2012 Precipitation (inches)

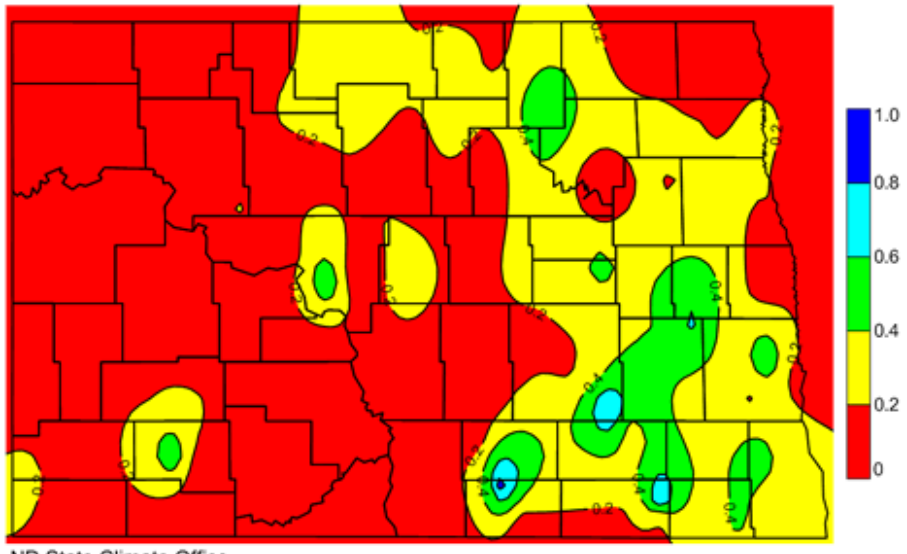
(Data from NWS Cooperative Network and North Dakota Agricultural Weather Network (NDAWN))



ND State Climate Office

North Dakota September 2012 Precipitation (inches)

(Data from NWS Cooperative Network and North Dakota Agricultural Weather Network (NDAWN))



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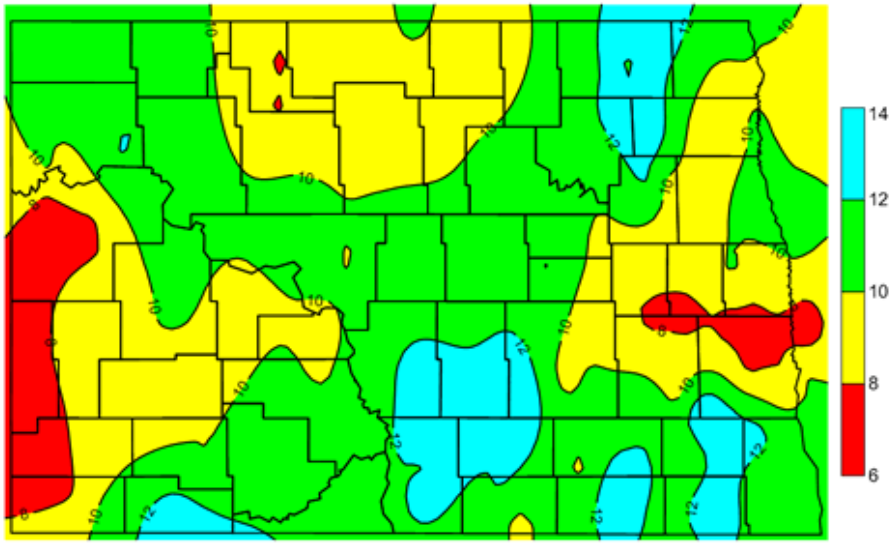
8

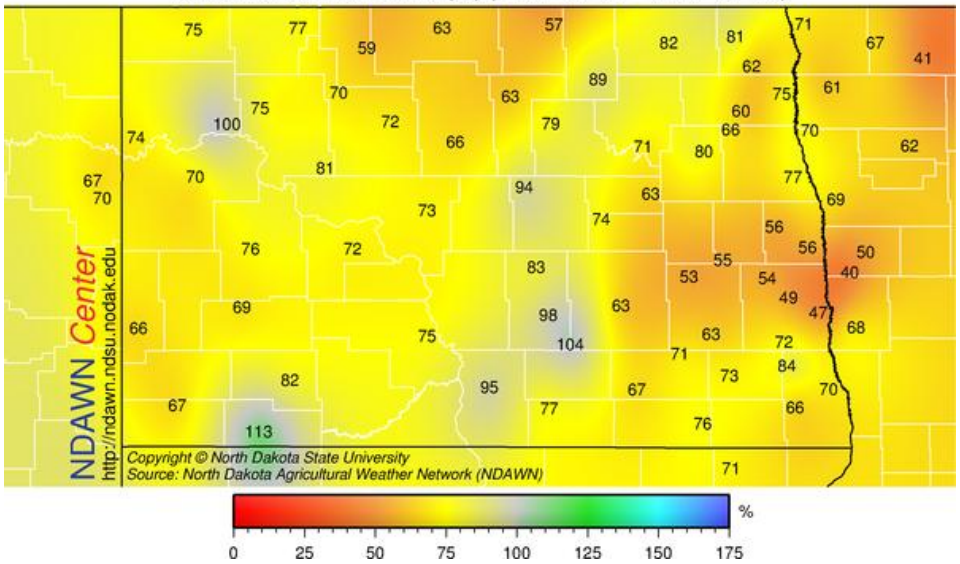
North Dakota April - September 2012 Precipitation (inches)

(Data from NWS Cooperative Network and North Dakota Agricultural Weather Network (NDAWN))

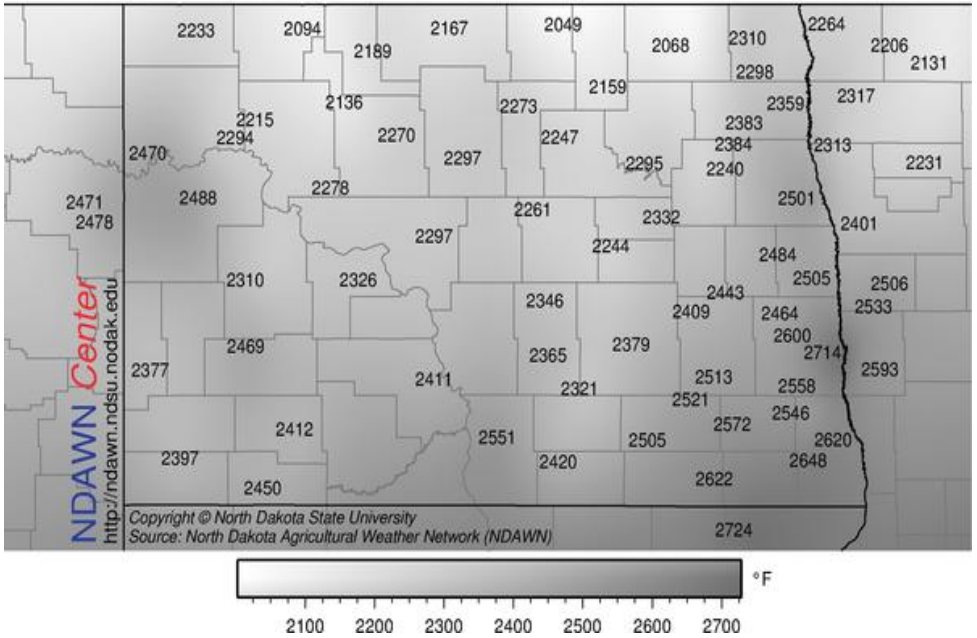


ND State Climate Office

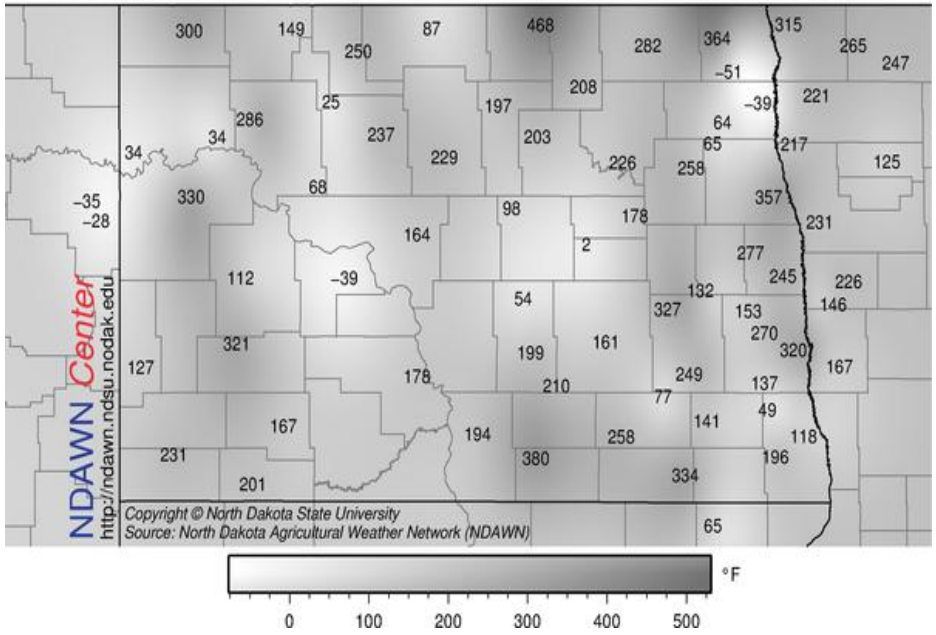
Percent of Normal Rainfall (%) (2012-04-01 – 2012-09-30)



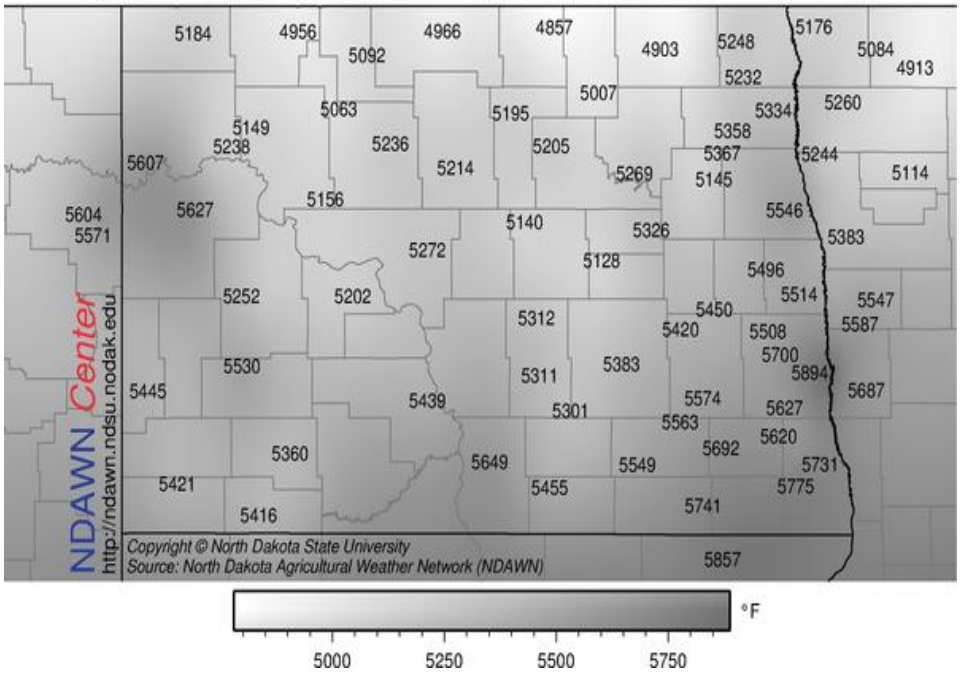
Corn Accumulated Daily Growing Degree Days (°F) (2012–05–01 – 2012–09–30)



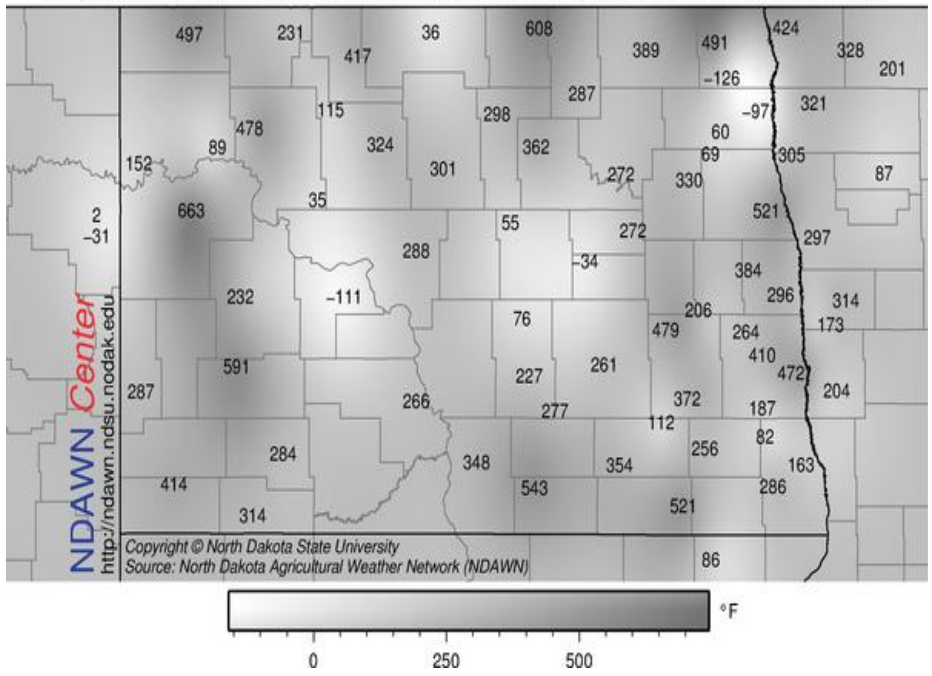
Departure from Normal Corn Accumulated GDD (°F) (2012–05–01 – 2012–09–30)



Accumulated Wheat Growing Degree Days (°F) (2012–04–01 – 2012–09–30)



Departure from Normal Wheat Accumulated GDD (°F) (2012–04–01 – 2012–09–30)



Average Data by Crop and Year Across Sites

HRSW	Yield (bu/a)						Test Weight (lbs/bu)						Protein (%)						Height (in)					Days to Head				
No. Sites	**6**	**5**	**4**	**5**	**4**	**13**	**6**	**5**	**4**	**5**	**4**	**13**	**6**	**5**	**4**	**5**	**4**	**13**	**5**	**4**	**5**	**4**	**13**	**5**	**4**	**3**	**4**	**11**
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**09**	**10**	**11**	**12**	**3yr**	**09**	**10**	**11**	**12**	**3yr**
Faller	89	90	86	71	80	79	60.5	58.9	59.6	59.7	58.5	59.3	14.1	13.2	13.4	15.0	12.4	13.6	38	38	36	38	37	57	66	53	63	61
Glenn	74	78	70	60	70	67	62.7	63.2	61.9	62.4	61.8	62.0	15.3	13.9	14.5	15.8	14.1	14.8	39	40	37	41	39	53	64	50	59	58
RB07	79	80	76	66	75	72	60.3	59.7	59.2	59.5	58.4	59.0	14.6	13.7	13.8	15.5	13.4	14.2	34	35	33	35	34	53	65	51	59	58
Breaker	80	82	83	66	72	74	61.8	60.2	61.3	61.0	60.3	60.9	14.4	13.5	13.7	15.2	12.9	13.9	37	37	34	36	36	57	67	53	62	61
Barlow	--	81	78	63	72	71	--	60.6	60.4	60.5	59.3	60.1	--	13.7	14.2	15.7	13.8	14.6	38	38	36	39	38	54	65	51	60	59
Brennan	--	77	71	61	71	68	--	60.4	59.2	60.0	59.3	59.5	--	13.8	14.1	15.4	13.7	14.4	32	33	30	31	31	54	65	52	60	59
Cromwell	--	80	76	63	70	70	--	61.0	60.7	60.2	59.5	60.1	--	13.5	14.0	15.3	13.4	14.2	36	37	34	35	35	57	68	54	63	62
Jenna	--	77	79	65	73	72	--	58.8	58.7	58.8	57.5	58.3	--	13.7	14.1	15.5	13.4	14.3	34	35	32	34	34	57	69	55	64	63
Prosper	--	89	88	74	79	80	--	59.6	59.7	59.9	58.6	59.4	--	13.3	13.5	14.9	12.8	13.7	37	38	36	37	37	57	68	53	63	61
Velva	--	86	77	64	74	71	--	58.5	59.0	58.2	58.2	58.5	--	13.4	13.9	15.5	13.3	14.2	38	37	34	36	36	56	68	54	63	62
Vantage	--	--	74	63	62	66	--	--	62.3	61.4	60.4	61.4	--	--	15.0	16.5	14.8	15.4	--	35	34	35	35	--	71	56	64	64
Albany	82	85	85	--	72	--	59.9	59.6	59.1	--	57.4	--	13.4	12.4	12.6	--	12.2	--	35	35	--	34	--	59	69	--	65	--
Samson	82	82	--	66	71	--	59.5	58.6	--	59.1	58.7	--	14.1	13.3	--	15.2	13.6	--	33	--	31	31	--	56	--	54	60	--
Rollag	--	--	--	61	68	--	--	--	--	60.4	59.2	--	--	--	--	16.0	14.1	--	--	--	32	33	--	--	--	52	60	--
SY Soren	--	--	--	62	73	--	--	--	--	59.9	58.7	--	--	--	--	15.7	13.5	--	--	--	31	32	--	--	--	52	61	--
WB-Digger	--	--	--	68	77	--	--	--	--	58.6	58.9	--	--	--	--	15.0	12.9	--	--	--	34	36	--	--	--	52	61	--
WB-Mayville	--	--	--	63	71	--	--	--	--	59.8	58.7	--	--	--	--	15.7	13.9	--	--	--	30	31	--	--	--	52	61	--
Advance	--	--	--	--	74	--	--	--	--	--	59.3	--	--	--	--	--	13.3	--	--	--	--	41	--	--	--	--	57	--
Breakaway	--	--	--	--	74	--	--	--	--	--	60.0	--	--	--	--	--	13.9	--	--	--	--	34	--	--	--	--	60	--
Edge	--	--	--	--	70	--	--	--	--	--	57.7	--	--	--	--	--	13.5	--	--	--	--	36	--	--	--	--	61	--
Elgin	--	--	--	--	75	--	--	--	--	--	58.1	--	--	--	--	--	13.1	--	--	--	--	40	--	--	--	--	61	--
Forefront	--	--	--	--	74	--	--	--	--	--	59.3	--	--	--	--	--	12.6	--	--	--	--	36	--	--	--	--	59	--
Norden	--	--	--	--	69	--	--	--	--	--	59.9	--	--	--	--	--	13.2	--	--	--	--	34	--	--	--	--	61	--
Powerplay	--	--	--	--	72	--	--	--	--	--	58.8	--	--	--	--	--	12.7	--	--	--	--	34	--	--	--	--	61	--
Howard	80	84	78	64	--	--	61.1	60.2	59.9	60.1	--	--	14.4	13.4	14.1	15.5	--	--	38	38	35	--	--	55	66	54	--	--
Kelby	73	76	72	58	--	--	60.5	60.7	59.3	59.5	--	--	14.9	14.0	14.4	15.8	--	--	32	34	30	--	--	53	65	51	--	--
Brick	--	82	74	60	--	--	--	60.8	60.3	61.1	--	--	--	13.3	14.2	15.2	--	--	39	39	37	--	--	52	63	48	--	--
Sabin	--	77	75	59	--	--	--	59.4	59.1	58.2	--	--	--	13.9	14.2	16.1	--	--	38	37	34	--	--	55	66	53	--	--
Select	--	--	66	64	--	--	--	--	59.7	60.7	--	--	--	--	14.0	15.6	--	--	--	38	36	--	--	--	63	50	--	--
Kuntz	80	78	73	--	--	--	60.0	58.8	58.4	--	--	--	13.8	13.4	13.8	--	--	--	33	33	--	--	--	56	66	--	--	--
Steele-ND	76	77	76	--	--	--	61.0	60.4	59.8	--	--	--	14.7	13.7	14.3	--	--	--	38	39	--	--	--	55	65	--	--	--
Hat Trick	80	76	71	--	--	--	61.2	60.5	59.2	--	--	--	14.5	13.3	13.1	--	--	--	37	37	--	--	--	58	67	--	--	--
Tom	80	81	77	--	--	--	60.7	60.1	59.6	--	--	--	14.4	13.5	13.8	--	--	--	37	38	--	--	--	55	65	--	--	--
Ada	77	80	--	--	--	--	61.4	60.9	--	--	--	--	14.3	13.5	--	--	--	--	35	--	--	--	--	57	--	--	--	--

Average Data by Crop and Year Across Sites

Durum	Yield (bu/a)						Test Weight (lbs/bu)						Height (in)						Days to Head					
No. Sites	**3**	**3**	**3**	**3**	**3**	**9**	**3**	**3**	**3**	**3**	**3**	**9**	**3**	**3**	**3**	**3**	**3**	**9**	**2**	**3**	**3**	**3**	**3**	**9**
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Alkabo	62	76	79	62	69	70	59.2	60.5	58.4	59.2	58.5	58.7	34	40	42	38	38	39	66	60	69	55	64	63
Grenora	67	84	86	61	67	71	58.0	59.8	57.9	57.8	57.3	57.7	34	39	41	37	37	38	65	60	69	56	63	63
Lebsock	65	80	76	63	68	69	60.0	61.3	59.5	59.7	58.8	59.3	35	40	41	39	38	39	65	59	71	54	62	62
DG Max	--	75	74	59	65	66	--	60.1	58.2	58.7	58.3	58.4	--	41	43	40	39	41	--	58	69	55	63	62
Tioga	--	87	80	60	71	70	--	60.1	57.6	57.7	58.2	57.8	--	43	45	40	41	42	--	60	70	57	63	63
Westhope	--	71	76	61	66	68	--	59.1	58.6	58.9	58.4	58.6	--	40	41	39	39	40	--	58	70	57	64	64
Divide	63	--	80	59	67	69	58.7	--	57.2	58.0	58.6	57.9	35	--	43	40	40	41	67	--	70	58	64	64
Carpio	--	--	80	62	69	70	--	--	59.4	59.6	58.7	59.2	--	--	43	39	40	41	--	--	71	57	65	64
Wales	63	75	76	--	68	--	57.9	59.5	57.8	--	58.4	--	35	39	41	--	39	--	64	58	69	--	63	--
WB-Belfield	--	--	--	43	--	--	--	--	--	55.8	--	--	--	--	--	30	--	--	--	--	--	51	--	--
DG Star	61	71	72	--	--	--	57.8	58.8	57.0	--	--	--	35	40	41	--	--	--	62	58	68	--	--	--
Grande D'oro	65	--	77	--	--	--	60.0	--	59.7	--	--	--	34	--	42	--	--	--	65	--	71	--	--	--

Barley	Yield(bu/a)						Test Weight (lbs/bu)						Protein (%)						Plump (%)						Days to Head				
No. Sites	**3**	**3**	**3**	**3**	**3**	**9**	**3**	**3**	**3**	**3**	**3**	**9**	**3**	**3**	**3**	**3**	**3**	**9**	**3**	**3**	**3**	**3**	**3**	**9**	**3**	**3**	**1**	**3**	**7**
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**09**	**10**	**11**	**12**	**3yr**
Lacey	120	124	116	94	99	103	48.8	49.2	50.2	49.8	47.9	49.3	13.4	11.8	12.0	13.4	12.5	12.6	88	96	96	94	83	91	56	64	51	59	58
Stellar-ND	116	126	116	99	92	102	47.5	48.0	48.6	48.8	46.7	48.0	13.1	11.8	11.9	12.8	12.2	12.3	92	97	97	94	85	92	55	65	51	60	59
Tradition	113	124	118	97	77	97	49.0	48.9	49.7	49.8	46.1	48.5	13.2	11.9	12.0	13.0	12.9	12.6	94	96	96	92	80	89	57	64	53	62	60
Celebration	--	131	111	91	80	94	--	48.9	49.1	48.7	45.9	47.9	--	12.3	12.5	14.3	13.5	13.4	--	97	94	90	83	89	56	65	54	62	60
Quest	--	--	118	98	95	103	--	--	48.3	48.6	46.8	47.9	--	--	12.0	13.1	12.2	12.4	--	--	89	84	75	83	--	65	52	60	59
Innovation	--	--	--	--	94	--	--	--	--	--	47.0	--	--	--	--	--	12.7	--	--	--	--	--	81	--	--	--	--	59	--
Pinnacle*	120	133	119	99	--	--	49.9	49.8	49.9	50.8	--	--	12.0	11.0	10.8	12.0	--	--	96	96	97	95	--	--	57	67	54	--	--
Rasmusson	123	131	126	104	--	--	48.6	48.9	49.4	49.4	--	--	13.0	11.6	11.6	12.7	--	--	88	95	94	91	--	--	55	65	50	--	--

