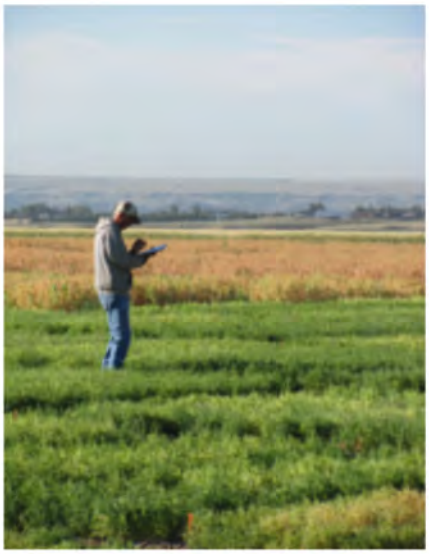
2011 Agricultural Research Update

NDSU Williston Research Extension Center
MSU Eastern Agricultural Research Center

Serving the Mon-Dak Region



NDSU NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

Regional Report No. 17
December 2011

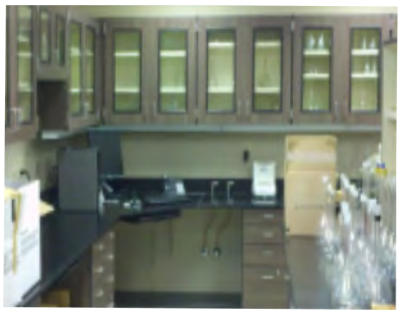
MONTANA STATE UNIVERSITY
MONTANA AGRICULTURAL EXPERIMENT STATION

The Neil Riveland

Seed Processing - Research Laboratories Building Addition

To Honor Neil Riveland for his 42 years of Dedicated Research and Service to Producers and the Betterment of Agriculture

The new Seed Processing-Research Laboratories Building Addition ribbon cutting ceremony was held on July 14th, 2011 at the WREC Field Day. This spacious building, that was completed in mid-September, includes research laboratories for irrigation, soils, and horticulture; agronomy labs for small plot sample processing and seed storage; as well as additional office space.



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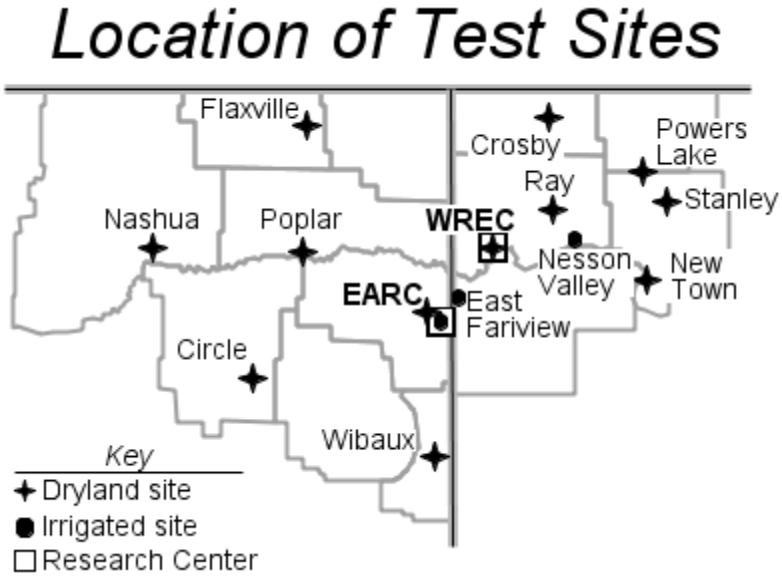
Off-Station Cooperators – Producers – CES Agents

MONTANA

Circle – Victor Wagner – Agent Ken Nelson
Flaxville – Jeff Mohr – Agent Nicole Wrinkler
Nashua – Bill Lauckner – Agent Shelley Mills
Poplar – Mark Swank – Agent Ann Ronning
Wibaux – David Maus – Agent Dave Bertelsen
East Fairview – Phillip Hurley
East Fairview – Charles Flynn

NORTH DAKOTA

Crosby – Harlan Johnson – Agent Keith Brown
Nesson Valley – Bill Sheldon – Potatoes
New Town – Jerry Pennington – Agent Jim Hennessy
Powers Lake - John Albertson - Agent Dan Folske
Ray – Keith Daniel – Agent Warren Froelich
Stanley – Wayne Johnson – Agent Jim Hennessy



We would like to take this opportunity to thank the County Agents, the County Ag Improvement Associations and especially the farm operators who permit the location of off-station plots on their land. ***All are to be commended for their cooperative efforts in helping determine crops and variety performance in the MonDak region.***

Results from tillage, chemical fallow, and field scale no-till trials, as well as other management trials on dryland and irrigated crops can be obtained by visiting with Center personnel.

Disclaimer: The information given herein is for educational purposes only. Any reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement is implied by the Williston Research Extension Center or the Eastern Agricultural Research Center.

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Weather Information

Weather Summary — Sidney, MT

Month	Precipitation 2011	Precipitation Avg	Temperature 2011	Temperature Avg	*
	- inches -		- degrees F -		
Oct-Dec. 2010	3.71	1.90			
January-March	3.22	1.34			
April	2.92	1.14	43.3	44.7	0
May	5.97	2.11	53.7	56.0	0
June	1.51	2.79	64.8	64.5	2
July	2.84	2.12	72.5	70.1	6
August	0.69	1.39	71.7	68.8	8
September	0.95	1.27	62.2	57.9	3
April-July	13.24	8.16			
April-Sept	14.88	10.82			
Total- Oct 10-Sept11	21.81	14.06			

*Number of Days over 89° F
Last Spring Frost – May 2 (29° F)
First Fall Frost – September 18 (31° F)

Weather Summary — Williston, ND

Month	Precipitation 2011	Precipitation Avg	Temperature 2011	Temperature Avg	*
	- inches -		- degrees F -		
Oct-Dec. 2010	2.56	1.80			
January-March	1.13	1.11			
April	2.19	1.17	41.6	43.2	0
May	6.46	2.21	53.3	55.3	0
June	2.39	2.69	64.6	64.9	2
July	1.43	2.23	73.1	70.8	10
August	0.93	1.57	72.9	68.9	10
September	1.46	1.34	63.7	56.6	0
April-July	12.47	8.30			
April-Sept	14.86	11.21			
Total- Oct 10 - Sept11	16.54	14.33			

*Number of Days over 89° F
Last Spring Frost – May 2 (29° F)
First Fall Frost – Sept. 14 (30° F)

Off-Station Precipitation* Montana

Site	April	May	June	July	Aug	Total
Circle	1.90	8.64	2.67	3.39	1.15	17.75
Flaxville	0.50	4.77	7.05	1.71	3.11	17.14
Nashua	0.46	6.97	5.24	4.50	0.91	18.08
Poplar	1.48	6.78	2.54	2.44	0.25	13.50
Wibaux	2.96	7.17	2.54	3.48	2.69	18.84

*Actual rainfall received at plot location may have been more or less.

Off-Station Precipitation* North Dakota

Site	April	May	June	July	Aug	Total
Watford City	2.12	6.38	2.52	4.43	1.11	16.56
Bowbells	1.41	5.57	4.46	3.37	1.04	15.85
Crosby	1.17	6.59	6.60	1.19	2.18	17.73
Nesson Valley	1.48	5.14	3.69	3.60	1.76	15.67
Ross	1.78	5.98	3.18	3.98	2.58	17.50
Plaza	1.40	4.92	2.74	4.45	3.00	16.51

*Actual rainfall received at plot location may have been more or less.

Hard Red Spring Wheat Variety Descriptions

					Resistance To[2]					Quality Factors	
Variety	Origin[1]	Height	Maturity	Straw Strength	Stem Rust	Leaf Rust	Foliar Disease	Head Scab	Sawfly	Test Weight	Grain Protein
AC Lillian	AC	tall	medium	MS	R	R	S	NA	R	m low	Medium
Alsen	ND	medium	m early	MR	R	MR-MS	S	MR	S	medium	m high
AP 604 CL	AgriPro	medium	m early	MS	R	MS	MS	NA	S	high	Medium
Barlow	ND	medium	m early	M	R	R	MR	M	S	m high	m high
Blade	WB/Sabre	medium	medium	MR	R	MR	MS	M	NA	m high	m high
Breaker	WB	medium	medium	MR	R	MR	MS	M	S	m high	m high
Brennan	AgriPro	short	m early	MR	R	MR	M	MS	S	medium	medium
Brick	SD	medium	m early	M	R	R	NA	MR	S	m high	m low
Briggs	SD	m tall	m early	MS	R/MR	R	MS	S	S	medium	medium
Brogan	WestBred	m short	medium	MR	MR	MR	MS	S	S	medium	medium
Choteau	MT	m short	m late	MS	R	MR	MR	S	R	medium	medium
Corbin	WB	medium	medium	M	NA	NA	NA	NA	MR	medium	medium
Cromwell	Thunder Seed	medium	m late	M	NA	MR	MR	S	NA	m high	m high
Edge	WB/Sabre	medium	m early	MR	NA	NA	NA	MS	S	low	m high
Faller	NDSU	m.tall	medium	M	R	R	MR	M	S	medium	low
Freyr	AgriPro	medium	medium	M	R	MR/MS	MS	MR	S	medium	m low
Glenn	ND	m.tall	m early	MR	R	R	M	MR	S	high	m high
Granite	WB	short	m late	R	R/MR	MR	S	MS	S	high	high
Hank	WB	short	early	M	R	MR	MS	NA	S	low	medium
Howard	ND	m.tall	medium	MS	R	R	M	M	S	m low	m low
Jedd	WB	m short	early	R	NA	NA	NA	NA	S	high	low
Jenna	AgriPro	m.short	m late	MR	R	MR	M	M	S	m low	m low
Kelby	AgriPro	short	medium	MR	MR	R	M	M	S	m high	medium
Knudson	AgriPro	m short	medium	M	MR	MR	MR	M	S	medium	m low
Kuntz	AgriPro	m.short	medium	M	R	MR	MS	M	S	m low	m low
McNeal	MT	medium	medium	M	MS	MS	M	VS	S	m low	medium
Mott	ND	tall	m late	M	MR	MS	MS	MS	R	medium	medium
ND901CL PLUS	ND	tall	medium	M	R/MR	MR/R	NA	M	S	m high	high
O'Neal	WB	medium	m late	R	NA	MS	MR	S	S	medium	m low
Outlook	MT	medium	m late	MR	MS	MR	MR	S	S	m low	m low
RB07	MN	m.short	m early	M	R	R	MS	MR	S	m high	medium
Reeder	ND	medium	medium	MR	R	MS	S	S	S	medium	medium
Rush	WB	m short	m early	MR	NA	NA	NA	NA	S	high	medium
Samson	WB	short	medium	R	R	MR-MS	MR-MS	S	NA	low	low
Select	SD	medium	m early	M	R/MR	R/MR	R/MR	MR	NA	medium	medium
Steele-ND	ND	medium	medium	MS	R	R	MS	M	S	medium	medium
SY605CL	AgriPro	medium	m early	MS	R/MR	S	MS	S	NA	m low	high
Traverse	SD	tall	m early	M	R	MR	NA	M	S	medium	m low
Trooper	WB	m short	m early	R	MR	MR	S	S	S	medium	m low
Vantage	WB	m.short	late	R	R	MR/MS	MS	MS	NA	high	high
Velva	ND	medium	medium	MR	R	MR/MS	M	MS	NA	medium	m low
Vida	MT	medium	medium	MR	MS	MS	S	S	MR	medium	medium
Volt	WB	medium	m late	R	NA	MR	MR	MS	S	high	low
WB Digger	WB	medium	medium	M	MR	MR/MS	NA	MS	NA	m low	low

[1]Refers to developer: AC = Agriculture Canada; WB = WestBred. CL refers to a Clearfield variety tolerant to Beyond herbicide family.

[2]R =resistant; MR =moderately resistant; M =intermediate; MS =moderately susceptible; S =susceptible; VS =very susceptible; NA = data not available.

Hard White Spring Wheat Descriptions

					Resistance To[2]					Quality Factors	
Variety	Origin[1]	Height	Maturity	Lodging	Stem Rust	Leaf Rust	Foliar Disease	Scab	Sawfly	Test Weight	Grain Protein
AC Karma	AC	medium	late	M	MR	S	S	S	S	m low	medium
AC Snowbird	AC	tall	medium	M	MR	MS	S	S	S	m low	medium
AC Snowstar	AC	tall	early	R	R	MR	S	S	S	m low	low
AC Vista	AC	m short	medium	MR	MR	S	S	S	S	low	m low
Alpine	AgriPro	medium	medium	M	NA	S	NA	NA	S	medium	m low
Agawam	WB	short	early	M	NA	S	NA	MS	R	m high	m low
Blanca Grande	GM	short	early	R	NA	NA	NA	S	S	high	low
Diamond	Meridian	medium	m late	MR	NA	NA	NA	NA	NA	m high	medium
Explorer	MT	m short	early	MS	R	MR	MS	S	MR	m low	m low
ID377S	ID	m short	early	M	NA	S	S	NA	S	low	v low
Kanata	AC	m short	medium	R	MS	MR	S	MS	S	m high	high
Lolo	ID	medium	medium	M	R	R	S	S	S	m high	medium
Lochsa	ID	medium	medium	R	NA	NA	NA	S	S	v low	medium
Otis	WSU	tall	medium	M	NA	NA	NA	NA	NA	m high	m low
Plata	GM	short	medium	R	NA	NA	NA	S	S	m high	m low
Snow Crest	WB	short	v early	NA	NA	NA	NA	NA	NA	m low	m low
Waikea	WB	m short	early	R	NA	NA	NA	S	S	v low	m low

[1] Refers to developer: CDC=Crop Development Center, University of Saskatchewan; AC=Agriculture Canada; GM=General Mills; WB=WestBred; ID=University of Idaho; WSU=Washington State University; MT=Montana State University

[2] R = resistant; MR =moderately resistant; M =intermediate; MS =moderately susceptible; S =susceptible; VS =very susceptible; NA = data not available. *Indicates yield and/or /quality have often been higher than expected based on visual head blight symptoms alone.

All experiments are statistically designed so that the “real” yield differences can be separated from yield differences that occur by chance. LSD (Least Significant Difference) values are used for this purpose. When comparing the yield of another variety, the yield difference must exceed the LSD value (higher or lower) to be considered a “real” difference. It is advisable to use multi-year averages when choosing a variety or cropping sequence.

Dryland Hard Spring Wheat
Williston, ND

	Yield bu/a		TW lb/bu	Protein -- % --	
Cultivar	**2011**	**3 yr**	**2011**	**2011**	**3 yr**
Reeder	35.0	41.5	58.5	15.8	15.1
Vida	33.7	40.9	57.5	15.2	15.1
Velva	33.5	40.5	57.6	15.7	15.3
Otis	31.3	40.5	58.0	15.2	14.2
Alpine	31.6	40.4	57.9	15.1	14.3
Barlow	34.2	39.8	60.1	15.5	15.0
Brogan	33.6	39.5	57.4	16.2	15.5
Jenna	31.7	39.3	56.8	16.0	15.2
Lolo	30.7	39.0	58.1	15.5	14.5
RB07	32.3	38.9	58.6	15.5	15.2
Kuntz	30.6	38.8	58.0	14.4	14.3
Brennan	30.1	38.8	58.6	16.4	15.2
Kelby	31.5	38.7	58.6	16.3	15.2
Knudson	30.0	38.7	58.3	16.2	15.5
Sabin	29.4	38.5	57.9	15.9	15.3
Freyr	30.8	38.5	59.0	15.7	15.0
Outlook	30.0	38.1	55.6	16.2	15.2
Steele-ND	31.6	38.1	58.1	15.7	15.1
ND901CL Plus	31.1	37.2	58.6	17.0	16.6
McNeal	28.1	37.0	56.4	15.7	15.3
Howard	28.7	37.0	58.1	15.8	15.1
Briggs	29.7	37.0	58.1	15.1	14.9
AP604CL	31.3	36.6	57.7	15.5	15.5
Blade	27.0	36.5	59.3	16.9	15.9
Glenn	28.5	36.3	61.9	16.0	15.5
Choteau	26.7	36.3	56.2	16.7	15.5
Agawam	27.6	36.3	59.6	14.6	14.0
Faller	31.4	36.1	55.6	15.6	15.0
Breaker	28.0	36.1	59.9	16.6	16.0
Prosper	27.7	36.0	55.5	16.1	15.2
AC Lillian	24.9	35.8	53.8	17.0	16.1
Alsen	25.6	35.8	57.8	16.6	15.7
Vantage	27.2	35.5	59.0	17.1	16.8
Conan	24.8	35.4	59.0	16.6	15.4
Mott	28.7	35.2	58.0	17.0	16.2
Brick	27.0	35.2	59.5	15.4	15.0
Granite	27.5	34.6	58.8	17.1	16.1
Dapps	24.6	34.0	55.2	17.1	16.3
Select	34.1	--	58.6	14.7	--
WB-Mayville	33.3	--	58.0	16.4	--
Power Play	33.2	--	57.4	15.7	--
Lochsa	32.6	--	54.3	15.5	--
Edge	32.3	--	57.2	16.2	--
SY Tyra	31.7	--	57.7	15.7	--
SY605CL	31.7	--	57.6	16.0	--
WB-Gunnison	31.5	--	58.5	15.5	--
WB-Digger	30.8	--	56.5	15.6	--
Snowstar	30.7	--	57.8	15.0	--
Albany	30.3	--	56.8	16.2	--
Rollag	30.2	--	58.2	16.4	--
O'Neal	29.4	--	57.0	16.1	--
SY Soren	29.3	--	57.3	16.6	--
Duclair	28.4	--	54.3	16.0	--
Choteau/Steele-ND	28.1	--	56.8	16.0	--
Muchmore	27.9	--	55.9	16.4	--
Mott/Steele-ND	27.6	--	57.6	16.0	--
Carberry	26.9	--	57.9	16.0	--
LSD 5%	2.8	--	1.2	0.7	--

Planted: May 13 Harvested: August 16

Previous Crop: Soybean Cover Crop

Dryland Notill HRS Wheat
Williston, ND

	Yield bu/a		TW lbs/bu	Protein -- % --	
Cultivar	**2011**	**3 yr**	**2011**	**2011**	**3 yr**
Vida	44.5	50.3	57.1	15.7	15.0
RB07	44.6	49.5	58.2	15.7	15.0
Freyr	44.4	48.2	59.1	15.0	14.8
Kelby	47.1	47.9	59.1	16.3	15.5
Barlow	43.8	47.4	58.5	15.9	15.2
Outlook	39.5	46.9	56.8	15.4	15.1
Howard	37.3	46.5	55.7	16.0	15.3
Reeder	43.5	46.0	58.6	15.6	15.3
Briggs	43.1	44.9	57.9	16.2	15.4
Faller	37.6	44.2	55.0	16.0	15.0
Mott	37.7	44.2	57.6	17.2	16.1
Steele-ND	38.2	43.5	57.5	15.6	15.3
Glenn	39.0	43.1	62.1	15.3	15.3
ND901CL Plus	40.6	43.0	60.0	16.5	11.1
Prosper	38.5	42.7	57.0	15.8	14.9
Choteau	34.3	40.9	55.5	16.6	15.8
Brennan	48.1	--	58.8	16.1	--
Rollag	44.5	--	57.9	16.2	--
Select	44.3	--	57.8	16.0	--
Albany	44.0	--	57.5	16.5	--
Jenna	43.9	--	57.7	16.6	--
SY605CL	43.5	--	57.3	16.8	--
SY Soren	43.4	--	56.2	16.7	--
Alpine	43.1	--	57.5	15.3	--
Brogan	42.2	--	57.8	16.5	--
O'Neal	42.0	--	57.8	15.9	--
SY Tyra	41.6	--	56.6	15.3	--
WB-Gunnison	40.3	--	57.9	16.0	--
Velva	39.3	--	56.6	16.1	--
Duclair	38.8	--	54.7	16.4	--
LSD 5%	4.3	--	1.7	0.9	--

Planted: May 6 Harvested: August 17

Previous Crop: Peas

Dryland Fallow HRS Wheat
Circle, MT

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Vida	45.4	32.9	60.0	15.7	13.7
O'Neal	46.3	29.5	60.0	15.4	14.7
Mott	44.9	29.6	61.5	14.5	13.9
Reeder	46.2	27.7	60.5	15.4	14.4
Choteau	46.2	27.4	60.5	15.0	14.0
Jedd	40.2	26.0	60.5	14.5	14.2
Outlook	45.3	25.7	59.5	14.6	13.8
Corbin	40.4	24.8	60.5	14.5	14.8
AP604CL	42.8	25.3	62.0	16.1	14.3
Kuntz	40.2	25.5	60.5	15.1	14.0
McNeal	39.6	25.9	60.0	14.2	13.3
Volt	43.9	24.9	61.5	14.0	13.5
Kelby	37.7	22.8	61.0	16.4	15.7
IMICHT79	43.6	--	60.0	14.1	--
SY Tyra	42.6	--	62.0	14.6	--
Duclair	42.2	--	60.0	14.2	--
Prosper	40.3	--	61.0	14.4	--
Gunnison	39.0	--	61.0	14.3	--
LSD 5%	4.5				

Planted: May 4 Harvested: Sep 15

Dryland Fallow HRS Wheat
Poplar, MT

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	2 yr	2011	2011	2 yr
Kelby	64.6	57.9	61.5	15.7	15.1
Kuntz	67.9	57.6	59.5	14.0	13.6
Vida	63.8	57.1	61.0	14.7	14.2
AP604CL	57.3	56.0	62.0	14.4	13.9
Choteau	58.4	54.7	59.5	13.9	13.8
Reeder	54.5	53.8	61.5	15.1	14.3
Mott	64.0	53.6	61.5	14.0	13.9
O'Neal	57.9	53.3	60.0	14.1	14.0
Jedd	58.5	53.0	61.0	13.7	13.4
Outlook	62.9	51.3	59.5	13.6	13.4
Corbin	57.0	50.3	60.5	14.4	14.0
Volt	59.5	50.0	62.0	13.2	13.6
McNeal	58.7	49.4	60.0	13.3	13.2
IMICHT79	64.3	--	59.5	14.0	--
SY Tyra	62.4	--	61.0	13.6	--
Duclair	61.4	--	59.0	13.8	--
Prosper	56.5	--	60.0	15.0	--
Gunnison	54.5	--	61.5	14.0	--
LSD 5%	10.1				

Planted: May 6 Harvested: Aug 29

Dryland Fallow HRS Wheat
Nashua, MT

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Kelby	46.0	40.1	60.5	15.0	15.2
AP604CL	43.5	39.6	60.5	14.8	14.9
Vida	48.8	38.2	60.0	15.3	15.6
Reeder	45.1	38.0	60.0	16.2	16.1
Volt	46.2	37.4	62.0	14.0	14.2
McNeal	44.4	36.7	59.5	14.2	14.8
O'Neal	47.0	36.0	60.0	14.6	15.2
Kuntz	48.0	35.5	60.0	14.3	14.5
Jedd	43.5	33.9	61.0	14.2	14.6
Corbin	41.9	33.7	59.5	15.2	15.2
Outlook	42.0	31.5	59.5	14.0	14.7
Choteau	40.4	30.3	59.5	14.5	15.2
Mott	41.9	28.7	60.5	14.8	15.2
SY Tyra	45.2	--	61.5	14.0	--
IMICHT79	42.4	--	60.5	13.5	--
Prosper	39.3	--	60.0	14.1	--
Gunnison	36.8	--	60.5	13.7	--
Duclair	35.9	--	59.5	13.9	--
LSD 5%	7.0				

Planted: May 7 Harvested: Aug 25

Dryland Recrop Spring Wheat
Sidney, MT

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Vida	43.1	42.2	61.2	16.2	15.5
Outlook	40.1	36.5	59.7	14.5	14.9
O'Neal	36.9	36.1	62.0	14.3	14.4
Reeder	38.6	35.8	60.9	16.5	16.3
McNeal	40.1	34.9	60.1	14.7	14.5
AP604CL	36.6	34.4	63.0	13.7	14.4
Mott	36.0	33.0	61.7	16.0	15.6
Volt	34.4	31.9	63.6	15.0	14.3
Choteau	32.6	31.9	60.4	14.8	14.7
Jedd	34.3	31.8	62.6	14.2	13.9
Kelby	33.3	31.2	62.8	15.8	16.0
Corbin	34.5	30.3	62.5	14.9	15.3
Kuntz	22.5	27.1	63.3	14.2	14.6
IMICHT79	36.1	--	61.3	15.6	--
SY Tyra	36.0	--	61.4	14.9	--
Duclair	34.6	--	58.6	14.7	--
Prosper	33.8	--	61.9	16.0	--
Gunnison	33.6	--	61.2	14.1	--
LSD 5%	6.3				