*2-row barley

HRSW Summary, Langdon 2008-2012

	Yield(bu/a)						Test Weight(lbs/bu)						Protein(%)					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Alsen	80	79	78	54	68	67	61.0	58.6	60.7	60.4	60.1	60.4	14.8	14.8	14.2	15.9	12.4	14.2
Barlow	81	86	85	66	72	74	61.5	59.4	60.6	61.7	60.3	60.9	14.6	14.4	14.0	15.6	12.7	14.1
Brick	83	90	84	67	76	76	62.1	59.8	61.3	61.7	60.6	61.2	13.7	13.9	14.0	14.3	11.2	13.2
Briggs	87	83	83	67	71	74	61.0	58.2	60.7	60.7	59.3	60.2	14.5	14.9	14.1	15.4	12.5	14.0
Cromwell	84	90	80	66	73	73	61.8	60.1	61.2	61.9	60.7	61.2	14.1	14.3	14.1	14.9	12.1	13.7
Faller	94	103	92	79	85	85	60.5	58.5	60.3	60.8	59.4	60.2	13.5	14.0	13.0	14.4	11.3	12.9
Freyr	79	73	83	60	77	73	60.4	57.4	60.0	59.5	59.5	59.7	14.2	14.5	13.8	15.5	12.0	13.8
Glenn	80	85	77	58	68	68	62.8	62.5	62.5	62.9	62.6	62.7	15.3	14.8	14.2	15.6	13.1	14.3
Howard	85	90	88	66	74	76	61.5	59.4	60.9	61.8	59.2	60.6	14.4	14.3	13.8	15.4	12.5	13.9
Kelby	74	77	79	58	69	69	60.4	59.2	60.2	59.1	59.8	59.7	14.3	14.8	14.1	15.3	12.6	14.0
Prosper	92	95	94	77	84	85	60.8	59.3	60.3	60.8	59.7	60.3	13.8	13.9	13.1	14.8	11.2	13.0
RB07	83	75	79	70	74	74	60.0	56.4	59.8	60.3	58.8	59.6	14.5	14.8	13.5	15.2	12.3	13.7
Steele-ND	79	85	87	66	73	75	61.6	59.2	61.0	61.4	59.4	60.6	14.4	14.2	14.2	15.3	12.4	13.9
Velva	85	84	74	69	72	72	59.4	57.1	57.4	60.1	59.2	58.9	14.4	14.4	13.6	14.7	12.1	13.5
Albany	88	89	91	72	79	80	60.1	58.7	59.9	61.1	58.8	60.0	12.6	13.1	12.2	14.2	10.9	12.4
Breaker	83	86	88	67	75	77	61.4	59.5	60.3	62.2	61.3	61.3	13.9	14.5	13.7	14.9	12.1	13.6
Brennan	82	78	75	61	70	69	61.0	58.6	60.0	60.0	59.6	59.9	14.4	14.6	13.9	15.1	12.5	13.8
Jenna	85	83	82	72	74	76	59.4	57.7	59.9	59.4	58.4	59.2	14.0	14.4	13.9	14.8	12.3	13.7
Samson	86	79	82	62	72	72	59.4	56.8	58.3	59.2	60.1	59.2	13.7	14.3	13.0	15.1	12.6	13.6
Select	85	70	78	71	78	76	61.7	57.4	60.9	61.9	60.4	61.1	13.9	14.5	13.7	15.1	11.7	13.5
Vantage	81	77	78	58	67	68	62.8	61.5	62.3	61.8	61.4	61.8	15.5	15.9	14.7	16.0	13.0	14.6
Elgin	--	89	89	71	76	79	--	58.2	60.1	60.9	59.2	60.1	--	14.7	14.0	15.4	12.0	13.8
Norden	--	78	77	67	73	72	--	59.6	61.2	62.6	61.3	61.7	--	14.1	13.8	14.9	12.1	13.6
Alpine	--	--	79	60	79	73	--	--	59.6	58.7	59.0	59.1	--	--	13.0	15.2	11.6	13.3
Rollag	--	--	76	63	70	70	--	--	61.4	61.4	60.0	60.9	--	--	14.0	16.1	12.6	14.2
WB Digger	--	--	81	66	80	75	--	--	59.9	59.5	59.8	59.7	--	--	13.3	14.4	11.8	13.2
Powerplay	--	--	--	67	75	--	--	--	--	61.1	59.6	--	--	--	--	15.0	11.5	--
SY Soren	--	--	--	64	71	--	--	--	--	60.6	59.9	--	--	--	--	15.6	12.4	--
Forefront	--	--	--	58	78	--	--	--	--	61.3	60.6	--	--	--	--	15.4	11.4	--
WB Mayville	--	--	--	58	70	--	--	--	--	59.9	59.9	--	--	--	--	15.6	12.9	--
Advance	--	--	--	70	81	--	--	--	--	61.4	60.1	--	--	--	--	14.3	12.1	--
Breakaway	--	--	--	--	76	--	--	--	--	--	61.4	--	--	--	--	--	12.6	--
Edge	--	--	--	--	72	--	--	--	--	--	57.8	--	--	--	--	--	11.9	--
Brogan	--	71	73	66	--	--	--	57.3	59.5	61.0	--	--	--	15.4	13.6	14.6	--	--
Kuntz	86	78	75	64	--	--	59.9	58.1	58.7	59.7	--	--	13.6	13.9	13.7	14.9	--	--
Sabin	85	83	81	66	--	--	60.4	58.3	59.9	59.9	--	--	14.5	14.6	14.0	15.4	--	--
Dapps	77	93	79	--	--	--	59.9	59.3	60.1	--	--	--	15.8	15.0	14.2	--	--	--
Knudson	85	89	83	--	--	--	59.8	58.4	59.2	--	--	--	13.7	13.3	13.2	--	--	--
Mott	85	88	76	--	--	--	61.1	59.7	60.3	--	--	--	14.2	13.8	13.0	--	--	--
Reeder	85	86	84	--	--	--	60.2	58.2	60.1	--	--	--	15.4	14.9	14.0	--	--	--
Tom	86	89	84	--	--	--	60.7	59.0	60.4	--	--	--	13.7	14.4	13.7	--	--	--
Traverse	89	94	95	--	--	--	59.0	56.3	58.0	--	--	--	13.2	13.2	13.3	--	--	--
Blade	83	83	86	--	--	--	61.7	60.2	61.1	--	--	--	14.3	14.4	13.8	--	--	--
Hat Trick	89	79	68	--	--	--	61.5	58.3	58.8	--	--	--	14.8	14.8	12.4	--	--	--
Ada	83	87	--	--	--	--	61.8	60.1	--	--	--	--	13.1	14.4	--	--	--	--
Bigg Red	72	91	--	--	--	--	62.9	61.8	--	--	--	--	13.6	13.9	--	--	--	--
Granger	78	79	--	--	--	--	60.6	58.0	--	--	--	--	13.8	14.6	--	--	--	--
Granite	78	83	--	--	--	--	62.9	61.6	--	--	--	--	15.0	15.4	--	--	--	--
Oklee	77	86	--	--	--	--	61.1	60.0	--	--	--	--	14.1	14.6	--	--	--	--
Parshall	80	92	--	--	--	--	61.5	61.0	--	--	--	--	14.5	14.4	--	--	--	--
Trooper	85	77	--	--	--	--	62.2	57.7	--	--	--	--	13.0	13.8	--	--	--	--
LSD 5%	5.8	7.1	5.0	4.6	4.0		0.8	1.0	0.6	0.5	0.5		0.7	0.5	0.4	0.6	0.6	

HRSW Summary, Langdon 2008-2012

	Days to Head						Height(in)						Lodging(0-9)			Shatter*
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**10**	**2yr**	**2008**
Alsen	67	59	68	56	61	62	39	39	37	36	35	36	2.0	0.4	1.2	40
Barlow	66	56	67	54	61	61	39	41	40	38	37	38	3.0	1.5	2.3	8
Brick	63	52	63	50	60	58	40	42	40	39	39	39	0.8	1.8	1.3	8
Briggs	64	55	66	53	60	60	39	40	39	36	37	37	2.5	2.3	2.4	0
Cromwell	70	61	70	58	64	64	37	40	38	34	34	35	1.6	3.1	2.4	2
Faller	69	60	69	57	63	63	38	40	39	37	37	38	1.9	0.8	1.4	0
Freyr	67	58	69	56	63	63	38	40	38	35	35	36	0.6	1.8	1.2	58
Glenn	64	56	65	53	60	59	41	43	40	38	40	40	1.2	0.0	0.6	2
Howard	67	59	68	57	63	63	40	41	40	39	37	39	3.4	2.2	2.8	0
Kelby	67	55	67	56	60	61	34	35	35	31	30	32	0.1	2.9	1.5	6
Prosper	69	60	70	57	64	64	39	40	39	37	37	37	2.2	1.5	1.9	4
RB07	64	55	67	54	60	60	35	36	35	36	34	35	0.3	2.1	1.2	2
Steele-ND	67	58	68	56	62	62	41	41	40	38	36	38	1.7	2.8	2.3	8
Velva	68	59	70	57	63	63	40	41	39	38	36	38	3.0	0.0	1.5	8
Albany	70	62	70	59	65	65	36	38	36	34	32	34	0.8	1.8	1.3	76
Breaker	70	60	69	57	63	63	38	39	39	35	33	36	0.1	1.0	0.6	6
Brennan	67	57	67	57	61	62	34	35	33	32	29	31	0.0	3.7	1.9	0
Jenna	71	62	71	59	65	65	38	37	36	34	32	34	0.6	2.2	1.4	8
Samson	69	58	68	58	61	62	34	34	35	31	30	32	0.2	0.2	0.2	0
Select	63	54	64	52	57	58	39	42	38	39	36	38	1.8	1.8	1.8	0
Vantage	73	63	74	60	67	67	37	39	35	36	35	35	0.0	0.0	0.0	10
Elgin	--	59	68	56	61	62	--	43	42	39	38	40	--	1.8	--	--
Norden	--	60	68	56	62	62	--	36	36	33	33	34	--	0.3	--	--
Alpine	--	--	68	57	62	62	--	--	37	36	35	36	--	2.8	--	--
Rollag	--	--	67	55	61	61	--	--	34	34	31	33	--	0.8	--	--
WB Digger	--	--	67	55	62	61	--	--	38	36	35	36	--	1.6	--	--
Powerplay	--	--	--	56	62	--	--	--	--	34	34	--	--	--	--	--
SY Soren	--	--	--	55	62	--	--	--	--	32	31	--	--	--	--	--
Forefront	--	--	--	51	58	--	--	--	--	42	35	--	--	--	--	--
WB Mayville	--	--	--	56	62	--	--	--	--	32	29	--	--	--	--	--
Advance	--	--	--	53	58	--	--	--	--	35	40	--	--	--	--	--
Breakaway	--	--	--	--	60	--	--	--	--	--	32	--	--	--	--	--
Edge	--	--	--	--	62	--	--	--	--	--	34	--	--	--	--	--
Brogan	--	60	69	55	--	--	--	38	35	35	--	--	--	0.6	0.6	--
Kuntz	69	59	69	57	--	--	34	35	34	32	--	--	0.1	1.1	0.6	10
Sabin	68	60	68	57	--	--	37	40	37	39	--	--	2.2	1.8	2.0	6
Dapps	67	58	66	--	--	--	44	45	43	--	--	--	1.9	1.1	1.5	14
Knudson	68	59	69	--	--	--	36	38	37	--	--	--	0.6	3.6	2.1	14
Mott	69	61	70	--	--	--	42	43	41	--	--	--	0.7	0.3	0.5	16
Reeder	66	57	67	--	--	--	40	41	39	--	--	--	1.2	0.8	1.0	2
Tom	66	58	67	--	--	--	38	40	38	--	--	--	2.7	2.9	2.8	0
Traverse	65	57	66	--	--	--	40	44	40	--	--	--	1.5	0.1	0.8	102
Blade	69	59	68	--	--	--	37	40	38	--	--	--	0.5	0.8	0.7	0
Hat Trick	66	59	68	--	--	--	38	39	37	--	--	--	0.1	1.6	0.9	20
Ada	67	61	--	--	--	--	35	38	--	--	--	--	0.3	--	--	0
Bigg Red	68	61	--	--	--	--	41	47	--	--	--	--	0.7	--	--	202
Granger	66	59	--	--	--	--	42	45	--	--	--	--	2.1	--	--	96
Granite	71	63	--	--	--	--	35	38	--	--	--	--	0.2	--	--	26
Oklee	66	58	--	--	--	--	39	42	--	--	--	--	0.8	--	--	14
Parshall	67	59	--	--	--	--	44	47	--	--	--	--	0.6	--	--	2
Trooper	66	56	--	--	--	--	33	34	--	--	--	--	0.2	--	--	0
LSD 5%	1.2	1.0	1.0	1.3	1.5		2.0	1.6	1.0	1.9	1.6		2.1	1.3		55

***2008**-Seeds/ft^2

Pembina County HRSW Summary 2006-2011*

	Yield (bu/a)						Test Weight (lbs/bu)						Protein (%)					
Variety	**06**	**07**	**08**	**09**	**11**	**3yr**	**06**	**07**	**08**	**09**	**11**	**3yr**	**06**	**07**	**08**	**09**	**11**	**3yr**
Faller	90	78	98	75	71	81	62.1	60.7	62.1	59.8	60.3	60.7	12.2	13.2	14.4	12.6	14.2	13.7
Glenn	66	66	80	68	68	72	65.2	63.9	63.1	63.2	63.3	63.2	13.3	14.2	16.1	13.3	15.7	15.0
Howard	76	64	85	69	68	74	62.5	61.7	61.7	60.5	59.5	60.6	13.0	13.6	14.6	12.8	15.0	14.1
Kelby	73	59	77	68	62	69	63.1	59.8	61.0	60.1	61.3	60.8	13.1	14.1	15.2	14.0	15.6	14.9
RB07	--	69	82	72	70	74	--	60.4	61.0	60.0	61.2	60.7	--	13.6	15.3	13.5	15.0	14.6
Breaker	--	--	88	75	66	76	--	--	61.9	61.0	61.0	61.3	--	--	14.8	13.4	14.6	14.3
Samson	--	--	86	79	64	76	--	--	59.0	58.7	59.3	59.0	--	--	14.5	12.8	15.2	14.2
Barlow	--	--	--	67	68	--	--	--	--	61.0	62.2	--	--	--	--	13.3	15.0	--
Brennan	--	--	--	69	65	--	--	--	--	60.0	61.4	--	--	--	--	13.6	15.3	--
Brick	--	--	--	69	64	--	--	--	--	60.4	62.7	--	--	--	--	12.6	15.2	--
Cromwell	--	--	--	71	67	--	--	--	--	61.5	59.7	--	--	--	--	13.3	15.0	--
Jenna	--	--	--	70	65	--	--	--	--	58.5	59.3	--	--	--	--	13.7	14.9	--
Prosper	--	--	--	77	74	--	--	--	--	59.6	59.9	--	--	--	--	12.9	14.4	--
Sabin	--	--	--	71	61	--	--	--	--	59.2	57.7	--	--	--	--	13.4	15.3	--
Velva	--	--	--	73	65	--	--	--	--	59.2	57.9	--	--	--	--	13.1	14.6	--
Rollag	--	--	--	--	54	--	--	--	--	--	58.6	--	--	--	--	--	15.8	--
Select	--	--	--	--	63	--	--	--	--	--	61.1	--	--	--	--	--	15.2	--
SY Soren	--	--	--	--	65	--	--	--	--	--	61.0	--	--	--	--	--	15.3	--
Vantage	--	--	--	--	64	--	--	--	--	--	62.0	--	--	--	--	--	15.9	--
WB-Digger	--	--	--	--	72	--	--	--	--	--	58.2	--	--	--	--	--	14.3	--
WB-Mayville	--	--	--	--	66	--	--	--	--	--	60.6	--	--	--	--	--	15.3	--
Ada	75	65	82	67	--	--	63.5	62.2	61.9	61.3	--	--	13.1	13.5	14.7	13.0	--	--
Freyr	75	62	81	63	--	--	61.6	60.7	59.9	59.1	--	--	12.9	13.9	14.9	13.3	--	--
Traverse	86	70	87	70	--	--	61.3	58.7	59.1	57.2	--	--	11.5	12.9	14.5	12.3	--	--
Kuntz	--	69	84	63	--	--	--	60.4	60.5	59.2	--	--	--	13.4	14.0	13.5	--	--
Steele-ND	--	66	82	66	--	--	--	61.8	61.2	60.7	--	--	--	14.0	15.0	13.1	--	--
Albany	--	--	85	77	--	--	--	--	60.5	59.7	--	--	--	--	13.7	11.7	--	--
Hat Trick	--	--	87	74	--	--	--	--	61.9	61.2	--	--	--	--	14.7	12.8	--	--
Tom	--	--	83	69	--	--	--	--	60.8	60.7	--	--	--	--	14.7	12.9	--	--
Alsen	71	59	77	--	--	--	62.4	61.6	61.3	--	--	--	13.9	14.0	14.9	--	--	--
Briggs	71	68	79	--	--	--	62.8	61.2	61.0	--	--	--	12.6	14.4	15.5	--	--	--
Knudson	72	71	81	--	--	--	61.7	60.8	59.9	--	--	--	12.8	13.6	14.1	--	--	--
LSD 5%	7.6	4.7	3.6	6.5	5.3		0.8	0.4	0.7	0.6	1.1		1.1	0.4	0.3	0.6	0.3	

*Pembina trial was hailed out in 2012.

Walsh County HRSW Summary 2008-2012

	Yield(bu/a)						Test Weight(lbs/bu)						Protein(%)						Lodging (0-9)					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Faller	103	93	81	65	82	76	60.5	58.5	58.4	58.3	61.3	59.3	14.7	14.0	14.1	15.2	11.9	13.7	1.5	6.0	3.9	5.5	0.5	3.3
Glenn	82	82	65	60	74	66	62.9	62.8	61.2	62.5	64.0	62.6	15.0	14.3	14.7	15.6	14.0	14.8	1.5	2.3	4.1	3.3	0.3	2.6
RB07	95	90	79	65	78	74	59.8	58.7	58.4	57.6	60.8	58.9	14.4	14.2	13.9	15.2	13.1	14.1	0.0	3.8	0.7	6.5	0.0	2.4
Albany	99	83	76	72	75	74	60.6	58.2	58.6	58.8	60.1	59.2	13.5	13.4	12.9	13.5	11.7	12.7	0.8	6.5	1.5	4.3	0.0	1.9
Breaker	87	83	82	63	71	72	62.3	60.4	61.1	61.1	62.2	61.5	14.5	13.8	13.9	15.3	12.6	13.9	0.0	4.3	0.3	3.5	0.0	1.3
Samson	98	88	77	70	72	73	60.0	57.5	57.7	59.1	60.7	59.2	14.1	13.6	13.7	14.9	13.7	14.1	0.0	0.0	0.2	2.5	0.0	0.9
Barlow	--	80	74	57	76	69	--	60.0	59.6	59.7	60.9	60.1	--	14.2	14.6	15.4	14.0	14.7	--	2.5	1.8	4.5	1.5	2.6
Brennan	--	82	66	63	74	68	--	59.6	58.5	59.8	61.1	59.8	--	13.9	14.6	15.0	13.6	14.4	--	0.5	1.3	3.3	0.0	1.5
Cromwell	--	86	72	58	71	67	--	60.6	59.5	59.7	62.5	60.6	--	13.7	14.4	15.7	13.2	14.4	--	5.8	2.4	7.0	0.0	3.1
Jenna	--	79	73	63	78	71	--	57.4	57.9	57.8	60.1	58.6	--	14.4	14.4	15.6	13.8	14.6	--	2.0	0.2	6.8	0.0	2.3
Prosper	--	94	80	71	87	80	--	59.5	58.9	59.4	61.6	60.0	--	13.8	14.2	14.7	12.4	13.8	--	5.8	3.7	5.0	0.3	3.0
Velva	--	82	74	57	78	70	--	57.7	58.5	57.6	60.7	58.9	--	14.3	14.1	15.9	13.5	14.5	--	1.8	1.2	6.3	0.3	2.6
Vantage	--	--	75	66	69	70	--	--	61.6	61.7	63.3	62.2	--	--	15.3	16.5	14.6	15.5	--	--	0.2	0.3	0.0	0.2
WB-Digger	--	--	79	62	80	74	--	--	58.9	58.0	60.8	59.2	--	--	13.5	15.4	12.9	13.9	--	--	0.5	5.0	0.0	1.8
Powerplay	--	--	--	62	76	--	--	--	--	59.5	61.1	--	--	--	--	15.0	12.6	--	--	--	--	5.8	0.0	--
Rollag	--	--	--	63	74	--	--	--	--	60.5	62.0	--	--	--	--	15.6	13.9	--	--	--	--	3.8	0.0	--
SY Soren	--	--	--	62	79	--	--	--	--	59.2	61.2	--	--	--	--	15.3	13.9	--	--	--	--	4.5	0.0	--
WB-Mayville	--	--	--	63	74	--	--	--	--	59.9	60.3	--	--	--	--	15.3	14.2	--	--	--	--	1.0	0.0	--
Advance	--	--	--	--	79	--	--	--	--	--	61.3	--	--	--	--	--	13.5	--	--	--	--	--	2.8	--
Breakaway	--	--	--	--	80	--	--	--	--	--	61.7	--	--	--	--	--	13.7	--	--	--	--	--	1.0	--
Edge	--	--	--	--	72	--	--	--	--	--	59.0	--	--	--	--	--	13.6	--	--	--	--	--	0.0	--
Elgin	--	--	--	--	77	--	--	--	--	--	60.3	--	--	--	--	--	13.2	--	--	--	--	--	1.5	--
Forefront	--	--	--	--	80	--	--	--	--	--	61.8	--	--	--	--	--	12.5	--	--	--	--	--	1.3	--
Norden	--	--	--	--	72	--	--	--	--	--	62.3	--	--	--	--	--	13.4	--	--	--	--	--	0.0	--
Howard	91	86	69	55	--	--	61.1	59.9	58.8	59.1	--	--	14.6	13.8	14.7	15.6	--	--	2.0	4.8	4.6	4.0	--	4.3
Kelby	86	83	71	58	--	--	60.7	60.0	58.9	58.9	--	--	14.8	14.3	15.1	15.6	--	--	0.0	1.0	1.8	6.0	--	3.9
Sabin	--	76	66	52	--	--	--	58.4	58.2	56.3	--	--	--	14.7	14.6	17.0	--	--	--	4.0	6.9	7.8	--	7.4
Brick	--	89	64	59	--	--	--	61.1	59.0	60.1	--	--	--	14.2	15.1	15.4	--	--	--	3.8	6.9	6.8	--	6.9
Select	--	--	54	62	--	--	--	--	58.1	60.1	--	--	--	--	15.0	16.1	--	--	--	--	4.6	5.5	--	--
Blade	--	--	75	--	--	--	--	--	61.4	--	--	--	--	--	14.2	--	--	--	--	--	0.5	--	--	--
Brogan	--	--	73	--	--	--	--	--	59.5	--	--	--	--	--	13.7	--	--	--	--	--	1.7	--	--	--
Kuntz	90	85	71	--	--	--	59.9	58.2	57.8	--	--	--	14.4	14.1	14.3	--	--	--	0.0	0.5	0.6	--	--	--
Steele-ND	87	78	61	--	--	--	61.3	59.7	58.6	--	--	--	14.7	14.5	14.7	--	--	--	0.5	3.5	3.1	--	--	--
Hat Trick	98	74	68	--	--	--	61.9	58.7	58.9	--	--	--	14.0	13.5	13.7	--	--	--	0.0	5.0	0.7	--	--	--
Tom	93	81	72	--	--	--	60.1	58.8	58.9	--	--	--	14.8	14.2	13.6	--	--	--	3.8	5.8	2.7	--	--	--
Ada	88	82	--	--	--	--	61.6	60.2	--	--	--	--	14.2	13.8	--	--	--	--	0.8	5.0	--	--	--	--
LSD 5%	5.9	6.1	6.1	5.8	4.0		0.5	0.9	0.6	1.0	0.6		0.4	0.5	0.6	0.7	0.7		1.8	2.6	1.7	2.7	0.7	

Nelson County HRSW Summary 2008-2012

	Yield(bu/a)						Test Weight(lbs/bu)						Protein(%)						Lodging(0-9)
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**10**
Faller	91	92	83	83	81	82	60.7	59.3	59.5	60.6	57.3	59.1	13.2	12.9	13.1	14.4	13.5	13.8	0.0
Glenn	72	78	66	61	77	68	62.4	63.5	61.2	61.5	60.9	61.2	14.4	14.0	14.5	15.2	14.9	14.9	0.3
RB07	82	78	70	68	78	72	60.2	61.7	58.6	59.6	57.5	58.6	13.4	13.3	14.0	15.5	14.1	14.8	0.0
Breaker	81	81	82	74	75	77	61.4	60.0	62.0	60.4	59.2	60.5	13.7	13.3	13.8	14.9	13.8	14.4	0.0
Albany	85	97	89	--	75	--	60.0	60.9	59.3	--	56.1	--	12.8	12.5	12.6	--	12.9	--	0.0
Barlow	--	88	77	68	77	74	--	61.1	60.6	59.8	58.6	59.7	--	13.9	14.4	15.4	14.3	14.9	0.5
Brennan	--	79	69	59	74	67	--	62.4	58.5	59.1	58.6	58.7	--	13.6	13.9	15.0	14.4	14.5	0.0
Cromwell	--	84	76	69	73	73	--	60.9	60.7	60.5	57.8	59.7	--	13.5	13.6	14.8	14.3	14.2	0.0
Jenna	--	86	83	64	76	74	--	59.8	58.0	58.4	56.1	57.5	--	13.4	14.2	15.2	14.0	14.7	0.0
Prosper	--	92	88	84	77	83	--	59.8	59.8	60.5	57.1	59.1	--	13.1	13.2	14.5	13.8	13.9	0.0
Velva	--	--	80	75	79	78	--	58.7	59.9	58.4	57.2	58.5	--	13.2	14.0	15.3	14.0	14.7	0.0
Vantage	--	--	74	71	62	69	--	--	62.5	60.5	59.1	60.7	--	--	14.9	16.5	16.0	15.7	0.0
Rollag	--	--	--	67	69	--	--	--	--	60.9	57.8	--	--	--	--	15.6	15.5	--	--
Samson	82	87	--	65	75	--	59.2	59.9	--	59.0	57.9	--	13.7	13.3	--	14.8	14.3	--	--
SY Soren	--	--	--	62	75	--	--	--	--	59.0	57.3	--	--	--	--	15.0	14.2	--	--
WB-Digger	--	--	--	74	79	--	--	--	--	59.1	57.8	--	--	--	--	14.8	13.8	--	--
WB-Mayville	--	--	--	70	76	--	--	--	--	59.8	58.3	--	--	--	--	15.7	14.5	--	--
Advance	--	--	--	--	74	--	--	--	--	--	58.4	--	--	--	--	--	13.9	--	--
Breakaway	--	--	--	--	75	--	--	--	--	--	59.1	--	--	--	--	--	14.6	--	--
Edge	--	--	--	--	72	--	--	--	--	--	57.2	--	--	--	--	--	14.2	--	--
Elgin	--	--	--	--	82	--	--	--	--	--	57.1	--	--	--	--	--	13.9	--	--
Forefront	--	--	--	--	73	--	--	--	--	--	57.5	--	--	--	--	--	13.8	--	--
Norden	--	--	--	--	72	--	--	--	--	--	58.5	--	--	--	--	--	14.0	--	--
Powerplay	--	--	--	--	76	--	--	--	--	--	58.2	--	--	--	--	--	13.6	--	--
Brick	--	81	75	63	--	--	--	62.7	60.0	60.5	--	--	--	13.4	14.0	14.7	--	--	0.5
Sabin	--	77	78	64	--	--	--	60.9	59.0	58.5	--	--	--	13.8	14.3	15.8	--	--	1.3
Select	--	--	63	68	--	--	--	--	59.2	60.4	--	--	--	--	13.9	14.9	--	--	1.0
Howard	74	87	78	73	--	--	60.4	60.5	60.2	60.2	--	--	13.7	13.5	14.4	15.1	--	--	1.5
Kelby	74	75	66	56	--	--	61.1	62.4	58.4	58.5	--	--	14.2	13.8	14.2	15.4	--	--	0.0
Kuntz	84	85	69	--	--	--	60.3	58.6	57.9	--	--	--	13.4	13.5	14.1	--	--	--	0.0
Steele-ND	75	74	76	--	--	--	60.6	61.5	59.8	--	--	--	14.1	13.6	14.4	--	--	--	1.3
Hat Trick	86	74	72	--	--	--	61.6	62.7	59.9	--	--	--	13.3	12.8	12.9	--	--	--	0.0
Tom	81	84	72	--	--	--	61.1	60.7	59.0	--	--	--	14.0	13.6	14.1	--	--	--	0.8
Ada	77	81	--	--	--	--	61.2	62.0	--	--	--	--	13.8	13.3	--	--	--	--	--
LSD 5%	5.5	7.5	8.2	5.2	6.9		0.7	1.1	0.5	0.7	1.0		0.5	0.5	0.4	0.6	0.7		NS

Towner County HRSW Summary 2008-2012

	Yield(bu/a)						Test Weight(lbs/bu)						Protein(%)						Lodging(0-9)
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**11**
Faller	57	86	86	61	71	73	59.7	59.0	60.1	58.6	55.8	58.2	14.7	12.5	13.5	16.6	13.0	15.1	7.3
Glenn	58	78	73	53	60	62	63.3	63.8	62.5	62.0	59.5	61.3	15.2	13.0	14.4	16.9	14.3	15.2	4.0
RB07	55	84	76	58	71	69	61.2	61.6	59.8	58.7	56.5	58.3	14.9	12.5	13.8	16.7	13.9	14.8	4.5
Breaker	59	84	80	61	66	69	62.0	60.3	61.8	60.5	58.5	60.3	15.0	12.5	13.4	16.3	13.0	14.2	3.0
Cromwell	51	71	75	58	63	65	61.7	61.9	61.4	59.3	56.9	59.2	15.5	12.8	13.9	16.3	13.8	14.7	4.8
Albany	51	80	82	--	60	--	59.4	60.7	58.6	--	54.7	--	14.7	11.5	12.8	--	13.4	--	--
Samson	60	77	--	71	64	--	60.6	60.0	--	58.7	56.0	--	14.5	12.7	--	15.8	13.9	--	0.5
Barlow	--	85	76	54	64	65	--	61.4	60.7	58.9	57.3	59.0	--	12.9	13.9	17.3	14.0	15.1	6.5
Brennan	--	76	73	58	67	66	--	61.6	59.6	59.9	57.8	59.1	--	13.0	13.8	16.7	14.1	14.9	1.5
Jenna	--	77	77	62	64	67	--	60.4	58.9	58.9	55.5	57.8	--	12.7	13.8	16.9	13.5	14.7	1.3
Prosper	--	85	88	65	70	74	--	59.6	59.9	59.1	56.1	58.4	--	12.7	13.4	16.3	13.7	14.5	6.3
Velva	--	93	79	55	66	67	--	59.9	60.3	57.2	55.5	57.7	--	12.2	13.9	17.1	13.7	14.9	3.0
Vantage	--	--	71	56	50	59	--	--	62.6	61.0	57.9	60.5	--	--	15.2	17.6	15.7	16.2	0.8
Rollag	--	--	--	60	60	--	--	--	--	60.8	57.1	--	--	--	--	16.8	14.4	--	2.0
SY Soren	--	--	--	57	66	--	--	--	--	59.8	56.5	--	--	--	--	17.2	13.6	--	0.8
WB-Digger	--	--	--	65	68	--	--	--	--	58.3	57.0	--	--	--	--	16.0	13.1	--	0.8
WB-Mayville	--	--	--	57	64	--	--	--	--	58.9	56.1	--	--	--	--	16.4	13.9	--	0.0
Advance	--	--	--	--	61	--	--	--	--	--	57.5	--	--	--	--	--	13.5	--	--
Breakaway	--	--	--	--	65	--	--	--	--	--	57.9	--	--	--	--	--	14.6	--	--
Edge	--	--	--	--	63	--	--	--	--	--	56.9	--	--	--	--	--	14.1	--	--
Elgin	--	--	--	--	63	--	--	--	--	--	55.8	--	--	--	--	--	13.3	--	--
Forefront	--	--	--	--	66	--	--	--	--	--	57.3	--	--	--	--	--	12.5	--	--
Norden	--	--	--	--	59	--	--	--	--	--	57.3	--	--	--	--	--	13.1	--	--
Powerplay	--	--	--	--	61	--	--	--	--	--	56.4	--	--	--	--	--	13.0	--	--
Sabin	--	78	73	54	--	--	--	60.3	59.2	58.4	--	--	--	13.2	13.9	16.9	--	--	6.5
Howard	60	90	79	59	--	--	61.6	60.8	59.6	59.9	--	--	14.8	12.4	13.6	16.6	--	--	4.3
Kelby	53	75	72	56	--	--	60.3	61.9	59.5	59.9	--	--	15.4	13.0	14.2	16.9	--	--	1.5
Brick	--	81	74	48	--	--	--	62.0	60.8	60.7	--	--	--	12.6	13.8	16.6	--	--	6.3
Select	--	--	69	58	--	--	--	--	60.4	60.2	--	--	--	--	13.3	16.8	--	--	3.3
Kuntz	55	78	76	--	--	--	60.4	59.8	59.0	--	--	--	13.9	12.2	13.0	--	--	--	--
Steele-ND	56	83	79	--	--	--	61.2	60.8	59.7	--	--	--	14.9	13.0	13.7	--	--	--	--
Hat Trick	46	79	76	--	--	--	60.4	61.7	59.3	--	--	--	15.9	12.8	13.5	--	--	--	--
Tom	54	82	78	--	--	--	60.9	61.1	60.0	--	--	--	14.6	12.6	13.8	--	--	--	--
Ada	54	81	--	--	--	--	61.6	61.0	--	--	--	--	15.3	12.9	--	--	--	--	--
LSD 5%	NS	5.9	4.9	5.8	4.7		0.9	1.0	0.7	1.3	0.9		0.8	0.6	0.3	0.5			2.0

HRSW Disease by Location, Year and Variety

	Foliar Necrosis - % of Flag at Soft Dough													LR%	FHB[1] FS - %			DON[2] - ppm							FDK[3] (Tombstones)-%			
Location	**3site**	**L**	**W**	**L**	**P**	**W**	**N**	**T**	**L**	**N**	**W**	**T**	**L**	**N**	**2 site**	**L**	**T**	**2 site**	**L**	**L**	**L**	**L**	**P**	**N**	**2 site**	**L**	**L**	**L**
Year	**Ave.**	**12**	**12**	**11**	**11**	**11**	**11**	**11**	**10**	**10**	**10**	**10**	**09**	**11**	**Ave.**	**11**	**11**	**Ave.**	**12**	**11**	**10**	**08**	**08**	**08**	**Ave.**	**12**	**11**	**10**
Variety:																												
Barlow	14	15	15	13	13	25	22	20	7	9	7	5	4	1	2.8	0.6	5.0	0.9	0.5	1.2	1.1	--	--	--	1.4	2	1	1
Breaker	19	20	30	8	10	23	17	45	6	9	10	8	7	0	1.4	0.4	2.3	1.0	0.7	1.2	1.0	0.9	0.5	0.6	1.0	1	1	0
Brennan	26	20	38	19	14	17	27	25	27	43	55	23	20	0	0.6	0.6	0.6	1.2	0.3	2.1	0.3	--	--	--	0.9	0	1	1
Cromwell	15	13	18	13	8	10	18	14	4	11	12	8	5	1	0.5	0.3	0.7	0.9	0.4	1.4	0.3	0.7	--	--	0.9	1	1	0
Faller	16	10	20	18	8	20	15	18	15	21	11	5	5	3	1.3	0.3	2.3	0.5	0.3	0.7	0.5	0.8	0.3	0.3	0.6	0	1	0
Glenn	20	18	25	18	11	32	22	23	16	38	17	4	7	1	1.1	0.5	1.6	0.6	0.4	0.8	0.3	0.7	0.6	0.3	0.4	0	0	0
Jenna	18	25	18	11	11	18	25	25	4	11	16	10	12	0	0.9	0.4	1.3	1.8	0.9	2.6	1.0	--	--	--	0.5	1	2	1
Prosper	14	11	18	14	8	20	15	17	4	7	8	4	5	3	0.9	0.6	1.2	0.9	0.4	1.3	1.5	--	--	--	0.3	0	0	0
RB07	24	28	28	15	9	80	38	63	15	48	19	17	41	0	0.9	0.7	1.0	1.0	0.4	1.5	0.5	0.9	0.5	0.3	0.3	0	0	0
Rollag	19	28	18	10	15	28	20	18	--	--	--	--	--	0	0.1	0.0	0.2	0.4	0.3	0.5	--	--	--	--	--	1	0	--
Samson	29	38	38	10	10	22	27	24	22	--	20	--	21	1	1.4	1.3	1.5	3.4	1.4	5.4	1.9	3.2	3.9	2.1	1.1	2	5	4
SY Soren	16	15	15	18	21	17	27	21	--	--	--	--	--	0	0.3	0.4	0.2	0.5	0.3	0.7	--	--	--	--	--	0	1	--
Vantage	10	10	10	9	8	17	10	26	8	24	4	7	11	0	6.4	4.1	8.6	1.8	1.4	2.1	1.1	1.1	--	--	1.9	2	5	0
Velva	9	9	6	13	9	13	10	22	8	5	13	2	6	0	1.6	2.7	0.5	3.1	1.2	4.9	3.0	--	--	--	2.3	4	1	2
WB Digger	19	20	18	20	8	25	23	28	17	--	23	--	--	0	3.5	3.7	3.2	2.8	1.5	4.0	1.5	--	--	--	1.9	1	4	2
WB-Mayville	48	35	40	68	27	63	70	78	--	--	--	--	--	0	0.9	1.1	0.7	1.9	1.2	2.5	--	--	--	--	2.6	2	3	6
Albany	20	13	33	14	--	12	--	--	9	28	32	13	21	--	--	0.1	--	1.2	1.1	1.2	0.8	0.8	0.8	0.5	2.3	1	2	0
Norden	33	43	30	25	--	--	--	--	--	--	--	--	--	--	--	0.1	--	1.1	0.3	1.9	--	--	--	--	--	1	1	--
Forefront	19	20	18	18	--	--	--	--	--	--	--	--	--	--	--	0.0	--	0.4	0.5	0.3	--	--	--	--	--	1	0	--
Advance	12	15	8	13	--	--	--	--	--	--	--	--	--	--	--	0.4	--	2.0	0.3	3.6	--	--	--	--	--	0	2	--
Elgin	14	15	10	18	--	--	--	--	--	--	--	--	--	--	--	0.4	--	--	0.3	--	--	--	--	--	--	0	1	--
Powerplay	45	45	45	45	--	70	--	--	--	--	--	--	--	--	--	0.1	--	1.1	0.4	1.7	--	--	--	--	--	0	2	--
Breakway	--	13	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.5	--	--	--	--	--	--	1	--	--
Edge	--	23	28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.4	--	--	--	--	--	--	1	--	--
Select	--	43	--	23	8	45	23	25	33	86	77	59	42	0	0.7	0.2	1.1	0.9	0.3	1.4	0.8	--	--	--	0.8	1	1	1
Alpine	--	20	--	15	--	--	--	--	12	--	--	--	--	--	--	0.6	--	1.5	0.7	2.2	1.4	--	--	--	0.9	1	1	1
Alsen	--	38	--	28	--	--	--	--	12	--	--	--	12	--	--	0.1	--	1.0	0.4	1.5	0.3	0.6	0.6	0.3	0.7	0	1	1
Brick	--	23	--	48	14	38	22	65	17	35	28	36	11	0	0.1	0.1	0.1	0.6	0.3	0.8	0.3	--	--	--	0.6	1	0	0
Howard	--	15	--	20	4	45	13	55	8	8	23	7	4	1	1.1	0.4	1.7	1.3	0.8	1.7	1.0	1.1	1.8	0.7	0.7	1	2	1
Steele-ND	--	23	--	35	--	--	--	--	8	10	37	7	10	--	--	0.9	--	1.3	0.7	1.8	0.9	1.2	1.2	1.2	0.7	1	1	1
Briggs	--	13	--	13	--	--	--	--	10	--	--	--	11	--	--	0.8	--	1.1	0.5	1.7	1.0	1.2	0.6	0.3	0.8	1	1	0

L=Langdon, P=Pembina, W=Walsh, T=Towner, R=Ramsey, N=Nelson

[1]FHB-Fusarium Head Blight-Field Severity (Incidence x head severity)

[2]DON test results reported as <0.5 ppm on 2 replications are listed as 0.3 ppm

[3]Fusarium Damaged Kernels

LR%=Leaf Rust % - Flag Leaf

Durum Summary, Langdon 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Lodging (0-9)					Height (in)					Days to Head				
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**4yr**	**09**	**10**	**11**	**12**	**3yr**	**09**	**10**	**11**	**12**	**3yr**
AC Commander	76	61	72	54	71	66	54.3	53.8	54.1	57.1	58.0	56.4	6.0	0.0	5.0	0.0	2.8	34	36	34	32	34	64	71	60	65	65
AC Navigator	78	58	63	47	64	58	57.2	56.5	54.0	57.3	58.3	56.5	3.3	2.2	4.7	0.5	2.7	34	37	34	34	35	65	70	60	65	65
Alkabo	77	88	89	65	75	76	59.5	60.2	58.1	60.5	60.0	59.5	0.8	0.0	3.7	0.7	1.3	45	43	41	39	41	65	71	59	65	65
Ben	80	84	90	64	74	76	59.5	59.5	59.4	60.1	60.2	59.9	1.5	1.8	3.5	0.4	1.8	47	44	42	42	43	64	69	58	64	64
DG Star	78	67	80	69	73	74	57.4	57.0	56.5	60.4	59.0	58.6	0.0	0.5	2.9	0.6	1.0	44	43	44	41	43	63	68	55	63	62
Dilse	83	80	84	61	70	72	58.6	59.4	57.0	59.7	59.4	58.7	3.3	1.9	5.5	0.2	2.7	44	43	43	40	42	64	72	61	66	66
Grenora	87	96	95	64	76	78	58.2	58.7	57.6	59.0	58.7	58.4	1.5	2.8	5.1	1.1	2.6	44	43	39	39	40	64	71	59	64	65
Lebsock	88	96	87	69	79	78	60.2	60.5	58.7	60.6	60.0	59.8	2.0	0.0	3.3	0.3	1.4	45	43	41	40	41	62	72	57	64	65
Maier	82	79	81	64	73	73	57.8	58.2	56.1	59.2	59.1	58.1	3.8	1.3	5.7	0.2	2.8	43	43	40	39	41	64	71	58	65	65
Mountrail	85	89	87	61	77	75	59.4	59.3	57.7	59.1	59.0	58.6	3.8	3.8	5.3	0.1	3.3	46	45	41	41	42	64	73	61	65	66
Pierce	80	85	87	66	77	77	59.6	59.7	58.4	60.7	60.3	59.8	3.3	1.5	5.1	0.4	2.6	47	45	43	41	43	64	71	59	65	65
Strongfield	83	75	81	63	73	72	57.3	58.0	55.3	59.9	59.5	58.2	2.3	0.0	6.3	0.2	2.2	42	43	40	39	41	63	73	59	66	66
Tioga	88	98	90	65	78	78	58.1	58.9	57.1	59.5	59.4	58.7	3.5	1.5	4.4	1.2	2.7	47	47	45	41	44	64	72	60	65	66
DG Max	81	78	78	64	69	70	59.5	58.6	57.2	60.4	59.7	59.1	2.3	0.7	5.1	0.4	2.1	46	45	43	41	43	62	69	57	65	64
Wales	76	78	84	68	79	77	56.1	56.6	57.1	60.8	60.3	59.4	1.0	0.0	3.2	2.1	1.6	43	42	41	40	41	62	70	60	65	65
Carpio	86	88	92	71	79	81	59.9	60.3	59.1	61.6	60.3	60.3	4.5	0.0	5.9	0.0	2.6	46	45	43	41	43	65	74	61	66	68
Westhope	--	71	85	75	75	78	--	56.5	58.2	61.2	60.1	59.8	--	0.6	3.4	0.5	--	44	42	42	39	41	63	70	60	65	65
Alzada	60	--	58	50	61	56	56.7	50.4	53.5	56.5	56.7	55.5	0.0	0.0	7.2	0.3	1.9	33	33	31	31	31	59	66	55	62	61
Divide	84	--	90	65	75	77	58.4	--	56.7	59.9	60.0	58.9	1.8	--	5.8	0.3	--	--	45	43	40	43	--	71	61	66	66
CDC Verona	--	--	81	57	70	69	--	--	55.8	59.4	59.0	58.1	--	--	4.4	0.4	--	--	44	40	40	42	--	73	61	66	66
Rugby	--	--	--	58	67	--	--	--	--	59.8	59.4	--	--	--	--	0.3	--	--	--	47	46	--	--	--	59	65	--
WB-Belfield	--	--	--	45	--	--	--	--	--	55.8	--	--	--	--	--	0.1	--	--	--	31	--	--	--	--	52	--	--
Grande D'oro	86	87	87	--	--	--	59.9	60.5	59.2	--	--	--	2.0	0.8	3.9	--	--	42	44	--	--	--	65	73	--	--	--
AC Napoleon	86	85	--	--	--	--	57.9	56.1	--	--	--	--	2.5	1.4	--	--	--	46	--	--	--	--	64	--	--	--	--
LSD 5%	4.9	8.5	5.5	6.5	4.6		1.3	1.7	1.0	0.8	0.8		NS	2.0	1.3	1.4		1.7	2.0	2.2	1.5		1.1	1.0	1.0	0.9	

Durum Summary, Nelson County 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Height (in)						Days to Head					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Alkabo	66	68	75	60	75	70	59.0	61.1	57.5	57.0	58.7	57.7	35	37	41	37	39	39	61	56	69	58	64	64
Grenora	69	72	84	62	72	73	57.7	61.0	57.3	56.1	57.4	56.9	33	36	40	36	37	38	61	56	69	59	64	64
Lebsock	66	72	74	64	74	71	60.0	62.5	59.3	58.6	59.0	59.0	33	37	40	36	39	38	60	55	72	58	62	64
DG Max	--	77	74	59	73	68	--	61.5	57.9	56.9	58.9	57.9	--	37	42	40	39	40	--	55	68	58	63	63
Tioga	--	80	75	65	78	73	--	61.1	56.5	55.9	58.6	57.0	--	40	45	38	43	42	--	57	70	59	64	64
Westhope	--	73	73	58	67	66	--	60.9	58.4	58.4	58.3	58.4	--	39	41	38	39	39	--	55	70	60	64	65
Divide	64	--	75	62	75	71	58.7	--	56.0	57.1	59.0	57.4	35	--	42	40	41	41	62	--	70	60	65	65
Carpio	--	--	82	63	72	72	--	--	56.9	58.4	58.9	58.1	--	--	42	38	41	40	--	--	71	60	66	66
Wales	68	75	70	--	72	--	58.4	61.6	57.9	--	58.3	--	35	37	40	--	39	--	59	55	69	--	64	--
WB-Belfield	--	--	--	44	--	--	--	--	--	56.3	--	--	--	--	--	29	--	--	--	--	--	56	--	--
DG Star	64	74	63	--	--	--	57.5	60.3	56.0	--	--	--	34	38	40	--	--	--	58	55	68	--	--	--
Grande D'oro	69	--	69	--	--	--	60.2	--	58.6	--	--	--	34	--	41	--	--	--	60	--	72	--	--	--
LSD 5%	NS	NS	7.5	6.9	NS		0.9	0.8	1.1	1.4	0.6		NS	NS	1.0	2.6	1.4		2.1	1.3	1.0	0.6	0.6	

2008 yield data is from Devils Lake

Durum Summary, Towner County 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Height (in)						Days to Head					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**09**	**10**	**11**	**12**	**3yr**		**09**	**10**	**11**	**12**	**3yr**	
Alkabo	42	73	74	61	57	64	59.1	60.2	59.5	60.0	56.9	58.8	38	41	37	36	38		56	68	48	62	59	
Grenora	44	84	78	59	53	63	58.2	59.8	58.7	58.4	55.7	57.6	36	40	36	34	37		56	68	49	61	59	
Lebsock	40	73	65	57	51	58	59.7	60.8	60.5	59.9	57.1	59.2	37	40	40	35	38		56	68	47	60	59	
DG Max	--	71	71	55	53	60	--	60.2	59.4	58.9	56.4	58.2	39	42	37	38	39		56	68	48	61	59	
Tioga	--	84	76	50	57	61	--	60.4	59.2	57.6	56.5	57.8	42	44	38	39	40		58	68	53	61	61	
Westhope	--	68	71	49	56	59	--	59.8	59.1	57.2	56.8	57.7	36	40	37	38	38		57	69	51	63	61	
Divide	40	--	74	51	52	59	59.1	--	58.9	56.9	56.8	57.5	--	42	37	38	39		--	69	54	62	61	
Carpio	--	--	66	52	56	58	--	--	56.9	58.7	57.0	57.5	--	41	37	38	39		--	69	51	63	61	
Wales	45	73	73	--	54	--	59.3	60.2	58.4	--	56.7	--	38	42	--	37	--		56	69	--	61	--	
WB-Belfied	--	--	--	39	--	--	--	--	--	55.3	--	--	--	--	31	--	--		--	--	46	--	--	
DG Star	41	72	72	--	--	--	58.4	59.2	58.6	--	--	--	38	40	--	--	--		57	68	--	--	--	
Grande D'oro	41	--	75	--	--	--	59.8	--	61.3	--	--	--	--	42	--	--	--		--	68	--	--	--	
LSD 5%	3.2	6.9	7.2	5.3	NS		0.5	NS	1.0	1.3	NS		1.8	2.0	3.1	2.6			1.0	NS	1.2	1.2		

Durum Diseases by Location, Year and Variety

	Foliar Necrosis % of Flag at Soft Dough										FHB[1] FS - %				FDK[2] (Tombstones) %						DON ppm						
Location	**7 Site**	**L**	**L**	**N**	**T**	**L**	**T**	**N**	**L**	**L**	**2 site**	**L**	**L**	**T**	**5 Site**	**L**	**L**	**L**	**L**	**L**	**5 Site**	**L**	**L**	**T**	**L**	**L**	**L**
Year	**Ave.**	**12**	**11**	**11**	**11**	**10**	**10**	**10**	**09**	**08**	**Ave.**	**12**	**11**	**11**	**Ave.**	**12**	**11**	**10**	**09**	**08**	**Ave.[3]**	**12**	**11**	**11**	**10**	**09**	**08**
Variety:																											
AC Commander	--	73	73	--	--	15	--	--	21	20	2.8	0.6	4.9	--	4	2	4	6	2	6	4.3	2.7	3.9	--	4.2	3.7	7.0
AC Navigator	--	73	73	--	--	30	--	--	11	23	1.8	0.6	2.9	--	4	3	5	6	3	6	4.2	4.0	6.3	--	4.6	2.1	4.0
Alkabo	23	33	15	50	33	4	19	10	4	15	0.4	0.2	0.5	0.8	1	1	2	1	2	2	2.5	2.6	3.3	4.2	3.7	1.8	1.2
Alzada	--	97	83	--	--	75	--	--	67	23	3.6	0.5	6.6	--	5	2	6	8	3	10	4.0	1.4	6.8	--	4.3	3.3	4.2
Ben	--	8	43	--	--	2	--	--	5	20	1.6	0.4	2.7	--	1	1	2	1	1	1	3.0	2.7	5.1	--	3.0	1.8	2.2
Carpio	21	18	18	35	53	4	12	6	2	30	1.1	1.7	0.4	0.7	2	2	1	2	2	3	--	2.1	2.3	3.3	3.1	--	--
CDC Verona	--	13	13	--	--	6	--	--	--	--	1.8	1.6	2.0	--	2	3	2	3	--	--	--	2.1	2.6	--	4.3	--	--
DG Max	23	20	28	43	28	7	26	9	12	--	1.0	0.5	1.4	0.2	2	2	1	3	1	--	--	2.0	2.1	4.3	3.5	1.8	--
DG Star	--	63	48	--	--	35	29	74	24	27	0.3	0.0	0.5	--	1	1	0	2	1	1	1.7	1.7	2.3	--	2.5	1.3	0.8
Dilse	--	20	33	--	--	1	--	--	4	23	2.9	1.1	4.7	--	2	2	2	3	2	3	3.1	3.3	3.6	--	3.0	3.4	2.2
Divide	--	15	10	16	20	4	6	5	--	22	0.3	0.2	0.4	0.4	2	2	2	1	--	2	--	1.4	2.5	3.0	4.0	--	1.5
Grenora	11	15	8	22	17	0	14	3	2	12	1.0	0.2	1.7	1.2	2	2	1	2	1	3	4.0	2.6	4.7	5.9	6.0	4.3	2.5
Lebsock	16	8	25	40	32	1	5	2	6	17	1.5	0.4	2.6	0.7	2	1	1	2	1	1	2.3	2.2	2.8	4.5	2.8	1.9	1.8
Maier	--	20	25	--	--	3	--	--	4	20	1.4	0.6	2.2	--	2	2	2	3	2	3	3.5	3.2	3.6	--	4.0	2.9	3.8
Mountrail	--	15	10	--	--	3	--	--	3	17	1.2	0.6	1.7	--	4	5	3	3	2	3	--	3.6	3.8	--	4.2	2.9	--
Pierce	--	11	23	--	--	6	--	--	5	23	1.5	0.5	2.5	--	2	2	2	2	1	2	3.1	4.0	2.2	--	4.0	2.6	2.9
Strongfield	--	13	38	--	--	6	--	--	5	10	2.0	0.7	3.3	--	2	2	2	3	2	3	3.0	2.8	4.1	--	2.8	3.1	2.4
Tioga	23	48	28	48	32	0	5	3	1	--	0.6	0.1	1.0	1.9	1	2	1	1	2	--	--	1.6	3.4	2.9	3.2	--	--
Wales	--	38	33	--	--	19	22	41	31	33	0.6	0.6	0.5	--	1	1	1	2	1	3	2.5	3.3	2.7	--	1.8	2.0	2.7
Westhope	39	35	38	80	47	11	23	43	26	--	1.2	0.8	1.6	1.4	2	2	2	2	2	--	--	3.5	2.9	3.2	4.0	3.2	--

L=Langdon, N=Nelson, T=Towner.