Planted: May 6 Harvested: August 18

Previous Crop: Spring Wheat

Dryland Fallow Spring Wheat
Sidney, MT

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	**2011**	**3 yr**	**2011**	**2011**	**3 yr**
Vida	46.8	49.8	58.0	16.7	15.0
Reeder	48.3	48.0	59.5	16.8	14.8
SY Tyra	45.8	47.7	60.0	15.0	13.3
O'Neal	46.8	46.5	59.0	15.5	12.8
Duclair	34.0	45.5	56.5	15.2	13.8
AP604CL	44.7	44.8	60.0	15.9	14.4
Hank	44.9	43.6	58.0	15.5	13.6
Kelby	47.3	43.3	60.0	16.4	14.7
Corbin	40.9	43.0	58.5	15.0	13.9
Choteau	43.8	42.8	60.0	15.4	14.2
Kuntz	46.1	42.4	59.5	14.6	13.9
Jedd	38.7	42.0	59.5	15.8	13.2
McNeal	36.9	41.4	58.0	16.3	13.6
Volt	35.8	40.2	60.0	16.0	14.0
Mott	43.5	39.6	60.0	15.0	13.6
Fortuna	33.7	37.9	58.5	16.7	14.5
Thatcher	32.2	37.8	59.0	15.5	13.5
Conan	37.0	36.1	59.5	16.0	14.1
WB-Gunnison	34.3	35.4	59.0	14.8	14.1
SY Soren	47.0	--	59.0	16.9	--
SY605 CL	43.6	--	60.0	16.6	--
Prosper	41.3	--	60.0	16.9	--
Vantage	40.5	--	61.5	17.2	--
Buck Pronto	39.9	--	58.0	17.0	--
WB Rockland	37.8	--	58.5	17.5	--
Breaker	37.3	--	62.0	15.9	--
LSD 5%	5.4				

Planted: May 7 Harvested: August 16

Dryland Notill HRS Wheat
Crosby, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	**2011**	**3 yr**	**2011**	**2011**	**3 yr**
Vida	20.3	45.2	54.7	15.8	14.1
Reeder	31.7	44.0	56.6	15.7	14.4
Faller	20.0	41.9	53.0	16.0	14.2
RB07	19.1	40.1	54.3	17.4	15.3
Steele-ND	18.5	39.5	56.6	17.0	14.8
Prosper	19.0	38.9	54.8	16.1	14.1
ND901CL Plus	22.1	38.4	54.9	17.1	15.6
Mott	23.9	38.3	54.9	16.8	14.9
Howard	18.6	37.0	56.5	16.5	14.5
Barlow	15.9	36.8	56.3	16.7	14.9
Glenn	17.8	35.8	57.8	16.7	15.2
Choteau	16.3	35.4	53.0	16.9	15.0
Kelby	15.8	30.5	54.2	17.8	15.7
Brogan	30.4	--	57.1	16.1	--
Jenna	26.7	--	55.0	15.7	--
Velva	24.5	--	55.2	15.5	--
SY Tyra	22.8	--	55.8	16.2	--
Briggs	22.3	--	55.2	16.9	--
O'Neal	21.8	--	55.1	15.3	--
SY Soren	21.0	--	55.7	17.8	--
SY605CL	20.3	--	57.0	16.2	--
Duclair	18.0	--	52.6	16.0	--
WB-Gunnison	16.5	--	52.9	16.3	--
Brennan	16.1	--	53.7	17.6	--
LSD 5%	4.0	--	2.0	0.9	--

Planted: May 26 Harvested: September 23

Previous Crop: Lentil

Dryland Notill HRS Wheat
New Town, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	**2011**	**3 yr**	**2011**	**2011**	**3 yr**
RB07	15.6	54.1	54.0	18.3	15.1
Reeder	14.5	52.0	52.7	17.2	14.7
Steele-ND	13.8	51.2	55.1	18.3	15.3
Faller	15.9	50.9	54.3	17.4	14.3
Vida	10.7	49.8	52.2	16.9	14.3
Barlow	11.7	48.9	53.6	18.0	15.4
Prosper	14.0	48.1	53.7	17.5	14.4
Kelby	16.5	47.9	54.0	17.6	15.5
Glenn	11.6	47.4	56.1	18.2	15.5
Howard	11.6	46.1	54.9	17.7	15.1
ND901CL Plus	11.3	43.6	51.1	17.7	15.7
Mott	12.3	42.1	51.5	17.3	14.7
Choteau	6.7	41.6	47.5	17.8	15.0
Jenna	22.9	--	52.0	16.9	--
SY605CL	15.5	--	56.4	19.0	--
Brogan	13.6	--	51.8	17.3	--
Velva	13.2	--	52.7	17.8	--
Brennan	12.7	--	54.2	17.5	--
SY Soren	11.7	--	54.3	17.9	--
Briggs	10.2	--	51.6	18.6	--
WB-Gunnison	10.0	--	52.1	16.3	--
SY Tyra	9.5	--	48.9	16.4	--
Duclair	7.9	--	46.8	16.9	--
O'Neal	7.1	--	47.3	17.2	--
LSD 5%	4.5	--	2.5	0.5	--

Planted: May 19 Harvested: August 26

Previous Crop: Durum

Dryland Notill HRS Wheat
Powers Lake, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	**2011***	**3 yr****	**2011**	**2011**	**3 yr****
Vida	19.5	45.5	52.8	15.6	14.7
Reeder	30.4	44.0	55.4	14.7	14.5
Howard	21.7	43.8	56.2	15.6	14.4
Steele-ND	19.6	41.4	55.7	15.7	14.8
Faller	19.8	40.7	52.5	15.3	14.5
Glenn	18.9	39.6	57.7	16.3	15.1
Briggs	17.1	38.0	55.0	16.1	14.9
ND901CL Plus	22.5	37.5	55.2	16.7	15.9
Choteau	14.6	35.0	48.4	16.4	15.3
Jenna	28.2	--	54.7	15.1	--
Mott	27.0	--	56.5	16.2	--
Velva	25.5	--	54.6	14.7	--
Brogan	24.0	--	56.9	16.1	--
SY Soren	22.1	--	55.9	17.0	--
Brennan	20.9	--	54.7	16.7	--
Barlow	20.5	--	56.3	16.1	--
SY Tyra	20.5	--	54.3	15.7	--
Kelby	20.0	--	53.7	17.5	--
Prosper	19.3	--	52.1	15.5	--
O'Neal	18.4	--	52.7	15.0	--
RB07	18.1	--	53.7	17.1	--
Duclair	14.2	--	49.3	16.2	--
WB-Gunnison	12.0	--	51.6	15.8	--
LSD 5%	3.5	--	1.5	0.4	--

Planted: June 2 Harvested: September 14

Previous Crop: HRS Wheat

Some yield loss due to shatter.

**3 yr average based on 2008, 2009 and 2011 data.

Dryland Notill HRS Wheat
Ray, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Reeder	30.1	41.3	54.5	13.6	12.8
Vida	26.4	41.0	54.0	13.7	12.9
Prosper	26.5	40.0	54.1	14.3	13.0
Faller	25.4	38.4	53.5	14.4	12.5
Mott	26.9	36.2	55.9	14.8	13.0
RB07	25.4	35.3	53.9	15.7	13.9
Howard	24.9	34.8	55.6	14.1	13.2
Barlow	24.5	34.7	56.1	15.0	13.6
ND901CL Plus	26.7	33.8	54.7	15.9	14.7
Steele-ND	23.9	32.7	55.4	14.6	13.3
Choteau	21.2	32.6	52.0	15.5	13.3
Glenn	24.8	30.3	57.6	14.4	13.0
Kelby	23.0	28.6	54.7	16.9	14.5
Velva	30.0	--	58.3	13.0	--
Jenna	29.3	--	53.3	14.4	--
SY605CL	28.8	--	59.7	13.6	--
Brogan	26.9	--	54.9	14.3	--
SY Tyra	26.6	--	59.2	14.1	--
SY Soren	25.9	--	58.9	14.5	--
Briggs	25.1	--	58.4	15.0	--
O'Neal	24.4	--	56.6	13.6	--
Brennan	22.9	--	54.7	16.3	--
Duclair	21.5	--	57.1	14.1	--
WB-Gunnison	17.4	--	56.2	14.7	--
LSD 5%	4.0	--	1.1	1.0	--

Planted: June 2 Harvested: September 30
Previous Crop: Durum

Sprinkler Irrigated Spring Wheat
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Duclair	38.8	76.5	56.0	15.9	15.2
Reeder	43.1	75.2	59.5	16.6	16.0
SY Tyra	44.1	74.8	60.0	15.4	14.4
Brennan	40.5	73.4	60.0	16.8	15.9
Kuntz	46.1	72.9	59.5	15.5	15.1
Mott	48.7	72.0	60.0	15.6	14.6
Volt	37.1	70.4	57.0	15.4	15.0
McNeal	50.7	70.3	58.0	15.1	14.6
Choteau	38.1	70.0	56.5	16.2	15.5
Vida	44.9	69.5	57.5	16.1	16.1
O'Neal	39.4	69.1	57.5	15.5	15.1
AP604CL	42.9	68.1	61.0	16.2	15.2
Hank	38.7	67.9	56.5	15.8	14.8
Kelby	36.1	66.7	59.0	17.5	16.2
Conan	37.9	65.3	59.5	16.2	15.4
WB-Gunnison	35.2	64.7	58.5	14.8	15.3
Corbin	34.2	64.4	57.5	16.1	14.8
Fortuna	28.2	57.5	56.0	16.7	15.9
Jedd	34.8	56.2	59.0	16.0	14.8
Thatcher	35.8	51.3	56.0	15.2	14.9
Prosper	50.9	--	57.5	16.0	--
Vantage	47.8	--	60.5	17.1	--
SY605CL	44.8	--	59.0	17.0	--
SY Soren	42.6	--	59.5	17.1	--
Breaker	41.7	--	60.5	16.6	--
Buck Pronto	39.4	--	57.5	17.1	--
WB Rockland	31.1	--	56.0	17.3	--
LSD 5%	4.9				

Planted: May 2 Harvested: September 6
Previous Crop: Safflower

Sprinkler Irrigated HRS Wheat
Nesson Valley, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Faller	38.6	73.5	55.9	17.9	15.8
Velva	33.2	71.8	56.1	18.2	16.0
Reeder	31.0	71.7	57.1	18.7	16.7
Sabin	34.2	70.6	56.0	19.6	16.7
Vida	33.0	70.6	55.0	18.2	16.2
Prosper	33.8	70.0	56.6	18.0	15.8
Howard	34.2	69.6	58.8	18.5	16.0
Brennan	38.2	68.3	56.6	17.8	16.1
Freyr	36.9	68.2	55.2	17.6	16.1
Barlow	35.9	68.2	58.3	18.4	16.5
RB07	37.7	66.8	56.3	18.2	16.0
Steele-ND	31.4	65.6	58.5	18.6	16.1
Glenn	37.1	61.9	60.3	18.3	17.0
Albany	41.4	-	58.5	17.8	--
Rollag	41.2	-	57.5	18.5	--
Jenna	40.4	-	56.8	18.2	--
SY Soren	40.0	-	56.5	17.9	--
Mott	39.8	-	57.6	18.5	--
Outlook	39.7	-	55.2	17.7	--
Kelby	38.2	-	56.0	18.4	--
Pivot	36.6	-	53.5	18.3	--
Duclair	35.1	-	53.4	17.9	--
ND901CL Plus	34.6	-	57.5	18.6	--
O'Neal	33.7	-	54.8	17.8	--
LSD 5%	3.8	-	1.5	0.5	--

Planted: May 13 Harvested: August 25

Previous Crop: Sugar Beet

Grain protein percentages reported on a 12% moisture basis.

Dryland HRS Wheat Values
Sidney, MT

Cultivar	Yield bu/a 3 yr	TW lb/bu 3 yr	Protein % 3 yr	$/a + or - Vida
Vida	49.8	60.3	15.0	0.00
Reeder	48.0	61.6	14.8	-15.44
AP604CL	44.8	61.9	14.4	-39.22
SY Tyra	47.7	62.0	13.3	-42.75
Kelby	43.3	61.6	14.7	-45.71
Duclair	45.5	59.7	13.8	-46.15
Choteau	42.8	61.3	14.2	-55.34
Corbin	43.0	60.7	13.9	-57.10
O'Neal	46.5	61.2	12.8	-57.52
Kuntz	42.4	61.3	13.9	-60.82
Hank	43.6	60.2	13.6	-62.54
Volt	40.2	62.1	14.0	-74.46
McNeal	41.4	60.1	13.6	-75.71
Jedd	42.0	61.9	13.2	-76.32
Fortuna	37.9	60.8	14.5	-83.04
Mott	39.6	61.4	13.6	-86.50
Thatcher	37.8	60.4	13.5	-97.28
Conan	36.1	61.6	14.1	-99.88
WB-Gunnison	35.4	61.1	14.1	-104.22

Wheat prices summarized by G. Carlson and P. Lamb, NARC, Havre, MT from 10-yr (2001-2010) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee.

Irrigated HRS Wheat Values
Sidney, MT

Cultivar	Yield bu/a 3 yr	TW lb/bu 3 yr	Protein % 3 yr	$/a + or - Vida
Duclair	76.5	58.6	15.2	45.50
Reeder	75.2	60.3	16.0	37.05
Brennan	73.4	60.7	15.9	25.36
SY Tyra	74.8	60.6	14.4	23.23
Kuntz	72.9	60.0	15.1	22.10
Volt	70.4	60.1	15.0	5.85
Mott	72.0	60.4	14.6	5.45
Choteau	70.0	58.4	15.5	3.25
Vida	69.5	58.1	16.1	0.00
O'Neal	69.1	57.9	15.1	-2.60
McNeal	70.3	59.1	14.6	-5.35
AP604CL	68.1	61.1	15.2	-9.10
Hank	67.9	57.6	14.8	-15.83
Kelby	66.7	60.1	16.2	-18.20
Conan	65.3	60.3	15.4	-27.30
WB-Gunnison	64.7	60.3	15.3	-31.20
Corbin	64.4	59.0	14.8	-38.20
Fortuna	57.5	58.6	15.9	-78.00
Jedd	56.2	58.9	14.8	-90.95
Thatcher	51.3	57.3	14.9	-118.30

Wheat prices summarized by G. Carlson and P. Lamb, NARC, Havre, MT, from 10-yr (2001-2010) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee

Wheat Variety Comparisons - - - Williston, ND

Column "$/A" was arrived at by calculating a gross per acre income for each variety using market price and protein premiums obtained on December 9, 2011. The base price for 14% protein wheat was $7.98, and for terminal durum was $7.40. All spring wheat varieties are compared to Glenn and durum varieties to Mountrail on a plus or minus $/a basis.

Cultivar	3 Year Avg. (2009-11) Yield bu/a	Protein %	Gross Ret $/a	$/A +or- Glenn
Hard Spring Wheat				
Reeder	41.5	15.1	$331.44	$41.42
Vida	40.9	15.1	$326.49	$36.47
Velva	40.5	15.3	$323.46	$33.44
Otis	40.5	14.2	$323.03	$33.01
Alpine	40.4	14.3	$322.42	$32.40
Barlow	39.8	15.0	$317.26	$27.24
Brogan	39.5	15.5	$315.02	$25.00
Jenna	39.3	15.2	$313.85	$23.83
Lolo	39.0	14.5	$311.11	$21.09
RB07	38.9	15.2	$310.24	$20.22
Brennan	38.8	15.2	$309.97	$19.95
Kuntz	38.8	14.3	$309.70	$19.68
Knudson	38.7	15.5	$308.83	$18.81
Kelby	38.7	15.2	$308.80	$18.78
Sabin	38.5	15.3	$307.60	$17.58
Freyr	38.5	15.0	$306.99	$16.97
Steele-ND	38.1	15.1	$304.12	$14.10
Outlook	38.1	15.2	$303.75	$13.73
ND901CL Plus	37.2	16.6	$297.02	$7.00
McNeal	37.0	15.3	$295.21	$5.19
Howard	37.0	15.1	$295.15	$5.13
Briggs	37.0	14.9	$295.13	$5.11
AP604CL	36.6	15.5	$291.83	$1.81
Blade	36.5	15.9	$291.43	$1.41
Glenn	36.3	15.5	$290.02	$0.00
Choteau	36.3	15.8	$289.67	-$0.35
Faller	36.1	15.0	$288.45	-$1.57
Agawam	36.3	14.0	$287.73	-$2.29
Breaker	36.1	16.0	$287.71	-$2.31
Prosper	36.0	15.2	$287.17	-$2.85
Alsen	35.8	15.7	$285.39	-$4.63
AC Lillian	35.8	16.1	$285.31	-$4.71
Vantage	35.5	16.8	$283.02	-$7.00
Conan	35.4	15.4	$282.84	-$7.18
Mott	35.2	16.2	$281.08	-$8.94
Brick	35.2	15.0	$280.68	-$9.34
Granite	34.6	16.1	$276.11	-$13.91
Dapps	34.0	16.3	$271.13	-$18.89

Cultivar	3 Year Avg. (2009-11) Yield bu/a	Protein %	Gross Ret $/a	$/A +or- Mountrail
Durum				
Tioga	36.0	15.1	$266.23	$15.27
Commander	35.4	15.1	$262.28	$11.32
Alkabo	35.4	14.6	$261.76	$10.80
Wales	35.0	14.4	$258.65	$7.69
Grenora	34.9	14.8	$258.53	$7.57
DG Max	34.2	14.8	$253.15	$2.19
Grande D'Oro	34.0	14.9	$251.35	$0.39
Mountrail	33.9	15.1	$250.96	$0.00
Westhope	33.7	15.0	$249.58	-$1.38
Strongfield	33.7	15.6	$249.28	-$1.68
Ben	33.6	15.6	$248.64	-$2.32
Maier	33.3	15.2	$246.49	-$4.47
Pierce	33.0	14.7	$244.08	-$6.88
Divide	32.8	15.0	$242.94	-$8.02
Plaza	32.8	14.8	$242.60	-$8.36
Alzada	32.5	14.8	$240.52	-$10.44
DG Star	32.4	14.4	$240.03	-$10.93
AC Navigator	32.3	15.1	$239.32	-$11.64
Lebsock	31.9	14.5	$236.38	-$14.58
Dilse	31.7	15.7	$234.93	-$16.03
CDC Verona	31.6	15.6	$233.77	-$17.19
Kyle	31.0	15.5	$229.60	-$21.36

Durum Variety Descriptions

Variety	Origin[1]	Chaff Color	Height	Maturity	Lodging	Resistance To[2] Leaf Rust	Foliar Disease	Root Rot	Scab	Quality Factors Test Weight	Kernel Size[3]	Grain Protein	Overall Quality
AC Avonlea	Canada	white	med	m early	MS	R	MS	S	VS	med	large	m high	good
AC Commander	Canada	white	m short	late	M	R	MS	M	VS	med	large	m high	good
AC Napolean	Canada	white	tall	med	MS	R	S	S	S	m high	m large	high	good
AC Navigator	Canada	white	m short	m late	M	R	M	S	S	med	v large	med	good
Alkabo	ND	white	med	med	R	R	M	M	MS	high	large	m low	good
Alzada	WB	white	short	early	M	MR	S	M	VS	med	large	med	excel
Belzer	ND	white	tall	m late	M	R	M	M	MR	m low	v large	med	good
Ben	ND	white	tall	med	MR	R	MR	M	S*	v high	v large	m high	average
CDC Verona	Canada	white	m tall	m late	M	R	MR	NA	S	med	large	m high	good
DG Max	DGP	white	m tall	med	M	MR	MR	NA	MS	high	med	m high	good
DG Star	DGP	white	m tall	m early	M	R	M	NA	NA	med	m small	med	good
Dilse	ND	white	m tall	late	M	R	M	M	MS	high	med	v high	excel
Divide	ND	white	m tall	m late	M	R	M	M	MR	med	med	m high	excel
Grande D'Oro	WB/DGP	white	m tall	med	MR	R	M	MS	NA	high	m small	med	average
Grenora	ND	white	med	m early	M	R	M	MR	MS	med	med	med	good
Kyle	Canada	white	tall	late	S	MR	M	S	VS	med	m large	med	good
Lebsock	ND	white	m tall	med	R	R	M	MS	MS	high	large	med	average
Maier	ND	white	m tall	m late	M	R	M	M	S*	high	med	high	average
Mountrail	ND	white	m tall	m late	M	R	M	M	S*	med	med	med	average
Pierce	ND	white	m tall	med	M	R	MS	MR	S	v high	med	med	excel
Plaza	ND	white	m short	late	MS	R	M	MS	MS	med	small	med	average
Primo D'Oro	WB/DGP	white	tall	m early	MS	R	MS	S	NA	high	med	m high	good
Strongfield	Canada	white	m tall	m late	M	R	MS	NA	S	med	m large	v high	good
Tioga	ND	white	tall	m late	MR	R	M	NA	MS	m high	med	m high	excel
Voss	AgriPro	white	short	med	R	MR	MS	MR	S	med	med	low	average
WB-Belfield	WB	white	short	early	R	R	S	NA	S	high	m large	med	NA
Wales	WB	white	med	med	R	R	M	NA	S*	high	m large	med	good
Westhope	WB	white	m tall	med	med	R	M	NA	S	m high	med	m high	NA

[1] Refers to developer. WWW=World Wide Wheat; WB=WestBred; DGP =Dakota Growers Pasta; ND=North Dakota State University.
[2] R = resistant, MR = moderately resistant, M = intermediate, MS = moderately susceptible, S = susceptible, VS = very susceptible, NA = data not available. All varieties are resistant to current stem rust races.
[3] Number seeds/lb: Large = less than 11,000; medium = 11,000-12,000; small = more than 12,000
* Indicates yield and/or quality have been higher than would be expected based on visual head blight symptoms alone.