[1]FHB-Fusarium Head Blight-Field Severity (Incidence x head severity)

[2]Fusarium Damaged Kernels

[3]Includes L12, 11, 10, 9, 8

Winter Wheat - Langdon, ND - 2010-2012

Variety	Winter[a] Hardiness	Yield - Bu/Acre								Test Weight - lb/bu								% Protein							
		NoF* 10	wF* 10	NoF* 11	wF* 11	NoF* 12	wF* 12	NoF* 3yr	wF* 3yr	NoF* 10	wF* 10	NoF* 11	wF* 11	NoF* 12	wF* 12	NoF* 3yr	wF* 3yr	NoF* 10	wF* 10	NoF* 11	wF* 11	NoF* 12	wF* 12	NoF* 3yr	wF* 3yr
AC Broadview	4	--	--	--	--	68.8	81.4	--	--	--	--	--	--	59.0	60.3	--	--	--	--	--	--	9.0	8.8	--	--
AC Radiant	2	--	--	--	--	59.9	65.7	--	--	--	--	--	--	60.4	60.8	--	--	--	--	--	--	8.9	8.9	--	--
Accipiter	2	78.7	99.4	57.9	65.4	65.4	74.1	67.3	79.6	57.1	58.5	59.4	60.4	60.8	61.9	59.1	60.3	11.4	11.7	11.7	11.7	10.1	9.1	11.0	10.8
Art	8	84.6	101.0	66.8	69.6	67.4	75.2	72.9	81.9	58.9	60.4	61.2	61.8	61.3	61.6	60.4	61.3	12.8	12.7	13.0	13.0	9.8	10.1	11.8	11.9
Boomer	3	78.8	95.3	60.3	64.1	71.0	80.5	70.0	80.0	56.3	58.7	58.9	60.2	59.7	60.8	58.3	59.9	12.3	12.3	12.0	12.1	8.9	8.7	11.1	11.0
Carter	6	64.7	95.0	57.6	66.7	55.1	65.1	59.1	75.6	57.5	59.5	60.4	61.3	60.6	61.5	59.5	60.8	12.4	12.3	12.5	12.4	10.3	10.1	11.7	11.6
CDC Falcon	4	72.4	92.7	67.6	73.4	68.0	76.0	69.3	80.7	56.7	58.9	59.9	60.7	60.6	61.1	59.1	60.2	12.3	12.1	11.5	11.4	8.9	9.3	10.9	10.9
Darrell	6	73.0	92.7	57.7	65.1	63.3	68.9	64.7	75.6	57.7	58.8	60.4	60.8	61.1	61.7	59.7	60.4	12.1	12.3	12.0	12.5	9.9	10.3	11.3	11.7
Decade	2	59.3	95.0	65.5	71.7	68.4	80.3	64.4	82.3	54.6	57.9	60.9	61.6	60.7	61.8	58.7	60.4	12.2	12.8	11.5	12.3	9.2	9.6	11.0	11.6
Expedition	4	--	--	52.7	59.9	57.0	76.1	--	--	--	--	60.1	60.6	59.3	61.0	--	--	--	--	12.2	12.3	8.6	9.1	--	--
Hawken	7	54.6	88.0	51.1	62.9	66.0	76.1	57.2	75.7	55.5	58.6	59.1	60.1	60.9	61.9	58.5	60.2	12.7	13.0	13.3	13.1	10.2	10.6	12.1	12.2
Ideal	5	84.9	103.7	69.6	73.7	65.2	74.5	73.2	84.0	58.6	60.1	60.7	61.3	60.3	60.9	59.9	60.7	12.4	11.7	11.5	11.5	9.8	9.6	11.2	10.9
Jerry	3	79.1	94.4	65.1	72.9	62.5	69.8	68.9	79.0	56.9	58.1	59.7	60.4	60.3	61.1	59.0	59.9	13.0	12.8	12.0	11.9	9.3	9.5	11.4	11.4
Lyman	5	88.1	98.4	57.9	66.7	65.9	69.7	70.6	78.3	59.2	59.6	60.7	61.0	60.5	61.5	60.1	60.7	13.0	13.1	13.4	13.3	10.7	10.0	12.4	12.1
McGill	4	--	--	--	--	69.9	77.7	--	--	--	--	--	--	60.4	61.5	--	--	--	--	--	--	9.4	9.0	--	--
Overland	5	89.4	96.7	59.7	65.2	73.9	74.5	74.3	78.8	58.5	60.1	60.8	61.3	60.8	61.4	60.0	60.9	12.3	12.4	11.9	12.0	9.3	9.4	11.2	11.2
Peregrine	2	77.3	88.8	70.7	72.0	73.7	76.2	73.9	79.0	58.5	58.7	60.9	61.0	61.1	61.0	60.1	60.2	11.7	11.6	11.1	11.2	8.8	9.3	10.5	10.7
Robidoux	6	--	--	--	--	72.2	79.5	--	--	--	--	--	--	59.8	61.2	--	--	--	--	--	--	9.5	9.1	--	--
SY-Wolf	6	73.7	93.5	59.0	62.6	68.8	73.2	67.2	76.4	57.2	59.0	60.5	61.1	61.4	62.0	59.7	60.7	12.1	12.2	12.2	12.4	9.5	10.1	11.2	11.6
WB-Matlock	2	74.1	91.8	54.8	63.2	65.5	78.7	64.8	77.9	58.9	59.7	60.1	60.8	61.1	62.0	60.0	60.9	12.9	12.7	13.0	12.8	9.2	9.0	11.7	11.5
Wesley	6	61.2	80.6	54.7	59.2	59.0	71.9	58.3	70.6	54.7	57.4	59.7	60.5	60.8	61.6	58.4	59.8	13.2	13.4	12.6	13.3	10.3	10.1	12.0	12.3
Smoky Hill	7	--	--	--	--	60.9	68.2	--	--	--	--	--	--	60.9	61.9	--	--	--	--	--	--	9.5	8.9	--	--
Millennium	6	84.4	97.0	60.4	65.2	--	--	--	--	58.1	59.7	60.2	60.7	--	--	--	--	12.5	12.5	12.3	12.3	--	--	--	--
Striker	5	78.6	90.2	55.3	63.2	--	--	--	--	57.3	59.1	60.4	61.5	--	--	--	--	12.3	11.9	12.4	12.3	--	--	--	--
Yellowstone	5	52.9	90.4	51.2	63.1	--	--	--	--	52.8	55.6	57.4	58.8	--	--	--	--	12.3	12.3	11.9	12.2	--	--	--	--
Jagalene	6	56.4	102.5	--	--	--	--	--	--	55.6	58.8	--	--	--	--	--	--	11.6	11.4	--	--	--	--	--	--
Camelot	--	71.8	93.7	--	--	--	--	--	--	57.0	59.2	--	--	--	--	--	--	12.7	12.8	--	--	--	--	--	--
Mace	5	73.7	89.7	--	--	--	--	--	--	56.5	58.7	--	--	--	--	--	--	11.9	11.9	--	--	--	--	--	--
LSD 5%		13.5		5.1		7.2				1.8		0.6		0.7				0.8		0.4		0.9			
Average		73.3	94.1	59.8	66.3	65.8	74.2	67.3	78.5	57.0	58.9	60.1	60.8	60.5	61.4	59.4	60.5	12.4	12.4	12.2	12.3	9.5	9.5	11.4	11.5

***2010 - wF** = Prosaro at early flower, 6.5 oz/a + NIS 0.125% v/v, **NoF** = No Fungicide

***2011 & 12 - wF** = Stratego at herbicide time, 4oz/a + Prosaro at early flower, 6.5 oz/a + NIS 0.125% v/v, **NoF** = No Fungicide

[a]Relative winter hardiness rating: 1 = excellent, 10 = very poor. No Winter Kill has occurred in 3 years, so ratings may change in future.

HRWW Summary - Devils Lake, Willow City, Tolna and 2010-2012 Averages

Yield (bu/a)

	No Fungicide						With Fungicide[c]					
Variety	2010[a] Ave	2011[b] Ave	Devils Lake	Willow City	Tolna	2012 Avg	2010[a] Ave	2011[b] Ave	Devils Lake	Willow City	Tolna	2012 Avg
Accipiter	89	67	78	73	78	76	98	89	90	72	70	77
Art	--	74	105	65	69	80	--	87	105	68	79	84
Boomer	92	67	90	74	60	75	99	81	87	75	65	76
CDC Falcon	90	68	86	72	75	78	99	83	89	74	71	78
Darrel	--	80	99	73	74	82	--	89	100	71	83	84
Decade	--	77	99	70	69	79	--	89	99	74	67	80
Expedition	--	--	99	67	59	75	--	--	104	67	56	76
Hawken	90	69	--	--	--	--	97	82	--	--	--	--
Ideal	--	--	93	72	78	81	--	--	106	74	79	86
Jerry	95	69	86	74	64	75	102	78	94	75	66	79
Lyman	98	74	--	--	--	--	100	85	--	--	--	--
Millennium	99	73	--	--	--	--	104	87	--	--	--	--
Overland	99	79	109	72	73	85	105	91	109	74	77	86
Smoky Hill	--	--	107	69	52	76	--	--	115	71	64	83
Striker	91	61	--	--	--	--	100	78	--	--	--	--
SY Wolf	--	82	104	68	66	80	--	90	104	69	72	82
WB-Matlock	95	68	--	--	--	--	101	84	--	--	--	--
Site Average	94	72	95	71	68	78	101	85	100	72	71	81
LSD 5%			8.5	2.4	8.5				8.5	2.4	8.5	

Test Weight (lbs/bu)

	No Fungicide						With Fungicide[c]					
Variety	2010[a] Ave	2011[b] Ave	Devils Lake	Willow City	Tolna	2012 Avg	2010[a] Ave	2011[b] Ave	Devils Lake	Willow City	Tolna	2012 Avg
Accipiter	60.3	59.4	57.9	61.4	61.1	60.1	62.1	61.2	57.9	61.7	61.6	60.4
Art	--	59.5	61.0	61.4	63.3	61.9	--	61.0	61.8	61.8	63.3	62.3
Boomer	59.1	57.6	57.6	61.0	60.8	59.8	60.1	59.6	58.3	61.4	61.2	60.3
CDC Falcon	59.2	57.9	57.5	60.9	60.6	59.7	60.8	59.9	58.7	61.7	62.0	60.8
Darrel	--	60.4	60.3	61.9	62.6	61.6	--	60.6	60.9	61.9	62.6	61.8
Decade	--	59.7	60.1	62.5	62.1	61.6	--	60.7	60.4	63.1	62.9	62.1
Expedition	--	--	61.3	62.4	62.7	62.1	--	--	61.9	63.2	62.5	62.5
Hawken	60.0	--	--	--	--	--	61.3	--	--	--	--	--
Ideal	--	--	60.4	62.5	62.8	61.9	--	--	61.0	63.1	63.2	62.4
Jerry	59.2	59.4	58.2	61.4	60.9	60.2	60.4	60.4	59.9	61.9	60.8	60.9
Lyman	60.8	61.1	--	--	--	--	60.4	61.7	--	--	--	--
Millennium	60.3	60.2	--	--	--	--	60.5	61.1	--	--	--	--
Overland	60.3	60.2	61.8	61.7	62.1	61.9	60.6	61.0	61.8	61.5	62.3	61.9
Smoky Hill	--	--	60.9	62.9	63.6	62.5	--	--	61.9	63.0	63.8	62.9
Striker	59.7	58.5	--	--	--	--	60.8	60.8	--	--	--	--
SY Wolf	--	60.6	61.3	62.2	63.4	62.3	--	61.0	60.4	62.6	63.6	62.2
WB-Matlock	60.3	60.0	--	--	--	--	61.1	61.1	--	--	--	--
Site Average	59.9	59.6	59.9	61.8	62.1	61.3	60.8	60.8	60.4	62.1	62.5	61.7
LSD 5%			1.2	0.4	0.7				1.2	0.4	0.7	

[a]2010 data is an average of Tolna, Leeds and Lakota sites.

[b]2011 data is an average of Devils Lake and Willow City sites.

[c]2010 with Fungicide = Prosaro at early flower, 6.5 oz/a +NIS 0.125 v/v

[c]2011-12 with Fungicide = Stratego at herbicide time, 4 oz/a + Prosaro at early flower, 6.5 oz/a + NIS 0.125 v/v

HRWW Summary - Devils Lake, Willow City, Tolna and 2010-2012 Averages

Protein (%)

	No Fungicide						With Fungicide[c]					
Variety	2010[a] Ave	2011[b] Ave	Devils Lake	Willow City	Tolna	2012 Avg	2010[a] Ave	2011[b] Ave	Devils Lake	Willow City	Tolna	2012 Avg
Accipiter	10.8	11.7	10.7	11.2	9.5	10.5	10.9	11.3	10.7	11.3	8..7	11.0
Art	--	12.6	11.3	13.4	10.2	11.6	--	12.5	11.5	13.5	10.6	11.9
Boomer	11.4	12.4	10.5	11.8	8.8	10.4	11.5	12.1	11.0	11.9	8.9	10.6
CDC Falcon	11.0	12.2	10.8	11.2	9.8	10.6	11.4	11.9	11.3	11.4	9.5	10.7
Darrel	--	12.0	10.8	11.8	9.8	10.8	--	12.0	10.8	11.8	10.6	11.1
Decade	--	12.0	11.0	12.4	10.4	11.3	--	11.8	11.1	12.1	11.2	11.5
Expedition	--	--	10.8	11.7	10.0	10.8	--	--	10.6	12.0	10.8	11.1
Hawken	12.0	--	--	--	--	--	12.1	--	--	--	--	--
Ideal	--	--	10.3	11.0	8.8	10.0	--	--	10.5	11.7	9.3	10.5
Jerry	11.9	12.2	10.8	11.3	9.8	10.6	11.9	12.3	11.0	11.9	10.1	11.0
Lyman	12.2	12.6	--	--	--	--	12.1	13.1	--	--	--	--
Millennium	11.4	12.0	--	--	--	--	11.3	12.2	--	--	--	--
Overland	11.6	12.0	10.3	11.7	8.2	10.1	11.6	12.1	10.8	11.9	8.6	10.4
Smoky Hill	--	--	11.0	12.2	9.9	11.0	--	--	11.2	12.3	10.1	11.2
Striker	11.5	12.4	--	--	--	--	11.7	12.3	--	--	--	--
SY Wolf	--	12.3	11.0	12.2	9.5	10.9	--	12.3	10.9	12.3	9.7	11.0
WB-Matlock	11.8	12.7	--	--	--	--	11.8	12.8	--	--	--	--
Site Average	11.6	12.2	10.8	11.7	9.5	10.7	11.6	12.2	10.9	11.9	9.8	11.0
LSD 5%			0.5	0.6	1.0				0.5	0.6	1.0	

[a]2010 data is an average of Tolna, Leeds and Lakota sites.

[b]2011 data is an average of Devils Lake and Willow City sites.

[c]2010 with Fungicide = Prosaro at early flower, 6.5 oz/a +NIS 0.125 v/v

[c]2011-12 with Fungicide = Stratego at herbicide time, 4 oz/a + Prosaro at early flower, 6.5 oz/a + NIS 0.125 v/v

Barley Summary - Langdon - 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Lodging (0-9)			Plump (%)					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**07**	**08**	**2yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Lacey	139	121	128	110	97	111	50.1	48.1	50.3	49.6	48.5	49.5	2.8	2.8	2.8	91	93	94	94	86	91
Stellar-ND	127	123	128	116	94	112	49.1	47.6	49.1	48.6	48.4	48.7	4.8	1.0	2.9	96	98	97	95	88	93
Tradition	125	125	131	114	69	105	50.2	48.5	49.8	49.3	47.0	48.7	3.8	1.0	2.4	96	95	95	92	81	89
Celebration	126	134	123	108	78	103	49.8	48.3	49.4	49.3	47.0	48.6	--	1.0	--	94	96	92	95	86	91
Quest	128	130	133	108	94	112	48.8	46.0	48.4	48.7	48.2	48.4	--	0.5	--	91	86	88	87	76	84
Innovation	--	--	126	117	91	111	--	--	49.6	48.7	47.4	48.6	--	--	--	--	--	93	92	81	89
Rasmusson	138	124	150	117	--	--	50.1	48.1	48.9	49.5	--	--	2.8	1.8	2.3	93	94	94	94	--	--
Drummond	128	115	--	--	--	--	49.3	47.4	--	--	--	--	2.0	0.3	1.2	94	94	--	--	--	--
Legacy	145	120	--	--	--	--	49.3	47.5	--	--	--	--	4.5	2.5	3.5	91	89	--	--	--	--
Robust	123	132	--	--	--	--	50.8	48.8	--	--	--	--	3.8	0.3	2.1	95	91	--	--	--	--
AC Metcalfe*	129	124	122	93	71	95	49.2	48.5	50.0	49.4	47.6	49.0	7.3	3.0	5.2	88	87	94	88	81	87
CDC Copeland*	129	133	136	89	86	104	48.6	47.9	48.2	49.2	47.6	48.3	7.5	1.3	4.4	93	90	97	92	84	91
Conlon*	127	114	125	99	83	102	51.0	49.8	51.5	51.6	49.3	50.8	6.5	2.3	4.4	95	94	97	97	92	95
Pinnacle*	134	133	130	115	91	112	51.1	49.7	49.1	51.1	49.7	50.0	6.8	0.3	3.6	95	94	95	95	91	94
Rawson*	140	132	140	107	83	110	48.9	47.2	48.7	49.4	47.7	48.6	6.0	3.5	4.8	94	95	98	95	95	96
Conrad*	128	130	--	98	77	--	49.1	48.0	--	50.1	47.7	--	7.8	3.5	--	88	87	--	92	88	--
Lilly*	--	--	116	92	--	--	--	--	50.6	48.8	--	--	--	--	--	--	--	91	87	--	--
Sunshine*	--	--	128	--	--	--	--	--	49.8	--	--	--	--	--	--	--	--	96	--	--	--
Scarlett*	120	116	--	--	--	--	48.8	49.2	--	--	--	--	6.0	3.8	--	90	94	--	--	--	--
Bowman*	125	--	--	--	--	--	50.5	--	--	--	--	--	7.0	4.3	--	91	--	--	--	--	--
LSD 5%	14.4	14.1	13.7	10.9	6.4		1.0	1.2	0.7	0.8	0.8		3.1	NS		4.6	5.8	0.5	3.3	3.9	

*2-row

Barley Summary - Langdon - 2008-2012

	Height (in)						Protein (%)						Days to Head					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Lacey	39	33	39	36	37	37	13.4	11.8	12.3	13.3	12.2	12.6	65	57	64	51	61	59
Stellar-ND	38	34	39	34	35	36	12.6	12.2	12.1	12.4	12.0	12.2	65	57	64	51	63	60
Tradition	37	37	40	36	34	37	12.7	12.1	12.0	12.7	12.2	12.3	66	59	65	53	64	61
Celebration	36	36	38	35	34	36	13.1	12.8	12.3	13.7	13.3	13.1	66	57	66	54	65	62
Quest	36	38	39	38	37	38	12.1	12.5	11.9	12.7	12.2	12.3	65	57	66	52	62	60
Innovation	--	--	38	33	37	36	--	--	12.3	12.5	12.8	12.5	--	--	64	51	61	59
Rasmusson	36	32	37	32	--	--	12.3	11.6	12.1	12.5	--	--	64	56	66	50	--	--
Drummond	39	36	--	--	--	--	13.2	12.5	--	--	--	--	66	57	--	--	--	--
Legacy	40	38	--	--	--	--	12.7	12.7	--	--	--	--	67	59	--	--	--	--
Robust	40	39	--	--	--	--	12.8	13.1	--	--	--	--	66	57	--	--	--	--
AC Metcalfe*	39	38	38	35	31	35	12.9	12.3	11.9	13.7	12.7	12.8	68	59	67	54	65	62
CDC Copeland*	38	39	40	36	35	37	11.6	11.3	11.3	12.9	12.1	12.1	68	62	70	56	65	64
Conlon*	34	35	35	34	35	35	12.6	12.0	12.3	12.7	12.8	12.6	62	53	60	49	57	56
Pinnacle*	35	37	39	35	35	36	11.2	10.9	10.8	12.0	11.7	11.5	65	58	66	54	62	60
Rawson*	36	37	38	36	33	36	12.2	11.9	11.3	11.9	11.6	11.6	63	55	63	50	61	58
Conrad*	34	36	--	31	28	--	13.0	12.5	--	12.7	12.0	--	68	60	--	55	65	--
Lilly*	--	--	32	31	--	--	--	--	11.2	12.1	--	--	--	--	67	53	--	--
Sunshine*	--	--	32	--	--	--	--	--	11.5	--	--	--	--	--	68	--	--	--
Scarlett*	30	32	--	--	--	--	12.8	12.7	--	--	--	--	70	63	--	--	--	--
Bowman*	34	--	--	--	--	--	13.3	--	--	--	--	--	63	--	--	--	--	--
LSD 5%	2.5	3.1	1.0	3.3	1.7		1.2	0.9	0.5	0.7	0.9		0.9	1.2	1.0	1.0	1.2	

*2-row

Barley Summary - Walsh County - 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Protein (%)						Plump (%)					
Variety	08	09	10	11	12	3yr	08	09	10	11	12	3yr	08	09	10	11	12	3yr	08	09	10	11	12	3yr
Lacey	149	128	103	95	116	105	50.1	49.5	49.4	50.4	48.9	49.6	12.9	11.6	11.6	13.2	11.1	12.0	97	96	99	93	91	94
Stellar-ND	148	131	108	100	108	105	48.4	47.7	47.4	49.6	46.5	47.8	12.6	11.8	11.7	12.5	11.4	11.9	98	95	99	92	88	93
Tradition	136	127	101	97	94	97	49.3	48.7	48.7	51.0	45.8	48.5	12.7	11.8	11.6	12.9	12.0	12.2	97	96	98	92	84	91
Celebration	--	133	95	95	88	93	--	49.0	48.5	49.1	46.0	47.9	--	12.2	12.4	14.2	13.1	13.2	--	96	96	88	85	90
Quest	--	--	99	105	111	105	--	--	48.1	50.3	46.9	48.4	--	--	11.8	13.0	10.8	11.9	--	--	93	86	84	87
Pinnacle*	140	141	105	102	--	--	48.7	48.8	48.8	51.8	--	--	11.8	11.1	10.6	11.7	--	--	97	96	99	96	--	--
Rassmusson	155	141	101	110	--	--	49.9	48.9	48.8	50.8	--	--	12.5	11.5	11.0	12.4	--	--	98	94	97	91	--	--
Innovation	--	--	--	--	113	--	--	--	--	--	47.9	--	--	--	--	--	11.0	--	--	--	--	--	90	--
LSD 5%	7.6	NS	NS	7.0	6.1		0.5	0.8	0.5	0.8	0.5		0.6	NS	0.7	0.7	0.9		NS	NS	1.0	3.2	2.2	

*Two row barley

Barley trials are conducted in Pembina County in odd number years and Walsh County in even numbered years. 2009 and 2011 data is from Pembina County.

Barley Summary - Towner County - 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Lodging (0-9)			Protein (%)						Plump (%)				
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**10**	**11**	**2yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Lacey	73	122	118	77	83	93	46.2	50.1	50.8	49.3	46.4	48.8	2.3	0.5	1.4	13.9	11.9	12.2	13.7	14.2	13.4	77	98	95	95	72	87
Stellar-ND	73	125	112	83	75	90	45.1	48.6	49.2	48.3	45.1	47.5	2.8	1.0	1.9	14.1	11.3	11.8	13.5	13.1	12.8	82	98	97	95	78	90
Tradition	79	122	123	81	68	90	47.4	49.5	50.6	49.1	45.5	48.4	1.0	0.8	0.9	14.1	11.7	12.4	13.4	14.4	13.4	87	98	96	93	76	88
Celebration	--	126	116	71	73	86	--	49.4	49.5	47.8	44.6	47.3	6.3	1.3	3.8	--	11.8	12.8	15.1	14.1	14.0	--	98	92	89	77	86
Quest	--	--	120	81	78	93	--	--	48.4	46.7	45.3	46.8	2.3	3.0	--	--	--	12.3	13.6	13.6	13.2	--	--	87	80	66	78
Innovation	--	--	--	--	76	--	--	--	--	--	45.6	--	--	--	--	--	--	--	--	14.3	--	--	--	--	--	71	--
Rasmusson	75	128	128	84	--	--	45.8	49.8	50.5	47.9	--	--	4.3	1.5	2.9	14.1	11.6	11.7	13.3	--	12.5	73	97	91	87	--	--
Pinnacle*	86	125	121	79	--	--	49.8	50.9	51.7	49.6	--	--	0.0	2.0	1.0	12.9	11.0	10.9	12.4	--	11.7	97	99	98	94	--	--
LSD 5%	7.2	NS	NS	5.6	10.0		0.8	0.4	0.7	0.8	NS		1.0	1.1		0.5	0.4	0.4	0.4	NS		9.1	0.6	2.8	3.7	8.3	

*2-row barley

Oat Summary, Langdon 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Days to Head					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
AC Pinnacle	197	222	175	184	173	177	36.0	34.7	33.7	37.1	36.5	35.8	71	61	73	61	65	66
Beach	183	190	174	147	173	165	38.8	38.9	37.3	41.9	39.9	39.7	69	59	70	58	63	64
Buff*	129	131	132	104	108	115	44.7	44.9	46.6	48.6	45.4	46.9	65	53	65	52	60	59
CDC Dancer	186	203	188	152	166	169	38.2	37.4	37.9	42.0	39.7	39.8	70	59	72	59	65	65
HiFi	175	197	204	177	170	184	38.4	38.4	40.1	40.7	39.2	40.0	69	59	71	58	64	64
Hytest	152	146	141	123	140	134	41.6	41.8	41.5	42.8	41.6	42.0	67	56	67	54	62	61
Killdeer	185	176	172	158	169	166	37.5	37.2	35.9	38.3	37.1	37.1	68	57	68	55	63	62
Morton	166	181	143	130	149	141	39.2	39.1	37.4	40.5	39.8	39.2	68	59	70	57	63	63
Otana	186	149	123	112	144	126	38.1	35.1	29.9	36.5	37.5	34.6	71	62	71	59	64	65
Rockford	177	206	191	180	166	179	39.9	39.5	40.6	42.0	40.6	41.0	70	60	71	59	64	65
Souris	187	204	197	162	167	175	37.6	37.5	39.4	41.1	38.7	39.7	69	58	70	57	64	64
Stallion	171	168	176	157	154	162	40.3	39.1	39.0	42.3	38.7	40.0	69	60	69	57	62	63
Stark*	131	156	136	139	130	135	41.7	42.4	43.1	45.4	43.8	44.1	73	62	73	60	66	66
Furlong	177	171	157	141	158	152	36.0	36.4	34.4	38.4	38.2	37.0	72	64	73	62	65	67
Minstrel CDC	185	180	157	154	169	160	35.9	34.7	32.3	36.3	35.2	34.6	69	57	70	57	63	63
Newburg	187	241	216	177	168	187	37.8	38.7	38.8	40.1	38.2	39.0	67	60	69	58	63	63
Leggett	--	207	212	185	154	184	--	36.5	38.1	41.3	38.6	39.3	--	59	72	58	65	65
Jury	178	222	210	161	162	178	39.1	38.4	40.3	41.9	39.7	40.6	67	59	68	57	62	62
Shelby 427	--	--	168	152	143	154	--	--	41.3	41.9	39.7	41.0	--	--	65	52	60	59
Horsepower	--	--	--	--	160	--	--	--	--	--	39.5	--	--	--	--	--	61	--
Jerry	170	152	140	121	--	--	39.1	38.6	38.4	40.2	--	--	66	56	67	55	--	--
Youngs	183	189	140	131	--	--	36.9	36.7	33.4	39.1	--	--	71	60	72	59	--	--
Monida	--	--	116	119	--	--	--	--	29.0	34.0	--	--	--	--	72	57	--	--
Streaker	--	--	120	113	--	--	--	--	48.7	49.5	--	--	--	--	65	53	--	--
Maida	156	165	152	--	--	--	37.4	36.7	38.5	--	--	--	69	58	70	--	--	--
Paul*	125	151	125	--	--	--	43.7	41.9	44.0	--	--	--	72	62	72	--	--	--
LSD 5%	15.5	23.5	18.1	13.4	10.1		0.9	1.3	1.7	1.1	0.9		1.5	1.2	1.0	1.1	0.7	

*Naked-hull variety

Oat Summary, Langdon 2008-2012

	Height (in)						Protein(%)						Lodging (0-9)					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
AC Pinnacle	43	43	49	45	42	45	12.0	7.5	10.3	9.7	13.7	11.2	0.3	0.8	8.5	0.0	2.0	3.5
Beach	46	45	52	48	45	48	13.4	9.1	11.2	11.9	15.2	12.8	0.3	0.0	8.7	0.0	0.0	2.9
Buff*	39	39	47	40	38	42	14.4	10.9	13.5	14.4	18.4	15.4	0.0	0.0	7.8	0.0	0.0	2.6
CDC Dancer	45	46	51	48	44	47	11.7	7.3	10.1	11.0	13.7	11.6	1.0	0.0	8.2	0.0	0.0	2.7
HiFi	45	45	54	45	42	47	13.1	9.1	12.8	14.4	15.3	14.1	0.0	0.0	6.3	0.0	1.7	2.7
Hytest	47	46	52	46	42	47	16.0	12.2	15.4	15.4	17.8	16.2	0.5	0.3	8.4	0.0	3.4	3.9
Killdeer	38	37	44	39	38	41	12.5	8.0	10.8	10.4	14.4	11.9	0.0	1.0	8.8	0.0	2.0	3.6
Morton	46	46	54	48	45	49	14.2	8.8	12.0	13.3	16.4	13.9	0.0	0.5	6.0	0.0	0.0	2.0
Otana	48	48	52	47	43	47	13.6	7.3	10.9	10.9	14.8	12.2	1.8	7.3	9.0	0.0	5.9	5.0
Rockford	44	48	53	46	43	47	13.7	9.5	13.0	13.6	16.4	14.3	0.0	1.0	6.8	0.0	0.2	2.3
Souris	41	39	48	42	39	43	13.4	8.9	12.5	13.1	14.8	13.5	0.0	0.0	6.5	0.0	0.0	2.2
Stallion	47	47	53	47	43	48	15.0	10.5	13.7	14.0	16.2	14.6	1.3	3.3	8.3	0.0	5.9	4.7
Stark*	45	44	51	46	44	47	14.7	10.5	13.8	12.1	17.4	14.4	0.0	1.0	6.7	0.0	0.3	2.3
Furlong	43	43	49	44	41	45	13.6	9.5	12.2	11.3	16.0	13.2	1.3	1.8	9.0	0.0	1.2	3.4
Minstrel CDC	41	40	47	43	39	43	11.3	6.7	9.0	9.2	12.6	10.2	0.0	0.0	8.9	0.0	0.4	3.1
Newburg	47	48	55	49	44	49	12.6	8.5	11.7	13.0	14.9	13.2	0.0	0.8	7.5	0.0	2.6	3.4
Leggett	--	42	48	43	40	44	--	10.2	12.9	13.7	16.4	14.3	--	1.8	7.3	0.0	0.5	2.6
Jury	47	49	55	50	42	49	13.0	9.3	12.3	13.0	15.5	13.6	0.5	1.5	7.8	0.0	4.2	4.0
Shelby 427	--	--	48	43	40	44	--	--	13.3	14.0	16.0	14.4	--	--	7.1	0.0	0.9	2.7
Horsepower	--	--	--	--	38	--	--	--	--	--	15.2	--	--	--	--	--	0.1	--
Jerry	44	42	50	46	--	--	14.7	10.0	11.6	12.0	--	--	0.0	1.5	8.9	0.0	--	--
Youngs	48	46	53	47	--	--	14.4	10.4	12.7	13.8	--	--	1.5	0.0	7.7	0.0	--	--
Monida	--	--	50	45	--	--	--	--	10.7	10.1	--	--	--	--	9.1	0.0	--	--
Streaker	--	--	49	44	--	--	--	--	16.3	14.4	--	--	--	--	8.8	0.0	--	--
Maida	42	44	50	--	--	--	14.2	9.4	12.0	--	--	--	0.0	2.3	9.1	--	--	--
Paul*	46	45	52	--	--	--	17.9	12.9	14.9	--	--	--	0.0	0.8	5.4	--	--	--
LSD 5%	2.3	3.0	2.0	2.4	2.1		0.7	0.8	0.8	1.0	0.5		NS	2.0	1.2	NS	2.6	

*Naked-hull variety

Oat Disease Summary, 2009-12

	Crown Rust %					Crown Rust %					Crown Rust %			
Variety	**09**	**10**	**12**	**3yr**	**Variety**	**09**	**10**	**12**	**3yr**	**Variety**	**09**	**10**	**12**	**3yr**
Beach	2	12	1	5	Horsepower	--	--	0	--	AC Pinnacle	2	4	1	2
Buff	1	4	2	2	Killdeer	4	28	6	12	Rockford	0	0	0	0
CDC Dancer	2	5	3	3	Leggett	0	0	0	0	Shelby427	--	0	0	--
Furlong	5	15	4	8	Minstrel CDC	7	47	14	23	Souris	0	1	0	0
Hytest	1	14	1	5	Morton	1	26	0	9	Stallion	0	0	0	0
Jury	0	0	0	0	Newburg	0	0	0	0	Stark	1	1	0	1
HiFi	0	0	0	0	Otana	53	73	25	50	LSD 5%	12	8	11	

Crown Rust - % flag leaf

Flax Summary, Langdon 2008-2012

	Yield (bu/a)						Test Weight (lbs/bu)						Lodging(0-9)			Height (in)						Days to Flower					
Variety	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**09**	**10**	**2yr**	**08**	**09**	**10**	**11**	**12**	**3yr**	**08**	**09**	**10**	**11**	**12**	**3yr**
Bison	34	29	45	37	33	38	53.1	49.1	52.4	53.3	52.7	52.8	4.5	0.5	2.5	23	31	31	28	24	28	63	53	42	50	56	49
Carter*	34	37	47	41	37	42	53.7	50.8	53.0	53.5	52.9	53.1	1.5	0.0	0.8	23	30	29	28	25	27	65	53	42	50	58	50
CDC Arras	37	36	48	40	33	40	53.1	49.8	52.6	53.0	52.5	52.7	3.3	0.5	1.9	22	30	32	28	25	28	62	53	43	50	57	50
CDC Bethune	38	37	51	37	32	40	53.0	50.3	53.2	52.8	52.6	52.8	2.0	0.0	1.0	22	30	32	28	25	28	63	53	43	50	58	50
Hanley	36	35	51	41	35	42	53.6	50.1	53.0	53.1	52.0	52.7	2.5	0.5	1.5	21	26	30	29	26	28	63	52	41	50	57	49
Lightning	35	40	48	40	35	41	53.7	51.7	52.9	53.3	52.5	52.9	0.5	0.3	0.4	21	28	31	27	25	28	62	52	43	50	57	50
Linott	37	35	46	44	33	41	53.6	51.2	52.9	53.4	52.7	53.0	3.3	0.0	1.7	22	31	32	29	26	29	63	52	43	50	58	50
McGregor	36	38	51	44	34	43	53.7	51.5	53.2	53.4	52.5	53.0	2.8	0.0	1.4	22	31	31	28	25	28	65	54	43	50	59	51
Neche	37	42	50	37	33	40	53.6	52.1	52.8	53.0	52.5	52.8	2.0	0.2	1.1	22	32	33	29	25	29	63	53	43	51	58	50
Nekoma	36	40	49	38	34	41	53.7	52.5	53.2	53.1	52.7	53.0	2.8	0.2	1.5	22	31	30	28	25	28	63	53	42	49	57	49
Omega*	36	31	45	42	32	40	53.4	49.9	52.9	53.5	52.8	53.1	4.3	0.0	2.2	22	27	28	28	24	26	65	52	42	51	58	50
Pembina	35	40	49	45	33	42	53.6	52.9	52.7	53.1	52.6	52.8	1.0	0.3	0.7	22	31	32	29	25	29	63	53	42	50	57	50
Prairie Blue	38	41	50	44	35	43	52.9	50.0	52.6	53.0	52.2	52.6	1.5	0.7	1.1	21	30	31	27	24	28	64	54	43	51	58	51
Prairie Thunder	37	28	51	41	37	43	53.5	48.1	52.1	53.3	53.0	52.8	2.0	0.7	1.4	21	26	28	25	26	26	64	52	41	48	59	49
Rahab 94	36	40	50	40	35	41	53.0	51.0	52.5	53.0	52.0	52.5	2.0	0.0	1.0	22	29	29	25	24	26	62	53	43	50	58	50
Webster	37	37	54	43	35	44	53.8	51.4	53.6	53.6	52.7	53.3	3.3	0.0	1.7	21	32	33	30	25	29	63	54	43	52	59	51
York	37	42	48	44	35	42	54.3	52.1	52.4	53.3	52.5	52.7	2.5	0.0	1.3	20	31	30	28	24	27	64	53	42	50	56	49
CDC Sorrel	40	34	45	41	33	40	53.5	50.8	52.5	52.9	51.9	52.4	5.0	1.0	3.0	23	30	34	30	25	29	64	56	44	52	57	51
Prairie Grande	--	30	51	38	33	41	--	47.8	52.3	53.0	52.0	52.4	2.8	0.7	1.8	--	25	25	24	23	24	--	51	40	48	55	48
CDC Glas	--	--	--	--	39	--	--	--	--	--	51.8	--	--	--	--	--	--	--	--	26	--	--	--	--	--	60	--
CDC Sanctuary	--	--	--	--	32	--	--	--	--	--	52.0	--	--	--	--	--	--	--	--	24	--	--	--	--	--	59	--
Prairie Sapphire	--	--	--	--	36	--	--	--	--	--	51.5	--	--	--	--	--	--	--	--	25	--	--	--	--	--	58	--
Shape	--	--	--	--	37	--	--	--	--	--	51.8	--	--	--	--	--	--	--	--	25	--	--	--	--	--	58	--
LSD 5%	3.2	7.0	3.3	5.9	3.3		0.4	1.1	0.9	0.3	0.3		2.2	0.8		1.2	1.5	3.5	1.9	1.1		0.7	0.8	0.8	1.1	0.6	

*Yellow seeded.

Canola - Liberty Link, Clearfield Varieties - 2011-2012

Company/Brand	Variety	Type[1]	Blackleg Rating[2]	Days to First Flower			Days to End Flower			Days to Mature			% Cover[5]		
				11	12	2yr	11	12	2yr	11	12	2yr	11	12	2yr
Bayer CropScience	InVigor L130	H,LL,TR	R	42	54	48	56	68	62	82	90	86	90	69	80
Bayer CropScience	InVigor L150	H,LL,TR	R	45	57	51	60	69	64	85	92	88	88	69	79
Bayer CropScience	InVigor L120	H,LL,TR	R	43	54	48	57	67	62	83	91	87	92	75	84
Mycogen	2012 CL	H,CL,HO	MR	43	55	49	57	69	63	84	93	89	96	84	90
Mycogen	Nexera 2016 CL	H,CL,HO	R	--	55	--	--	69	--	--	91	--	--	78	--
Pioneer	46H75	H,CL,TR	R	45	57	51	61	72	66	86	95	90	92	80	86
Pioneer	45H73	H,CL,TR	R	42	54	48	57	67	62	83	90	87	91	81	86
RR Check[4]	DKL 72-55	H,RR,TR	R	42	53	47	57	67	62	84	92	88	91	78	85
RR Check[4]	HyClass 955	H,RR,TR	R	--	52	--	--	66	--	--	91	--	--	86	--
LSD 5%				2.0	1.3		1.1	0.9		1.7	2.8		6.4	6.1	

[1]H-Hybrid, OP-Open Pollinated, LL-Liberty Link, CL-Clearfield System
TR-Traditional Oil type, HO-High Oleic Oil Type

[2]Blackleg Rating: S-Susceptible, MS-Moderately Susceptible, MR-Moderately Resistant, R-Resistant, Provided by company.

[4]Roundup ready check variety.

[5] % Cover-Visual rating of percent area of plot covered by plant growth. This is a measure of stand and vigor. Plants were at 5-6 leaf stage.

Canola - Liberty Link, Clearfield Varieites - 2011-2012

Company/Brand	Variety	Height (in)			Lodging (0-9)	Oil[1] (%)			Yield[1] (lbs/a)				
		11	12	2yr	12	11	12	2yr	2010	2011	2012	2yr	3yr
Bayer CropScience	InVigor L130	38	44	41	0.0	49.1	44.4	46.8	3294	1802	2163	1983	2420
Bayer CropScience	InVigor L150	39	45	42	0.3	51.2	45.6	48.4	3308	1910	2104	2007	2441
Bayer CropScience	InVigor L120	37	45	41	0.0	49.8	44.8	47.3	--	1946	2109	2028	--
Mycogen	2012 CL	36	47	41	0.0	48.6	43.7	46.2	--	1928	2386	2157	--
Mycogen	2016 CL	--	44	--	0.3	--	44.1	--	--	--	1879	--	--
Pioneer	46H75	40	47	44	0.5	50.2	43.9	47.1	--	2089	2309	2199	--
Pioneer	45H73	36	45	40	0.8	49.5	44.0	46.8	3099	1988	2422	2205	2503
RR Check	DKL 72-55	37	43	40	1.0	51.2	46.7	49.0	3090	2408	2487	2447	2662
RR Check	HyClass 955	--	41	--	1.8	--	47.1	--	--	--	2327	--	--
LSD 5%		3.2	2.8		1.3	1.6	2.1		255	387	249		

[1] 8.5% moisture

Canola -Roundup Ready - 2011-2012

Company	Variety	Type[1]	Blackleg Rating[2]	Days to First Flower			Days to End Flower			Days to Mature			% Cover[3]		
				11	12	2yr	11	12	2yr	11	12	2yr	11	12	2yr
Brett Young	6070RR	H,TR	R	40	52	46	57	68	63	85	92	89	97	73	85
Brett Young	6040RR	H,TR	R	44	55	49	60	69	64	85	93	89	92	77	85
Cargill	V2035	H,HO	R	44	53	48	58	67	62	84	91	87	90	75	83
Cargill	V12-1	H,HO	R	44	57	50	60	68	64	85	93	89	98	75	87
Cargill	V1050	H,HO	R	--	57	--	--	69	--	--	93	--	--	79	--
Cargill	V2045	H,HO	R	--	55	--	--	68	--	--	90	--	--	75	--
Croplan Genetics	HyClass 930	H,TR	R	--	52	--	--	67	--	--	88	--	--	75	--
Croplan Genetics	HyClass 947	H,TR	R	43	53	48	60	68	64	85	91	88	96	80	88
Croplan Genetics	HyClass 955	H,TR	R	43	53	48	57	67	62	84	90	87	94	82	88
Croplan Genetics	HyClass 988	H,TR	R	43	56	50	60	71	66	88	95	91	97	76	87
Dekalb	DKL30-42	H,TR	R	41	52	47	56	66	61	83	87	85	95	85	90
Dekalb	DKL30-03	H,TR	R	--	49	--	--	65	--	--	86	--	--	76	--
Dekalb	DKL72-55	H,TR	R	--	53	--	--	67	--	--	91	--	--	70	--
Dekalb	DKL55-55	H,TR	R	41	52	47	56	66	61	82	89	85	91	79	85
Dekalb	DKL70-07	H,TR	R	42	54	48	58	67	63	84	91	88	93	76	85
Integra	7150 R	H,TR	R	41	51	46	56	67	61	83	88	85	92	76	84
Integra	7152 R	H,TR	R	41	53	47	56	68	62	83	89	86	95	74	85
Mycogen	1012 RR	H,HO	R	46	57	52	63	72	68	86	93	90	97	78	88
Mycogen	1016 RR	H,HO	R	--	57	--	--	68	--	--	91	--	--	71	--
Pioneer	46S53	H,TR	R	44	56	50	61	69	65	85	92	89	89	73	81
Pioneer	45S52	H,TR	MR	43	54	49	61	68	64	86	92	89	89	71	80
Pioneer	45S54	H,TR	R	--	54	--	--	69	--	--	92	--	--	72	--
Proseed	45 Caliber	H,TR	R	43	54	48	61	71	66	85	94	90	96	71	84
Star	Star 402	H,TR	R	--	52	--	--	68	--	--	91	--	--	75	--
LSD 5%				0.9	1.0		1.9	0.9		1.6	1.6		6.8	5.9	

[1]OP-Open Pollinated, H-Hybrid, TR-Traditional Oil Type, HO-High Oleic Oil Type

[2]Blackleg Rating: S=Susceptible, MS=Moderately Susceptible, MR=Moderately Resistant, R=Resistant. Rating provided by company.

[3] % Cover- Visual rating of percent area of plot covered by plant growth. This is a measure of stand and vigor. Plants were at 5-6 leaf stage.

Canola -Roundup Ready - 2010-2012

Company	Variety	Height (in)			Lodging (0-9)	Oil[1] (%)			Yield[1] (lbs/a)				
		11	12	2yr	10	11	12	2yr	10	11	12	2yr	3yr
Brett Young	6070RR	41	42	41	2.8	50.2	45.9	48.1	3694	2820	2123	2472	2879
Brett Young	6040RR	40	44	42	2.5	49.5	44.8	47.2	2824	2297	2093	2195	2405
Cargill	V2035	36	39	38	2.7	51.9	46.7	49.3	2950	2084	1838	1961	2291
Cargill	V12-1	42	44	43	--	49.3	43.8	46.6	--	2777	2236	2507	--
Cargill	V1050	--	43	--	--	--	45.3	--	--	--	2146	--	--
Cargill	V2045	--	41	--	--	--	44.4	--	--	--	1941	--	--
Croplan Genetics	HyClass 930	--	38	--	--	--	47.9	--	--	2086	2280	2183	--
Croplan Genetics	HyClass 947	41	41	41	2.2	52.3	47.5	49.9	3346	2386	2130	2258	2621
Croplan Genetics	HyClass 955	38	40	39	--	52.5	47.4	50.0	--	2686	2286	2486	--
Croplan Genetics	HyClass 988	42	47	44	2.4	50.0	44.7	47.4	3115	2650	1999	2325	2588
Dekalb	DKL30-42	36	39	37	3.0	51.3	46.2	48.8	3565	2217	2413	2315	2732
Dekalb	DKL30-03	--	39	--	--	--	47.8	--	--	--	2085	--	--
Dekalb	DKL72-55	38	40	39	2.8	52.4	47.3	49.9	3257	2239	2191	2215	2562
Dekalb	DKL55-55	37	41	39	--	52.7	48.4	50.6	--	1824	2269	2046	--
Dekalb	DKL70-07	36	41	39	--	51.9	46.6	49.3	--	2447	2314	2381	--
Integra	7150 R	37	39	38	1.8	51.9	47.4	49.7	3590	2057	2177	2117	2608
Integra	7152 R	37	40	39	2.6	51.5	46.6	49.1	3288	2159	2126	2143	2524
Mycogen	1012 RR	44	46	45	--	48.9	44.4	46.7	--	2332	2275	2304	--
Mycogen	1016 RR	--	42	--	--	--	44.3	--	--	2475	1897	2186	--
Pioneer	46S53	44	47	45	--	51.2	46.4	48.8	--	2355	1961	2158	--
Pioneer	45S52	39	44	42	--	50.2	45.2	47.7	--	2369	1770	2070	--
Pioneer	45S54	--	45	--	--	--	46.1	--	--	--	2001	--	--
Proseed	45 Caliber	40	44	42	2.4	50.0	44.4	47.2	3420	2168	1890	2029	2493
Star	Star 402	--	41	--	--	--	48.9	--	--	--	2168	--	--
LSD 5%		3	3		1.0	1.3	1.2		344	396	254		

[1] 8.5% Moisture

2012- Lodging was minimal in trial with no differences between varieties.

Langdon - Drybean - 2010-2012

Variety	Type	Days to Maturity	100 Seed Wt.	Yield 2010	2011	2012	2 yr Avg.	3 yr Avg.
			grams	lbs/a				
LaPaz	Pinto	99	36.0	3100	3172	3510	3341	3261
Lariat	Pinto	100	41.9	3208	3124	3697	3411	3343
Maverick	Pinto	99	41.4	2976	--	3079	--	--
Medicine Hat	Pinto	96	41.4	2804	3024	2823	2923	2884
ND-307	Pinto	104	42.6	2520	2428	3257	2842	2735
Stampede	Pinto	98	37.9	2384	3032	3423	3228	2946
Windbreaker	Pinto	96	43.6	2880	3076	3457	3266	3138
Majesty	DRK	102	65.5	--	--	2270	--	--
Sedona	Pink	103	40.2	2856	2628	2587	2607	2690
Mean		100	42.9	2868	3050	3099	--	--
C.V. %		1.0	3.6	8.2	14.3	10.0	--	--
LSD 10%		1.4	2.2	--	604	439	--	--
LSD 5%		1.7	2.6	385	NS	531	--	--

Variety	Type	Days to Maturity	100 Seed Wt.	Yield 2010	2011	2012	2 yr Avg.	3 yr Avg.
			grams	lbs/a				
Avalanche	Navy	99	22.3	3020	2868	3092	2980	2993
Ensign	Navy	100	21.7	2816	3472	3524	3498	3271
HMS Medalist	Navy	98	18.6	3512	3268	2996	3132	3259
Lightning	Navy	99	21.9	3172	3168	1981	2574	2774
Navigator	Navy	99	19.8	2952	--	2980	--	--
Rexeter	Navy	107	20.6	--	--	2224	--	--
T9905	Navy	99	21.2	--	--	3208	--	--
Vista	Navy	100	19.4	3052	2564	2094	2329	2570
Eclispse	Black	102	21.7	3016	3664	2503	3084	3061
Loreto	Black	101	20.6	--	--	2788	--	--
Zorro	Black	103	21.0	3336	3080	2166	2623	2861
Mean		101	20.8	2868	3050	2687	--	--
C.V. %		1.9	2.4	8.2	14.3	10.1	--	--
LSD 10%		2.7	0.7	--	604	381	--	--
LSD 5%		3.2	0.9	385	NS	461	--	--

Pembina County - Drybean - 2011-2012

Variety	Type	100 Seed Wt.	Yield 2011	Yield 2012[1]	2 yr Avg.
		grams	----------lbs/a----------		
LaPaz	Pinto	36.0	2505	2104	2305
Stampede	Pinto	37.9	2983	2012	2498
Maverick	Pinto	39.7	2902	1824	2363
ND-307	Pinto	40.3	2990	1720	2355
Medicine Hat	Pinto	40.5	2815	1768	2292
Windbreaker	Pinto	42.7	2883	2256	2570
Merlot	Small Red	33.2	2260	1212	1736
Sedona	Pink	36.6	2672	1816	2244
Mean		38.3	2791	1652	--
C.V. %		5.6	17.0	13.6	--
LSD 10%		3.0	--	319	--
LSD 5%		3.7	NS	386	--

Variety	Type	100 Seed Wt.	Yield 2011	Yield 2012[1]	2 yr Avg.
		grams	----------lbs/a----------		
HMS Medalist	Navy	19.7	2760	2696	2728
Avalanche	Navy	21.2	2514	2412	2463
Ensign	Navy	23.1	2544	2164	2354
Vista	Navy	19.1	2641	2164	2403
Rexeter	Navy	18.8	--	1760	--
Lightning	Navy	19.8	2351	1324	1838
T9905	Navy	22.9	--	2220	--
Navigator	Navy	19.2	--	1516	--
Eclispse	Black	20.5	2458	1904	2181
Zorro	Black	21.2	2559	2244	2402
Loreto	Black	21.8	2878	2304	2591
Mean		20.7	2647	2064	--
C.V. %		4.1	12.0	9.6	--
LSD 10%		1.2	--	280	--
LSD 5%		1.4	NS	339	--

Lariat and Majesty are not included in results due to seed problems.