Dryland Fallow Statewide Durum
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Mountrail	41.1	42.7	61.0	15.8	14.1
Strongfield	36.8	42.3	60.8	16.3	14.7
Grenora	37.7	42.0	60.7	15.8	14.2
Divide	38.3	40.7	61.7	15.6	13.8
Alkabo	38.1	40.4	62.0	16.1	14.1
Pierce	37.0	40.0	61.7	15.5	14.3
Saragolla	30.8	39.4	59.2	15.6	13.2
Alzada	37.8	39.4	60.5	15.4	14.3
Westhope	43.5	--	61.5	16.1	--
Tioga	40.9	--	61.8	15.5	--
Belfield	36.8	--	60.8	15.4	--
LSD 5%	6.8				

Planted: May 16 Harvested: August 17

Dryland Recrop Regional Durum
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Divide	28.8	39.7	61.5	13.7	13.2
Tioga	29.7	38.3	62.0	13.3	13.4
Mountrail	22.9	35.7	60.5	13.9	13.5
Alkabo	20.9	35.6	61.5	14.4	13.7
Grenora	20.5	34.7	61.0	13.4	13.5
LSD 5%	5.3				

Planted: May 6 Harvested: August 10
Previous Crop: Safflower

Dryland Fallow Durum
Circle, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/b 2011	Protein % 2011	Protein % 3 yr
Strongfield	46.7	29.9	62.0	13.0	12.2
Alkabo	43.8	28.5	62.5	12.2	12.5
Pierce	41.4	27.7	62.0	13.1	13.0
Divide	42.9	27.7	61.5	12.6	12.1
Mountrail	43.2	27.4	61.5	13.3	12.5
Grenora	42.4	27.2	61.5	12.9	12.7
Alzada	36.0	23.7	60.5	13.3	12.5
Westhope	47.4	--	61.5	12.7	--
Tioga	46.4	--	61.5	12.6	--
Belfield	33.7	--	61.0	13.1	--
LSD 5%	6.1				

Planted: May 4 Harvested: Sept 15

Dryland Fallow Durum
Nashua, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Strongfield	42.9	31.0	59.5	15.4	14.7
Mountrail	45.3	30.9	59.0	14.7	14.5
Alkabo	43.1	31.2	62.0	13.3	14.0
Pierce	41.4	29.1	61.5	13.5	14.1
Grenora	40.9	29.3	59.0	15.2	15.0
Alzada	36.6	29.1	58.5	14.6	14.2
Divide	42.3	28.0	60.0	14.4	14.4
Westhope	38.4	--	61.0	15.3	--
Belfield	38.3	--	59.5	14.7	--
Tioga	36.1	--	60.0	14.9	--
LSD 5%	6.2				

Planted: May 7 Harvested: Aug 25

Dryland Fallow Durum
Poplar, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Mountrail	72.3	53.8	60.5	14.3	13.1
Grenora	50.3	48.9	59.5	13.5	13.1
Alkabo	57.5	48.3	61.5	14.0	13.3
Strongfield	50.4	48.3	61.5	14.4	13.5
Divide	57.7	47.6	60.0	14.2	13.1
Pierce	55.3	45.2	61.5	13.9	13.1
Alzada	50.4	44.1	59.0	13.9	13.1
Belfield	54.2	--	59.0	14.9	--
Westhope	54.2	--	61.0	15.0	--
Tioga	52.8	--	60.5	14.1	--
LSD 5%	10.4				

Planted: May 6 Harvested: Aug 29

Dryland Recrop Durum
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Divide	39.8	42.1	62.0	13.1	13.1
Mountrail	36.5	39.5	62.5	13.4	13.1
Strongfield	36.9	38.7	62.0	14.3	14.2
Alkabo	38.0	37.9	62.5	13.7	13.6
Grenora	37.0	36.0	62.0	13.4	13.4
Alzada	31.6	34.3	61.0	13.9	13.5
Pierce	36.2	33.6	62.0	13.5	14.1
Westhope	37.8	--	62.0	13.8	--
Tioga	35.5	--	62.5	13.0	--
Belfield	32.8	--	61.5	13.6	--
LSD 5%	4.7				

Planted: May 6 Harvested: August 18

Previous Crop: Spring Wheat

Dryland Durum
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Tioga	31.3	36.0	59.8	14.8	15.1
Commander	29.1	35.4	59.7	15.2	15.1
Alkabo	25.6	35.4	59.9	14.6	14.6
Wales	30.1	35.0	59.3	14.2	14.4
Grenora	29.3	34.9	58.8	14.7	14.8
DG Max	28.7	34.2	59.9	14.8	14.8
Grande D'Oro	28.6	34.0	60.0	14.8	14.9
Mountrail	26.0	33.9	58.9	14.6	15.1
Westhope	28.5	33.7	59.2	14.8	15.0
Strongfield	26.2	33.7	57.8	15.4	15.6
Ben	29.4	33.6	59.5	15.4	15.6
Maier	29.6	33.3	59.8	15.0	15.2
Pierce	28.7	33.0	59.8	14.8	14.7
Divide	29.3	32.8	59.3	14.6	15.0
Plaza	25.3	32.8	59.5	14.9	14.8
Alzada	24.7	32.5	58.1	14.9	14.8
DG Star	27.2	32.4	58.6	14.8	14.4
AC Navigator	26.0	32.3	60.1	15.2	15.1
Lebsock	24.3	31.9	60.4	14.8	14.5
Dilse	24.8	31.7	59.3	15.6	15.7
CDC Verona	25.5	31.6	58.8	15.5	15.6
Kyle	22.1	31.0	59.4	15.9	15.5
Rugby	31.1	--	59.0	15.3	--
WB-Belfield	25.7	--	59.6	15.0	--
LSD 5%	2.9	--	0.7	0.6	--

Planted: May 13 Harvested: August 17

Previous Crop: Soybean Cover Crop

Dryland Notill Durum Variety
Williston, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Westhope	37.9	42.3	59.9	16.2	15.2
Wales	36.8	41.3	58.8	16.2	15.2
Alkabo	33.5	41.2	58.8	15.9	14.9
Grande D'oro	31.9	40.8	59.4	15.7	15.1
Maier	40.5	39.9	58.5	16.5	16.0
Mountrail	32.2	39.6	56.8	16.5	15.6
Grenora	37.4	39.5	57.1	16.1	15.2
AC Navigator	38.1	39.3	58.7	15.7	15.1
Ben	36.5	39.3	57.0	17.1	15.5
Tioga	34.9	39.1	57.7	16.5	16.0
Commander	35.2	38.7	57.2	16.6	15.7
Pierce	38.8	38.7	58.8	16.5	15.2
Lebsock	34.3	38.5	59.3	15.6	15.2
DG Max	36.5	38.2	59.5	16.5	15.5
Divide	34.8	38.0	57.6	16.5	15.3
DG Star	35.2	37.8	57.8	16.8	15.5
Kyle	28.4	37.3	58.2	16.3	15.5
Strongfield	31.4	36.8	56.6	17.3	16.5
Dilse	29.9	36.5	58.4	17.1	16.4
CDC Verona	29.4	35.8	56.7	18.5	17.0
Alzada	35.6	--	56.6	15.6	--
LSD 5%	4.1	--	1.1	0.8	--

Planted: May 6 Harvested: August 19
Previous Crop: Field Pea

Dryland Notill Durum
Crosby, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Mountrail	26.2	38.6	54.4	15.0	13.9
Tioga	16.3	34.9	55.0	14.6	14.0
Ben	22.7	34.5	54.7	15.9	14.9
Grenora	17.3	33.4	54.5	14.6	14.2
Strongfield	16.3	33.2	55.2	15.6	15.1
Pierce	16.4	32.7	54.9	14.4	14.1
Divide	17.0	32.5	55.1	14.9	14.4
AC Navigator	16.1	32.3	54.7	14.9	14.1
Commander	18.0	32.1	54.9	14.7	14.4
Alkabo	13.9	31.3	54.5	14.6	13.8
DG Max	15.6	30.6	55.4	15.6	14.2
Maier	14.0	30.0	53.7	15.6	14.9
Lebsock	14.1	28.4	56.5	14.5	14.2
DG Star	13.6	27.7	52.5	15.5	14.7
Wales	21.6	--	55.2	13.7	--
CDC Verona	20.6	--	55.4	15.4	--
Westhope	20.4	--	54.0	13.9	--
Alzada	8.8	--	49.9	14.7	--
LSD 5%	6.4	--	1.3	1.0	--

Planted: May 26 Harvested: September 23
Previous Crop: Lentil

Dryland Notill Durum
New Town, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Grenora	11.0	49.0	47.4	17.2	14.9
Mountrail	10.6	46.8	49.1	17.3	14.8
Tioga	14.7	46.7	49.9	16.9	14.3
Ben	12.2	46.1	50.9	17.1	15.1
DG Max	12.0	45.8	49.6	18.5	15.5
DG Star	10.4	44.1	51.8	18.3	15.0
Pierce	15.0	44.1	50.9	17.0	14.7
Divide	10.9	44.0	50.0	17.2	15.1
Lebsock	10.0	43.6	49.4	17.5	14.7
Commander	5.9	43.3	46.8	17.0	14.8
Alkabo	10.0	42.9	49.6	16.7	14.2
Maier	12.3	42.4	51.1	17.6	15.0
Strongfield	12.6	42.2	51.4	18.3	15.5
AC Navigator	7.0	39.8	48.2	16.7	14.5
Wales	15.5	--	51.2	17.1	--
Westhope	12.3	--	51.1	17.6	--
CDC Verona	11.2	--	50.5	19.3	--
Alzada	5.6	--	43.4	17.4	--
LSD 5%	2.9	--	2.3	0.9	--

Planted: May 19 Harvested: August 26
Previous Crop: Notill Durum

Dryland Notill Durum
Powers Lake, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr*	2011	2011	3 yr*
Grenora	25.0	40.3	53.4	14.9	14.3
Mountrail	22.5	38.4	53.5	15.2	14.8
Commander	18.5	38.0	55.0	14.6	14.4
Pierce	24.0	37.6	55.8	14.8	13.9
Maier	29.7	37.5	56.4	15.2	14.9
Strongfield	20.6	37.5	53.7	15.6	14.9
Lebsock	17.1	37.2	53.8	15.2	14.3
AC Navigator	13.1	36.9	52.1	15.4	14.4
Alkabo	18.1	36.3	53.8	15.3	14.1
Divide	20.2	36.2	54.6	14.8	14.2
DG Star	19.2	35.3	55.4	14.9	14.3
Ben	19.9	35.1	54.8	15.5	14.8
Alzada	29.1	--	56.5	14.9	--
CDC Verona	28.1	--	57.0	14.2	--
DG Max	24.3	--	57.0	13.8	--
Tioga	23.2	--	57.0	13.7	--
Wales	21.9	--	55.0	14.9	--
Westhope	21.9	--	56.5	14.8	--
LSD 5%	3.9	--	1.1	0.6	--

Planted: June 2 Harvested: September 14
Previous Crop: HRS Wheat

Some yield loss due to shatter.

*3 yr average based on 2008, 2009 and 2011 data.

Dryland Notill Durum
Ray, ND

Grain	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Mountrail	21.1	40.8	58.3	12.5	12.0
Tioga	25.0	37.8	59.1	12.5	11.3
Strongfield	23.4	37.6	57.9	13.5	12.7
Pierce	23.7	36.8	58.9	12.8	12.1
Grenora	25.6	36.5	55.9	13.2	11.7
Ben	22.9	36.3	59.0	13.4	12.5
Divide	23.3	36.1	59.4	13.2	11.9
AC Navigator	16.3	34.4	58.0	13.1	12.3
Alkabo	16.6	33.9	58.9	12.8	12.0
Lebsock	18.8	33.5	59.2	13.3	12.7
Commander	18.3	33.4	58.4	13.0	12.2
DG Max	20.0	32.7	59.1	13.9	12.1
Maier	19.3	31.7	58.7	13.7	13.0
DG Star	19.2	29.0	58.6	13.9	12.8
CDC Verona	22.4	--	58.6	13.6	--
Wales	21.3	--	59.3	12.6	--
Westhope	18.8	--	58.5	13.1	--
Alzada	12.9	--	55.8	13.7	--
LSD 5%	3.1	--	0.6	0.8	--

Planted: June 2 Harvested: September 30
Previous Crop: Notill Durum

Sprinkler Irrigated Durum
Sidney, MT

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Grenora	54.0	77.0	60.2	15.3	14.2
Divide	44.1	74.0	59.8	15.5	13.8
Pierce	49.3	73.7	60.7	15.1	14.0
Mountrail	54.5	71.9	59.8	15.1	13.9
Alkabo	49.7	68.6	60.3	15.3	14.8
Strongfield	44.4	68.5	59.2	16.2	14.6
Saragolla	34.0	53.2	54.7	16.7	14.5
Alzada	31.3	45.2	56.3	16.4	14.8
Tioga	50.0	--	59.7	15.2	--
Westhope	49.9	--	59.0	15.2	--
Belfield	27.7	--	56.7	15.8	--
LSD 5%	7.3				

Planted: May 2 Harvested: September 6
Previous Crop: Safflower

Sprinkler Irrigated Durum
Nesson Valley, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Divide	34.2	74.0	55.6	17.0	15.2
Grenora	34.0	73.6	56.4	17.1	15.2
Tioga	34.2	72.8	56.4	17.2	15.1
Mountrail	32.5	71.1	56.9	17.5	15.2
Alkabo	27.2	70.3	57.5	17.2	15.1
Plaza	31.7	69.7	57.9	16.9	14.5
Pierce	30.5	65.3	57.4	17.4	15.3
Lebsock	30.4	64.8	57.6	17.3	15.4
Strongfield	28.9	63.5	55.9	18.9	16.3
Commander	23.3	61.5	55.7	17.6	15.4
Wales	25.9	--	54.6	18.1	--
CDC Verona	30.6	--	55.7	18.9	--
Westhope	30.3	--	55.6	17.7	--
Alzada	20.4	--	54.9	18.1	--
LSD 5%	4.7	-	0.8	0.4	--

Planted: May 13 Harvested: August 25
Previous Crop: Sugar Beet

Hard Red Winter Wheat Variety Descriptions

						Resistance To[2]			Quality Factors	
Variety	Origin[1]	Height	Maturity	Winter Hardiness[3]	Lodging	Stem Rust	Leaf Rust	Foliar Disease	Test Weight	Grain protein
Above**	Colorado	short	early	poor	R	R	S	MS	medium	med
Accipter	W. Ag	short	medium	good	R	R	MS	S	medium	medium
Art	AgriPro	m short	m early	fair	R	R	R	MS	high	m high
Bauermeister	WA	medium	late	fair	R	NA	MR	NA	low	m high
Big Sky	MT	tall	medium	good	MR	R	MR	R	high	medium
BondCL**	CO	m short	early	poor	R	MS	MS	NA	low	m high
Boomer	WB	medium	medium	good	R	NA	MR	NA	high	medium
Bynum*/**	MT/WB	m tall	medium	fair	NA	NA	NA	NA	low	high
CDC Buteo	Canada	medium	medium	good	M	MR	MS	NA	high	m low
CDC Falcon	Canada	m short	medium	good	M	R	MS	MS	medium	m low
CDC Kestrel	Canada	m tall	medium	good	MS	S	S	MS	m low	m low
CDC Raptor	Canada	m short	medium	fair	R	MR	MR	S	medium	m low
Darrell	SD	medium	medium	good	R	R	S	MR	m high	medium
Decade	MT/ND	medium	m early	good	R	R	S	M	medium	medium
Expedition	SD	medium	medium	fair	R	R	MS	MS	low	medium
Genou*	MT	medium	medium	poor	MS	MS	S	NA	m low	medium
Harding	SD	medium	m early	good	MR	NA	MS-MR	MR	medium	m high
Hawken	AgriPro	v short	m early	poor	R	MR	MR	NA	medium	medium
Hatcher	CO	short	m early	fair	R	MR	MS	NA	medium	m high
Jagalene	AgriPro	short	early	poor	R	MR	S	S	high	medium
Jerry	ND	medium	medium	good	MR	R	MR	M	medium	m high
Ledger	WB	short	m early	fair	R	NA	NA	NA	medium	m high
Lyman	SD	medium	medium	fair	M	R	R	MR	m high	m high
Mace	ARS-NE	short	m early	poor	R	R	MS	NA	low	medium
McClintock	Canada	medium	m early	fair	MR	R	R	R	high	medium
Morgan	CO	medium	m late	good	MR	NA	S	M	medium	m high
Neeley	ID	medium	m late	fair	MR	S	S	M	m low	m low
Norris**	MT/WB	m tall	medium	good	NA	NA	NA	NA	m high	medium
Norstar	Canada	tall	late	v good	MS	S	S	R	high	medium
Paul	MT	short	m late	good	R	R	MS	MR	m low	m low
Peregrine	W Ag	medium	m late	v good	MR	R	MR	NA	m high	m low
Radiant	Canada	tall	late	good	R	S	S	NA	medium	m low
Rampart*	MT	medium	m late	fair	R	R	S	MR	medium	high
Roughrider	ND	tall	m late	v good	MS	R	S	M	medium	high
Striker	WB	medium	medium	good	R	NA	MR	NA	medium	m high
Tiber	MT	tall	m late	fair	MS	S	S	MR	m high	medium
WB-Matlock	WB	medium	medium	good	MR	NA	MS	M	medium	medium
Yellowstone	MT	medium	medium	good	M	S	MS	M	low	m high

* Sawfly resistant **Clearfield wheat with imidazolinone tolerance

Hard White Winter Wheat Variety Descriptions

Alice	SD	short	early	fair	MR	MR	S	NA	m high	m low
Gary	ID	medium	m late	fair	MR	NA	NA	NA	medium	low
Hyalite**	MT	m short	m early	fair	MR	R	S	NA	medium	medium
NuDakota	AgriPro	short	medium	poor	R	MR	MR	NA	medium	medium
NuFrontier	GM/AgriPro	m short	early	fair	R	NA	NA	NA	m high	low
NuHorizon	GM/Agripro	short	early	poor	R	NA	NA	NA	high	m low
NuSky	MT	medium	m late	good	R	MR	S	MR	medium	medium
NuWest	MT/GM	medium	medium	good	R	MR	S	MR	m low	medium
Wendy	SD	short	early	good	NA	NA	NA	NA	medium	medium

[1] Refers to developer: AC=Agriculture Canada; GM=General Mills; WPB=Western Plant Breeders; WB=WestBred; ID=Idaho; SD=South Dakota State University; MT=Montana State University

[2] R = resistant, MR = moderately resistant, M = intermediate, MS = moderately susceptible, S = susceptible, VS = very susceptible, NA = data not available.

[3] Varieties with fair to poor winter hardiness should not be seeded on bare soil.

Winter Rye Variety Descriptions

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

[1] Refers to developer: Can=Canada; MI=Michigan State University; ND=North Dakota State University; SD=South Dakota State University; WI= University Wisconsin-Madison

Dryland Fallow Winter Wheat
Sidney, MT

Cultivar	Winter Survival 2011	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Jerry	70.3	68.8	55.5	58.5	12.9	13.5
Accipiter	72.8	59.9	53.7	59.0	12.3	12.9
Decade	75.1	65.9	51.9	60.0	11.9	13.4
Yellowstone	53.5	69.6	51.5	58.5	13.1	13.0
Wahoo	58.3	58.1	50.4	56.5	13.0	13.1
CDC Falcon	68.3	58.9	49.6	57.5	12.8	12.9
Peregrine	76.0	56.7	47.7	59.5	12.2	12.8
Pryor	53.7	57.0	45.3	59.0	13.4	13.5
Hyalite (CL)*	58.5	55.1	44.1	59.0	13.2	13.4
Norris (CL)	60.9	61.5	44.0	59.5	12.8	13.2
Jagalene	53.8	56.9	42.6	59.5	12.9	13.3
Promontory	41.1	52.3	41.6	61.5	12.2	12.9
Carter	42.7	52.5	40.0	59.5	13.4	13.6
Judee	50.1	44.1	37.8	58.5	13.5	13.8
Ledger	45.0	45.3	36.2	59.0	12.7	13.4
Genou	54.2	44.5	35.9	57.5	14.5	14.2
Rampart	49.2	44.8	31.0	59.5	13.2	13.5
Bynum (CL)	50.6	35.8	28.8	59.5	14.6	14.4
Overland	62.3	77.6	--	59.5	12.3	--
WB Matlock	79.0	67.8	--	59.5	12.8	--
SY Wolf	48.3	61.3	--	60.5	12.9	--
Boomer	71.1	60.8	--	57.5	12.7	--
Broadview	61.1	57.9	--	58.5	13.4	--
McGill	85.0	57.0	--	58.0	12.8	--
Bearpaw	58.9	54.8	--	58.5	12.1	--
Settler (Cl)	38.8	53.5	--	59.5	12.6	--
Radiant	74.0	52.3	--	59.0	13.0	--
Curlew	51.1	52.1	--	58.5	13.1	--
WB Quake	57.9	51.0	--	58.0	12.1	--
Robidoux	33.8	50.2	--	58.5	12.9	--
Art	26.9	48.9	--	58.5	13.7	--
LSD 5%	14.6	10.4				

Planted: Sept 30, 2010 Harvested: Aug 3, 2011

*hard white wheat No data from 2009, severe winter kill

Dryland Notill Winter Wheat
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
CDC Peregrine	58.9	50.1	59.4	12.4	13.6
Yellowstone	64.5	47.8	58.0	12.6	14.1
CDC Accipiter	59.5	47.4	58.9	12.2	14.1
Jerry	61.4	44.4	58.8	11.9	14.0
Radiant	60.8	44.0	57.9	12.4	14.4
Decade	68.8	43.7	60.4	12.3	14.0
Boomer	62.7	43.3	58.4	12.6	13.8
Wesley	71.3	42.8	60.2	12.9	14.4
CDC Falcon	64.4	42.7	58.9	12.4	14.3
Overland	75.1	42.4	60.9	11.6	13.7
Millennium	71.9	41.9	60.1	11.7	13.9
Hawken	54.2	41.9	59.6	11.8	13.1
Striker	56.9	39.6	60.3	11.9	13.9
Darrell	62.4	37.8	59.6	12.4	14.2
Lyman	65.3	37.4	61.4	12.4	14.2
Art	69.8	37.1	60.8	12.1	14.3
Roughrider	50.0	36.9	60.4	13.1	14.9
Expedition	71.3	--	59.9	12.6	--
Carter	71.1	--	60.1	12.7	--
SY Wolf	67.0	--	60.0	12.0	--
WB Matlock	59.9	--	60.7	11.8	--
LSD 5%	7.4	--	1.0	NS	--

Planted: Sept. 14, 2010 Harvested: July 25, 2011

Previous Crop: Durum

No significant winter kill

Dryland Fallow Winter Wheat
Williston, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr*	2011	2011	3 yr*
CDC Accipiter	57.9	46.1	60.1	11.6	13.4
CDC Peregrine	59.6	44.7	59.2	11.2	13.1
Roughrider	45.1	43.6	60.7	12.3	14.1
CDC Falcon	59.0	42.9	60.0	11.4	13.2
Decade	61.2	42.2	60.0	12.3	14.0
Jerry	58.6	41.9	59.0	12.3	13.7
Radiant	57.5	41.1	59.1	11.8	13.5
Yellowstone	60.2	40.5	59.5	11.3	13.2
Overland	63.3	40.2	60.3	12.4	13.4
Darrell	58.3	38.8	60.4	12.0	13.6
Millennium	57.1	37.3	59.5	11.7	13.5
Wesley	53.9	35.6	60.0	12.3	13.8
Lyman	58.6	35.5	60.9	12.0	13.7
Hawken	55.3	33.9	61.2	12.1	13.2
Expedition	54.8	33.5	60.5	11.6	13.3
Ideal	62.4	--	60.8	11.3	--
Boomer	62.0	--	59.1	11.5	--
Art	59.5	--	61.1	11.9	--
Carter	59.4	--	60.4	11.8	--
WB Matlock	59.1	--	60.9	12.5	--
SY Wolf	57.7	--	61.2	11.5	--
Striker	56.6	--	60.4	11.8	--
2/3 Jerry:1/3 Darrell	61.6	--	59.9	10.9	--
1/3 Jerry:2/3 Lyman	58.0	--	60.8	12.4	--
1/3 Jerry:2/3 Darrell	57.2	--	60.1	11.2	--
2/3 Jerry:1/3 Overland	55.3	--	59.7	11.5	--
1/3 Jerry:2/3 Overland	53.7	--	59.9	11.1	--
2/3 Decade:1/3 Lyman	53.2	--	60.2	12.1	--
2/3 Jerry:1/3 Lyman	52.7	--	60.0	11.6	--
1/3 Jerry:2/3 Decade	52.6	--	60.0	11.8	--
LSD 5%	7.1	--	0.7	NS	--

Planted: Sept. 14, 2010 Harvested: July 27, 2011
Previous Crop: Durum No significant winter kill
*3 yr averages based on 2008, 2009 and 2011

Dryland Notill Winter Rye, Winter Wheat, Spelt & Triticale – Williston, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
WINTER RYE					
DR02	70.1	59.7	54.5	8.6	10.3
Hancock	63.9	57.0	55.7	9.3	11.0
Spooner	58.9	54.4	55.7	9.5	11.1
Aroostook	50.2	45.0	55.3	11.5	13.7
Rymin[1]	29.4	42.7	53.8	13.2	13.1
Wheeler	31.2	27.8	53.9	14.4	15.8
TO-2	68.6	--	55.7	8.7	--
TO-1	67.1	--	54.9	9.1	--
Dacold	60.9	--	53.1	9.2	--
Abruzz Wrens	40.2	--	55.7	12.9	--
Boreal	37.1	--	52.6	11.2	--
FL 401	11.0	--	53.8	16.3	--
HRW WHEAT					
Jerry	43.6	43.3	59.1	11.5	14.2
WINTER SPELT					
P1348159	40.8	53.6	29.9	12.5	--
Frank	42.0	52.2	32.9	12.9	--
Oberkorn	46.6	--	28.6	12.8	--
WINTER TRITICALE					
NE426GT	73.6	59.0	51.5	7.6	13.3
Pika	61.4	57.2	54.1	7.5	12.2
Boreal	34.2	37.4	49.9	9.5	14.0
Bobcat	46.7	--	51.2	10.1	--
Trical 102	32.3	--	47.1	12.6	--
LSD 5%	12.5	--	1.9	3.1	

Planted: September 16, 2010 Harvested: August 4
Previous Crop: Durum
[1]poor germination

Dryland Winter Camelina
Williston, ND

	Yield lb/a		TW lb/bu	Oil %	
Type and Cultivar	2011	2 yr	2011	2011	2 yr
WINTER					
Joelle	655.7	1007.4	46.3	32.3	33.5
BSX-WG1	664.7	952.9	51.6	31.1	31.8
SPRING					
Blaine Creek	773.0	786.0	51.0	32.7	33.0
LSD 5%	NS	--	NS	NS	--

Planted: Sept 14, 2010 Harvested: August 2
Previous Crop: Durum
Seed oil % from NMR machine and reported on 8% moisture basis.