[1]A fairly significant hail storm occurred on July 4 causing some damage. Drybeans were mostly in the R1 stage. Drybeans recovered nicely but were later maturing than normal.

Field Pea - Langdon - 2012

Variety	Days to 1st Flower	Days to Mature	Vine Length	Canopy Ht at Harvest	Height Index[1]	Harvest Ease[2]	Protein	1000 KWT	Test Weight	Yield 2010	Yield 2011	Yield 2012	Average 2 year	Average 3 year
			in	in	%	0-9	%	gms	lb/bu	bu/a	bu/a	bu/a		
Yellow Cotyledon Type														
Agassiz	54	84	33	18	53	4.8	26.4	219	63.0	83.1	65.6	65.1	65.4	71.3
CDC Golden	55	84	33	14	43	5.8	26.3	207	63.2	81.5	71.3	63.2	67.3	72.0
DS Admiral	55	84	34	14	40	6.0	25.2	227	62.7	84.7	58.4	62.5	60.5	68.5
LN4206	52	84	33	15	44	4.8	25.2	233	62.6	76.8	72.9	64.4	68.7	71.4
Spider	56	87	38	13	35	6.0	27.7	243	62.8	--	68.8	68.8	68.8	--
LN4223	52	82	31	17	54	5.3	26.7	208	62.4	--	--	56.3	--	--
LN4228	52	87	32	21	65	3.0	27.7	243	64.1	--	--	59.8	--	--
Green Cotyledon Type														
CDC Striker	55	83	28	8	29	8.8	24.7	203	62.4	83.0	56.9	65.1	61.0	68.3
Cruiser	53	84	35	11	31	7.3	25.7	193	63.0	75.6	51.0	59.0	55.0	61.9
LN 1103	55	87	34	19	56	3.5	25.8	262	62.9	83.0	72.1	59.9	66.0	71.7
Majoret	55	85	31	10	33	8.0	27.6	214	63.0	79.9	64.3	62.3	63.3	68.8
LN1115	55	85	31	14	45	6.0	26.2	261	63.7	--	74.1	68.5	71.3	--
Mean	54	85	33	14	44	5.8	26.3	226	63.0	82.3	64.6	62.9	--	--
C.V. %	1	1.9	6.1	17.5	19.9	23.7	2.2	4.1	0.6	9.7	8.7	6.3	--	--
LSD 5%	0.8	2.3	2.9	3.6	12.6	2	0.8	20.2	0.6	11.5	9.3	5.7	--	--

[1] Height Index: Plant height at time of harvest relative to plant height at the end of bloom

[2] Harvest Ease: 0=plants standing erect, 9=plants laying horizontal.

Langdon - Conventional Soybeans - 2012

Brand	Variety	Maturity Group[1]	Maturity	Plant Height	Protein	Oil	Yield 2012	Yield 2yr Avg
			Date[2]	in	%	%	---------bu/a--------	
Hefty Seed	H0212LL[3]	0.2	9/17	33	30.1	19.0	46.6	45.5
Hefty Seed	H008L3[3]	00.8	9/12	34	31.3	18.5	57.3	--
Integra	30080[3]	00.8	9/11	35	31.3	18.6	58.4	--
NDSU	Ashtabula	0.4	9/22	41	30.9	19.0	51.3	--
NDSU	Cavalier	00.9	9/10	38	31.3	18.4	52.5	45.7
NDSU	Traill	0.0	9/14	36	31.9	18.3	47.7	44.6
Peterson	L009-13[3]	00.9	9/11	34	31.1	18.3	55.5	--
SK Food	SK0007	000.4	9/5	33	32.9	17.8	42.4	40
SK Food	SK0034	0.0	9/23	36	29.8	18.3	39.1	--
SunOpta	Bravado	00.9	9/14	39	30.1	18.8	53.0	50.9
SunOpta	Valor	0.1	9/16	42	31.8	18.1	41.0	--
Trial Mean			9/15	37	31.1	18.5	48.0	--
C.V. %			1.6	4.8	1.5	1.3	8.2	--
LSD 10%			2.1	2.1	0.8	0.4	4.7	--
LSD 5%			2.6	2.5	1.0	0.5	5.6	--

Walsh County - Conventional Soybeans - 2012

Brand	Variety	Maturity Group[1]	Maturity	Plant Height	Protein	Oil	Yield 2012	Yield 2yr Avg
			date[2]	in	%	%	----------bu/a---------	
Hefty Seed	H0212LL[3]	0.2	9/4	28.0	30.4	20.1	50.7	48.5
Hefty Seed	H008L3[3]	00.8	8/31	32.0	31.1	19.9	56.6	--
Integra	30080[3]	00.8	9/3	31.0	30.7	19.8	56.3	--
NDSU	Ashtabula	0.4	9/9	36.0	28.6	20.8	48.0	--
NDSU	Traill	0.0	8/31	36.0	30.7	19.9	54.5	50.6
Peterson	L009-13[3]	00.9	9/2	33.0	30.9	19.5	53.8	--
Peterson	L03-12N4[3]	0.3	9/6	33.0	30.5	19.9	48.8	49.1
Richland Organics	MK0205	0.2	9/8	32.0	30.8	19.4	39.6	38.3
SK Food	SK0007	000.4	8/22	22.0	34.2	18.3	30.0	--
SK Food	SK0034	0.0	9/6	33.0	29.3	19.7	51.7	--
SunOpta	Bravado	00.9	8/25	33.0	28.7	19.9	46.1	47.9
SunOpta	Valor	0.1	9/3	38.0	30.8	19.4	52.3	--
Trial Mean			9/2	33.0	30.4	19.8	48.2	--
C.V. %			1.6	6.6	2.2	1.6	11.7	--
LSD 10%			3.0	3.8	1.1	0.5	9.7	--
LSD 5%			3.6	4.5	1.4	0.6	11.8	--

[1]Maturity Group provided by company

[2]Days to physiological maturity at R7 stage (one brown pod on the main stem obtains mature brown or tan color.)

[3]Liberty Link Yield, oil and protein reported at 13% moisture.

Langdon - Roundup Ready Soybeans - 2012

Brand	Variety	Maturity Group[1]	Maturity date[3]	Plant Height in	Protein %	Oil %	Yield 2012 bu/a	Yield 2 yr Avg. bu/a	Yield 2-site Avg.[4] bu/a
ASGROW	AG00632	00.6	9/5	36	32.0	18.5	40.1	51.2	42.5
ASGROW	AG00932	00.9	9/4	37	30.7	18.6	40.3	53.4	42.7
Biogene	BG 7009	00.9	9/5	36	31.2	18.1	39.0	--	--
Biogene	BG 7007	00.7	9/4	34	32.1	18.6	41.4	--	--
Channel	00506 RR2	00.5	9/4	33	31.2	19.3	42.0	--	--
Croplan	R2T0091	00.9	9/5	38	29.5	19.2	44.4	56.8	--
Croplan	R2T0041	00.4	9/5	36	31.1	19.3	48.5	--	--
Croplan	R2T0231	0.2	9/6	39	31.2	18.5	46.3	--	--
Croplan	R2T00832	00.8	9/5	37	31.1	18.7	44.5	--	--
Dyna-Gro	30RY04	00.4	9/4	34	32.3	18.9	42.5	53.5	41.0
Dyna-Gro	30RY07	00.7	9/5	35	32.6	18.3	45.0	54.9	44.5
Dyna-Gro	S008RY43	00.8	9/4	36	30.1	18.8	44.7	--	43.0
Dyna-Gro	34RY03	0.2	9/5	39	30.9	18.8	44.4	--	45.3
G2 Genetics	6009	00.9	9/6	34	30.9	19.3	42.9	55.1	44.6
G2 Genetics	6005	00.4	9/3	28	30.3	19.9	40.7	49.4	44.1
G2 Genetics	0090	00.9	9/5	34	33.4	18.7	41.8	53.3	44.9
G2 Genetics	6012	0.1	9/6	37	31.2	18.8	37.5	49.6	40.7
Gold Cntry	0241	0.2	9/6	37	31.0	18.7	43.2	--	--
Gold Cntry	0140	0.1	9/7	36	31.3	18.7	42.7	55.0	--
Hefty	H007Y12	00.7	9/5	34	32.3	18.8	42.6	50.4	43.2
Hefty	H009Y12	00.9	9/5	35	32.0	18.0	42.2	--	46.4
Hefty	H00Y12	0.0	9/6	29	31.7	19.4	42.9	52.4	42.5
Hyland	HS 006RYS24	00.6	9/4	39	31.8	17.7	45.8	--	47.9
Hyland[2]	HX 007RY32	00.7	9/5	35	31.1	18.5	47.5	--	47.7
Hyland[2]	DAS007R3	00.7	9/3	35	30.4	18.9	43.1	--	44.9
Integra	20031	00.3	9/4	37	30.7	18.3	40.0	--	45.9
Integra	20080	00.8	9/4	35	30.7	18.4	41.3	--	40.5
Integra	20052 R2Y	00.5	9/2	36	31.5	17.9	44.1	51.0	--
Integra	20090 R2Y	00.9	9/6	37	31.5	18.5	41.8	55.3	--
Integra	20109	0.1	9/15	34	34.0	17.8	41.9	--	43.3
Mustang	00971	00.9	9/6	39	32.4	18.0	40.6	55.7	--
Mustang	01212	0.1	9/6	30	33.1	18.1	42.3	52.1	--
Mustang	00913	00.9	9/12	31	32.8	17.9	39.9	53.5	--
Mycogen	5B005R2	00.5	9/3	34	31.6	19.1	44.5	54.7	46.8
Mycogen	5B007R2	00.7	9/4	37	31.8	19.3	48.3	57.3	49.7
Mycogen	5G009R2	00.9	9/6	38	31.7	17.9	43.1	--	44.7
Northstar	NS0057R2[2]	00.5	9/2	34	31.5	17.9	48.6	52.4	48.7
Northstar	NS0077R2[2]	00.7	9/5	33	32.5	19.0	47.3	53.0	46.2

Langdon - Roundup Ready Soybeans - 2012 (continued)

Brand	Variety	Maturity Group[1]	Maturity	Plant Height	Protein	Oil	Yield 2012	Yield 2 yr Avg.	Yield 2-site Avg.[4]
			date[3]	in	%	%	bu/a	bu/a	bu/a
Peterson	13R01	0.1	9/14	33	32.2	18.4	41.3	--	41.0
Peterson	12R007	00.7	9/5	33	32.8	18.7	38.1	49.9	42.1
Peterson	11R01	0.1	9/5	37	29.3	19.8	42.8	54.4	44.6
Pioneer	90Y01	0.0	9/5	38	29.8	19.3	42.2	--	44.8
Pioneer	900Y81	00.8	9/7	36	30.0	18.4	37.0	48.1	38.7
Prairie Brand	PB-00560R2	00.5	9/5	34	31.0	19.7	49.1	--	49.4
Prairie Brand	PB-00760R2	00.7	9/4	37	31.6	18.5	44.7	--	48.5
Prairie Brand	PB-00844R2	00.8	9/4	35	29.8	18.8	44.3	--	43.5
Prairie Brand	PB-0131R2	0.1	9/13	33	34.7	17.0	42.7	--	42.7
Prairie Brand	PB-0240R2	0.2	9/5	38	30.3	18.7	41.7	--	42.7
Proseed	P2 11-05	00.5	9/3	34	30.8	19.3	47.7	53.5	44.8
Proseed	P2 11-07	00.7	9/4	35	33.1	18.3	42.6	52.5	45.7
Proseed	P2 10-08	00.8	9/7	41	31.3	18.3	40.9	53.9	40.4
Proseed	P2 20-08	00.8	9/5	35	31.0	18.1	45.5	--	42.7
Proseed	P2 20-00	0.0	9/14	31	34.4	17.8	41.6	--	43.4
REA	53G32	00.3	9/4	30	32.1	18.9	44.7	51.9	43.6
REA	55G22	00.5	9/4	36	33.2	18.5	42.8	53.7	44.5
REA	58G82	00.8	9/5	36	30.7	18.5	42.4	53.6	43.2
REA	61G21	0.1	9/5	36	29.9	18.7	43.6	--	45.9
Seeds 2000	0091 RR2Y	00.9	9/6	39	32.4	17.3	36.3	53.5	42.7
Syng NK	S00-A7 Brand	00.7	9/4	35	31.9	19.1	46.7	--	48.3
Syng NK	S02-B4 Brand	0.2	9/4	35	29.8	19.0	38.8	53.0	44.1
Thunder	32005R2Y	00.5	9/2	37	32.5	18.4	49.0	53.6	50.1
Thunder	33009R2YN	00.9	9/4	37	30.9	18.3	47.2	--	44.4
Thunder	31009R2Y	00.9	9/6	37	32.2	18.0	39.5	52.8	42.3
Thunder	3201R2Y	0.1	9/6	30	31.9	18.8	42.4	52.5	47.2
Thunder	3202R2Y	0.2	9/16	35	34.3	16.8	34.2	--	38.4
Wensman	W 30088R2	00.8	9/13	33	32.4	18.4	40.1	--	43.1
Wensman	W 30099R2	00.9	9/9	39	30.4	19.1	42.9	--	44.2
Wensman	W 30084R2	00.8	9/5	37	33.2	17.5	36.8	52.9	40.8
Wensman	W 30091R2	00.9	9/5	36	29.9	18.9	41.8	54.4	48.0
Trial Mean			9/6	35	31.6	18.5	42.7	--	--
C.V. %			1.4	7.2	2.6	2.8	11.4	--	--
LSD 10%			1.8	3.0	1.3	0.9	5.7	--	--
LSD 5%			2.1	3.5	1.6	1.1	6.8	--	--

[1]Maturity Group provided by company

All lines are commerically available except those designated experiemental[2].

[3]Days to physiological maturity at R7 stage (one brown pod on the main stem obtains mature brown or tan color.)

[4]A 2-site average of our northern region. Langdon REC and Pembina County (Cavalier).

Yield, oil and protein reported at 13% moisture.

Pembina County - Roundup Ready Soybeans - 2012

Brand	Variety	Maturity Group[1]	Maturity date[3]	Protein %	Oil %	Yield 2012[5]	Yield 2 yr Avg.	Yield 2-site Avg.[4]
						bu/a		
ASGROW	AG00632	00.6	9/11	29.7	20.2	45.0	46.6	42.5
ASGROW	AG00932	00.9	9/14	29.4	19.7	45.0	47.6	42.7
Dyna-Gro	30RY04	00.4	9/12	30.1	20.4	39.6	44.4	41.0
Dyna-Gro	30RY07	00.7	9/13	30.0	20.1	43.9	47.9	44.5
Dyna-Gro	34RY03	0.2	9/15	30.3	19.5	46.2	--	45.3
Dyna-Gro	S008RY43	00.8	9/13	29.6	19.4	41.4	--	43.0
G2 Genetics	6005	00.4	9/15	29.2	20.4	47.5	47.7	44.1
G2 Genetics	0090	00.9	9/16	30.3	20.2	48.0	49.1	44.9
G2 Genetics	6009	00.9	9/9	30.0	20.3	46.3	45.1	44.6
G2 Genetics	6012	0.1	9/12	29.0	20.2	43.8	46.2	40.7
Hefty	H007Y12	00.7	9/12	31.3	19.9	43.8	46.2	43.2
Hefty	H009Y12	00.9	9/16	29.7	19.1	50.5	--	46.4
Hefty	H00Y12	0.0	9/15	30.6	19.7	42.1	43.2	42.5
Hyland	HS 006RYS24	00.6	9/12	30.0	19.1	50.1	--	47.9
Hyland[2]	HX 007RY32	00.7	9/12	29.8	19.8	47.8	--	47.7
Hyland[2]	DAS007R3	00.7	9/13	29.8	19.5	46.7	--	44.9
Integra	20031	00.3	9/17	30.2	19.4	51.8	--	45.9
Integra	20080	00.8	9/12	29.3	20.2	39.8	--	40.5
Integra	20109	0.1	9/20	31.4	19.1	44.6	--	43.3
Integra	97001	00.3	9/12	29.5	21.0	44.4	--	--
Integra	97014	0.1	9/17	31.2	19.7	48.6	--	--
Mycogen	5B005R2	00.5	9/11	30.4	20.4	49.2	--	46.8
Mycogen	5B007R2	00.7	9/13	29.8	20.4	51.0	--	49.7
Mycogen	5G009R2	00.9	9/15	29.7	20.0	46.4	--	44.7
Northstar	NS0057R2[2]	00.5	9/10	30.1	18.9	48.8	47.1	48.7
Northstar	NS0077R2[2]	00.7	9/9	30.2	20.2	45.0	45.2	46.2
Peterson	12R007	00.7	9/17	30.3	20.1	46.1	44.9	42.1
Peterson	11R01	0.1	9/18	29.2	19.7	46.4	49.4	44.6
Peterson	13R01	.01	9/20	30.3	19.0	40.6	49.4	44.6
Pioneer	90Y01	0.0	9/16	28.4	20.6	47.4	--	44.8
Pioneer	900Y81	00.8	9/17	30.1	19.1	40.5	45.3	38.7
Prairie Brand	PB-00560R2	00.5	9/11	30.2	20.3	49.8	50.2	49.4
Prairie Brand	PB-00760R2	00.7	9/15	29.2	19.8	52.3	--	48.5
Prairie Brand	PB-00844R2	00.8	9/11	29.4	19.6	42.7	--	43.5
Prairie Brand	PB-0131R2	0.1	9/19	31.5	18.7	42.7	--	42.7
Prairie Brand	PB-0240R2	0.2	9/15	30.5	19.4	43.7	49.7	42.7

Pembina County - Roundup Ready Soybeans - 2012 (continued)

Brand	Variety	Maturity Group[1]	Maturity date[3]	Protein %	Oil %	Yield 2012[5]	Yield 2 yr Avg.	Yield 2-site Avg.[4]
						bu/a		
Proseed	P2 11-05	00.5	9/10	28.9	20.3	41.8	41.2	44.8
Proseed	P2 11-07	00.7	9/11	29.9	20.4	48.7	47.6	45.7
Proseed	P2 10-08	00.8	9/16	28.8	19.8	39.8	42.7	40.4
Proseed	P2 20-08	00.8	9/12	29.2	19.8	40.0	--	42.7
Proseed	P2 20-00	0.0	9/21	30.5	19.4	45.1	--	43.4
REA	53G32	00.3	9/9	29.0	20.9	42.6	43.2	43.6
REA	55G22	00.5	9/11	29.7	20.8	46.2	46.1	44.5
REA	58G82	00.8	9/17	28.2	19.7	44.0	45.2	43.2
REA	61G21	0.1	9/17	29.1	20.1	48.2	45.2	45.9
Seeds 2000	0091 RR2Y	00.9	9/18	28.9	20.0	49.1	51.7	42.7
Stine	01RC62	00.9	9/13	29.8	19.7	41.5	45.4	--
Stine	01RD66	00.9	9/19	30.4	19.8	44.2	--	--
Syng NK	S00-A7 Brand	00.7	9/10	29.4	20.7	49.9	--	48.3
Syng NK	S02-B4 Brand	0.2	9/16	28.4	20.1	49.5	54.1	44.1
Thunder	33009R2YN	00.9	9/11	28.5	19.9	41.6	--	44.4
Thunder	32005R2Y	00.5	9/11	30.0	20.0	51.3	50.0	50.1
Thunder	31009R2Y	00.9	9/17	29.9	18.9	45.1	47.7	42.3
Thunder	3201R2Y	0.1	9/19	31.1	19.6	51.9	47.1	47.2
Thunder	3202R2Y	0.2	9/21	31.6	18.8	42.6	--	38.4
Wensman	W 30088R2	00.8	9/19	31.0	19.1	46.1	--	43.1
Wensman	W 30099R2	00.9	9/18	29.0	19.9	45.4	--	44.2
Wensman	W 30084R2	00.8	9/17	29.5	19.4	44.8	47.0	40.8
Wensman	W 30091R2	00.9	9/18	29.0	19.8	54.1	--	48.0
Trial Mean			9/14	29.8	19.9	45.5	--	--
C.V. %			2.1	2.5	2.0	14.0	--	--
LSD 10%			2.9	1.3	0.7	7.4	--	--
LSD 5%			3.5	1.5	0.8	8.9	--	--

[1]Maturity Group provided by company

All lines are commerically available except those designated experiemental.[2]

[3]Days to physiological maturity at R7 stage (one brown pod on the main stem obtains mature brown or tan color.)

[4]A 2-site average of our northern region. Langdon REC and Pembina County (Cavalier).

[5]A hail storm caused significant damage on July 4. Soybeans were in the late vegetative to R1 stage.

Soybeans recovered nicely but were later maturing than normal.

Yield, oil and protein reported at 13% moisture.