Sprinkler Irrigated HR Winter Wheat
Nesson Valley, ND

Variety	Yield bu/a 2011	Yield bu/a 2 yr	TW lb/bu 2011	Protein % 2011	Protein % 2 yr
CDC Peregrine	53.6	58.3	55.8	14.1	13.2
Boomer	45.5	53.6	50.6	15.0	14.4
Striker	51.8	53.4	53.5	14.4	14.2
Jerry	43.1	49.4	52.9	14.5	14.3
CDC Accipiter	49.5	47.3	54.0	14.4	13.8
Decade	55.6	37.2	52.2	15.2	15.3
Yellowstone	30.6	35.0	47.6	15.5	14.7
Lyman	44.6	31.7	55.4	14.4	14.9
Overland	54.9	30.9	54.1	14.3	14.0
Darrell	42.0	30.8	53.1	14.8	14.4
CDC Falcon	51.9	28.5	52.0	14.4	14.4
Wesley	40.6	27.4	49.1	15.8	15.6
WB Matlock	58.6	--	55.6	14.7	--
Expedition	52.5	--	53.3	14.6	--
Millennium	48.3	--	54.1	14.6	--
Art	46.1	--	51.4	15.6	--
Hawken	33.3	--	48.6	15.5	--
Carter	30.6	--	48.1	15.8	--
LSD 5%	12.2	--	1.8	0.6	--

Planted: Sept 27, 2010 Harvested: August 4, 2011
Previous Crop: Durum

Dryland Hard Red Winter Wheat Values
Sidney, MT

Cultivar	Yield bu/a 3 yr	TW lb/bu 3 yr	Protein % 3 yr	$/a + or - Falcon
Jerry	55.5	58.5	13.5	34.16
Accipiter	53.7	58.2	12.9	23.74
Decade	51.9	59.7	13.4	13.32
Yellowstone	51.5	58.3	13.0	11.00
Wahoo	50.4	57.2	13.1	4.64
CDC Falcon	49.6	57.8	12.9	0.00
Peregrine	47.7	59.1	12.8	-12.40
Pryor	45.3	58.1	13.5	-24.89
Hyalite (CL)*	44.1	59.0	13.4	-31.84
Norris (CL)	44.0	60.2	13.2	-32.42
Jagalene	42.6	60.5	13.3	-40.53
Promontory	41.6	60.8	12.9	-46.32
Carter	40.0	59.8	13.6	-55.58
Judee	37.8	58.5	13.8	-68.32
Ledger	36.2	59.4	13.4	-77.58
Genou	35.9	58.4	14.2	-79.32
Rampart	31.0	59.5	13.5	-107.69
Bynum (CL)	28.8	59.5	14.4	-120.43

Wheat prices summarized by G. Carlson and P. Lamb, NARC, Havre, MT from 10-yr (2001-2010) average daily market values for PNW, supplied by the Montana Wheat and Barley Committee.

Dryland Triticale
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
Wapiti	38.7	43.9	53.5	16.1	15.6
Laser	36.7	43.8	53.6	13.8	14.1
Companion	38.7	43.2	53.7	16.2	15.3
Trical 2700	35.1	42.9	48.8	15.2	15.7
Marvel	25.5	35.1	45.2	18.9	17.3
AC Ultima	32.6	--	51.7	15.4	--
Merlin	31.0	--	48.0	18.7	--
Trical 141	28.1	--	47.5	20.1	--
LSD 5%	3.6	--	0.9	--	--

Planted: May 19 Harvested: August 19
Previous Crop: Durum

Barley Variety Descriptions

						Resistance To[3]				Quality Factors	
Variety	Origin[1]	Use[2]	Height	Maturity	Lodging	Stem Rust	Loose Smut	Net Blotch	Spot Blotch	Test Weight	Grain Protein
Two-Row											
AC Metcalfe	Canada	F/M	medium	m late	M	MR	MR	MS	MS	medium	medium
Amsterdam	MT		m short	medium	MR	NA	NA	NA	NA	m low	m high
Baronesse	WB	F	m short	medium	R	S	S	MR	MR	m high	low
Boulder	WB	F	medium	medium	MR	NA	S	NA	NA	m high	m high
Bowman	ND	F	medium	early	MS	S	S	S	MS-S	high	m high
Calgary	France	F	short	medium	R	NA	S	NA	NA	m low	low
CDC Copeland	Canada	F/M	tall	m late	MS	MR	S	MS	VS	low	medium
Champion	WB	F	m tall	m late	MR	NA	NA	NA	NA	m high	Med
Conlon	ND	F/M	m short	early	MS	S	S	MR	MS	m high	m low
Conrad	BARI	F/M	m short	m late	MR	NA	S	NA	NA	m high	m low
Craft	MT	F/M	tall	medium	MR	NA	S	S	NA	m high	m high
Eslick	MT	F	medium	m late	MS	S	NA	NA	MS	medium	m low
Geraldine	MT	F/M	m short	m late	MR	NA	S	NA	NA	m high	m high
Harrington	Canada	F/M	m short	late	S	S	S	MS	S	medium	m low
Haxby	MT	F	m tall	medium	MS	S	S	S	MS	v high	medium
Hockett	MT	F/M	medium	medium	MS	S	S	NA	NA	medium	m high
Lilly	Germany	F	short	medium	MR	S	NA	S	MR	medium	medium
Merit	BARI	F/M	m tall	late	MS	MS	S	MS	S	low	medium
Pinnacle	ND	F/M	medium	m late	MR	S	S	MS	MR	high	low
Rawson	ND	F	medium	medium	MR	S	S	MR	MR	high	m low
Scarlett	Germany	M	short	late	M	S	NA	NA	NA	medium	medium
Xena	WB	F	m short	m late	R	MS	S	S	VS	medium	high
Six-Row											
Celebration	BARI	F/M	m short	medium	R	S	S	MS-S	MR/R	medium	medium
Drummond	ND	F/M	m short	medium	R	S	S	MS-S	MR/R	medium	medium
Innovation	BARI	MT	m short	medium	MR	S	S	MS/S	MR/R	medium	medium
Lacey	MN	F/M	m short	medium	MR	S	S	MS-S	MR/R	medium	medium
Legacy	BARI	F/M	medium	m late	MR	S	S	MS-S	MR/R	medium	medium
Morex	MN	F/M	tall	m early	MS	S	S	S	MR	medium	m high
Quest	MN	M	m tall	m early	MS	S	S	MR	MS	m low	medium
Rasmusson	MN	F/M	m short	medium	R	S	S	MS-S	MR/R	medium	m low
Robust	MN	F/M	tall	medium	MS	S	S	MS-S	MR/R	medium	m high
Stellar-ND	ND	M/F	m short	medium	R	S	S	MS-S	MR/R	medium	m low
Tradition	BARI	M/F	medium	medium	R	S	S	MS-S	MR/R	medium	m low
Specialty											
Haybet	MT	H	tall	medium	S	NA	S	NA	NA	low	medium
Hays	MT	H	m tall	medium	MS	NA	NA	NA	NA	low	medium
Stockford	WB	H	m tall	medium	MS	NA	NA	MS	MS	low	medium
Valier	MT	EVF	medium	m late	MS	S	S	MR	MS	high	high
Wanubet	MT	WH	medium	late	S	S	S	S	S	high	high
Westford	WB	H	tall	medium	S	NA	NA	NA	NA	--	--

1 Refers to developer: BARI = Busch Ag Resources, Inc., WB = WestBred, MT = Montana State University, ND = North Dakota State University, MN = University of Minnesota

2 F = feed, M = malt, H = hay, WH = waxy hulless, EVF = enhanced value feed. MT = being tested for malt and brewing quality.
* Recommended as malting in western US.

3 R = resistant, MR = moderately resistant, M = intermediate, MS = moderately susceptible, S = susceptible, VS = very susceptible, NA = data not available.

Dryland Barley
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
Two Row						
Haxby	68.8	73.0	48.3	53.9	14.8	14.7
Conlon	67.8	71.5	47.2	72.4	14.4	14.6
Rawson	67.8	68.2	49.5	81.5	12.6	13.2
Conrad	69.6	68.1	47.8	64.8	14.3	15.1
Hockett	69.4	67.9	48.3	61.5	14.5	15.0
Pinnacle	66.9	67.7	46.6	58.8	12.5	13.0
Baronesse	60.2	65.7	46.8	47.4	14.2	14.9
Xena	57.1	65.4	46.6	25.7	14.4	14.5
AC Metcalfe	57.2	61.6	46.7	53.8	15.7	15.4
Geraldine	57.3	61.4	45.7	32.8	15.5	15.6
CDC Copeland	58.7	60.6	45.3	43.8	16.3	16.1
Harrington	49.9	59.9	48.1	37.0	16.5	15.4
Lilly	64.9	--	46.1	61.5	14.3	--
Moravian 33	54.7	--	41.4	49.9	14.5	--
CDC Bold	54.4	--	45.7	37.0	14.7	--
Six Row						
Tradition	66.2	69.2	47.7	49.4	13.5	14.3
Celebration	71.9	69.1	45.9	44.2	14.7	15.6
Rasmusson	70.6	68.0	46.6	39.8	13.3	14.5
Quest	70.9	67.3	47.1	47.7	13.3	14.9
Lacey	62.7	64.8	46.0	41.9	13.9	14.6
Robust	61.1	63.6	46.8	43.4	14.6	14.5
Stellar-ND	59.3	63.0	45.2	49.4	14.0	14.1
Legacy	59.2	62.4	45.3	45.2	15.1	14.6
Drummond	53.4	62.0	45.9	47.6	14.5	15.1
Innovation	68.2	--	45.7	40.6	14.2	--
LSD 5%	7.2	--	1.8	33.2	1.4	--

Planted: April 29 Harvested: August 2

Previous Crop: Soybean Cover Crop

Dryland Fallow Barley
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
Champion	55.7	63.4	47.5	68	14.6	12.3
Hockett	48.3	61.4	47.0	78	12.3	12.9
Conrad	44.0	61.0	44.5	55	16.7	14.5
Baronesse	46.5	59.2	46.5	73	12.4	12.9
Craft	51.5	56.2	47.5	81	13.1	13.0
Harrington	44.2	55.1	44.5	79	12.6	12.6
Metcalfe	37.0	54.5	46.0	82	13.4	12.5
Haxby	44.5	54.4	48.0	69	13.6	12.7
Amsterdam	34.3	54.4	45.5	70	14.5	13.9
Tradition	39.4	52.9	46.0	68	14.7	12.7
Geraldine	41.5	48.6	46.3	53	18.4	15.4
Scarlett	40.9	--	44.0	62	15.0	--
Copeland	40.2	--	44.0	80	13.8	
Pinnacle	35.5	--	46.5	80	12.0	--
Karma*	10.6	--	59.0	81	17.1	--
LSD 5%	9.2					

Planted: May 7 Harvested: August 9

*hulless barley

Dryland Notill Barley
Crosby, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
Two Row						
Pinnacle	28.8	77.7	46.1	72.4	11.8	11.3
Conrad	42.8	72.0	46.2	83.2	13.8	13.4
AC Metcalfe	21.1	68.6	46.3	80.7	14.9	13.8
Conlon	23.4	54.2	44.1	78.3	14.9	13.7
Rawson	31.8	--	47.0	85.8	12.8	--
Six Row						
Lacey	34.3	74.6	46.2	77.7	13.6	13.2
Rasmusson	39.5	74.5	46.9	77.5	13.3	12.9
Tradition	33.5	70.1	45.4	78.5	13.3	12.5
Celebration	27.3	70.0	45.1	71.2	14.5	13.6
Stellar-ND	31.8	69.6	45.1	82.4	13.3	12.8
Innovation	37.2	--	46.2	76.1	13.4	--
Quest	35.7	--	45.9	73.9	13.5	--
LSD 5%	8.9	--	NS	NS	1	--

Planted: May 26 Harvested: September 23

Previous Crop: Lentil

Dryland Notill Barley
New Town, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
TWO ROW						
Pinnacle	45.7	83.9	48.3	62.4	12.1	11.7
Conrad	35.6	76.2	41.9	42.5	15.0	13.6
Conlon	35.3	74.2	49.9	80.5	14.5	13.1
AC Metcalfe	38.4	71.5	47.8	43.7	15.9	13.8
Rawson	42.0	--	48.4	73.3	13.3	--
SIX ROW						
Tradition	49.1	83.3	48.7	71.6	13.8	12.8
Rasmusson	38.0	81.7	48.3	67.7	13.9	12.7
Stellar-ND	36.5	79.4	46.5	74.4	14.2	12.9
Lacey	36.5	76.3	48.1	66.2	14.9	13.3
Celebration	27.0	72.2	46.5	62.8	15.9	14.3
Innovation	49.4	--	47.9	67.7	13.5	--
Quest	42.1	--	48.3	57.5	14.3	--
LSD 5%	8.3	--	3.1	8.2	0.8	--

Planted: May 19 Harvested: August 26
Previous Crop: Durum

Dryland Notill Barley
Ray, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	Plump % 2011	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
TWO ROW						
Pinnacle	43.1	72.8	69.8	45.5	10.3	9.7
Conrad	41.0	67.0	77.9	47.0	12.0	11.5
AC Metcalfe	37.8	64.5	68.9	46.9	11.6	11.1
Conlon	35.9	60.5	90.0	50.0	12.1	11.4
Rawson	42.6	--	87.8	49.0	11.4	--
SIX ROW						
Rasmusson	37.6	66.9	84.0	48.1	11.6	10.9
Celebration	37.1	63.7	80.4	46.4	11.9	11.2
Lacey	37.1	63.3	85.8	47.8	11.7	11.0
Tradition	35.0	60.7	87.8	49.1	11.2	11.2
Stellar-ND	34.0	59.2	89.6	46.8	11.9	11.4
Innovation	40.5	--	87.1	46.9	11.5	3.8
Quest	33.9	--	81.1	47.8	11.7	--
LSD 5%	3.6	--	7.7	1.0	--	--

Planted: June 2 Harvested: September 30
Previous Crop: Durum

Dryland Notill Barley
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 2 yr*	TW lb/bu 2011	Protein % 2011	Protein % 2 yr*
Hockett	33.5	35.0	46.0	13.4	11.7
Conrad	36.5	33.6	46.0	14.3	12.0
Haxby	40.3	33.1	47.0	14.1	12.0
Metcalfe	36.5	32.0	46.0	14.6	12.3
Geraldine	31.5	31.3	47.0	13.5	12.1
Harrington	30.3	30.6	47.0	12.2	11.2
Amsterdam	26.5	27.4	44.0	15.9	11.9
Tradition	25.2	26.0	47.0	11.6	9.9
Goldeneye	42.0	--	46.5	15.0	--
Pinnacle	38.4	--	46.5	13.0	--
Gallatin	34.0	--	47.0	12.4	--
LSD 5%	7.7				

Planted: May 6 Harvested: August 9
Previous Crop: Spring Wheat
*No trial in 2009

Dryland Notill Barley
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
TWO ROW						
AC Metcalfe	55.2	67.6	45.8	39.6	15.5	14.9
CDC Copeland	59.3	60.6	44.6	49.7	14.5	14.1
Conlon	67.3	78.9	49.7	75.0	12.8	13.2
Conrad	60.6	74.7	46.6	51.5	15.4	14.7
Geraldine	56.3	--	47.2	41.7	15.8	
Haxby	70.5	81.1	49.5	56.5	14.1	13.9
Hockett	52.5	71.6	45.4	43.5	15.0	14.2
Lilly	60.0	--	46.3	33.8	15.2	
Pinnacle	60.8	74.9	47.1	67.5	12.8	12.6
Rawson	67.1	77.9	48.8	79.9	11.8	12.6
SIX ROW						
Celebration	69.2	71.7	46.9	65.4	14.9	15.3
Innovation	74.2	--	46.5	55.6	13.4	
Lacey	65.9	74.3	46.7	61.9	14.9	14.3
Legacy	53.4	64.1	46.3	57.4	15.2	14.1
Quest	62.8	--	46.7	48.2	14.6	
Rasmusson	74.7	78.5	47.0	51.9	14.2	14.2
Stellar-ND	65.0	71.2	45.9	58.6	14.2	13.7
Tradition	72.3	77.8	46.5	51.7	14.8	14.9
LSD 5%	7.5	--	1.5	10.9	1.5	--

Planted: May 6 Harvested: August 4
Previous Crop: Pea
Grain protein percentages reported on a 0% moisture basis.

Sprinkler Irrigated Barley
Nesson Valley, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump -%- 2011	Protein % 2011	Protein % 3 yr
SIX ROW						
Rasmusson	20.6	96.1	47.4	79.5	15.1	13.4
Stellar-ND	37.0	95.2	47.1	91.0	14.8	13.3
Tradition	43.2	95.2	49.4	88.7	14.6	13.3
Lacey	18.5	90.5	46.4	79.0	15.2	13.6
Celebration	9.8	84.2	44.8	79.4	15.8	14.3
Quest	40.0	--	48.9	84.8	15.0	--
Innovation	31.0	--	48.6	88.7	15.7	--
TWO ROW						
Pinnacle	50.3	104.7	48.3	84.5	13.3	12.2
CDC Copeland	47.4	101.6	47.4	79.5	15.4	13.5
Geraldine	49.2	99.0	47.3	64.0	16.8	13.9
AC Metcalfe	38.5	95.9	48.4	82.9	17.2	14.4
Conlon	26.0	77.5	49.6	90.2	15.9	14.2
Haxby	39.2	--	50.4	82.3	15.7	--
Conrad	37.5	--	48.3	78.9	16.5	--
Moravian 133	36.1	--	43.3	65.9	15.4	--
Lilly	26.7	--	46.7	73.2	16.8	--
LSD 5%	4.8	--	0.8	4.3	1.2	--

Planted: May 13 Harvested: August 17

Previous Crop: Sugar Beet

Sprinkler Irrigated Barley
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
Champion	73.6	121.0	47.0	78	11.7	12.5
Baronesse	59.6	107.1	44.0	60	16.9	14.3
Haxby	58.9	106.6	48.0	76	14.1	13.6
Tradition	60.4	102.7	46.5	76	12.8	12.6
Craft	56.8	100.8	46.0	74	13.6	13.0
Geraldine	50.5	100.1	46.0	58	14.0	13.7
Harrington	49.4	99.5	42.0	50	15.1	13.0
Conrad	50.3	97.1	45.0	72	13.7	13.5
Hockett	48.1	97.1	46.0	68	12.2	12.4
Metcalfe	50.1	97.0	45.0	62	14.5	13.4
Amsterdam	27.3	77.9	45.0	55	14.6	13.5
Scarlett	50.1	--	45.0	66	14.1	--
Copeland	49.3	--	44.0	65	13.6	--
Pinnacle	48.0	--	46.0	74	12.9	--
LSD 5%	8.6					

Planted: May 19 Harvested: August 31

Previous Crop: Safflower

Sprinkler Irrigated Malt Barley
Sidney, MT

Cultivar	Yield - bu/a - 2011	Yield - bu/a - 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
Rasmussen	55.5	107.6	43.5	68	13.7	13.0
Innovation	62.4	102.9	44.0	76	12.9	12.6
Quest	53.6	99.7	44.0	74	13.4	13.1
Tradition	60.5	98.9	44.5	76	13.3	12.4
Rawson	66.4	98.2	45.0	90	13.4	12.8
Copeland	48.5	97.9	43.0	59	13.6	12.7
Lacey	58.8	96.9	46.0	84	12.7	12.9
Conlon	50.4	96.0	45.5	86	14.1	13.5
Haxby	56.5	95.3	48.0	76	13.5	13.6
Pinnacle	38.0	94.8	43.0	71	12.3	12.1
Celebration	48.3	91.0	42.0	68	14.6	13.7
Robust	53.1	87.3	44.5	77	13.8	13.4
Stellar-ND	40.3	86.5	43.5	82	13.8	12.8
AC Metcalfe	40.5	86.5	44.5	66	13.8	13.5
Lilly	49.2	--	45.5	72	13.8	--
Conrad	44.8	--	45.0	78	13.5	--
LSD 5%	11.2					

Planted: May 19 Harvested: September 2

Previous Crop: Safflower

Flood Irrigated Malt Barley
Sidney, MT

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Plump % 2011	Protein % 2011	Protein % 3 yr
Pinnacle	57.2	106.1	43.0	76	11.0	10.5
Rasmussen	76.4	103.7	44.0	61	10.4	9.9
Innovation	79.6	103.4	43.0	66	10.1	10.1
Lacey	77.9	102.5	44.0	59	12.3	10.8
Quest	67.4	100.8	42.0	59	11.6	10.9
Tradition	76.2	99.8	44.0	66	12.8	11.3
AC Metcalfe	57.4	97.1	41.0	52	13.7	12.0
Haxby	69.1	96.8	45.0	56	12.0	11.4
Rawson	71.6	94.1	43.0	78	11.8	11.4
Stellar-ND	62.9	94.0	39.5	52	10.2	10.1
Robust	71.8	92.9	45.0	68	11.1	11.0
Celebration	58.9	92.7	40.5	67	10.4	10.8
Copeland	58.4	91.7	41.0	44	13.1	10.9
Conlon	60.8	91.1	42.0	78	10.9	11.1
Lilly	67.2	--	43.5	60	10.7	--
Conrad	54.6	--	40.0	41	13.8	--
LSD 5%	11.6					

Planted: May 19 Harvested: August 10

Previous Crop: Sugar Beet

Oat Variety Descriptions

						Resistance To[1]			Quality Factors	
Variety	Origin	Grain Color	Height	Maturity	Lodging	Stem Rust	Crown Rust	Barley Yellow Dwarf	Test Weight	Grain Protein
Ajay	ID/MT	white	short	med	R	NA	NA	NA	medium	m high
AC Pinnacle	Can QAS	white	tall	late	MS	R	R	S	medium	low
AC Ronald	Can SeCan	white	m short	late	R	R	R	T	high	medium
Beach	ND	white	tall	m late	MR	S	MR/MS	MT	m high	medium
Buff	SD	hulless	med	early	MS	S	MR	MT	v high	high
CDC Dancer	Can Cargill	white	tall	late	MR	S	S	S	high	medium
CDC Minstrel	Sask.	white	tall	late	MR	S	S	S	m high	medium
CDC Orrin	Can QAS	white	tall	late	MR	S	S	S	medium	m low
CDC Weaver	Canada	yellow	medium	late	--	R	R	S	medium	low
Furlong	AAFC Winnipeg	red	tall	late	MR	S	S	T	high	medium
HiFi	ND	white	tall	late	MR	R	R	T	m high	medium
Hytest	SD	white	tall	early	MS	S	MS	S	v high	high
Jerry	ND	white	tall	med	MR	R	MS	MT	m high	medium
Killdeer	ND	white	med	med	MR	R	MR	MT	m high	medium
Maida	ND	yellow	med	medium	R	R	R	NA	high	m high
Maverick	ID/MT	white	short	medium	R	NA	NA	NA	medium	medium
Monico	ID/MT	ivory	m tall	m early	MS	NA	NA	NA	m high	medium
Monida	ID/MT	white	tall	m late	S	S	S	S	medium	m low
Morton	ND	white	tall	late	R	R	R	MT	high	medium
Newburg	ND	white	tall	late	M	R	R	M+	good	medium
Otana	MT	white	tall	m late	S	S	S	S	high	medium
Paul	ND	hulless	tall	late	S	R	MR	T	v high	high
Powell	WY/MT	cream	short	m late	MR	NA	NA	NA	low	medium
Rio Grande	ID/CO	white	m short	early	MR	NA	NA	NA	medium	medium
Rockford	ND	white	tall	late	R	S	R	MT	m high	medium
Sesqui	MN	yellow	m tall	late	R	S	S	T	high	medium
Souris	ND	white	med	med	R	MS	R	MS	high	medium
Stallion	SD	white	tall	late	M	S	MR	NA	high	medium
Stark	ND	hulless	tall	late	MR	R	MR/MS	T	high	m high

[1] R = resistant, MR = moderately resistant, M = intermediate, MS = moderately susceptible, S = susceptible, VS = very susceptible, T = tolerant, MT = moderately tolerant, NA = data not available.