Walsh County - Roundup Ready Soybeans - 2012

Brand	Variety	Maturity Group[1]	Maturity	Plant Height	Protein	Oil	Yield 2012	Yield 2 yr Avg.	Yield 2-site Avg.[4]
			date[3]	in	%	%	bu/a	bu/a	bu/a
ASGROW	AG00632	00.6	8/25	33	29.8	19.8	48.8	49.3	--
ASGROW	AG00932	00.9	8/28	35	30.4	19.3	52.4	51.4	58.8
ASGROW	AG0333	0.3	9/8	33	30.5	19.6	61.1	--	62.2
ASGROW	AG0231	0.2	8/29	34	30.4	18.9	52.9	53.2	61.9
Biogene	BG 7009	00.9	8/29	33	29.6	19.4	41.7	--	--
Biogene	BG 7007	00.7	8/25	32	30.1	20.8	48.3	--	--
Dyna-Gro	30RY04	00.4	8/25	30	29.6	20.7	50.6	50.2	54.9
Dyna-Gro	30RY07	00.7	8/25	32	29.6	20.9	52.5	51.3	58.2
Dyna-Gro	S008RY43	00.8	8/28	34	29.0	20.0	52.4	--	57.1
Dyna-Gro	34RY03	0.2	8/29	34	29.7	19.8	51.7	--	59.2
G2 Genetics	0090	00.9	8/29	32	30.6	20.5	47.1	49.4	52.2
G2 Genetics	6009	00.9	8/29	31	29.2	20.4	45.4	47.5	52.5
G2 Genetics	6012	0.1	8/29	33	29.8	20.2	43.9	44.9	50.0
G2 Genetics	6025	0.2	8/31	32	30.9	20.0	45.5	46.5	51.2
Hefty	H04Y12	00.4	9/5	30	30.9	19.7	47.4	--	52.1
Hefty	H007Y12	00.7	8/26	31	30.5	20.5	48.3	48.2	53.6
Hefty	H009Y12	00.9	8/28	32	30.4	19.3	48.6	--	58.2
Hefty	H00Y12	0.0	9/2	27	29.9	20.4	54.9	52.0	59.4
Hyland	HS 006RYS24	00.6	8/25	35	30.5	19.1	48.2	--	55.8
Hyland	HS 01RY02	0.1	8/28	33	29.9	19.9	48.2	48.0	--
Hyland[2]	HX 007RY32	00.7	8/27	33	30.3	19.7	58.0	--	60.8
Hyland[2]	DAS007R3	00.7	8/28	32	30.1	19.6	54.4	--	57.8
Integra	20031	00.3	8/26	33	29.3	19.8	47.0	--	57.7
Integra	20080	00.8	8/28	33	29.1	19.7	50.6	--	56.0
Integra	20090	00.9	8/28	31	30.7	19.3	41.9	45.9	52.6
Integra	20109	0.1	9/3	28	30.8	19.5	46.9	--	55.7
Integra	97014	0.1	8/29	32	30.4	20.6	50.3	50.5	--
Mustang	00971	00.9	8/29	33	29.7	19.8	46.8	49.3	--
Mustang	01212	0.1	9/1	28	30.5	20.2	57.0	54.7	--
Mustang	00913	00.9	9/2	28	30.8	19.2	52.6	51.7	--
Mycogen	5G009R2	00.9	8/27	33	30.5	19.3	43.0	--	54.4
Mycogen	5B024R2	0.2	8/29	34	29.6	55.8	55.8	55.5	60.8
Northstar	NS0098R2	00.9	9/4	29	30.8	19.2	52.8	--	58.8
Northstar	NS0096R2[2]	00.9	8/27	33	28.5	20.2	49.8	49.2	57.3
Northstar	NS0108R2	0.1	9/2	27	31.0	19.1	44.8	--	54.3
Northstar	NS0187R2	0.1	8/30	27	30.4	20.6	55.3	--	59.2

Walsh County - Roundup Ready Soybeans - 2012 (continued)

Brand	Variety	Maturity Group[1]	Maturity	Plant Height	Protein	Oil	Yield 2012	Yield 2 yr Avg.	Yield 2-site Avg.[4]
			date[3]	in	%	%	bu/a	bu/a	bu/a
Peterson	12R007	00.7	8/25	30	29.6	20.9	48.5	46.8	54.4
Peterson	11R01	0.1	8/28	34	28.7	20.0	48.1	49.8	57.2
Peterson	13R03	0.3	9/6	32	30.3	19.6	50.3	--	56.9
Peterson	12R03	0.3	9/1	31	30.9	19.2	47.5	--	58.4
Pioneer	90Y01	0.0	8/31	37	29.6	20.5	45.8	--	52.0
Pioneer	900Y81	00.8	8/31	32	29.0	19.2	46.2	48.2	52.3
Prairie Brand	Pb-00760R2	00.7	9/27	33	30.8	19.7	52.1	--	56.2
Prairie Brand	PB-00950R2	00.9	8/28	33	30.4	19.5	50.0	51.9	58.2
Prairie Brand	PB-00844R2	00.8	8/27	34	29.6	20.0	53.8	--	61.8
Prairie Brand	PB-0131R2	0.1	9/4	29	31.2	19.2	48.3	--	57.1
Prairie Brand	PB-0240R2	0.2	8/27	35	30.5	19.6	56.9	55.5	64.0
Proseed	P2 11-10	0.1	9/1	26	30.3	20.1	49.2	49.4	55.9
Proseed	P2 10-20	0.2	8/29	34	29.8	19.5	47.1	47.7	55.9
Proseed	P2 20-00	0.0	9/3	28	30.7	19.1	52.3	--	58.2
Proseed	P2 20-08	00.8	8/28	32	28.6	20.1	46.0	--	--
Proseed	P2 10-08	00.8	8/30	34	30.4	19.6	46.8	--	--
REA	55G22	00.5	8/25	31	30.1	20.6	49.5	49.4	56.2
REA	58G82	00.8	8/28	32	29.7	19.5	51.9	52.2	56.5
REA	64G14	0.4	9/5	33	30.2	20.1	47.8	--	55.6
REA	61G21	0.1	8/26	33	28.6	20.2	41.8	45.3	52.8
REA	62G22	0.2	8/28	34	30.0	19.5	49.8	53.3	57.5
Seeds 2000	0091 RR2Y	00.9	8/30	33	30.1	19.5	44.0	46.2	54.6
Stine	02RD00	0.2	9/3	29	30.6	19.2	47.0	--	--
Syng NK	S00-A7 Brand	00.7	8/24	29	30.6	20.4	48.5	--	53.5
Syng NK	S02-B4 Brand	0.2	8/26	33	29.7	19.8	44.2	47.5	54.8
Thunder	33009R2YN	00.9	8/28	32	29.1	19.7	48.5	--	58.7
Thunder	32005R2Y	00.5	8/24	30	29.5	20.6	48.3	46.1	57.3
Thunder	31009R2Y	00.9	8/29	34	30.1	19.3	52.0	51.0	59.0
Thunder	3201R2Y	0.1	9/1	28	30.0	20.2	55.3	51.5	59.9
Thunder	3202R2Y	0.2	9/5	28	30.6	19.7	47.6	--	55.1
Wensman	W 30099R2	00.9	8/31	35	28.5	20.0	54.5	--	59.3
Wensman	W 30088R2	00.8	9/3	27	30.8	19.2	49.2	--	56.5
Wensman	W 30084R2	00.8	8/29	34	29.6	19.4	48.9	50.9	57.4
Wensman	W 30091R2	00.9	8/28	33	28.9	19.8	41.3	46.0	54.5
Trial Mean			8/29	32	30.0	19.8	49.3	--	--
C.V. %			1.2	6.7	1.5	1.3	11.3	--	--
LSD 10%			1.5	2.5	0.8	0.4	6.5	--	--
LSD 5%			1.7	3.0	0.9	0.5	7.8	--	--

[1]Maturity Group provided by company

All lines are commerically available except those designated experiemental.[2]

[3]Days to physiological maturity at R7 stage (one brown pod on the main stem obtains mature brown or tan color.)

[4]A 2-site average of our southern region. Walsh County (Vesleyville) and Nelson County (Lakota).

Yield, oil and protein reported at 13% moisture.

Nelson County - Roundup Ready Soybeans - 2012

Brand	Variety	Maturity Group[1]	Maturity date[2]	Plant Height	Protein	Oil	Yield 2012	Yield 2 yr Avg.	Yield 2-site Avg.[3]
				in	%	%	bu/a	bu/a	bu/a
ASGROW	AG00932	00.9	9/1	32	30.6	18.6	65.1	55.2	58.8
ASGROW	AG0333	0.3	9/12	31	32.3	18.5	63.3	--	62.2
ASGROW	AG0231	0.2	9/4	33	30.5	18.8	70.9	61.0	61.9
ASGROW	AG0430	0.4	9/9	30	30.6	18.9	64.3	53.8	--
Channel	00806R2	00.8	9/1	28	30.5	19.3	65.6	--	--
Channel	0205 R2	0.2	9/3	34	30.9	18.7	72.0	--	--
Dairyland	DSR-C506/R2Y	00.5	8/31	28	31.0	20.0	68.3	--	--
Dairyland	DSR-C905/R2Y	00.8	9/2	28	30.0	19.6	63.2	--	--
Dairyland	DSR-0200/R2Y	0.2	9/3	33	30.2	19.4	68.5	--	--
Dairyland	DSR-0404/R2Y	0.4	9/12	30	30.9	19.2	66.8	--	--
Dyna-Gro	30RY04	00.4	8/30	26	31.1	20.2	59.1	52.4	54.9
Dyna-Gro	30RY07	00.7	9/1	27	31.2	20.0	64.0	55.5	58.2
Dyna-Gro	S008RY43	00.8	9/4	31	30.3	19.7	61.7	--	57.1
Dyna-Gro	34RY03	0.2	9/3	34	30.0	19.2	66.7	--	59.2
G2 Genetics	0090	00.9	9/3	27	30.1	20.6	57.3	--	52.2
G2 Genetics	6009	00.9	9/7	28	31.1	20.2	59.7	51.1	52.5
G2 Genetics	6012	0.1	9/8	33	31.5	19.0	56.1	48.9	50.0
G2 Genetics	6025	0.2	9/7	28	31.0	19.3	56.9	50.0	51.2
Hefty	H00Y12	0.0	9/7	26	31.2	19.6	63.9	53.5	59.4
Hefty	H007Y12	00.7	9/1	28	32.6	19.5	58.9	--	53.6
Hefty	H009Y12	00.9	9/5	32	32.0	18.3	67.7	--	58.2
Hefty	H04Y12	0.4	9/11	28	32.1	19.3	56.8	48.5	52.1
Hyland	HS 006RYS24	00.6	8/30	31	30.3	18.9	63.5	--	55.8
Hyland[2]	HX 007RY32	00.7	9/1	28	31.5	19.0	63.7	--	60.8
Hyland[2]	DAS007R3	00.7	9/2	27	30.7	19.4	61.2	--	57.8
Integra	20031	00.3	9/1	31	30.0	19.2	68.4	--	57.7
Integra	20052	00.5	8/31	27	31.1	18.5	60.7	52.0	--
Integra	20080	00.8	9/4	28	29.8	20.0	61.4	--	56.0
Integra	20090	00.9	9/4	31	29.4	19.4	63.4	54.9	52.6
Integra	20109	0.1	9/11	26	31.7	18.5	64.6	--	55.7
Mycogen	5G009R2	00.9	9/4	33	30.5	18.9	65.9	--	54.4
Mycogen	5B024R2	0.2	9/2	33	30.1	19.2	65.8	55.8	60.8
Northstar	NS0096R2	00.9	9/3	32	28.8	19.8	64.8	54.2	57.3
Northstar	NS0098R2	00.9	9/10	26	31.6	18.5	64.8	--	58.8
Northstar	NS0108R2	0.1	9/7	28	31.3	18.7	63.7	--	54.3
Northstar	NS0187R2	0.1	9/6	24	32.0	19.4	63.2	--	59.2
Peterson	12R007	00.7	9/1	27	30.9	20.4	60.3	51.1	54.4
Peterson	11R01	0.1	9/3	33	30.2	19.4	66.3	55.4	57.2
Peterson	13R03	0.3	9/12	29	31.3	19.0	63.4	--	56.9
Peterson	12R03	0.3	9/11	27	31.5	19.0	69.3	--	58.4

Nelson County - Roundup Ready Soybeans - 2012 (continued)

Brand	Variety	Maturity Group[1]	Maturity	Plant Height	Protein	Oil	Yield 2012	Yield 2 yr Avg.	Yield 2-site Avg.[3]
			date[2]	in	%	%	bu/a	bu/a	bu/a
Pioneer	90Y01	0.0	9/6	33	29.7	19.7	58.3	--	52.0
Pioneer	900Y81	00.8	9/6	29	30.4	18.7	58.4	51.7	52.3
Prairie Brand	PB-00760R2	00.7	9/4	27	31.7	18.8	60.2	--	56.2
Prairie Brand	PB-00844R2	00.8	9/3	28	30.1	19.8	69.8	--	61.8
Prairie Brand	PB-0131R2	0.1	9/11	26	31.9	18.5	65.9	--	57.1
Prairie Brand	PB-0240R2	0.2	9/4	32	31.1	18.6	71.1	--	64.0
Prairie Brand	PB-00950R2	00.9	9/3	33	31.0	18.7	66.3	--	58.2
Proseed	P2 11-10	0.1	9/6	25	31.3	19.8	62.7	52.8	55.9
Proseed	P2 10-20	0.2	9/4	31	29.9	18.8	64.6	54.2	55.9
Proseed	P2 20-00	0.0	9/9	25	31.6	18.5	64.2	--	58.2
Proseed	P2 20-30	0.3	9/12	30	31.1	19.0	65.1	--	--
Proseed	P2 11-50	0.4	9/11	33	29.4	19.5	68.5	56.5	--
REA	58G82	00.8	9/3	30	30.4	18.9	61.0	54.1	56.5
REA	55G22	00.5	9/1	26	30.6	20.3	63.0	--	56.2
REA	61G21	0.1	9/3	29	29.8	19.5	63.8	54.8	52.8
REA	62G22	0.2	9/4	32	30.3	18.9	65.3	55.1	57.5
REA	64G14	0.4	9/10	32	31.3	18.9	63.4	--	55.6
Seeds 2000	0091 RR2Y	00.9	9/4	32	30.5	18.8	65.1	58.2	54.6
Syng NK	S00-A7 Brand	00.7	8/29	26	31.4	20.3	58.5	--	53.5
Syng NK	S02-B4 Brand	0.2	9/3	31	30.3	19.4	65.5	56.2	54.8
Thunder	33009R2YN	00.9	9/3	30	30.7	19.3	68.9	--	58.7
Thunder	32005R2Y	00.5	8/29	29	30.8	20.0	66.3	55.1	57.3
Thunder	31009R2Y	00.9	9/5	33	31.3	18.8	66.0	55.1	59.0
Thunder	3201R2Y	0.1	9/6	26	32.7	19.1	64.6	53.6	59.9
Thunder	3202R2Y	0.2	9/12	32	32.8	18.5	62.7	--	55.1
Wensman	W 30088R2	00.8	9/10	27	32.0	18.5	63.8	--	56.5
Wensman	W 30099R2	00.9	9/5	32	29.6	20.0	64.1	--	59.3
Wensman	W 30084R2	00.8	9/4	31	30.1	19.2	65.9	55.5	57.4
Wensman	W 30091R2	00.9	9/4	31	29.9	19.4	67.7	56.5	54.5
Trial Mean			9/5	30	30.8	19.2	63.9	--	--
C.V. %			1.8	6.7	2.3	1.9	6.8	--	--
LSD 10%			2.3	2.3	1.2	0.6	5.1	--	--
LSD 5%			2.7	2.8	1.4	0.7	6.1	--	--

[1]Maturity Group provided by company

[2]Days to physiological maturity at R7 stage (one brown pod on the main stem obtains mature brown or tan color.)

[3]A 2-site average of our southern region. Walsh County (Vesleyville) and Nelson County (Lakota).

Yield, oil and protein reported at 13% moisture.

Langdon - Corn Grain - 2012

Brand	Hybrid	RM	Days to Silk	Harvest Moist.	Test Weight	Yield 2012	Yield 2 yr avg
				%	lbs/bu	-------bu/a-------	
Channel	180-65	80	79	19.0	57.0	138.2	--
Channel	180-19	80	81	17.5	56.1	150.4	--
Dekalb	DKC30-20	80	77	17.6	57.4	140.8	--
Dekalb	DKC27-54	77	76	18.5	60.2	141.7	--
Dyna-Gro Seed	D19RR91	79	79	19.2	56.1	132.0	--
Dyna-Gro Seed	D20VC73	80	80	18.2	55.7	144.5	--
Dyna-Gro Seed	D20VC35	82	81	17.2	54.7	149.9	--
G2 Genetics	5H-279	79	77	19.9	54.6	150.7	134.3
G2 Genetics	3A-080	80	80	16.8	53.6	144.1	131.9
G2 Genetics	5H-080	82	81	18.6	51.8	135.2	126.3
Gold Country Seed	76-67VT3P	76	75	17.9	57.1	144.1	--
Gold Country Seed	81-19R	81	79	17.2	57.7	150.9	--
Hyland Seeds	3093	78	80	15.6	57.7	142.8	--
Hyland Seeds	8105	81	83	17.2	55.7	124.9	123.2
Integra	231077 RR[1]	77	78	16.6	58.2	148.4	--
Integra	211080 VT2PRO[1]	80	81	17.9	55.2	139.2	--
Integra	9301 VT3	80	79	19.1	56.0	133.2	--
Mustang Seed	1279 VT2 PRO	79	80	19.1	55.4	129.0	--
Mustang Seed	2203VT2 PRO	82	80	17.9	57.9	128.9	123.6
NorthStar	81-481	81	81	18.1	58.1	118.9	--
NorthStar	80-580	80	80	19.2	55.7	121.6	--
NorthStar	80-280[1]	80	80	18.2	53.9	134.4	--
NorthStar	78-278[1]	78	80	17.3	55.4	132.4	--
NuTech Seed	5B-782	81	82	19.6	53.3	144.3	--
NuTech Seed	5N-183	82	81	18.8	54.3	146.6	131.2
PFS	71C80	80	80	19.4	56.1	146.4	--
PFS	76F82	82	80	19.3	58.0	129.8	118.8
Pioneer	P8210HR	82	75	18.2	55.6	154.1	--
Pioneer	39D97	79	76	18.1	58.4	169.0	143.1
Pioneer	39V07	80	78	16.6	54.9	152.6	138.9
Proseed	981 GTCBLL	81	80	19.1	57.2	143.0	120.6
Proseed	1278 RR	77	79	16.2	56.3	135.9	--
Proseed	1180 GTCBLL	80	81	18.8	57.6	140.3	--
Proseed	EXP82VT3P[1]	82	80	19.4	55.5	133.5	--
Proseed	1182 GTCBLL	82	81	19.2	54.3	143.4	--
REA Hybrids	1R101	76	77	19.2	57.9	140.1	--
REA Hybrids	1V115	78	78	20.4	56.4	145.8	140.2
REA Hybrids	1R801	80	80	17.7	57.9	151.2	--
REA Hybrids	1V770	77	75	19.1	57.5	151.8	--
Seeds 2000	2771RR	77	79	18.3	54.9	135.6	120.7
Seeds 2000	2823GTCBLL	82	81	20.0	54.6	145.5	131.2
Seeds 2000	2823 GT	82	80	18.5	54.1	158.2	--
Wensman Seed	W 7080VT3	82	80	18.7	56.6	134.4	123.0
Wensman Seed	W 8076VT3PRO	79	79	18.6	57.0	147.7	--
Wensman Seed	W 8081VT3PRO	80	81	18.8	57.3	145.9	--
Wensman Seed	W 8082VT2RIB	82	80	18.1	56.3	157.4	--
Trial Mean			79	18.4	56.2	141.5	--
C.V. %			1.6	7.5	1.4	9.3	--
LSD 5%			2.0	2.2	1.3	21.3	--

All lines are commerically available except those designated experimental[1]

[2]Relative maturity and hybrid traits as submitted by the company

Langdon - Confection (non-oil) Sunflower - 2012

Brand	Hybrid	Days to Flower	Plant Height	Test Weight	Midge Incid[5]	Midge Sev.[6]	Seed over screen			Yield @ 10% moisture			Average	
							22/64	20/64	18/64	2010	2011	2012	2 yr	3yr
		days	in	lbs/bu	%	0-9	----------% over----------			----------lbs/a----------				
Genosys	12GCF05	83	71	23.1	61	7	75	90	95	--	--	1004	--	--
Genosys	12GCF06	79	83	20.9	33	5	89	94	95	--	--	1765	--	--
Genosys	12GCF07	81	78	22.1	29	6	78	92	95	--	--	1183	--	--
Genosys	12CGF08	80	70	21.1	78	6	86	96	98	--	--	1081	--	--
Genosys	12GCF09	82	70	24.2	25	6	72	90	94	--	--	1311	--	--
Mycogen Seeds	8C451CP[1]	79	61	21.6	3	1	71	89	93	1805	2436	1789	2113	2010
Red River Comm.	2215	78	74	22.5	6	5	74	91	95	2225	2404	2124	2264	2251
Red River Comm.	2215CL[1]	80	72	23.0	8	5	65	90	95	1665	2823	1785	2304	2091
Seeds 2000	Jaguar[1]	75	68	21.9	5	3	63	90	95	1785	3035	2297	2666	2372
Seeds 2000	Jaguar DMR[1,2]	74	62	23.2	2	0	59	91	97	--	2992	2489	2741	--
Seeds 2000	6946 DMR[2]	77	67	24.5	13	4	23	64	90	1512	2992	2335	2664	2280
Seeds 2000	Sundance DMR[2]	78	68	25.1	12	3	64	88	95	--	--	2117	--	--
Seeds 2000	x918022[3]	76	65	23.4	21	4	60	88	94	--	--	1804	--	--
SunOpta/Dahlgren	9530	77	66	22.4	16	3	77	92	95	2218	2463	2047	2255	2243
SunOpta/Dahlgren	9530CL[1,4]	79	72	22.1	16	2	80	93	95	1698	2532	1861	2197	2030
USDA	924	77	64	24.1	35	4	32	62	90	2071	2720	1413	2067	2068
Trial Mean		78	70	22.8	23	4	--	--	--	1916	2612	1775	--	--
C.V. %		2.1	6.1	4.5	47	44	--	--	--	13.3	12.6	19.7	--	--
LSD 10%		2.3	5.8	1.4	15	2	--	--	--	--	459	484	--	--
LSD 5%		2.8	7.0	1.7	18	3	--	--	--	427	NS	583	--	--

[1] Clearfield hybrid, [2] Downy mildew resistant, [3] Express hybrid

All lines are commerically available except those designated experimental[4]

[5]Incidence of plants that were infected by sunflower midge.

[6]Sunflower Midge Severity: Scored on 0 to 9 scale, where 0=no symptom to 9=head fully cupped.

Langdon - Oil Sunflower - 2012

Brand	Hybrid	Hybrid Type[1]	Status[2]	Days to Flower	Plant Height	Oil[3]	Test Weight	Yield @ 10% moisture 2010	2011	2012	Average 2yr	3yr
				days	in	%	lb/bu	----------lbs/a----------				
Croplan Genetics	432 E	NS,EX, DMR	CA	76	67	46.6	33.1	--	--	2184	--	--
Croplan Genetics	460 E	NS,EX	CA	79	69	19.6	31.1	1777	1682	1836	1759	1765
Croplan Genetics	548 CL	NS,CL,DMR	CA	79	63	44.4	29.0	--	1641	1377	1509	--
Croplan Genetics	559 CL	NS,CL,DMR	CA	79	68	49.4	31.7	2397	1440	1769	1604	1869
Genosys	11G04	HO	CA	80	67	46.8	33.3	--	--	1407	--	--
Genosys	11G08	NS	CA	79	67	48.0	32.1	--	--	1642	--	--
Genosys	11G12	HO, CL	CA	79	66	47.1	35.0	--	--	1574	--	--
Genosys	11G13	NS, CL	CA	80	67	42.8	30.9	--	--	1674	--	--
Genosys	12E12	HO, CL	CA	79	73	42.0	29.7	--	--	1421	--	--
Genosys	12E13	HO, CL	CA	78	68	44.3	28.9	--	--	1989	--	--
Genosys	12E14	HO, CL	CA	80	71	46.1	27.9	--	--	1521	--	--
Mycogen Seeds	8N358CLDM	NS,CL,DMR	CA	78	62	49.3	31.0	1961	1723	1522	1622	1735
Mycogen Seeds	8N270CLDM	NS,CL,DMR	CA	76	66	48.3	31.6	2265	1975	1781	1878	2007
Mycogen Seeds	8D310	NS	CA	79	68	43.4	30.6	2100	1776	1577	1677	1818
Mycogen Seeds	8H288CLDM	HO,CL,DMR	CA	77	66	47.5	31.4	2060	1512	1518	1515	1697
Mycogen Seeds	8H449CLDM	CO, CL, DMR	CA	80	63	48.7	32.6	--	--	1689	--	--
Pioneer	P63ME70	NS,EX,DMR	CA	77	66	45.8	27.6	1889	1902	1997	1949	1929
Pioneer	P63ME80	NS,EX,DMR	CA	77	67	47.4	32.2	--	1754	1706	1730	--
Pioneer	P64HE01	HO,EX,DMR	CA	78	62	45.6	33.7	2139	1560	1454	1507	1931
Pioneer	P63HE60	HO,EX,DMR	CA	77	67	45.9	32.8	--	2125	1755	1940	--
Proseed	E-85	HO, DMR	CA	78	69	44.0	28.5	--	--	1577	--	--
Proseed	CL E-21	HO, CL, DMR	CA	80	71	43.4	29.5	--	--	1512	--	--
Proseed	CL E-23	Trad, CL, DMR	CA	81	74	48.6	33.4	--	--	1635	--	--
Proseed	CL 7001	NS, CL	CA	80	69	47.8	30.8	--	--	1879	--	--
Proseed	CL 8001	NS, CL	CA	79	63	46.8	31.2	--	--	1821	--	--
Proseed	E-362436	HO,DMR	CA	79	77	47.7	33.2	--	--	1989	--	--
Proseed	E-34 CL	Trad, CL, DMR	CA	77	70	49.0	28.7	--	--	1670	--	--

Langdon - Oil Sunflower - 2012 (continued)

Brand	Hybrid	Hybrid Type[1]	Status[2]	Days to Flower	Plant Height	Oil[3]	Test Weight	Yield @ 10% moisture 2010	2011	2012	Average 2yr	3yr
				days	in	%	lb/bu	----------lbs/a----------				
Seeds 2000	Falcon	NS,EX	CA	80	66	48.8	32.1	--	1279	1626	1453	--
Seeds 2000	Camaro II	NS, CL, DMR	CA	79	66	50.0	31.9	--	--	2160	--	--
Seeds 2000	Cobalt II	HO, CL, DMR	CA	76	60	46.3	32.0	--	--	1918	--	--
Seeds 2000	Defender Plus	NS,DMR	CA	80	60	46.6	31.8	1948	1715	1620	1667	1761
SunOpt/Dahlgren	4421	NS	CA	79	64	43.4	31.2	--	--	1733	--	--
Syngenta	3158 NS/CL/DM	NS,CL,DMR	CA	79	58	47.6	32.8	--	--	1406	--	--
Syngenta	3495 NS/CL/DM	NS,CL,DMR	CA	80	69	47.4	31.7	--	2175	1997	2086	--
Syngenta	3990 ND/CL/DM	NS,CL,DMR	CA	80	65	50.0	31.9	--	2412	2137	2274	--
Syngenta	NX24121	HO, CL, DMR	EXP	74	61	44.3	33.1	--	--	1808	--	--
Syngenta	NX24122	HO, CL, DMR	EXP	80	65	44.8	29.4	--	--	1497	--	--
Syngenta	NX24123	HO, CL, DMR	EXP	78	64	47.6	29.8	--	--	1896	--	--
Syngenta	3733 NS/DM	NS,DMR	CA	79	67	46.6	30.5	--	1768	1990	1879	--
Syngenta	3733 NS/DM Pelleted	NS,DMR	CA	80	66	47.8	32.1	--	2168	1546	1857	--
Syngenta	3995 NS/SU	NS,EX, DMR	EXP	79	66	45.1	32.4	--	1258	1552	1405	--
Syngenta	3158 NS/CL/DM Pelleted	NS, CL, DMR	CA	78	61	47.0	32.3	--	--	1927	--	--
Syngenta	3845 HO	HO, DMR	CA	81	64	47.3	31.1	--	1428	1455	1441	--
Syngenta	7120 HO/DM	HO, DMR	CA	77	62	45.9	31.4	1836	1513	1748	1631	1699
USDA	894	Trad	CK	77	64	48.2	31.4	1948	1288	1663	1476	1633
Trial Mean				79	66	46.6	31.4	1934	1768	1723	--	--
C.V. %				1.6	5.4	2.4	3.0	17.9	15.6	16.5	--	--
LSD 10%				1.7	4.8	1.5	3.0	--	--	386	--	--
LSD 5%				2	5.7	1.8	1.6	562	449	462	--	--

[1]Type: HO = High Oleic, NS = NuSun, Trad = Traditional, CL = Clearfield, EX= Express, DMR = Downy Mildew Resistant.

[2]Status: CA-Commercially available, EXP-Experimental, CK-Long term hybrid check

[3]Oils were adjusted to 10% moisture. Oil % of NuSun and Traditional hybrids were adjusted for oil type.