Dryland Notill Oat
Williston, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr*	2011	2011	3 yr*
Stallion	81.6	83.3	40.8	17.8	15.9
Killdeer	79.4	76.3	39.7	15.8	15.5
Monida	77.0	76.3	36.2	14.8	14.2
Beach	69.6	70.6	40.7	17.1	16.0
AC Pinnacle	66.3	69.9	40.5	16.0	13.4
Morton	66.3	68.9	40.8	18.3	16.7
Otana	56.3	67.7	37.6	17.0	15.8
HiFi	66.9	66.7	38.7	17.3	15.0
Jerry	63.2	66.4	40.9	17.7	16.4
Hytest	63.0	64.8	42.9	20.9	18.9
Souris	81.6	61.3	41.6	17.1	14.8
Stark	49.5	54.9	45.4	21.8	19.7
CDC Dancer	56.3	--	39.4	15.5	--
Rockford	74.3	--	38.3	17.8	--
Newburg	84.2	--	40.8	16.2	--
LSD 5%	12.1	--	1.4	1.1	--

Planted: May 14 Harvested: August 24

Previous Crop: Field Pea

*3 year averages based on 2008,2009 due to hail in 2010

Sprinkler Irrigated Oat
Nesson Valley, ND

	Yield bu/a		TW lb/bu	Protein %	
Cultivar	2011	3 yr	2011	2011	3 yr
Souris	74.1	149.5	39.6	15.8	13.6
HiFi	71.9	146.9	39.4	17.2	14.0
Killdeer	67.7	140.4	39.9	16.0	13.4
Rockford	43.5	138.0	41.5	17.4	14.7
Beach	49.9	133.2	40.7	16.3	13.8
Morton	57.6	122.1	39.4	17.4	14.8
Stallion	44.7	121.9	37.8	17.6	14.9
Jerry	39.2	119.8	38.0	16.2	14.4
Newburg	85.4	--	39.6	15.9	--
Pinnacle	45.2	--	39.2	15.4	--
LSD 5%	10.0	-	1.9	1.7	--

Planted: May 13 Harvested: September 7

Previous Crop: Sugar Beet

Dryland Oat
Williston, ND

Cultivar	Yield* bu/a 2011	Yield* bu/a 3 yr[2]	TW lb/bu 2011	Protein % 2011	Protein % 3 yr[2]
AC Pinnacle	52.5	78.1	41.8	16.8	13.8
Monida	51.3	78.0	38.7	15.1	13.9
Souris	59.3	76.6	42.9	16.4	14.3
AC Furlong	55.3	75.3	41.6	17.7	14.5
CDC Orrin	39.2	75.3	40.4	16.7	14.6
Stallion	46.5	72.7	41.6	17.8	15.7
HiFi	49.4	72.6	38.6	16.7	14.7
CDC Weaver	48.4	72.0	42.6	16.3	14.2
Beach	49.0	70.8	44.0	17.7	15.2
CDC Dancer	30.3	69.7	42.0	16.5	14.7
CDC Minstrel	23.4	68.8	41.6	15.4	13.4
Killdeer	30.3	68.6	35.7	15.4	14.5
Otana	38.4	68.4	39.4	17.7	15.2
Jerry	34.4	66.6	42.1	19.5	16.5
Morton	36.3	65.7	40.8	17.7	15.7
Hytest	25.1	60.1	41.0	20.5	17.8
Stark	32.5	52.6	48.1	22.0	18.8
Paul	33.3	47.8	51.9	26.6	22.4
Buff	10.9	45.3	NA[1]	19.8	19.2
Leggett	56.4	--	42.8	18.3	--
Newburg	47.7	--	41.8	18.2	--
Rockford	52.3	--	42.5	18.6	--
Shelby427	31.9	--	43.3	18.2	--
Streaker	11.9	--	53.4	24.0	--
LSD 5%	10.3	--	1.5	1.3	--

[1]test weight (NA) for Buff not enough grain harvested.

[2]Three year average based on 2008, 2009 due to hail in 2010

Planted: May 17 Harvested: August 23

Previous Crop: Soybean Cover Crop

*Trial was inadvertently sprayed with Puma, which caused significant injury to some varieties.

Dryland Notill Flax
Crosby, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
YELLOW SEEDED					
Carter	19.7	25.0	51.3	38.78	39.3
Omega	13.7	22.2	51.4	38.18	39.5
BROWN SEEDED					
York	20.1	26.7	52.6	38.45	38.8
Nekoma	17.3	24.0	52.8	39.24	39.6
Neche	6.8	19.1	53.0	37.90	39.1
Prairie Thunder	22.9	--	51.7	38.59	--
LSD 5%	5.3	--	NS	--	--

Planted: May 26 Harvested: September 23

Previous Crop: Lentil

Dryland Flax Variety
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
YELLOW SEEDED					
Carter	13.2	15.2	53.7	38.2	38.7
Omega	12.7	14.5	53.4	38.1	38.9
Omega	11.9	14.2	53.6	38.1	38.9
BROWN SEEDED					
CDC Bethume	12.9	15.5	53.1	38.5	39.1
CDC Sorrel	13.7	15.5	53.2	38.6	39.3
Prairie Blue	13.0	15.4	53.1	38.5	39.4
Prairie Thunder	13.3	15.3	53.5	37.7	38.6
Webster	13.5	15.3	53.5	38.4	39.1
Nekoma	13.2	15.0	53.4	38.6	39.0
Bison	11.5	14.9	53.3	38.0	38.5
York	12.6	14.9	53.6	37.4	38.1
CDC Arras	11.9	14.8	53.2	37.9	38.8
Neche	12.8	14.8	53.5	38.2	38.7
Linott	12.3	14.6	53.4	37.7	38.4
McGregor	12.8	14.6	53.2	37.7	38.2
Pembina	14.0	14.6	53.3	38.8	39.7
Hanley	11.7	14.5	53.4	37.6	38.1
Prairie Grande	12.4	14.4	53.3	38.5	39.3
Rahab 94	12.4	14.4	52.8	38.6	39.2
AC Lightning	12.0	14.3	53.3	38.6	38.9
LSD 5%	NS	--	0.3	0.3	--

Planted: May 19 Harvested: August 26

Previous Crop: Soybean Cover Crop

Dryland Flax
New Town, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
YELLOW SEEDED					
Carter	21.6	27.0	53.6	39.2	38.9
Omega	20.3	25.7	53.4	39.9	39.3
BROWN SEEDED					
Nekoma	21.0	25.9	53.5	39.3	38.9
Neche	17.8	25.2	53.6	39.0	38.8
York	23.0	24.7	54.2	37.5	37.5
Prairie Thunder	19.4	--	53.5	38.9	--
LSD 5%	NS	--	NS	--	--

Planted: May 19 Harvested: August 26

Previous Crop: Notill Durum

Flax Variety Descriptions

Variety[1]	Origin	PVP[2]	Year Released	Relative Maturity	Seed Color	Plant Height	Wilt	Relative Yield
AC Carnduff	Can.	no	1998	m late	brown	m tall	MR	v good
AC Lightning	Can.	no	2002	late	brown	m tall	R	v good
Carter	ND	yes	2004	mid	yellow	medium	MR	v good
Cathay	ND	no	1998	mid	brown	medium	MR	v good
CDC Arras	Can.	no	1999	mid	brown	medium	MR	good
CDC Bethume	Can.	no	1999	m late	brown	m tall	MR	v good
CDC Mons	Can.	no	2003	m late	brown	medium	MR	v good
CDC Sorrel	Can.	no	2007	m late	brown	m tall	MR	v good
Hanley	Can.	no	2002	m early	brown	medium	R	v good
Linton	ND	no	1985	early	brown	medium	R	v good
Neche	ND	no	1988	mid	brown	medium	R	good
Nekoma	ND	no	2002	late	brown	medium	MR	v good
Omega	ND	no	1989	mid	yellow	medium	MS	good
Pembina	ND	no	1998	mid	brown	medium	MR	good
Prairie Blue	Can.	no	2006	m late	brown	medium	NA	good
Prairie Grande	Can.	no	2008	m early	brown	medium	MR	v good
Prairie Thunder	Can.	no	2006	medium	brown	short	NA	good
Prompt	SD	no	1988	early	brown	medium	MR	good
Selby	SD	no	2000	late	brown	tall	MR	good
Taurus	Can.	yes	2003	m late	brown	medium	MR	v good
Webster	SD	no	1998	late	brown	tall	MR	good
York	ND	no	2002	late	brown	medium	R	v good

[1] All varieties have resistance to prevalent races of rust; all have good oil yield and oil quality.
[2] PVP = Plant Variety Protection

Dryland Notill Flax
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
YELLOW SEEDED					
Carter	13.5	16.3	53.9	37.6	37.9
Omega	13.7	15.6	53.5	37.7	38.4
BROWN SEEDED					
Nekoma	14.1	16.6	53.6	38.0	38.1
York	14.7	16.3	53.7	36.6	36.8
Neche	11.5	14.8	53.7	38.3	38.4
Prairie Thunder	17.0	--	53.2	37.6	--
LSD 5%	2.5	--	0.2	NS	--

Planted: May 14 Harvested: August 26
Previous Crop: Field Pea

Sprinkler Irrigated Flax
Nesson Valley, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
YELLOW SEEDED					
Carter	17.8	32.7	51.8	40.6	39.0
Omega	17.9	29.3	52.0	40.8	39.2
BROWN SEEDED					
York	23.8	34.9	53.0	40.0	38.6
Nekoma	17.6	30.4	52.7	40.7	39.0
Prairie Thunder	22.0	--	52.1	40.5	-
Neche	10.0	25.5	52.6	41.2	39.1
LSD 5%	3.6	-	0.9	0.7	--

Planted: May 17 Harvested: September 7
Previous Crop: Sugar Beet

Safflower Variety Descriptions

Variety	Origin [1]	PVP [6]	Hull Type [2]	Oil Type [3]	Irrigated Yield [4]	Dryland Yield [4]	TWT [4]	Oil [3]	Maturity	Tolerance [5] Alt.	Tolerance [5] BB
Cardinal	MT/ND	yes	N	high lino	v good	v good	high	fair	med	T	MT
Finch	MT/ND	no	N	linoleic	good	v good	v high	fair	m early	MS	T
Hybrid 1601	STI	Yes	STP	high oleic	v good	v good	med	good	m late	MT	MT
Hybrid 9049	STI	Yes	N	high oleic	v good	v good	v high	fair	med	MT	MT
MonDak	MT/ND	yes	N	high oleic	good	v good	high	fair	m early	T	MT
Montola 2000	MT/ND	yes	N	high oleic	m good	good	med	good	early	MS	MS
Montola 2001	MT/ND	yes	STP	high oleic	good	fair	med	good	med	MT	MT
Montola 2003	MT/ND	yes	N	high oleic	v good	v good	m high	good	m early	MT	MT
Montola 2004	MT/ND	yes	N	high oleic	good	good	m high	good	m early	MS	MT
Morlin	MT/ND	yes	STP	high linoleic	v good	good	med	good	m late	T	T
Nutrasaff	MT/ND	yes	RED	linoeic	good	good	med	high	med	T	MT

[1] STI = Safflower Technologies International, MT = Montana, ND = North Dakota
[2] STP = striped, N = normal, RED = reduced
[3] Lino - linoleic
[4] Relative ratings of yield, test weight, and oil will vary under conditions of moderate-severe disease infestation
[5] Alt = Alternaria leaf spot disease, BB = bacterial blight, S = susceptible, MS = moderately susceptible, MT = moderately tolerant, T = tolerant
[6] "yes" indicates the variety is protected and the seed may be sold for planting purposes only as a class of certified seed (Title V option)

Sprinkler Irrigated Safflower
Nesson Valley, ND

Cultivar	Yield lb/a 2011	Yield lb/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
Hybrid 1601	1826	1820	34.7	34.0	31.4
Mondak	941	1573	36.1	30.6	29.2
MT 2003	1385	1559	37.8	34.1	30.6
Cardinal(L)	1506	1510	38.5	32.5	29.9
Hybrid 9049	1112	1288	36.2	29.3	26.4
Finch(L)	1129	1210	40.1	34.9	31.0
Nutrasaff(L)	1147	1193	34.7	44.2	42.3
LSD 5%	300	-	1.4	1.9	

Planted: May 17 Harvested: October 5
Previous Crop: Barley

Fungicide Safflower Trial (3 yr avg)
Sidney, MT

Number of Foliar Apps.	Test Wt. lbs/bu	Oil Content %[2/]	Mean Yield lbs/A[/5]	Disease[/1] Rating Alternaria
None	35.3	33.3	1164	7.7
One[3/]	37.9	37.0	1888	4.8
Two[/4]	38.2	37.3	2066	2.4

Previous crop: Sugar Beet

1/ Mean disease ratings in 2011, 1-9 with 9 most susceptible

2/ Oil content reported on an oven dry weight basis.

3/ Fungicide applied: 10 oz/A Headline or Quadris Fungicide at first flower

4 /Fungicide applied: 10 oz/A Headline or Quadris Fungicide at first flower and 14 days later

5/ (2009 - 2011)

Dryland Fallow Safflower
Sidney, MT

Cultivar	Yield lb/a 2011	Yield lb/a 3 Yr	Test Wt lb/bu 2011	Test Wt lb/bu 3 Yr	Oil %* 2011	Oil %* 3 Yr
Hybrid 9049	2115	1919	44.3	43.9	33.6	31.7
Hybrid 1601	2165	2238	41.7	41.2	38.9	36.8
MT 2000	1664	1552	41.8	41.0	41.8	39.4
Nutra Saff	1456	1526	40.0	38.2	50.0	48.4
MT 2003	2030	1790	43.3	42.4	39.5	37.8
MT 2004	2082	1752	42.3	41.0	38.9	37.5
Morlin	1795	1666	40.7	39.5	40.3	39.5
Finch	1736	1712	45.7	45.0	38.8	37.4
Cardinal	2187	2010	44.5	44.1	37.9	36.7
Mondak	2236	2026	43.8	43.0	37.0	35.8
LSD (.05)	296		0.5		0.7	

Planted: May 19 Harvested: Oct. 11
*Oil content reported on an oven dry basis

Dryland Valley Safflower[1]
Sidney, MT

Cultivar	Yield lb/a 2011	Yield lb/a 3 Yr	Test Wt lb/bu 2011	Test Wt lb/bu 3 Yr	Oil %* 2011	Oil %* 3 Yr
Hybrid 9049	2394	1857	42.5	40.6	30.9	30.6
Hybrid 1601	2869	2285	40.5	37.8	36.6	36.2
Mondak	2628	2146	41.3	39.4	36.3	35.1
MT 2000	1902	1623	38.8	37.0	38.4	37.0
MT 2003	2764	2386	41.8	40.1	38.8	38.4
MT 2004	1933	1830	39.5	37.4	36.4	35.6
Nutrasaff	1841	1682	39.3	38.0	49.1	49.3
Morlin	1894	1810	39.0	37.7	39.2	38.7
Finch	2070	1893	43.0	41.4	38.2	37.2
Cardinal	2354	2230	43.3	42.1	37.3	36.2
LSD (.05)	333		0.9		1.5	

Planted: May 18 Harvested: Oct. 11
Previous Crop: Sugar Beet
[1]Valley site has a high water table.

Dryland Safflower
Williston, ND

Variety	Yield lb/a 2011	Yield lb/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
Hybrid 1601	2122	1806	42.3	34.5	32.8
Cardinal	1883	1704	45.8	34.9	33.6
Hybrid 9049	1585	1470	45.0	29.1	28.2
Mondak	1718	1412	44.2	34.2	31.7
MT 2003	1579	1305	43.3	36.5	33.5
Finch	1471	1305	46.2	35.7	34.5
Nutrasaff	1449	1279	38.7	45.8	44.8
MT 2004	1580	1278	42.4	34.4	32.4
MT 2000	1689	1185	42.5	37.4	33.9
Morlin	1405	1148	41.5	36.8	35.1
MT 2001	1493	--	40.4	36.2	--
LSD 5%	183	--	1.0	0.6	--

Planted: May 6 Harvested: September 16

Previous Crop: Soybean Cover Crop

Dryland Notill Safflower Variety
Williston, ND

Variety	Yield lb/a 2011	Yield lb/a 3 yr	TW lb/bu 2011	Oil* % 2011	Oil* % 3 yr
Hybrid 1601	1855	1814	42.6	35.0	33.9
Cardinal	1493	1553	45.7	34.1	33.8
Hybrid 9049	1419	1539	45.3	29.3	29.0
Mondak	1434	1508	44.9	34.0	32.6
MT 2003	1307	1411	43.2	35.4	34.5
Finch	1348	1371	46.6	34.8	34.6
MT 2000	1215	1312	43.3	35.4	35.1
S-541	1230	1283	42.5	39.8	39.6
Centennial	975	1212	42.1	40.7	39.5
MT 2004	1215	1169	43.1	32.9	32.1
Nutrasaff	996	1107	39.5	44.9	44.9
Morlin	992	--	42.2	36.1	--
LSD 5%	263.6	--	0.6	0.7	--

Planted: May 6 Harvested: September 16

Previous Crop: Durum

2010 Dryland Safflower Planting Date Trial
Sidney, MT

Planting Date	Stand %		Bloom Date		Height cm		TW lb/bu		Oil %		Yield[1] lb/a		Harvest Date
22-Apr	82	A	7/24	A	59	A	41.5	A	37.6	A	2003	A	14-Sep
13-May	67	C	7/29	B	52	B	41.1	A	38.0	A	1871	B	30-Sep
2-Jun	74	B	8/7	C	52	B	40.1	B	37.4	B	1603	C	13-Oct
15-Jun	57	D	8/18	D	52	B	34.2	C	32.7	C	760	D	20-Oct
Mean	70		8/4		53.8		39.2		36.4		1559		
LSD (0.05)	4.3		0.25		2.7		0.4		0.4		98		

Values in the same column followed by a different letter are statistically different at the 5% level

1/ Mean of 12 varieties

2011 Dryland Safflower Variety Planting Date Trial
Sidney, MT

Planting Date	Stand %		Bloom Date		Height cm		TW lb/bu		Oil %		Yield[1] lbs/a		Harvest Date
17-May	92	A	7/26	A	75	A	37.4	A	37.9	A	1711	A	3-Oct
3-Jun	93	A	8/1	B	65	B	37.2	A	36.5	B	1601	A	14-Oct
9-Jun	94	A	8/3	C	61	C	37.6	A	37.1	B	1192	B	17-Oct
15-Jun	94	A	8/12	D	59	D	37.7	A	37.1	B	911	C	17-Oct
Mean	93.2		8/3		65.1		37.4		37.1		1354		
LSD (0.05)	1.4		0.28		1.9		0.6		0.8		274		

Values in the same column followed by a different letter are statistically different at the 5% level.

1/ Mean of 12 varieties

Dryland Notill Camelina
Williston, ND

	Yield lb/a		TW lb/bu	Oil %	
Cultivar	2011	3 yr	2011	2011	3 yr
Calena	1310	1409	53.1	33.8	33.6
Ligena	970	1303	51.5	34.7	34.3
CO 46	954	1211	51.4	35.2	34.5
Robinson	933	1199	53.1	33.7	33.3
Suneson	1021	1177	53.5	34.7	34.2
CO 54-97	895	1153	52.9	33.8	33.3
Blaine Creek	900	1143	52.8	33.4	33.2
LSD 5%	211.5	--	0.2	0.7	--

Planted: April 27 Harvested: August 2
Previous Crop: Durum

Dryland Fallow Camelina
Sidney, MT

	TW lb/bu		Oil Content %		Yield lb/a	
Variety	2011	3 yr	2011	3 yr	2011	3 yr
Blaine Creek	52.0	51.9	35.3	35.0	887	1207
Calena	52.8	53.2	35.3	35.0	1130	1306
Ligena	51.8	51.7	35.4	34.6	1050	1346
Suneson	52.9	52.8	35.1	34.5	936	1132
LSD (0.05)	0.4		0.7		211	

Planted: May 6 Harvested: Aug 3

Dryland Camelina
Williston, ND

	Yield lb/a		TW lb/bu	Oil %	
Cultivar	2011	3 yr	2011	2011	3 yr
Blaine Creek	1503	1596	52.4	34.3	34.4
Calena	1633	1684	53.2	33.3	34.0
Ligena	1453	1615	52.1	34.2	34.4
Suneson	1510	1507	53.1	34.0	34.4
Clearwater Hy 101	1418	--	52.1	34.4	--
Yellowstone	1275	--	52.7	34.7	--
SO-30	1395	--	52.6	34.1	--
SO-40	1541	--	51.9	33.5	--
SO-50	1511	--	52.9	34.0	--
SO-60	1611	--	52.4	33.4	--
C10-BZ-SB7-6	1490	--	51.8	34.2	--
C10-BZ-SB7-7	1374	--	52.6	33.7	--
GP-10	1468	--	52.7	34.4	--
GP-12	1392	--	52.7	34.0	--
GP-42	1420	--	52.7	34.1	--
LSD 5%	176.6	--	0.3	0.5	--

Planted: April 27 Harvested: August 2
Previous Crop: Soybean Cover Crop

Dryland Crambe
Williston, ND

	Yield lb/a		TW lb/bu	Oil %	
Cultivar	2011	3 yr	2011	2011	3 yr
BelAnn	1251	1216	24.7	33.01	--
Meyer	1299	1188	25.4	32.56	30.6
Westhope	1409	--	23.9	32.09	--
Galactica	1392	--	24.1	31.37	--
LSD 5%	NS	--	NS	NS	--

Planted: April 28 Harvested: August 10
Previous Crop: Durum
Three year average based on 2008, 2009 and 2011 due to hail damage in 2010.

Dryland Notill Roundup Ready Canola
Williston, ND

		Yield lb/a		TW lb/bu	Oil %	
Brand/Cultivar*		2011	3 yr	2011	2011	3 yr
DK	DKL72-55	975.7	968.0	52.0	47.7	43.2
CG	HyClass 940	1055.6	964.0	52.0	46.4	43.0
CG	HyClass 955	1225.1	--	51.9	48.8	--
BY	6070 RR	911.8	--	51.6	45.8	--
BY	6040 RR	1110.1	--	51.5	45.1	--
DK	DKL30-42	997.0	892.6	52.3	46.8	42.0
DK	DKL52-41	1021.2	902.2	52.0	46.1	26.8
DK	DKL70-07	1020.0	--	52.2	47.6	--
DK	DKL55-55	1070.4	--	51.8	48.6	--
LSD 5%		160.9	--	0.4	1.8	--

*CG=Croplan Genetics; BY=Brett Young; DK=DeKalb
Planted: April 27 Harvested: August 10
Previous Crop: Durum

Dryland Crambe
Williston, ND

	Yield lb/a		TW lb/bu	Oil %	
Cultivar	2011	3 yr	2011	2011	3 yr
BelAnn	1251	1216	24.7	33.01	--
Meyer	1299	1188	25.4	32.56	30.6
Westhope	1409	--	23.9	32.09	--
Galactica	1392	--	24.1	31.37	--
LSD 5%	NS	--	NS	NS	--

Planted: April 28 Harvested: August 10
Previous Crop: Durum
Three year average based on 2008, 2009 and 2011 due to hail damage in 2010.

Sprinkler Irrigated Canola
Sidney, MT

Variety	Shatter % 2011	TW lb/bu 2011	Oil % 2011	Yield lb/a 2011
DKL 70-07	8	51.5	47.4	1105
DKL 51-45	20	51.5	47.0	1118
DKL 55-55	18	51.2	47.7	1221
DKL 30-42	8	51.8	46.3	1100
HYCLASS 947	20	51.0	48.1	1199
HYCLASS 940	22	51.2	45.1	791
HYCLASS 988	10	49.3	48.0	951
HYCLASS 955	22	51.7	48.2	981
OASIS CL	22	51.7	38.8	565
INVIGOR 8440	18	50.3	44.8	1066
INVIGOR L130	8	52.2	45.1	963
INVIGOR L150	22	51.8	45.4	1156
INVIGOR 5440	15	52.3	44.1	1061
ARRIBA	8	52.0	41.8	505
UISC003117	5	50.2	44.6	665
DKL 52-41	12	50.7	45.9	843
DKL 72-55	23	51.3	47.4	1108
HYCLASS 921	18	51.7	47.0	1039
Mean	15.6	51.3	45.69	968.6
LSD (0.05)	13.34	1.09	1.38	282

Planted: June 2 Harvested: Sept 8
Previous Crop: Sugar Beet

Dryland Chickpea
Williston, ND

Variety	TW lb/bu 2011		Yield lb/a 2011		Ascochyta Blight 1-9[1]	
	Fung.	No Fung.	Fung.	No Fung.	Fung.	No Fung.
LARGE KABULI						
CDC Frontier	54.0	54.0	1358	1429	1.0	2.7
Sawyer	57.1	57.3	1235	1004	2.7	3.3
Dylan	53.8	53.0	1215	111	2.3	6.7
Troy	53.9	53.4	1147	154	2.3	5.3
CDC Luna	53.6	55.1	1112	665	1.7	3.7
Sierra	55.9	53.4	1053	377	2.3	5.0
SMALL KABULI						
B-90	54.4	54.3	1301	1209	1.0	2.3
DESI						
CDC Anna	46.8	47.1	1478	1135	1.0	3.0
LSD (0.05)	1.8	--	142.4	--	0.9	--
TRT LSD (0.05)	0.6	--	50.3	--	0.3	--

Planted: May 26 Harvested: September 22
Previous Crop: Soybean Cover Crop
[1]Disease ratings 1-9 with 9 most susceptible

Sprinkler Irrigated Sunflower Trial
Sidney, MT

Variety	Height In 2011	TW lb/bu 2011	Oil % 2011	Yield lb/a 2011
TRX 7435 HO	77	33.5	46.9	3452
Hybrid TRX S671	57	36.7	48.0	3419
MWS-678N	59	37.6	48.0	2805
Hybrid TRX S8420	56	34.3	47.3	2057
Hybrid TRX S870 HCL	53	37.7	48.2	1971
Mean	60	36.2	47.7	1959
LSD (0.05)	14	1.30	2.05	683

Previous crop: Sugar Beet Harvested: Oct. 5
Date Seeded: June 2, 2011

Sprinkler Irrigated Notill Sunflower
Nesson Valley, ND

Brand	Hybrid[1]	Yield lb/a 2011	Yield lb/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
SD2	Defender Plus	2128	1744	32.2	41.8	40.0
CP	559 CL DMR NS	2731	-	32.6	45.3	--
SD2	Camaro CL,NS	2381	-	34.7	43.4	--
CP	460 E NS	2303	-	32.0	47.0	--
TR	S673	2293	-	30.5	47.0	--
SD2	Falcon NS,SU	1808	-	35.0	45.0	--
	LSD 5%	480	-	1.8	1.6	--

[1]CL=Clearfield; DM=Downy Mildew resistance; SU=Express Tolerant
CP=Croplan Genetics; **NS**=NuSun Hybirds; **SD2**=Seeds 2000; **TR**=Triumph Seeds
Planted: May 26 Harvested: November 3
Previous Crop: Corn

Dryland Notill Sunflower
Williston, ND

Brand[1]	Hybrid[2]	Yield lb/a 2011	Yield lb/a 3 yr	TW lb/bu 2011	Oil % 2011*	Oil % 3 yr
SYN	3158 NS/CL/DM	1254	--	33.8	43.1	--
SYN	NX01162	1153	--	30.3	40.1	--
SYN	NX82758	1129	--	31.5	43.1	--
SYN	3480 NS/CL/DM	1352		32.4	44.7	--
SYN	3495 NS/CL/DM	1343	--	34.7	41.9	--
SYN	3990 NS/CL/DM	1285	--	33.7	42.8	--
SYN	3733 NS/DM	1285	--	34.9	43.3	--
SYN	3733 NS COATED	1383	--	34.2	43.3	--
SYN	3995 NS/SU	1284	--	34.2	41.7	--
SYN	4596 HO/DM	1713	--	34.0	44.7	--
SYN	3845 HO	1372	--	34.2	46.6	--
SYN	7120 HO/DM	1161	--	32.8	43.3	--
SD2	Falcon	1377	--	33.7	43.5	--
SD2	Camaro	1469	--	33.8	42.7	--
SD2	Defender Plus	1243	1449	32.7	41.2	39.8
SD2	X9822	1150	--	33.4	44.0	--
ES	Pomar	1189	--	31.5	41.7	--
ES	Pacific	1076	--	29.7	42.9	--
ES	Biba	1435	--	31.8	42.6	--
ES	Balistic	1394	--	31.8	41.5	--
ES	Ethic	1248	--	32.2	45.1	--
TR	S673	1806	--	32.4	45.9	--
USDA	Hybrid 894	939	1132	32.8	42.1	41.2
CP	460 E NS	1132	--	34.1	47.0	--
CP	559 CL DMR NS	1427	--	32.3	45.9	--
	MEAN	1304	--	32.9	43.4	--
	C.V. %	17	--	1.9	2.7	--
	LSD 5%	319	--	1.3	2.4	--

Planting Date: June 2 Date Harvested: October 24

Previous Crop: Durum

[1]**SYN**-Syngenta; **SD2**-Seeds 2000; **ES**-Elite Seeds; **TR**-Triumph; **CP**-Croplan Genetics

[2]**CL**-Clearfield; **DM** and **DMR**-Downy Mildew resistance; **NS**-NuSun Hybrids; **HO**-High Oleic; **Trad**-Traditional.

Dryland Roundup Ready Soybean
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 2 yr	TW lb/bu 2011	Oil % 2011	Oil % 2yr
AG 0430	15.4	18.6	57.0	21.4	20.3
PFS 12R06	15.4	--	56.2	23.2	--
AG 0231	14.8	--	57.3	21.5	--
AG 0532	14.2	--	56.5	21.0	--
PFS 11R02	13.6	--	56.4	20.7	--
LSD 5%	NS	--	NS	0.3	--

Planted: May 25 Harvested: October 5

Previous Crop: Durum

PFS=Peterson Farms; **AG**=ASGROW

Dryland Conventional Soybean
Williston, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Oil % 2011	Oil % 3 yr
Sheyenne	19.6	19.2	56.7	22.8	20.9
ProSoy	20.4	18.7	56.8	22.7	20.0
Traill	19.6	17.9	57.0	22.0	20.2
Ashtabula	17.1	17.5	56.1	23.2	21.0
Cavalier	17.3	16.5	57.2	21.8	20.2
AG0231	22.0	--	56.6	22.3	--
ND05-17835	18.4	--	56.6	22.5	--
ND1005T	18.3	--	57.2	22.6	--
LSD 5%	2.9	--	0.4	NS	--

Planted: May 25 Harvested: October 5

Previous Crop: Durum

AG=ASGROW

Sprinkler Irrigated Roundup Ready Soybean
Nesson Valley, ND

Company	Cultivar	Yield bu/a 2011	Yield bu/a 2 yr	TW lb/bu 2011	Protein % 2011	Oil % 2011
Asgrow	AG0430	66.4	69.5	57.9	31.2	19.6
Asgrow	AG0532	70.4	-	58.0	30.9	19.1
Asgrow	AG0231	72.1	-	57.9	30.9	19.7
Peterson	11R02	68.7	-	57.3	30.1	20.1
Peterson	12R06	67.7	-	57.3	31.2	19.2
LSD 5%		8.9	-	0.7	1.7	0.6

Planted: May 19 Harvested: October 5

Previous Crop: Barley

Sprinkler Irrigated Conventional Soybean
Nesson Valley, ND

	Yield bu/a		TW lb/bu	Oil %	
Cultivar	**2011**	**2 yr**	**2011**	**2011**	**2 yr**
Sheyenne	51.78	57.59	57.65	19.15	19.3
Ashtabula	48.58	55.09	56.73	20.47	19.8
Traill	47.08	52.89	57.94	18.92	17.6
Cavalier	41.04	50.97	57.62	20.07	18.4
SK972	44.00	50.60	57.92	20.33	19.8
ND1005T	48.46	50.38	57.50	18.57	17.6
ProSoy	39.84	47.72	57.65	17.69	18.2
AGO231	61.59	-	57.76	19.42	--
ND05-17835	55.83	-	57.95	20.19	--
SK918	50.80	-	57.69	19.63	--
SK0034	41.49	-	57.38	19.49	--
SK0092-Exp	17.70	-	57.82	17.92	--
LSD 5%	9.67	-	0.48	0.84	

Planted: May 19 Harvested: October 5

Previous Crop: Barley

SK=SK Food Unit; **AS**=ASGROW

Sprinkler Irrigation Food Soybeans
Sidney, MT

	Maturity	Oil		TW		Protein		Yield	
Variety	**Group**	**2011**	**3 yr**	**2011**	**3 yr**	**2011**	**3 yr**	**2011**	**3 yr**
		---------lbs/bu--------		---------lbs/bu-------		----------%----------		--------bu/a--------	
Nannonatto	0.4	17.6	17.8	56.3	57.3	35.1	37.1	32.3	29.5
Walsh	0.3	19.5	19.2	57.8	58.1	34.3	36.0	49.4	39.4
Cavalier	0.7	19.4	18.8	58.0	58.2	35.0	37.4	47.1	37.3
Prosoy	0.8	17.9	18.6	56.7	56.9	38.2	38.9	39.0	37.3
SK972	0.3	19.4	20.1	57.3	57.6	35.2	36.6	44.5	45.6
SK0786	0.7	18.2	18.7*	56.8	57.3*	38.4	38.5*	52.4	47.1*
Ashtabula	0.4	19.8	20.8*	56.2	57.4*	35.5	35.1*	53.4	47.3*
SK092	0.07	17.1		58.0		35.2		35.6	
SK0034	0.1	19.1		57.3		34.4		49.0	
LSD (0.05)		1.01		0.84				10.2	

Planted: June 2 Harvested: October 10 Previous crop: Sugar Beet

Irrigation Dates: 7-5 (1.25"), 7-19 (1.6"), 8-3 (1.6") * 2 yrs only

Dryland Hybrid Corn
Williston, ND

Brand*	Hybrid	Yield bu/a 2011	Yield bu/a 3 yr	TW lbs/bu 2011	Protein % 2011	Protein % 3 yr
REA	1T345	35.3	48.0	57.4	10.8	10.9
REA	1C101	53.0	--	57.1	10.1	--
NuTS	3A-183	52.8	--	54.0	11.2	--
G2Nu	3A-080	52.1	--	50.3	10.5	--
NuTS	5N-183	50.9	--	52.8	10.6	--
2000	2823 GTCBLL	50.2	--	53.6	10.5	--
DyGr	CX11179	47.2	--	55.3	10.8	--
DyGr	51V45	45.7	--	56.4	11.5	--
DyGr	50K21	45.4	--	54.6	11.6	--
REA	2V550	44.8	--	55.5	9.9	--
G2Nu	5H-080	44.4	--	49.2	10.6	--
D/M	DKC30-20	42.5	--	56.6	10.3	--
G2Nu	5H-279	39.2	--	53.0	9.9	--
REA	2B404	35.4	--	55.3	10.8	--
PFS	54M83	34.8	--	56.0	10.4	--
REA	1B880	36.3	--	54.2	10.2	--
PFS	76F82	31.0	--	57.6	11.5	--
D/M	DKC35-43	28.9	--	57.6	10.3	--
D/M	DKC33-53	22.2	--	54.6	10.6	--
LSD 5%		9.8	--	1.4	NS	--

Planting Date: June 2 Harvested: October 4

Grain protein percentages reported on a 0% moisture basis.
Comments: Planted to stand with a Precision planter. Stand establishment was excellent.

Yields adjusted to 15.5% moisture.
***2000**-Seeds 2000; **REA**-REA Seeds; **DyGr**-DynaGro Seed; **PFS**-Peterson Farms Seed; **G2Nu**-G2 Genetics/NuTech Seed; **NuTS**-NuTech Seed LLC; **D/M**-Dekalb/Monsanto

Sprinkler Irrigated Corn
Nesson Valley, ND

Brand	Hybrid	Yield bu/a 2011	Yield bu/a 2 yr	TW lb/bu 2011	Protein % 2011	Protein % 2 yr
REA	2T149	139.1	183.1	58.6	9.0	8.5
PFS	54M83	137.6	175.8	57.1	8.4	8.2
DK	DKC30-20	132.5	175.7	59.0	9.2	8.6
DGS	51V45	126.2	169.1	58.2	10.0	9.4
DGS	50K21	120.2	164.6	57.6	9.9	9.2
REA	1B880	153.0	-	55.9	8.9	-
REA	2V550	148.5	-	56.6	7.9	-
G2G	5H-080	145.5	-	52.0	8.0	-
G2G	5H-279	145.4	-	56.3	7.9	-
PFS	76F82	141.4	-	58.7	9.5	-
DK	DKC35-43	140.9	-	57.7	9.2	-
G2G	3A-080	137.8	-	52.9	7.9	-
DK	DKC33-53	136.3	-	55.0	9.1	-
NTS	5N-183	133.5	-	54.5	8.7	-
REA	1T345	130.6	-	56.1	9.5	-
NTS	3A-183	129.5	-	55.5	9.1	-
S2	2823 TCBLL	123.5	-	55.4	9.6	-
REA	1V115	120.3	-	55.2	8.4	-
LSD 5%		10.3	-	1.8	0.8	--

All entries are Roundup Ready hybrids.

Planted: May 25 Harvested: October 21

Previous Crop: Barley

Grain protein percentages reported on a 0% moisture basis.
Comments: Planted to stand with a Precision planter. Stand establishment was excellent. Yields adjusted to 15.5% moisture.
REA=REA Seeds; **PFS**=Peterson Farms Seeds; **S2**=Seeds 2000; **DK**=Dekalb; **DGS**=Dyna-Gro Seed; **G2G**=G2 Genetics/NuTech Seed; **NTS**=NuTech Seed, LLC

Dryland Navy Bean
Williston, ND

Cultivar	TW lb/bu 2011	TW lb/bu 2009	Yield lbs/a 2011	Yield lbs/a 2 yr
Avalanche	62.3	558.5	641.8	600.2
Vista	62.0	431.6	758.4	595.0
HMS Medalist	62.3	--	789.0	--
Zorro	62.3	--	775.9	--
Eclipse	62.2	--	749.5	--
Lightning	62.2	--	728.6	--
LSD 5%	NS	NS	NS	--

Planted: May 2 Harvested: September 22

Previous Crop: Soybean cover crop

2010 yields not available due to hail damage.

Dryland Pinto Bean
Williston, ND

Cultivar	TW lb/bu 2011	TW lb/bu 2008	Yield lbs/a 2009	Yield lbs/a 2011	Yield lbs/a 3 yr
LaPaz	60.0	--	--	834	--
Lariat	59.0	--	643	870	--
Stampede	57.8	--	615	812	--
Maverick	59.5	268	617	703	529
ND-307	57.0	--	474	659	--
Medicine Hat	58.3	--	--	699	--
Windbreaker	56.9	--	--	584	--
Santa Fe	58.4	--	--	671	--
LSD 5%	NS	74	NS	141	--

Planted: May 2 Harvested: September 22

2010 data not included due to hail damage to plots

Sprinkler Irrigated Dry Bean
Sidney, MT

Cultivar	Bean Type	Yield --cwt/a- 2011	2 yr	Harvest Date
Max	P	42.5	35.8	Sep 19
Othello	P	37.8	35.1	Sep 14
Odyssey	P	38.4	34.2	Sep 19
Stampede	P	37.8	33.2	Sep 14
Avalanche	N	35.4	31.9	Sep 19
Lariat	P	38.1	31.5	Sep 19
Sequoia	P	36.4	30.7	Sep 19
T39	B	33.5	28.0	Sep 19
Rexeter	N	27.9	25.6	Sep 22
CELRK	LRK	25.7	25.5	Sep 19
Bellagio	C	25.0	23.9	Sep 22
Apache	P	38.8	--	Sep 19
Coyne	GN	37.1	--	Sep 14
Majesty	DRK	36.7	--	Sep 19
Inferno	LRK	33.6	--	Sep 22
LSD 5%		5.8		

Planted: May 26
Previous Crop: Sugar Beet
Type: P=pinto, N=navy, B=black, LRK=light red kidney, GN=great northern, DRK=dark red kidney

Sprinkler Irrigated Pinto Bean
Nesson Valley, ND

Cultivar	Yield lb/a 2011	3 yr	TW lb/bu 2011
Lariat	2697	2900	61.3
LaPaz	2293	2854	62.6
Windbreaker	2348	2843	60.3
Maverick	2531	2723	60.7
Stampede	2371	2623	61.2
Medicine Hat	1795	2558	61.0
ND-307	2471	2473	59.1
COB-816-03	2812	-	62.5
TS-904	2753	-	61.1
Galeena	2466	-	62.4
COB-2824-99	2292	-	61.2
TS-907	2180	-	61.4
Sonora	2026	-	62.2
Santa Fe	1795	-	59.9
LSD 5%	536	-	0.7

Planted: June 6 Harvested: September 22
Previous Crop: Barley

Sprinkler Irrigated Navy Bean
Nesson Valley, ND

Cultivar	Yield lb/a 2011	3 yr	TW lb/bu 2011
Avalanche	1958	2746	64.6
Ensin	2058	2541	64.5
Vista	1500	2488	64.8
Octane	1606	1860	64.3
Skyline	1308	1843	65.9
TS-544	1946	-	65.0
Viscount	1943	-	65.5
OB-5551-99	1892	-	65.1
HMS Medalist	1800	-	64.5
TS-564	1791	-	65.1
LSD 5%	278	-	0.8

Planted: June 6 Harvested: September 22
Previous Crop: Barley

Sprinkler Irrigated Miscellaneous Dry Bean
Nesson Valley, ND

Type and Cultivar	Yield lb/a 2011	3 yr	TW lb/bu 2011
BLACK			
Eclipse	2423	2648	63.7
Jaguar	1893	2601	64.9
Zorro	2226	2595	64.3
Loreto	2284	-	65.2
TS-1103	2267	-	65.4
SMALL RED			
Merlot	2035	2338	61.5
PINK			
Sedona	2390	2348	60.2
LSD 5%	413.73	-	0.3

Planted: June 6 Harvested: September 22
Previous Crop: Barley

Dryland Clearfield Notill Lentil
Crosby, ND

Cultivar	TW lb/bu 2011	Yield lb/a 2010	Yield lb/a 2011	*2 yr*
LARGE GREEN				
CDC Improve CL	55.6	2547.4	614.9	1581.2
MEDIUM GREEN				
CDC Impress CL	57.9	2652.8	630.4	1641.6
SMALL RED				
CDC Maxim CL	60.1	2510.1	862.0	1686.1
CDC Impact CL	60.6	2095.5	854.9	1475.2
EXTRA SMALL RED				
CDC Impala CL	61.7	2421.1	770.7	1595.9
CDC Imperial CL	59.0	2187.8	829.3	1508.6
LSD 5%	1.1	NS	NS	--

Planted: May 26. Harvested: September 23
Previous Crop: Lentil

Dryland Clearfield Notill Lentil
Williston, ND

Variety	Seeds/ Pound	TW lb/bu 2011	Yield lb/a 2011
LARGE GREEN			
CDC Improve CL	6431	58.7	1161
MEDIUM GREEN			
CDC Impress CL	8919	60.3	1391
SMALL RED			
CDC Maxim CL	11273	62.6	1421
CDC Impact CL	12474	63.8	1158
EXTRA SMALL RED			
CDC Imperial CL	15443	63.2	1399
CDC Impala CL	14942	63.6	1367
LSD 5%	743	1.0	147

Planted: May 5 Harvested: Aug 17

Dryland Clearfield Notill Lentil
New Town, ND

Cultivar	TW lb/bu 2011	Yield ---------- lb/a ---------- 2009	2010	2011	3 yr
LARGE GREEN					
CDC Improve CL	60.2	--	1969.5	1029.4	--
MEDIUM GREEN					
CDC Impress CL	60.8	1270	2036.5	1138.4	1587.5
SMALL RED					
CDC Maxim CL	62.4	1402	2160.5	1265.7	1713.1
CDC Impact CL	61.7	--	1659	908.5	--
EXTRA SMALL RED					
CDC Impala CL	63.2	--	2074.5	905.4	--
CDC Imperial CL	63.0	--	1804.0	1303.2	--
LSD 5%	0.9	328	NS	278.1	--

Planted: May 19 Harvested: August 26
Previous Crop: Durum

Sprinkler Irrigated Clearfield Lentil
Nesson Valley, ND

Cultivar	Yield bu/a 2011	Yield bu/a 2 yr	TW lb/bu 2011
LARGE GREEN			
CDC Improve CL	13.4	16.0	54.5
MEDIUM GREEN			
CDC Impress CL	7.8	15.4	54.4
SMALL RED			
CDC Impact CL	10.3	21.3	57.9
CDC Maxim CL	15.9	23.7	58.5
EXTRA SMALL RED			
CDC Impala CL	22.9	24.7	60.7
CDC Imperial CL	19.2	24.0	59.3
LSD 5%	6.5	-	2.9

Planted: May 13 Harvested: September 13
Previous Crop: Sugar Beet

Dryland Notill Lentil
Crosby, ND

Cultivar	TW lb/bu 2011	Yield lb/a 2008	2010	2011	3 yr
LARGE GREEN					
Riveland	55.7	1873	1867	689	1476
Pennell	56.0	1852	1482	1054	1463
CDC Greenland	55.1	--	2506	558	--
MEDIUM GREEN					
CDC Richlea	57.3	2126	2548	768	1814
SMALL RED					
CDC Rouleau	61.7	1646	2485	1350	1827
CDC Redberry	61.4	--	2120	1240	--
CDC Red Rider	60.2	--	2032	969	--
176T	NA[1]	--	--	148	--
SMALL GREEN					
CDC Viceroy	62.3	2285	2353	1230	1956
68E	60.6	--	--	980	--
EXTRA SMALL RED					
CDC Rosetown	62.3	--	2213	1052	--
FRENCH					
CDC LeMay	61.4	--	2461	666	--
LSD 5%	1.4	223	477	357	--

[1]NA=Data not available because of insufficient grain production

Planted: May 26 Harvested: Sept 23

Previous Crop: Lentil

Dryland Fallow Lentil
Sidney, MT

Cultivar	type	yield lb/a 2011	3 yr	TW lb/bu 2011
Essex	green	1735	1917	62.2
CDC Meteor	green	1633	1819	61.2
CDC Richlea	green	1591	1749	60.5
CDC Redberry	red	1602	1706	63.0
CDC Vantage	green	1608	1702	61.5
Riveland	green	1474	1475	58.8
Merrit	green	1486	1414	59.5
Crimson	red	980	1246	62.7
Brewer	green	1060	1195	60.0
Greenland	green	1735	--	59.2
Eston	green	1479	--	63.7
Impact	red	884	--	63.3
Pardina	brown	844	--	63.5
LSD 5%		298		0.6

Planted: April 28 Harvested: August 3

Dryland Field Peas
Williston, ND

Cultivar	Yield lb/a 2011	3 yr	TW lb/bu 2011	Protein % 2011	3 yr
YELLOW COTYLEDON TYPE					
SW Salute	37.2	36.2	64.4	24.7	22.9
SW Midas	31.6	34.2	64.7	23.8	21.9
CDC Golden	29.1	32.5	64.5	24.4	22.9
DS Admiral	31.6	31.9	64.6	24.4	22.7
CDC Meadow	25.7	31.9	65.0	24.5	22.8
Audit	39.3	--	64.3	25.5	--
Bridger	38.5	--	65.3	24.7	--
Trapeze	37.4	--	64.7	24.7	--
CDC Centennial	37.4	--	64.9	24.6	--
Avantgarde	36.9	--	65.6	24.3	--
Gunner	36.6	--	64.4	24.8	--
Korando	35.7	--	65.0	25.0	--
CDC Treasure	35.5	--	64.9	24.4	--
Spider	35.2	--	65.8	24.4	--
Vegas	35.1	--	64.8	24.6	--
Agassiz	32.5	--	64.3	24.7	--
Thunderbird	31.8	--	63.7	25.2	--
GREEN COTYLEDON TYPE					
Majoret	30.9	30.7	64.7	25.7	23.3
K2	32.6	30.1	65.3	24.3	23.1
CDC Striker	31.9	29.2	64.8	25.5	23.9
Cruiser	26.1	28.5	63.7	23.7	22.3
SW Arcadia	40.7	--	64.8	24.7	--
Emerald	38.9	--	64.5	24.4	--
Daytona	37.4	--	65.3	24.7	--
CDC Patrick	36.4	--	64.3	24.5	--
Bluemoon	35.6	--	64.2	24.6	--
Shamrock	35.1	--	65.1	24.4	--
Aragorn	31.6	--	64.0	24.4	--
LSD 5%	4.3	--	0.8	0.5	--