Maturity Checks: Days to Flower. Falcon, 8N270, 559CL

Langdon - Betaseed Energy Sugarbeet Trial - 2011

Variety Entry ID	Sugar Content	Sugar Content	Root Yield TONS	Sugar Yield	Sugar Yield
	%	% check	tons/a	lb/a	% check
Check	20.1	100	26.0	10,433	100
EAR122	21.2	106	28.3	11,996	115
EAR133	20.5	102	28.4	11,655	112
EAR155	21.4	107	24.9	10,634	102
EGR199	20.5	102	23.7	9,724	93
EHR144	20.4	102	27.4	11,210	107
Mean	20.7	--	26.5	10,942	--
CV%	3.4	--	5.5	--	--
LSD 5%	1.8	--	3.4	--	--

Date Planted : 5/26/2011
Date Harvested: 10/10/2011

Langdon - Betaseed Energy Sugarbeet Trial - 2012

Variety Entry ID	Sugar Content	Sugar Content	Root Yield TONS	Sugar Yield	Sugar Yield
	%	% check	tons/a	lb/a	% check
Check	17.9	100	34.1	12,164	100
EGR229	18.1	101	30.3	10,954	90
EMR231	18.4	103	30.3	11,141	92
ENR242	18.9	106	30.3	11,418	94
EMR232	17.8	100	27.9	9,960	82
EAR233	17.5	98	34.9	12,233	101
Mean	18.1	--	31.3	11,311	--
CV%	4.2	--	15.7	--	--
LSD 5%	1.9	--	12.6	--	--

Date Planted : 4/30/2012
Date Harvested: 10/12/2012

Evaluation of Foliar Fungicide on Yield and other Agronomic Traits of 'Prosper' HRSW

Bryan Hanson and Richard Wilhelmi, NDSU Langdon Research Extension Center

A foliar fungicide trial was embedded in the HRSW variety trial at the Langdon Research Extension Center in 2012 to evaluate the effect of various fungicides on yield and other agronomic traits of 'Prosper' HRSW. The trial was conducted using best management practices for HRSW including seeding rate, fertility, weed control and harvest management. The previous crop was soybeans. The experiment was in a rectangular lattice design with four replications. Seeding date was April 24. Fungicides were applied with a CO_2 pressurized backpack sprayer with 8001 flat fan nozzles spaced at 20 in. and calibrated to deliver 10 gpa at 40 psi. Foliar necrosis was determined on the flag leaf at soft dough stage. Harvest date was August 10.

The LSD 10% and CV% were determined using data from the entire variety trial. Rainfall was 1.41 and 1.07 inches above normal for June and July, respectively. Most of the rainfall in July was received in the first two weeks of the month. Temperatures in July were 4.6 degrees above normal. Fungicide effects on foliar necrosis, DON, protein and test weight were non-significant. Fusarium damaged kernels for all treatments were less than 0.5% (data not shown). Although disease levels were low, fungicide applications resulted in yield increases that ranged from 2.6 to 3.8 bu/a. Fungicide applications with Stratego YLD and Porsaro had significant yield increases as compared to no fungicide treatment.

Foliar Fungicide effects on Yield and other Agronomic Traits of 'Prosper' HRSW

Treatment	Fungicide Rate	Application Timing	Foliar Necrosis	DON[2]	Protein	Test Weight	Yield
	fl oz/a + %v/v[1]	Feekes GS	%	ppm	%	lbs/bu	bu/a
Untreated			11	0.4	11.2	59.7	83.7
Stratego YLD	4.0 + 0.25	10	9	0.5	11.3	59.6	87.1
Tebuconazole	4.0 + 0.25	10.51	5	0.3	11.2	59.6	85.8
Prosaro	6.5 + 0.25	10.51	6	0.3	11.2	59.7	87.5
Caramba	14.0 + 0.25	10.51	5	0.3	11.2	59.4	86.3
LSD 10%			13	0.5	0.5	0.4	3.3
C.V. %			34	48.7	3.5	0.6	3.8

[1]Induce adjuvant

[2]DON was analyzed on 2 replications. DON results reported as <0.5ppm on both replications are list as 0.3 ppm.

Seeding Rate Effect on Yield and other Agronomic Traits of Soybean-2012

Bryan Hanson and Richard Wilhelmi, NDSU Langdon Research Extension Center

Seeding rate trials were embedded in the soybean variety trials at the Langdon Research Extension Center and three off-station locations in 2012. Populations ranged from 125,000 to 250,000 pure live seed per acre (pls/a). Seeding rates were adjusted for seed size and germination (90%) and increased 10% to compensate for natural plant thinning due to various factors such as seedling disease and soil crusting. The number of seeding rates at a particular location depended on the number of slots available to fill a lattice experimental design for the soybean variety trial. The variety Dyna-Gro 30RY04 (maturity group 00.4) was seeded at Langdon and Cavalier while Dyna-Gro 30YR07 (maturity group 00.7) was seeded at Vesleyvillle and Lakota. Seeding dates were May 14, 15, 17, and 21 for Vesleyville, Cavalier, Lakota, and Langdon , respectively. Plots were seeded in 6-inch rows.

The LSD 5% and CV% were determined using all data from the entire variety trial at each location. Seeding rate appeared to have little effect on maturity dates. Plant height, protein and oil differences among seeding rates were small and mostly non-significant at the various locations. Seeding rate effects on yield at Vesleyville and Langdon were non-significant. At the Lakota site, the 175,000 and 200,000 pls/a seeding rate had significantly higher yields than the lowest seeding rate of 125,000 pls/a. The highest yield occurred at the highest seeding rate at Cavalier. This may have been affected by a significant hail storm that occurred on July 4. Plant stand counts were taken prior to the hail storm and may have been lower after the storm. Plant stand levels at the highest seeding rate were more similar to the 200,000 pls/a seeding rate at other locations. Combined results from studies conducted in 2011 and 2012 would seem to indicate that a seeding rate between 175 and 225,000 pls/a would result in optimum yields.

Walsh County - Vesleyville

Seeding Rate pls/a	Maturity Date	Height (in)	Protein %	Oil %	Plant Stand Plts/ft^2	Yield bu/a
150,000	25-Aug	32	30.0	20.9	3.6	49.1
175,000	26-Aug	30	29.8	20.7	4.0	47.7
200,000	25-Aug	32	29.6	20.9	5.7	52.5
Mean	25-Aug	31.3	29.8	20.8	4.4	49.8
CV %	1.2	6.7	1.5	1.5	--	11.3
LSD 5%	1.7	3.0	0.9	0.5	--	7.8

Nelson County - Lakota

Seeding Rate pls/a	Maturity Date	Height (in)	Protein %	Oil %	Plant Stand Plts/ft^2	Yield bu/a
125,000	4-Sep	29	30.4	20.1	2.8	56.0
150,000	1-Sep	30	30.3	20.1	3.8	60.8
175,000	1-Sep	28	30.6	20.2	4.2	62.7
200,000	1-Sep	27	31.2	20.0	5.0	64.0
Mean	2-Sep	28	30.6	20.1	3.9	60.9
CV %	1.8	6.7	2.3	1.9	--	6.8
LSD 5%	2.7	2.8	1.4	0.7	--	6.1

Cavalier County - Langdon REC

Seeding Rate pls/a	Maturity Date	Height (in)	Protein %	Oil %	Plant Stand Plts/ft^2	Yield bu/a
125,000	5-Sep	33	31.4	19.3	2.9	38.5
150,000	6-Sep	32	31.3	19.6	3.7	44.3
175,000	4-Sep	35	32.4	18.2	4.9	42.1
200,000	4-Sep	34	32.3	18.9	5.8	42.5
Mean	5-Sep	34	31.9	19.0	4.3	41.9
CV %	1.4	7.2	2.6	2.8	--	11.4
LSD 5%	2.1	3.5	1.6	1.1	--	6.8

Pembina County - Cavalier

Seeding Rate pls/a	Maturity Date	Protein %	Oil %	Plant Stand Plts/ft^2	Yield bu/a
125,000	10-Sep	28.8	20.7	2.3	37.6
150,000	11-Sep	30.5	20.4	2.9	38.0
175,000	11-Sep	30.2	20.4	3.6	41.6
200,000	12-Sep	30.1	20.4	4.1	39.6
225,000	12-Sep	29.8	20.5	4.0	43.2
250,000	11-Sep	29.8	20.6	4.5	47.2
Mean	11-Sep	29.9	20.5	3.6	41.2
CV %	2.1	2.5	2.0	--	14.0
LSD 5%	3.5	1.5	0.8	--	8.9

A hail storm caused significant damage on July 4. Soybeans were in the late vegetative to R1 stage. Soybeans recovered nicely.

Combined Soybean Yield Data from various locations in 2011 and 2012

	Yield (bu/a)									
Seeding Rate pls/a	Vesleyville 2012	Lakota 2012	Langdon 2012	Cavalier 2012	Voss 2011	Langdon 2011	5 site[1] Avg	6 site[2] Avg	3 site[3] Avg	2 site[4] Avg
125,000		56.0	38.5	37.6	46.2	59.4	47.5		47.7	52.8
150,000	49.1	60.8	44.3	38.0	46.4	61.0	50.1	49.9	48.5	53.7
175,000	47.7	62.7	42.1	41.6	48.9	63.6	51.8	51.1	51.4	56.3
200,000	52.5	64.0	42.5	39.6	50.6	64.7	52.3	52.3	51.6	57.7
225,000				43.2	50.5	65.2			53.0	57.9
250,000				47.2	50.5	65.7			54.5	58.1

[1]Lakota,Langdon, Cavalier-2012; Voss,Langdon-2011

[2]Vesleyville,Lakota,Langdon, Cavalier-2012; Voss,Langdon-2011

[3]Cavalier-2012; Voss,Langdon-2011

[4]Voss,Langdon-2011

Canola Seeding Date Effect on Yield and other Agronomic Traits-Langdon 2010-2012

Bryan Hanson and Richard Wilhelmi - NDSU Langdon Research Extension Center

Canola seeding date trials were established in 2010, 2011 and 2012 at the Langdon Research Extension Center. Two hybrid cultivars were used; Liberty Link InVigor 8440 and Roundup Ready DKL 30-42. The trial was conducted using best management practices for canola including seeding rate, fertility, weed control, fungicide and harvest management.

The trial in 2010 had poor emergence at the first 3 seeding dates. We received 2.04 inches of rain between the April 29 and May 10 seeding date. Rainfall between seeding dates of May 10 and May 21 was 0.81 inches . Rainfall between seeding dates of May 21 and June 1 was 2.80 inches. Planting depth was between 3/4 and 1 inch but was often deeper with soil washing after rains. Soil crusting was also a factor. Rainfall and temperatures were above normal for the growing season. Yields were very good despite the early poor stands which demonstrates canola's abilty to compensate for poor stands. Seeding date effects on yield were non-significant in 2010. Percent oil decreased with with later seeding dates.

Soil conditions were very saturated from fall rains and winter snow in the 2011 trial. The first seeding date of May 9 was much earlier than any canola that was seeded in the area. Stands were very good with no soil crusting after each date. July and August were both 2.5 degrees above normal for temperatures. There was only one day with temperatures over 90 degrees. The increase in average daily temperatures came from warmer nights. Moisture was near normal in June and July and 1.8 inches below normal in August. There was no apparent moisture stress in the trial. The May 19, June 9 and June 16 seeding date in 2011 had significantly higher yields than the May 9 seeding date. Percent oil tended to decrease with later seeding dates. Canola performed very well at the later seeding dates under the environmental conditions observed in 2010 and 2011.

Rainfall was above normal in June and July but nearly an inch lower in August in 2012. Above normal temperatures in all months were observed. July was 4.6^{o} F above normal. There were numerous days in the 80's and only one day over 90^{o}F was observed. A deficit in soil moisture along with the above normal temperatures likely resulted in lower yields at the later dates. The June 1 and 12 seeding date yields were significantly lower than the April 27, May 9 and May 21 seeding date. Days to first flower, end flower and maturity generally decreased with each later seeding date in all years. There was no signifcant differences in yield between varieties in 2011 and 2012. In 2011, InVigor 8440 yielded significantly higher than DKL 30-42. Environmental conditions have a big impact on seeding date effects on yield. Yield differences across seeding dates in 2010 were non-significant. The highest canola yields in 2011 occurred on the June 9 and 16th seeding date. In contrast, the highest yield occurred on the April 27 seeding date and lowest yields on the June 1 and 12th seeding date in 2012. Although optimum seeding dates will varying from year to year, the best management practice is to seeding when soil conditions and temperature allow for rapid germination.

Canola Seeding Date Trial - 2010

Seeding date effect on canola yield and other agonomic traits averaged over cultivars.

Seeding Date	Yield lbs/a	Stand Rating 0-100	1st Flower DAP[1]	End Flower DAP	Flower Duration Days	Maturity DAP	HT in	Lodging 0-9	Oil %	1000 KWT g
29-Apr	2968	53	52.3	72.1	19.9	97.8	40.8	2.5	45.0	3.51
10-May	3108	38	44.5	68.1	23.6	94.0	42.4	1.0	43.5	3.52
21-May	3560	26	43.5	64.8	21.3	94.0	42.4	1.8	43.5	3.50
1-Jun	3080	93	38.6	58.9	20.3	86.9	42.1	1.9	43.2	3.19
9-Jun	3161	86	38.5	61.9	23.4	87.3	43.9	4.3	41.0	3.31
LSD 5%	NS	21.8	0.5	1.0	0.9	0.8	NS	1.2	1.4	0.19
C.V. %	11.6	33.9	1.1	1.4	3.7	0.8	5.5	49.1	3.0	5.1

Comparison of canola cultivars averaged over planting dates

Variety	YIELD	ST	1STF	END	FD	DM	HT	LGD	OIL	KWT
InVigor 8440	3350	63.5	44.2	65.3	21.2	92.6	43.9	2.2	42.2	3.26
DKL 30-42	3001	54.5	42.8	65.0	22.2	91.4	40.7	2.4	44.2	3.55
LSD 5%	142	8.0	0.4	NS	0.6	0.3	1.0	NS	0.8	0.07
C.V. %	6.6	20.1	1.5	1.1	4.2	0.5	3.4	34.2	2.8	3.2

[1]DAP=Days after planting.

Canola Seeding Date Trial - 2011

Seeding date effect on yield and other agonomic traits averaged over cultivars.

Planting Date	Yield lbs/a	Stand Rating 0-100	1st Flower DAP[1]	End Flower DAP	Flower Duration Days	Maturity DAP	HT in	Lodging 0-9	Oil %	1000 KWT g
9-May	2840	100	51.3	65.6	14.4	93.5	28.0	0.0	47.2	3.16
19-May	3240	99	44.1	60.1	16.0	89.8	30.6	0.1	48.1	3.34
3-Jun	2951	98	36.9	55.4	18.5	81.9	33.5	0.8	47.5	3.44
9-Jun	3301	99	35.9	49.5	13.6	84.0	36.6	3.4	45.4	3.22
16-Jun	3430	99	32.8	49.3	16.5	84.0	39.5	1.4	46.3	3.26
LSD 5%	306	NS	0.7	0.8	0.9	1.2	0.4	0.8	0.6	NS
C.V. %	8.9	1.2	1.6	1.3	4.8	1.3	1.0	63.3	1.2	5.2

Comparison of canola cultivars averaged over planting dates

Variety	YIELD	ST	1STF	END	FD	DM	HT	LGD	OIL	KWT
InVigor 8440	3183	99	40.9	56.7	15.8	87.6	34.0	0.9	45.6	3.16
DKL 30-42	3121	99	39.5	55.3	15.8	85.7	33.2	1.4	48.2	3.40
LSD 5%	NS	NS	NS	0.5	NA	1.3	0.3	NA	1.4	0.16
C.V. %	8.9	1.7	1.5	0.6	4.2	1.0	0.6	84.3	2.0	3.2

[1]DAP=Days after planting.

Canola Seeding Date Trial - 2012

Seeding date effect on yield and other agonomic traits averaged over cultivars.

Planting Date	Yield lbs/a	Stand Rating 0-100	1st Flower DAP[1]	End Flower DAP	Flower Duration Days	Maturity DAP	HT in	Lodging 0-9	Oil %	1000 KWT g
27-Apr	2214	100	55.3	70.6	15.4	95.9	38.8	1.5	48.3	2.72
9-May	1929	98	49.5	63.5	14.0	87.6	37.5	0.0	48.1	2.94
21-May	2068	100	42.4	59.3	16.9	80.9	35.0	0.3	47.1	2.86
1-Jun	1259	74	39.6	54.8	15.5	75.9	38.4	0.0	47.5	2.66
12-Jun	1361	94	35.6	48.9	13.3	74.4	35.0	0.1	47.3	2.76
LSD 5%	206	7.8	0.6	1.1	1.3	1.1	0.8	1.0	0.9	0.14
C.V. %	10.6	7.5	1.3	1.8	7.6	1.2	1.9	226	1.6	4.6

Comparison of canola cultivars averaged over planting dates

Variety	YIELD	ST	1STF	END	FD	DM	HT	LGD	OIL	KWT
InVigor 8440	3183	99	40.9	56.7	15.8	87.6	34.0	0.9	45.6	3.16
DKL 30-42	3121	99	39.5	55.3	15.8	85.7	33.2	1.4	48.2	3.40
LSD 5%	NS	NS	NS	0.5	NS	1.3	0.3	NS	1.4	0.16
C.V. %	8.9	1.7	1.5	0.6	4.2	1.0	0.6	84.3	2.0	3.2

[1]DAP=Days after planting.

Effect of Sulfur Deficiency and Its Various Forms on The Quality and Yield of Canola in North Eastern North Dakota

By

Naeem Kalwar (Extension Area Specialist/Soil Health)

John Lukach (Extension Area Specialist/Winter Cereals Agronomist)

Objectives

Considering the high sulfur requirements of canola versus most of the crops, a sulfur fertilizer study was conducted on behalf of Sulvaris Inc. Calgary, Alberta. The objective of this study was to compare different sources of sulfur fertilizers available in sulfate (SO_4^{--}) and elemental sulfur (S^o) forms on the yield and quality of canola. Two products, Carbon Ammonium Sulfate (CAS) and Rapid Release Sulfur (RRS) were supplied by Sulvaris Inc. and Ammonium Sulfate (AS), Tiger-90 and S-15 were obtained from the market.

Trial Locations

Trials were planted at two different locations; North Dakota State University, Langdon Research Extension Center, Cavalier County, ND and 5 miles South West of Lankin, Walsh County, ND (Cameron Bina Farm).

Treatments and Replications

Two rates were used for both sulfate and elemental forms. For sulfate fertilizers (CAS and AS) two treatments each at 10 and 20 pounds of sulfur per acre were applied and for elemental sulfur fertilizers (RRS and Tiger-90) it was 20 and 40 pounds of sulfur per acre. For S-15, which contained sulfur in both sulfate and elemental sulfur forms, treatments were 10 and 20 pounds of sulfur per acre. Overall there were twelve treatments including two controls with six replications (details in the below table).

Treatments	Product	Nutrient Percent				Sulfur lbs./acre		
		N	P_2O_5	Sulfur	Sulfur form	SO_4	S^o	Total
T1	RRS	0	0	90	100% S^o	0	20	20
T2	CAS	18	0	21	100% SO_4	10	0	10
T3	AS	24	0	26	100% SO_4	10	0	10
T4	Tiger-90	0	0	90	100% S^o	0	20	20
T5	S-15	13	33	15	50% S^o and 50% SO_4	5	5	10
T6	Control	0	0	0	0	0	0	0
T7	RRS	0	0	90	100% S^o	0	40	40
T8	CAS	18	0	21	100% SO_4	20	0	20
T9	AS	24	0	26	100% SO_4	20	0	20
T10	Tiger-90	0	0	90	100% S^o	0	40	40
T11	S-15	13	33	15	50% S^o and 50% SO_4	10	10	20
T12	Control	0	0	0	0	0	0	0

An application of 100 pounds of liquid nitrogen per acre was applied prior to planting. At the time of planting nitrogen was applied at the rate of 27 lbs./acre and the phosphorous application rate was 44 lbs./acre. Urea and MAP were used as N and P_2O_5 sources. Fertilizer rates were applied and incorporated on April 30, 2012 and planting was done on May 3, 2012 at the Langdon REC location. This was done to improve the efficiency of the elemental sulfur fertilizers. At the Lankin site, fertilizer application and planting was done on the same day (April 26, 2012).

Design, Plot Sizes and Layout

Both trials were planted in a randomized complete block design. Plot sizes for the Langdon REC location were 13 X 22 feet and 10 X 25 feet for the Lankin location.

Planting Data

Location	Variety	Planting Date	Seed Rate (lbs./acre)	Drilling Space
Lankin	DKL72-40 Canola	April 26, 2012	5	7” with ¾” depth
Langdon REC	DKL72-40 Canola	May 03, 2012	7	6” with 1” depth

Harvesting Data

Dates for the physiological data collection and harvesting of the trials are given below. The physiological maturity was estimated based on the visual observations.

Location	Date of Physiological Data	Date of Harvesting
Lankin	August 1, 2012	August 8, 2012
Langdon REC	August 3, 2012	August 20, 2012

Results and Discussion

Data from both sites was analyzed using SAP statistical package with F-test protected LSD to determine the treatment effect only.

Lankin Location.

Treatments	Plant Height (cm)	Physiological Maturity (days)	Yield/acre (lbs.)	1000 Seed Weight (g)	Seed / Pound	Test Weight (lbs./bushel)	Oil Percentage
1	133	96	1736	2.5	179,019	52.4	47.9
2	130	96	1684	2.6	180,764	52.3	48.1
3	131	98	1843	2.7	170,116	52.8	47.8
4	130	97	1639	2.5	180,786	52.6	47.1
5	136	96	1877	2.6	176,930	52.6	47.9
6	140	98	2175	2.6	176,491	52.5	48.1
7	137	95	1913	2.6	174,072	52.5	48.5
8	127	96	1739	2.6	174,407	52.1	49.0
9	135	96	1630	2.5	184,820	52.5	48.3
10	130	97	1797	2.6	174,407	52.5	47.8
11	127	96	1657	2.5	181,059	52.1	48.1
12	140	97	1676	2.5	184,754	52.5	47.8
HIGH MEAN	140	98	2175	2.7	184,820	52.8	49
LOW MEAN	127	95	1630	2.5	170,116	52.1	47.1
EXP MEAN	133	96	1780	2.6	178,135	52.4	48
C.V. %	6.8	2.7	19.4	6.1	6.3	0.7	2.1
LSD 10%	NS	NS	NS	NS	NS	NS	NS
LSD 5%	NS	NS	NS	NS	NS	NS	NS
No. OF REPS	6	6	6	6	6	6	6
F-TRT	1.6	0.6	1.2	0.8	1	1.7	1.2

Langdon REC Location.

Treatments	Plant Height (cm)	Physiological Maturity (days)	Yield/acre (lbs)	1000 Seed Weight (g)	Seed / Pound	Test Weight (lbs./bushel)	Oil Percentage
1	123	94	2167	3.7	121,499	51.5	48.2
2	129	94	2230	3.6	125,194	52.0	49.3
3	121	95	2148	3.6	124,465	51.4	47.7
4	125	96	2147	3.5	128,450	51.5	49.1
5	122	95	2349	3.7	121,422	51.5	49.1
6	131	94	2285	3.4	131,661	51.7	49.2
7	122	95	2195	3.5	127,273	51.9	49.3
8	127	95	2198	3.7	122,308	51.7	48.9
9	128	94	2201	3.3	135,554	51.6	49.4
10	131	95	2199	3.6	125,154	51.7	49.4
11	131	95	2278	3.6	125,256	51.7	49.7
12	127	94	2254	3.4	132,398	51.9	48.9
HIGH MEAN	131	96	2349	3.7	135,554	52.0	49.7
LOW MEAN	121	94	2147	3.3	121,422	51.4	47.7
EXP MEAN	127	95	2221	3.6	126,720	51.7	49
C.V. %	5.6	1.1	7.5	8.3	8.2	0.6	1.8
LSD 10%	6.9	NS	NS	NS	NS	0.3	0.9
LSD 5%	NS	NS	NS	NS	NS	0.4	1.0
No. OF REPS	6	6	6	6	6	6	6
F-TRT	1.7	0.7	0.8	1.03	1.1	2.1	2.3

Summary

At the Lankin location no statistically significant difference was found for yield, seed weight, test weight, oil percentage, plant height or physiological maturity with LSD at 10% and 5%. The tallest plant height (140 cm) was observed in both of the control treatments. Highest yield (2175 lbs./acre) was also recorded for one control; treatment 6.

At the Langdon REC location plant height, test weight and oil percentage showed statistically significant difference with LSD at 10% and for the test weight and oil percentage with LSD at 5%. Langdon location also showed an increase of 3948 to 10976 in seeds/pound for the controls versus the other treatments, except treatment 9. That was an indication of lighter seed weight.

Langdon REC Foundation Seed Stocks Program

The Langdon REC supports a Foundation Seed Stocks Program to help increase and distribute the newest NDSU varieties of HRSW, Durum, Barley and Flax. Each year approximately 350 acres is planted into the FSS program. The harvested acreage is available for sale to producers and seedsman in the region. The varieties of crops that are available for the 2013 growing season are listed below:

HRSW – Glenn, Faller, Prosper
Durum – Lebsock
Barley – Celebration, Tradition, Lacey
Flax – Rahab 94

Growers who have grown seed for certification in one of the last four years who request seed prior to December 1 will be guaranteed an allocation. Any seed inventories available after December 1 will be sold on a first come, first serve basis. Seed availability and prices may be obtained by calling the Langdon Research Extension Center.

Visit our web site at www.ag.ndsu.edu/langdonrec/

NDSU Research and Extension faculty and staff involved with the Langdon Research Extension Center

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Scott Halley	Crop Protection
John Lukach	Area Extension Specialist/Winter Cereals
Naeem Kalwar	Area Extension Specialist/Soil Health
Lesley Lubenow	Area Extension Specialist/Agronomy
Sharon Ring	Administrative Assistant and Horticulture
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Rodney Armstrong	Adult Farm Business Management Instructor, LRSC
Ron Beneda	Cavalier County Extension Agent
Macine Lukach	Cavalier County Extension Agent

2012 Seasonal Employees

Rachael Bachman	Diane Hanson	April Howatt	Alison DuBois	Justina Klindt	Janet Hall
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