Planted: April 28 Harvested: July 28

Previous Crop: Durum

Sprinkler Irrigated Field Pea
Nesson Valley, ND

Cultivar	Yield bu/a 2011	Yield bu/a 3 yr	TW lb/bu 2011	Protein % 2011	Protein % 3 yr
YELLOW COTYLEDON TYPE					
DS Admiral	30.1	41.9	62.7	25.5	23.9
Agassiz	30.9	--	61.3	26.5	--
CDC Golden	23.4	--	62.2	27.0	--
Spider	23.1	--	62.2	26.0	--
GREEN COTYLEDON TYPE					
CDC Striker	23.5	43.6	63.0	27.9	25.3
Cruiser	20.4	38.4	61.3	25.9	24.2
Blue Moon	25.3	--	62.9	26.5	--
Arcadia	14.5	--	61.7	26.0	--
LSD 5%	7.2	--	0.8	1.0	--

Planted: May 13 Harvested: August 23

Previous Crop: Sugar Beet

Dryland Fallow Field Pea
Sidney, MT

Cultivar	type	Yield lb/a 2011	Yield lb/a 3 yr	TW lb/bu 2011
Meadow	Yellow	2596	2682	65.5
Golden	Yellow	2236	2680	65.2
Delta	Yellow	2659	2549	65.8
Midas	Yellow	2586	2578	65.2
Majoret	Green	2230	2550	65.3
Striker	Green	2209	2534	65.7
Medora	Green	2431	2427	64.0
Stirling	Green	2697	2468	64.8
Admiral	Yellow	2514	2428	65.3
Cruiser	Green	2220	2281	63.3
K2	Green	2293	--	64.8
Patrick	Green	2418	--	64.3
Bridger	Yellow	2994	--	65.3
Evergreen	Green	2933	--	65.3
Arcadia	Green	2768	--	64.8
Treasure	Green	2654	--	65.7
Trapeze	Yellow	2580	--	64.8
Spider	Yellow	2501	--	65.8
LSD 5%		432		0.7

Planted: April 28 Harvested: August 3

Flood Irrigated Alfalfa
Sidney, MT

Cultivar	YIELD, T/AC, dwb 2011 1st cut	2nd cut	3rd cut	Total	3-year average	Crude Protein 2011 1st cut	2nd cut	3rd cut	Relative Feed Value 2011 1st cut	2nd cut	3rd cut
Rebound 5.0	2.43	1.82	1.30	5.55	5.81	17.64	19.16	19.80	108.1	133.8	185.8
DKA43-13	2.36	2.03	1.28	5.67	5.56	18.86	19.12	18.58	129.1	128.1	159.9
54V09	2.38	1.88	1.24	5.50	5.86	16.44	21.75	20.90	99.9	160.6	215.1
FSG229CR	2.18	1.93	1.26	5.37	5.77	17.50	19.86	20.36	109.1	133.6	196.4
FSG429SN	2.09	1.85	1.27	5.21	5.69	17.74	18.22	19.01	115.7	123.0	167.2
FSG408DP	2.58	1.78	1.31	5.67	5.93	19.49	19.12	19.98	132.5	127.4	190.5
Ladak-65	2.84	1.80	1.20	5.84	5.72	18.45	20.51	20.68	119.7	138.6	198.0
Melton	2.58	1.84	1.32	5.73	5.80	17.50	20.32	20.96	111.2	137.6	210.9
Shaw	2.53	1.92	1.40	5.84	6.01	16.47	18.63	19.60	99.7	119.7	173.3
LSD 5%	0.54	0.26	ns	ns		2.37	2.08	1.53	24.4	24.1	34.7

Planted: May 29, 2008 2011 harvest dates: June 27, August 4, October 11

Sprinkler Irrigated Onion
Sidney, MT

Entry	Stand, Plants/ac	% Single Centers	Average Weight, oz	Average Diameter, in	Yield, lb/ac
Calibra	54790	20.0	8.9	3.0	30750
Crockett	51050	30.0	8.7	2.9	27580
Delgata	53770	27.5	10.1	3.2	33200
Gunnison	51390	60.0	8.8	3.0	28370
Patterson	46960	37.5	7.6	2.8	22280
Sedona	52750	42.5	10.4	3.1	34090
Talon	48660	40.0	8.6	3.0	26190
Tamara	57850	45.0	7.0	2.7	24660
2015	57170	35.0	8.6	2.9	30420
202	41180	87.5	10.1	3.0	25980
2025	58190	40.0	9.4	2.9	34960
7026	47640	85.0	11.1	3.2	32650
Belmar	58190	52.5	10.4	3.1	37900
Elbrus	43900	42.5	8.6	2.9	23570
LSD 0.05	ns	25.7	2.0	0.3	6450

Planted: May 25 Harvested: October 5
Previous Crop: Sugar Beet

Flood Irrigated Fusarium Screen, Sugar Beet
Flynn site, East Fairview, ND
Approved Sugar Beet Varieties for 2012

	% survival	
	2011	3 yr
BTS49RR53	81.0	89.1
BTS49RR1N	82.4	87.3
BTS47RR41	64.9	71.2
BTS47RR31	51.6	62.4
SX0491RR	65.8	60.8
SV36944RR	45.0	56.3
HM4125RR	36.8	52.9
BTS49RR35	7.6	51.6
HM4010RR	54.1	40.4
Crystal RR052	92.0	--
Crystal RR022NT	79.9	--
SX0409RR	73.4	--
HM9270RR	66.1	--
Crystal RR081	46.7	--
LSD 5%	32.2	

Planted: May 18 Harvested: Oct 13
Previous Crop: Spring Wheat

Sprinkler Irrigated Coded Sugar Beet Variety Trial
Sidney, MT
Approved varieties for 2012

	Root yield -T/a-		Sucrose -%-		Sucrose yield -lb/a-		Extractable sucrose -lb/a-	
Cultivar	**2011**	**3 yr**	**2011**	**3 yr**	**2011**	**3 yr**	**2011**	**3 yr**
SX0491RR	33.5	34.8	15.56	16.43	10420	11447	9670	10607
BTS49RR1N	34.6	36.1	15.79	15.81	10910	11410	10310	10553
BTS49RR53	34.0	36.3	15.50	15.67	10520	11373	9897	10502
SV36944RR	34.6	34.8	15.45	16.03	10680	11117	10060	10340
BTS47RR31	31.3	33.5	16.16	16.53	10100	11063	9546	10319
BTS49RR35	30.3	33.7	15.62	16.37	9483	11034	8935	10295
HM4010RR	32.0	33.3	15.72	16.23	10090	10790	9466	9975
BTS47RR41	30.8	33.5	15.56	16.10	9569	10776	8953	9944
HM4125RR	31.9	32.3	16.47	16.46	10530	10620	9968	9881
Crystal RR081	36.3	--	16.34	--	11840	--	11120	--
Crystal RR052	36.4	--	15.80	--	11510	--	10740	--
Crystal RR022NT	33.7	--	16.53	--	11140	--	10510	--
HM9270RR	34.3	--	15.41	--	10590	--	9925	--
SX0409RR	33.2	--	15.30	--	10150	--	9482	--
LSD 5%	3.2		0.68		1103		1057	

Planted: April 29 and May 4 Thinned: June 13 Harvested: Sept 22 and Sept 23
Previous Crop: Small Grain

Flood Irrigated Coded Sugar Beet Variety Trial
East Fairview, ND
Approved varieties for 2012

	Root yield -T/a-		Sucrose -%-		Sucrose yield -lb/a-		Extractable sucrose -lb/a-	
Cultivar	**2011**	**3 yr**	**2011**	**3 yr**	**2011**	**3 yr**	**2011**	**3 yr**
BTS49RR1N	32.6	34.8	16.14	16.36	10540	11327	10000	10543
BTS49RR53	32.2	34.2	15.83	16.06	10200	10933	9691	10155
BTS47RR31	27.7	31.5	16.57	16.73	9189	10490	8733	9781
BTS47RR41	28.0	31.5	16.09	16.45	9023	10291	8566	9560
SX0491RR	32.9	33.3	15.29	15.71	9999	10370	9323	9526
BTS49RR35	26.5	31.2	16.51	16.58	8732	10211	8340	9508
SV36944RR	26.4	31.4	15.98	16.15	8444	10050	8017	9319
HM4125RR	24.4	29.9	16.57	16.43	8071	9774	7703	9092
HM4010RR	23.4	29.3	15.82	16.23	7392	9455	6980	8755
SX0409RR	33.1	--	16.14	--	10690	--	10100	--
Crystal RR022NT	31.6	--	16.16	--	10210	--	9638	--
Crystal RR081	29.7	--	16.46	--	9775	--	9266	--
Crystal RR052	30.1	--	16.02	--	9621	--	9079	--
HM9270RR	25.4	--	15.86	--	8050	--	7569	--
LSD 5%	3.1		0.43		990		937	

Planted: April 28 Thinned: Jun 16 Harvested: Sep 26
Previous Crop: Small Grain

Sugar Beet Seed Treatment Trial
Sidney, MT

Treatments/Products	Rates	Final Stand Per 100 row ft	Tons/A	Extractable Sucrose lb/A
Apron XL + Maxim	7.5 grams ai/100 kg + 2.5 grams ai/100 kg	97	28.8	9897
Apron XL + Maxim	7.5 grams ai/100 kg + 5.00 grams ai/100 kg	90	30.8	10588
Apron XL + Maxim + Cruiser	7.5 grams ai/100 kg + 2.5 grams ai/100 kg + Cruiser at 60 gms ai/unit	89	30.6	10605
Apron XL + Maxim + Dynasty	7.5 grams ai/100 kg + 2.5 grams ai/100 kg + 25 grams ai/100 kg	100	31.3	10622
Apron XL + Maxim + Dynasty	15.0 grams ai/100 kg + 5.0 grams ai/100 kg + 25 grams ai/100 kg	97	28.1	9629
Allegiance + Thiram	15.0 grams ai/100kg +250 grams ai/100 kg	95	30.6	10392
Untreated		91	28.4	9814
Apron XL + Maxim + Dynasty + Cruiser	15.0 grams ai/100 kg + 5.0 grams ai/100 kg + 25 grams ai/100 kg + 60 gram ai/unit	105	29.4	9994
Poncho-Beta + Allegiance + Thiram	68 gram/unit + 15 grams ai /100kg + 250 grams ai /100kg	100	31.8	10722
Poncho-Beta + Allegiance + Thiram + Vortex	68 gram/unit + 15 grams ai /100kg + 250 grams ai /100kg + 2.5gram ai/100kg	103	26.9	9171
Metlock + V-10209+NipsIT inside	0.008 floz/unit+0.75 floz/unit +3.4 floz/unit	104	28.2	9552
Metlock + V-10209+NipsIT inside	0.016 floz/unit+0.75 floz/unit +3.4 floz/unit	97	28.1	9804
Metlock + V-10209+NipsIT inside	0.023 floz/unit+0.75 floz/unit +3.4 floz/unit	95	27.8	9584
Rhizolex Flowable +V-10209+ NipsIT inside	1.5floz/unit+ 0.75 floz/unit +3.4 floz/unit	98	29.3	10119
Metlock + Rhizolex Flowable + V-10209 + NipsIT inside	0.016 floz/unit +1.5floz/unit+ 0.75 floz/unit +3.4 floz/unit	99	28.0	9536
Apron XL + Maxim +Sedaxane + Cruiser	7.5 grams ai/100 kg + 5.00 grams ai/100 kg + 2.5 grams ai/100kg + 60gram ai/unit	100	31.6	10728
Poncho-Beta + Allegiance + Thiram +Tachigaren	68 gram/unit + 15 grams ai /100kg + 250 grams ai /100kg +20grams/100kg	103	31.5	10749
Poncho-Beta + Allegiance + Thiram +Tachigaren + penthiopyrad	68 gram/unit + 15 grams ai /100kg + 250 grams ai /100kg +20grams/100kg +14gram ai/unit	109	29.7	9877
Poncho-Beta + Allegiance + Thiram +Tachigaren + penthiopyrad	68 gram/unit + 15 grams ai /100kg + 250 grams ai /100kg +200grams/100kg +28gram ai/unit	105	28.6	9775
Poncho-Beta + Allegiance + Thiram + penthiopyrad	68 gram/unit + 15 grams ai /100kg + 250 grams ai /100kg +28gram ai/unit	101	32.4	11127
LSD 5%		13	5.5	1879
Variety HM9124 RR @ 218 seeds/100 row ft Plots 2 rows-30ft long. 10 replications				
Planted: May 16			Harvested: September 27	

Sugarbeet Rhizoctonia Crown and Root Rot Fungicide Study
Sidney, MT

Treatment /Band leaf stage	Rhizoctonia Disease Index 0-100 (all rotten)	T/A	Sucrose yield lb/A
1. inoculated	60.56 a-b	12.17 c-d	3944.70 c
2. ST 1 (Control-Apron Maxim)	52.42 a-c	12.16 c-d	4177.40 c
3. ST 2 (Dynasty 25 g/seed unit)	45.28 a-d	17.94 a-d	6146.23 a-c
4. ST 3 (Sedaxane 2.5 g/seed unit)	56.98 a-b	12.05 c-d	3925.18 c
5. ST 4 (Penthiopyrad 14 g/seed unit)	38.71 a-d	19.59 a-d	6339.75 a-c
6. ST 5 (Penthiopyrad 28 g/seed unit)	45.13 a-d	21.23 a-c	6860.63 a-c
7. Vertisan Infurrow (IF)	44.42 a-d	17.76 a-d	5980.36 a-c
8. Quadris IF	25.51 d	22.25 a-c	7037.40 a-c
9. Quadris Band 4-6	40.51a-d	20.81 a-c	6918.41 a-c
10. Quadris Band 8-10	43.33 a-d	19.64 a-d	6467.04 a-c
11. Quadris Band 10-12	51.44 a-d	19.79 a-d	6423.41 a-c
12. Bayer seed trt 1	51.25 a-d	15.53 a-d	5132.37 a-c
13. Bayer seed trt 2	52.16 a-c	17.25 a-d	5594.52 a-c
14. Bayer seed trt 1 +Proline Band	65.22 a	9.85 d	3290.25 c
15. Bayer seed trt 2 + Proline Band	51.46 a-d	15.57 a-d	5218.79 a-c
16. ST1 +Quadris Band 4-6	29.20 c-d	24.79 a	8118.62 a-b
17. ST1 + Quadris Band 8-10	34.72 b-d	24.52 a-b	6234.06 a-c
18. ST1 +Quadris Band 10-12	44.50 a-d	17.67 a-d	5639.31 a-c
19. ST2 +Quadris Band 4-6	50.34 a-d	13.66 b-c	4513.35 b-c
20. ST2 + Quadris Band 8-10	43.10 a-d	20.28 a-d	6982.79 a-c
21. ST2 +Quadris Band 10-12	57.33 a-b	11.67 c-d	3710.15 c
22. ST3 +Quadris Band 4-6	60.34 a-b	13.51 c-d	4375.53 b-c
23. ST3 + Quadris Band 8-10	38.44 b-d	19.64 a-d	6503.16 a-c
24. ST3 +Quadris Band 10-12	45.89a-d	18.92 a-d	6059.20 a-c
25. ST4 +Quadris Band 4-6	44.55 a-d	20.62 a-d	6991.79 a-c
26. ST4 + Quadris Band 8-10	51.65 a-d	12.32 c-d	3917.57 c
27. ST4 +Quadris Band 10-12	36.01 b-d	24.55 a-b	8131.11 a-b
28. ST5 +Quadris Band 4-6	47.00 a-d	20.34 a-d	6882.10 a-c
29. ST5 + Quadris Band 8-10	59.04 a-b	13.04 c-d	4388.67 b-c
30. ST5 +Quadris Band 10-12	53.29 a-c	16.88 a-d	5580.74 a-c
31. Vertisan IF + Quadris Band 4-6	48.00 a-d	18.23 a-d	6083.92 a-c
32. Vertisan IF +Quadris Band 8-10	51.84 a-d	15.42 a-d	4997.60 a-c
33. Vertisan IF + Quadris Band 10-12	39.25 a-d	20.75 a-d	7023.54 a-c
34. Quadris IF + Quadris Band 4-6	28.63c-d	26.11 a	8629.53 a
35. Quadris IF +Quadris Band 8-10	41.94 a-d	21.5 a-c	6903.79 a-c
36. Quadris IF +Quadris Band 10-12	41.81 a-d	19.49 a-d	6336.77 a-c
LSD 0.05	26.6	10.9	3837
Cultivar HM9124 RR			
Planted: May 16			Harvested: Sept 27

Sprinkler Irrigated Sugarbeet Cercospora Fungicide Trial
Sidney, MT

Treatment- oz product/a	Yield T/a	Sucrose Yield lb/a
1. Untreated	25.35 a-b	9057.78 a-b
2. 1)InspireXT 7oz 2)Supertin 5oz 3) Headline 9oz	24.73 a-b	8713.51 a-b
3. 1)SuperTin 5oz 2)Inspire XT 7oz 3) Topsin 7.6oz+ Supertin 3.75oz 4)Headline 9oz	24.49 a-b	8185.48 b
4. 1-4) Inspire Xt 6oz	25.02 a-b	8767.01 a-b
5. 1-4) YT669 6oz + NIS .25 v/v	27.10 a-b	9755.79 a
6. 1-4)YT699 9oz + NIS .25 v/v	27.34 a	9508.27 a-b
7. 1-4)YT699 12oz + NIS .25 v/v	26.81 a-b	9429.23 a-b
8. 1-4) Headline 12oz + NIS .25 v/v	25.62 a-b	9021.00 a-b
9. 1-4) Headline 9oz, 2-4) BMJ	26.53 a-b	9215.68 a-b
10. 1-4) BMJ	26.74 a-b	9400.38 a-b
11. 1) Headline 6oz, 2-4) BMJ	25.38 a-b	9074.33 a-b
12. 1-4)SuperTin 5oz	26.39 a-b	9425.13 a-b
13. 1-4)Inspire XT 3.5oz + BMJ	25.38 a-b	8964.43 a-b
14. 1-4)Eminent 6.5oz + BMJ	24.49 a-b	8660.51 a-b
15. 1-4)Eminent 13oz + BMJ	26.38 a-b	9426.70 a-b
16. 1)Headline 9oz 2) Eminent 13oz 3) Headline 9oz 4) Eminent 13oz	23.65 b	8233.76 b
17. 1-4) Inspire XT 3.5	25.53 a-b	9183.22a-b
18. 1-4) Eminent 6.5oz	25.31 a-b	8856.42 a-b
Cultivar AC747RR		
Planted: May 17	Harvested: September 28	

Crop Performance Comparisons on Dryland – Williston, ND[1]

Crop	Variety	2011 Selling Price $/bu	3 Yr Ave Yield bu /a	Gross Return $/a	$ Gr. Ret/a + or - Steele-ND
HRS Wheat	Reeder	8.25	41.5	$342	+$28
	Steele-ND	8.25	38.1	$314	0
HRW Wheat	Jerry	6.50	44.4	$289	-$25
Durum Wheat	Mountrail	8.00	33.9	$271	-$43
	Alkabo	8.00	35.4	$283	-$31
Barley (feed)	Rawson	4.75	68.2	$324	+$10
(malting)	Tradition	5.75	69.2	$398	+$84
(malting)	Pinnacle	5.75	67.7	$389	+$75
Oats	Monida	2.75	76.3	$209	-$105
Corn (grain)	Average	5.50	48.1	$265	-$49
Flax (brown)	Neche	13.00	14.8	$192	-$122
(yellow – food)	Carter	14.25	16.3	$232	-$82
Soybeans	Sheyenne	11.50	20.4	$235	-$79
Field Peas (green)	Cruiser	8.25	30.7	$253	-$61
(yellow)	Mozart	8.00	32.5	$260	-$54
		$/CWT	**lbs/ac**		
Camelina	Blaine Creek	15.00	986	$147	-$167
Brown Mustard	Avg.	31.00	951	$294	-$20
Yellow Mustard	Tilney	36.00	1002	$360	+$46
Canola	Hyola 357 Mag	40.00	1021	$408	+$94
Crambe	Meyer	22.00	1188	$261	-$53
Safflower	Avg of 3 varieties	30.00	1297	$389	+$75
Sunflower (oil)	Avg of 2 varieties	28.00	1425	$399	+$85
Buckwheat	Manor	20.00	1249	$250	-$54
Lentils (sm. green)	CDC Viceroy	27.00	1083	$292	-$22
(med. green)	AC Richlea	25.00	1142	$285	-$29
(lg. green)	Riveland	28.00	1046	$292	-$22
(red)	Rouleau	18.00	1053	$189	-$124
Chickpeas (desi)	CDC Anna	27.00	1000	$270	-$44
(kabuli)	CDC Frontier	40.00	1247	$498	+$186
(small kabuli)	B-90	32.00	1161	$371	+$57
Pinto Beans	Maverick	37.00	386	$142	-$172
Navy Beans	Norstar	40.00	359	$143	-$171

[1]Chet Hill, NDSU - Williston Research Extension Center

Development of Durum Varieties for the MonDak Region[1]

Eighty-four solid-stemmed lines from the World Collection were identified in 2004 and crossed onto a male sterile facilitated recurrent selection population in 2005 to develop a solid-stemmed population. This solid-stemmed population has been continued and maintained using solid stemmed, high quality, and low Cd-accumulating lines as male parents. Plants were selected each year from the F_2 population based on stem-solidness and other agronomic characters. We tested 26 F_7 solid-stemmed lines from this population for yield in 2011. Stem solidness of these lines ranged from 18 to 24.8, with 25 being a completely solid stem.

Cadmium (Cd) is a nonessential heavy metal that may cause health problems for some people. Diet is the main source of Cd for nonsmokers, with cereal products, including durum, accounting for up to 20% of the daily intake of Cd. The current official standard for maximum level of Cd in wheat grain as stated by the Codex Alimentarius Commission (a part of the World Health Organization), is 0.2 ppm, and the European Union has adopted this level of Cd as the maximum allowed in domestic and imported durum. Europeans have traditionally purchased durum from the desert southwest. That area is no longer a reliable source of durum because of urban sprawl and decreasing water availability. Additionally, southwest durum often has a high amount of Cd. European durum buyers are looking for another source of high quality durum with low Cd levels. Montana and North Dakota produce high quality durum, and may fill the market required by European durum buyers.

Cadmium levels were screened in durum grain samples from plots grown across Montana in 2005. Sites included research centers and several off-station sites in eastern Montana. Cadmium levels ranged from 0.055 ppm to 0.259 ppm. Soil characters affect the amount of Cd taken up by durum. Additionally, genetics play a role in accumulation of Cd in the grain. Most durum genotypes grown in Montana accumulate Cd in the grain. A low Cd-accumulation trait does exist in durum and is caused by a single dominant gene. Because of the European Union's restriction on Cd levels in imported durum, incorporating the low Cd-accumulating character has become a top priority.

Several dozen lines from the CIMMYT (International Maize and Wheat Improvement Center) program were evaluated for Cd accumulation and quality. A total of 11 lines with low Cd accumulation and good quality were identified Emasculated crosses were made using high quality lines as female parents and low Cd-accumulation lines as male parents in 2007. Currently we have 228 low-Cd F_7 lines that will be tested next year for yield.

[1]J. Eckhoff, MSU Eastern Agricultural Research Center, Sidney, MT and
E. Elias, NDSU Department of Plant Sciences, Fargo, ND

Barley for Ethanol Production

Objectives:

- determine effects of barley hull removal on starch yields
- compare starch levels in barley types, varieties and genetic lines

Table 1. Starch yield of hulled and dehulled barley grown under sprinkler and flood irrigation, across years.

Flood 2005-2010		**with hulls**			**dehulled**		
entry	% hull	grain yield, lb/ac*	percent starch*	starch yield, lb/ac*	grain yield, lb/ac*	percent starch*	starch yield, lb/ac*
Rasmussen	9.7	4508	56.5	2567	4211	62.4	2650
Tradition	9.9	4387	56.5	2495	4098	61.2	2512
Lacey	9.9	4289	56.2	2435	3988	61.3	2473
Legacy	10.0	4251	55.6	2379	3963	61.5	2443
Conlon	11.0	4034	57.7	2348	3722	63.7	2393
Drummond	10.5	4171	55.1	2315	3867	62.7	2435
ND20448	10.8	4006	57.3	2313	3718	62.8	2342
Stellar	10.5	4102	55.9	2309	3800	62.0	2360
Rawson	10.7	3971	56.8	2259	3689	62.5	2318
AC Metcalfe	9.9	3970	56.1	2234	3718	61.0	2282
Robust	10.2	3924	55.6	2198	3660	60.9	2238
Average	10.3	4147	56.3	2350	3858	62.0	2404
Sprinkler 2005-2010		**with hulls**			**dehulled**		
Rasmussen	9.5	4706	56.1	2669	4457	61.5	2748
Tradition	9.8	4518	55.6	2523	4276	60.9	2624
Lacey	10.1	4445	55.3	2484	4189	61.2	2589
Conlon	10.4	4293	57.2	2469	4064	62.3	2548
Legacy	10.5	4373	54.9	2419	4125	60.9	2536
Drummond	10.4	4269	55.3	2384	4016	59.9	2405
Stellar	10.5	4155	56.8	2378	3899	61.0	2403
ND20448	10.4	4025	56.4	2283	3792	61.5	2336
Robust	10.9	3905	56.0	2224	3667	61.0	2258
Rawson	11.1	3926	56.5	2222	3701	62.2	2315
AC Metcalfe	10.0	3855	56.1	2173	3645	60.8	2226
average	10.3	4225	56.0	2384	3985	61.2	2453

* dry weight basis

Removing hulls from normal hulled feed and malt barley lines did not reduce starch yield per acre. About 10.3% of grain yield was lost to dehulling, but percent starch of the dehulled material was about 5% greater.

[1] Charles Flynn, Jerald Bergman, Joyce Eckhoff, MSU Eastern Agricultural Research Center, Sidney, MT

Plant Crops to Dry Out Excessively Wet Fields[1]

Northwest North Dakota received a record snowfall amount during the 2010-2011 winter along with an above-normal precipitation amount during May and June. As a result, this spring many fields were too wet to be seeded. Some producers felt that repeated tillage was the best way to dry wet soils. Various research and demonstration projects at the Williston Research Extension Center during the past several years show that much more soil water is removed when an area is planted to a crop than when it is left unplanted, even if it is repeatedly tilled.

The most recent example is from 2010. In a study investigating how plant available soil water content varies with landscape position, soil water content was measured weekly at ten landscape positions. At each position, soil water was measured at two sites spaced 15 feet apart. One site at each location was under a growing hard red spring wheat crop while the other was in a 3-foot gap between planter passes. The gap (i.e. fallowed area) was not tilled during the growing season. Between April 28th and July 26th, the soil under the growing crop lost 3.6 inches of water while during the same time the fallowed area lost only 0.7 inches of water. Thus the wheat removed five times more water than was lost from the fallowed area.

A similar comparison was made in this study during 2004 when the area was planted to lentil. From May 20th to August 17th of that year, 3.3 inches of water was removed by the lentil crop, whereas only 1.8 inches was lost in the unseeded/untilled area. So nearly twice as much water was removed by the lentil crop as was lost from the area that was idled and fallowed.

Another recent example is from a 2009 demonstration of cover crops. Soil water depletion by ten cover crop mixtures, hard red spring wheat, and a tilled fallowed plot were compared. The period examined was June 17th to August 12th. The wheat dried out the soil the most, removing 4.3 inches of water. The ten cover crop mixtures removed varying amounts of water, ranging from 1.4 inches to 3.3 inches, and averaging 2.1 inches. The fallowed plot only lost 0.6 inches. The wheat removed seven times more water than the tilled fallow AND the amount of water removed by even the most water-thrifty cover crop was more than twice the amount that was lost from the tilled fallow area.

My final example is data collected from a research study that compared three annual legumes, safflower, hard red spring wheat, and fallow. The data are the 10-year averages of soil water content changes between mid-May and mid-August. Wheat removed 4.4 inches of water from the soil, safflower removed 4.1 inches, wheat that intentionally received insufficient N fertilizer removed 3.7 inches, the three harvested legumes removed 3.2 inches, the three green-manured legumes removed 2.1 inches, and the tilled fallowed plots only lost 0.1 inches. The lesser use of safflower compared to wheat is because by mid-August, safflower was not yet mature; it continued using soil water after this date, ultimately surpassing wheat in terms of water use. In this study, all the cropped plots, even if the crop was green manured or had reduced growth due to N deficiency, removed significantly more water than did the fallowed plots.

In conclusion, it is apparent that planting a crop, even if it has limited growth, will remove more water from the soil than will leaving an area bare and performing multiple tillage operations.

[1] James Staricka, Soil Scientist, NDSU - Williston Research Extension Center

Irrigation Research at Nesson Valley 2011[1]

Good-bye 2011, let's go 2012. As I was reading last year's update on Nesson Valley research I should have copied and pasted my first paragraph but I didn't in hopes that it would create a positive start to 2012. It was a challenge but I sure thank Cameron and Katie for all of their efforts. We are in a transitional phase at the WREC, as long time agronomist Neil Riveland has retired. So now we are in the process of finding a new director, agronomist (Neil's replacement) and a soils technician. If they can find a place to live hopefully we will have some additional new staff starting in 2012. Exciting times at the WREC!

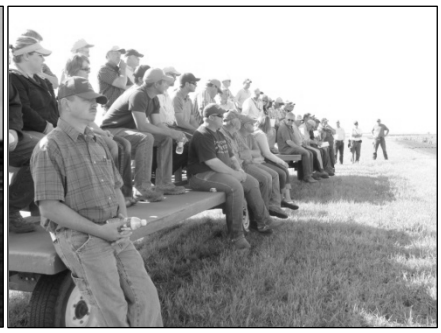
The Neil Riveland Seed Processing and Research Laboratory addition was completed this fall. We are very excited, as now there is the opportunity to expand our research into the winter months and in the summer our research can go beyond the normal field activities. We've had the opportunity to start purchasing analytical equipment for the labs. Starting in 2012 the water use efficiency project and potato management research will be strengthened as a result of these new laboratories.

The Nesson Valley project continues to expand as we are in the process of converting the third linear to an automated Variable Rate Irrigation (VRI) system. We will have the VRI operational for the 2012 season. Special thanks go to the Williams County Water Resources and State Water Commission for their financial support towards the linear conversion to VRI and the ND Irrigation Association support towards this final linear conversion. Developing this linear system will give us another 35 irrigated acres to expand our research at the Nesson site from 70 acres to 105 acres and allow us to conduct irrigated research on each of the three linear systems every year. For those not familiar with the VRI system I will explain briefly. The VRI system divides the linear into 22 separate controlled banks, each 50 feet wide. Each bank can apply a different rate of water as the linear moves across the field allowing for a multitude of cropping systems. Without this, the linear system would only be able to apply one rate over the entire field.

There have been years when the lake was too low and then there was 2011, when it was almost impossible to get the pump in (see bottom left picture below). We are in the second year of the surface (Missouri River)/groundwater (Hofflund aquifer) project and will continue to compare the two as long as the lake maintains a level to pump from. This is a unique project and an area of research that has not seen a lot of work over the years. We will compare each water source and try and determine if there are any effects on soil properties and crop growth/development from the surface and ground water.

Our vision at the Nesson Valley site is to further advance irrigation practices, improve crop production within an irrigated system and develop alternative cropping systems to improve water, nutrient and pest management. The date for the 2012 Nesson Valley field tour is **July 25th 2012**. Look forward to seeing you there!

[1] Tyler Tjelde, NDSU - Williston Research Extension Center


Comparing Tillage Systems (conventional, minimum, no-till) With Overhead Irrigation Using a 3-Year Crop Rotation of Corn, Soybean, and Barley (Nesson Valley 2011)[1]

Objectives

This project examines the interaction between tillage systems and soil quality and the interaction between crop production and tillage to better understand the benefits of overhead irrigation on production and tillage. Questions we hope to answer include how tillage is going to affect the quality of our soil and will soil quality affect crop production when irrigation is involved. What are the benefits of selecting the proper tillage to match the specific crop? With things constantly changing, how can the interrelationships between crop rotation/production and tillage systems be defined?

Methods

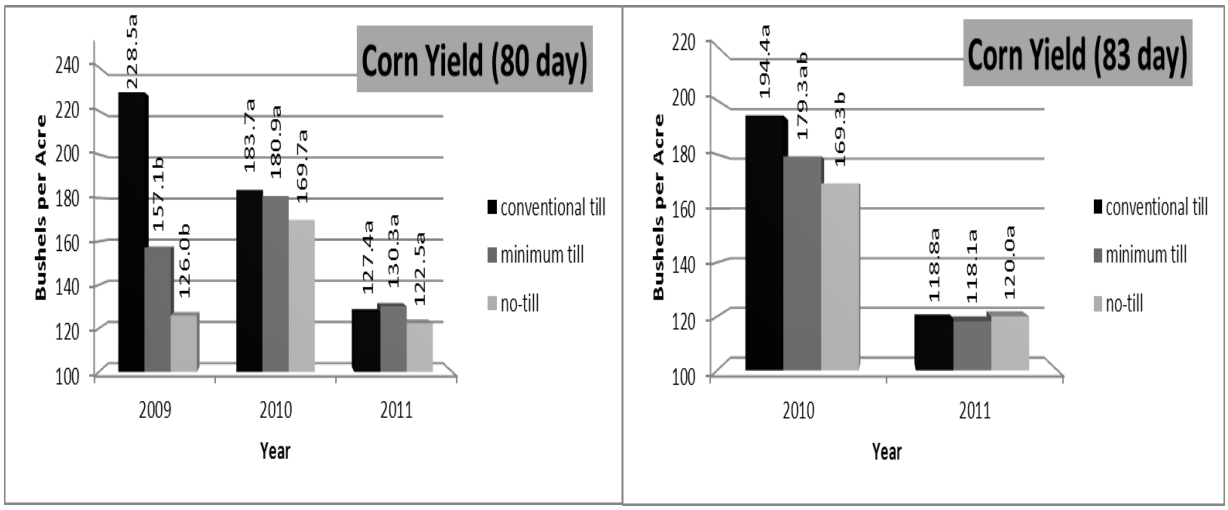
Plots strips were 50 feet by 200 feet and replicated four times in a split block design. Fertilizer was spring-applied at recommended rates determined by soil testing. Weeds were managed with herbicides to minimize their impact on production. Percent residue cover, soil temperature, stand counts, grain yield, proteins, and test weights were measured. Conventional tillage was done in the fall following harvest. Minimal tillage was done in the spring. Conventional tillage consisted of multiple passes with a disc, ripper and cultivators resulting in <30 % residue left. Minimum tillage varied based on previous crop. Corn residue was aggressively disked (5mph) cutting at a depth of 4 inches while still maintaining >30% residue cover. Barley residue was also disked but ground speed and depth were reduced to maintain the > 30% residue cover. A field cultivator was used to till the soil in soybean residue, leaving most of the residue on the soil surface. Only trash wipers (residue managers) were used in the no till system to move residue from seed row. Residue amounts are recorded after planting using the Line Transect Method. Residue amounts are in parenthesis in the results section following each tillage treatment.

Results

Corn Variety	**A**	**B**	**A**	**B**	**A**	**B**
2011	**Yield**		**Test Weight**		**Moisture (harvest)**	
Tillage treatment	*Bu/A*		*Lb/bu*		*%*	
Conventional till (10.8 %)	127.4a	118.8a	57.8a	54.2a	16.6b	16.9a
Minimum till (33.3%)	130.3a	118.1a	57.6a	54.1a	14.9c	16.8a
No - till (81.5%)	122.5a	120.0a	56.0b	53.5a	18.9a	18.4a
CV (%)	**4.4**	**10.0**	**0.8**	**1.5**	**4.9**	**7.9**

Previous crop: barley Variety A-80day Variety B-83day

In the tables, numbers followed by the same letter are not significantly different (0.05)

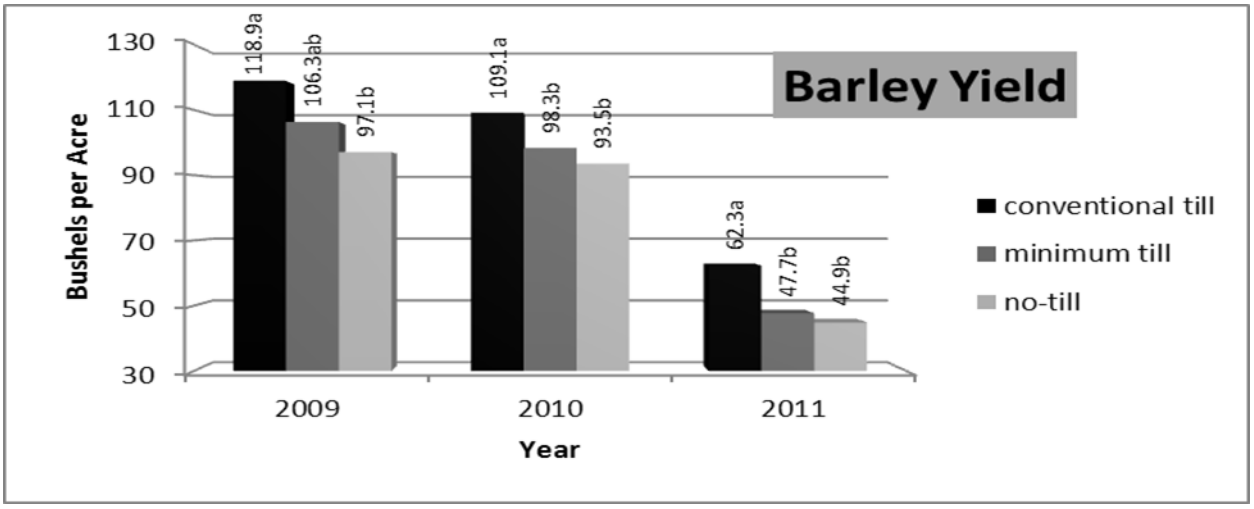


Barley

2011	**Yield**	**Test Weight**	**Protein**
Tillage treatment	*Bu/A*	*Lb/bu*	*%*
Conventional till (5.3 %)	62.3a	48.1a	14.5a
Minimum till (32.0%)	47.7b	46.3b	15.0a
No - till (56.0%)	44.9b	45.4c	14.2a
CV (%)	**10.5**	**0.6**	**3.5**

Previous crop: soybean

In the tables, numbers followed by the same letter are not significantly different (0.05)

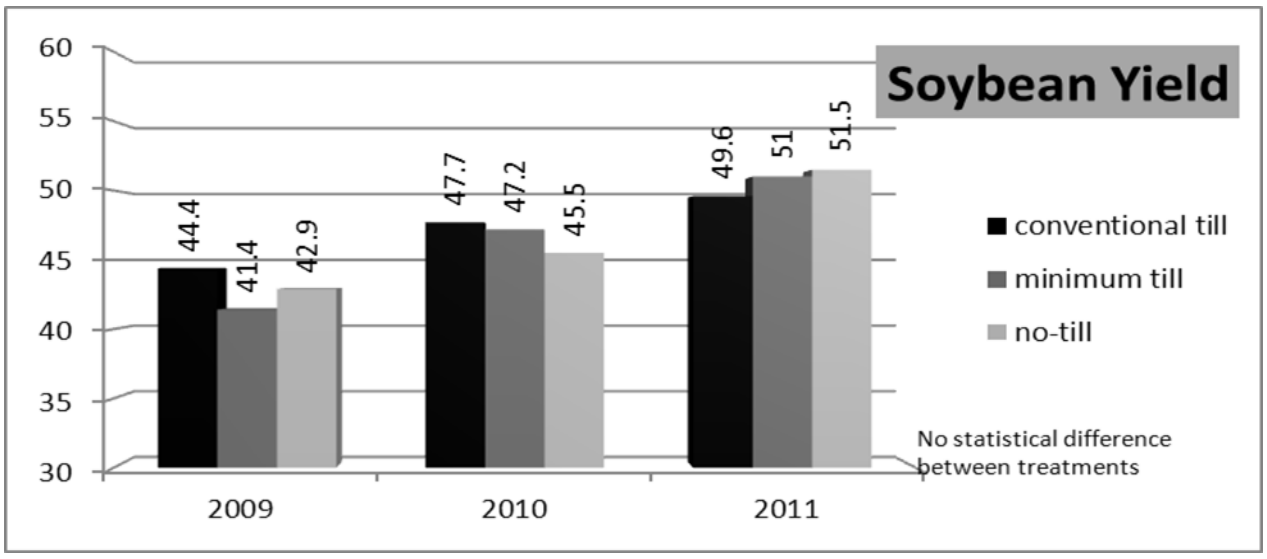


Soybean

2011	Yield	Test Weight	Protein
Tillage treatment	*Bu/A*	*Lb/bu*	*%*
Conventional till (22.5 %)	49.6a	56.6a	31.9a
Minimum till (54.0%)	54.0a	56.6a	31.7a
No - till (91.8%)	51.5a	56.5a	32.5a
CV (%)	**5.1**	**1.0**	**2.6**

Previous crop: corn 0.2 maturity variety

In the tables, numbers followed by the same letter are not significantly different (0.05)



[1] Tyler Tjelde and James Staricka, NDSU - Williston Research Extension Center

Quantifying water use (Water Use Efficiency) in irrigated barley, wheat, potato, sugar beet, and lentil production on Lihen – fine sandy loam soils (Nesson Valley 2011)[1]

Objectives

The objectives of this project are to investigate different irrigation rates in crop production to improve water use efficiency, determine critical stages of water use in crop production, and refine irrigation scheduling recommendations.

Methods

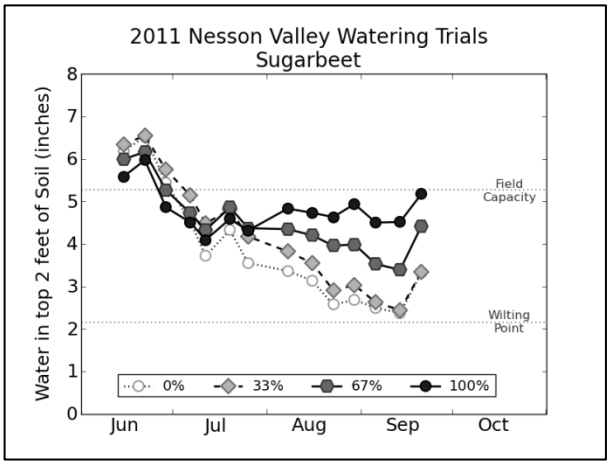
The experimental design is a Randomized Complete Block Design (RCBD) with four replications. Each plot will be 50 ft. by 60 ft. with watering rates randomized for each plot. The treatments consist of four irrigation rates (100%, 67%, 33%, 0%). Crop water use determined by using the North Dakota Ag Weather Network (NDAWN) and neutron probe moisture sensors. The irrigation rates are determined using an irrigation scheduler (http://ndawn.ndsu.nodak.edu) and neutron probe readings. The NDAWN scheduler is a checkbook system using soil properties, (texture, thickness of soil layers and water holding capacity of each layer), weather parameters (average daily air temperature, daily solar radiation, date and amount of rain), crop properties (root depth and water use based on growth stage, planting date and emergence date), and irrigation information (rate applied). Neutron probe access tubes are located within each plot and a neutron probe moisture meter used once a week to reflect moisture deficiency within the checkbook system. Throughout the growing season the neutron probe readings of top two feet were taken weekly from the different water treatments. All cultural practices (tillage, fertilizer, planting populations, chemical, and fungicide applications) are the same for the cropping systems to minimize the effects of variables other than water usage.

Rainfall Amounts	
May	5.14
June	3.69
July	3.60
August	1.76
September	1.28
Total	15.47

Results

Sugar Beet

Sugar Beet Water Use Efficiency (WUE) trial was planted 6 May 2011. The emergence date was 12 May 2011. The first irrigation occurred on 5 July 2011 with the final irrigation 7 September 2011. There was a total of 14 irrigations from 5 July – 7 September. Rainfall amounts were recorded from 1 May – 1 October and were above normal. The growing season temperatures were a couple degrees above normal for the 2011 growing season. The irrigation rates of 100%, 66%, 33% and 0% from 5 July – 7 September resulted in 7.4, 5.3, 2.7, and 0 inches of water applied respectively. Total water received from planting through harvest was 22.8, 20.7, 18.1, and 15.4 inches respectively. The graph shows the variation in soil moisture readings among the four treatments. Located next to each access tube was a data logging rain gauge to record rainfall and irrigation within each plot. These rain gauges verified the amount of water applied to each plot.



Sugar beets were harvested on 26 September 2011. Sugar beets from ten feet of row were hand harvested and the numbers of beets were counted. These stands (beets/10ft) were used for tallying final plant populations. These samples were analyzed at the Sidney Sugars laboratory. Tons

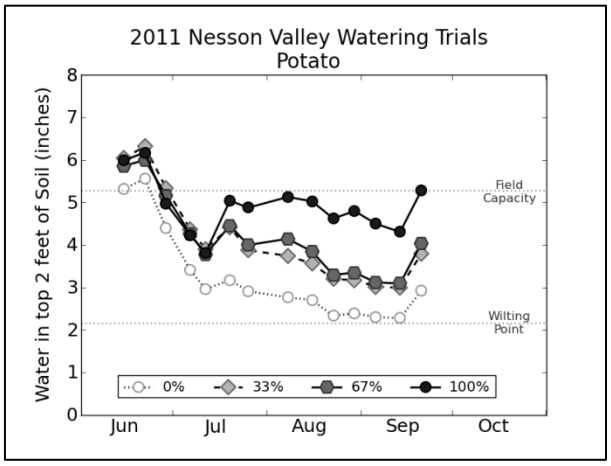
per acre, sugar and nitrate percentages were analyzed from these treatments. The 2011 results showed significant differences in sugar beet production between watering treatments.

Water Trt (%)	Population	Yield	Sugar	Nitrate
	beets/10ft	Net Ton/A	%	(ppm)
0	16.5a	19.9b	18.40a	46.3a
33	17.8a	24.9ab	17.47bc	30.3b
67	18.0a	24.8ab	17.72ab	21.6bc
100	19.8a	28.3a	16.82c	18.4c
CV(%)	12.2	13.3	2.91	24.9

In the tables, numbers within a column followed by the same letter are not significantly different (0.05)

Potato

The Potato Water Use Efficiency (WUE) trial was planted 13 May 2011. The emergence date was 6 June 2011. The first irrigation occurred on 5 July 2011 with the final irrigation 7 September 2011. There were a total of 14 irrigations from 5 July – 7 September. 15.47 inches of rainfall was recorded from 1 May – 1 October, which is above normal. The irrigation rates of 100%, 66%, 33% and 0% from 5 July – 7 September resulted in 9.5, 7.5, 4.3, and 0 inches of water applied respectively. Total water received from planting through harvest was 22.8, 20.8, 17.6, and 13.3 inches respectively. The graph shows the soil moisture readings from the four potato treatments. Three of the treatments (33, 67, and 100) had a data-logging rain gauge located adjacent to the access tube to record rainfall and irrigation within each treatment plot. These rain gauges verified the amount of water applied to each plot.



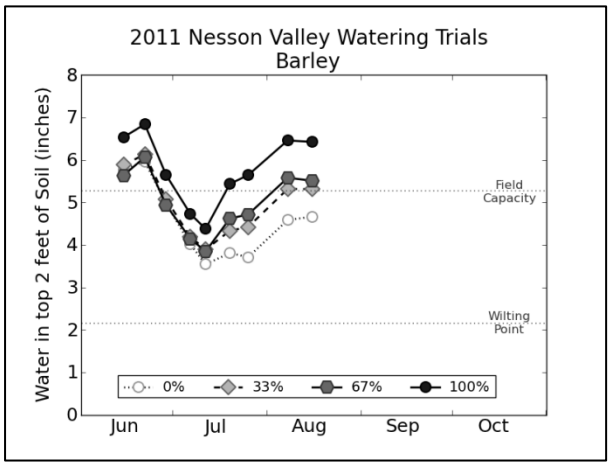
Potatoes were harvested on 20 September 2011. Potatoes from ten feet of row were hand harvested and the tubers were sized and analyzed from each plot treatment. Yield and quality analyses were done at the WREC and J.R. Simplot laboratories. The 2011 results showed statistically significant differences between watering treatments on potato yield and quality.

Russet Burbank				
Water Trt	Yield	Specific	Internal Disease	External Disease
-----%-----	(cwt.)	gravity	%	%
0	321.3c	1.086a	96.2a	94.7a
33	400.2ab	1.086a	93.8a	91.5ab
67	378.4ab	1.087a	73.0b	77.5b
100	444.7a	1.086a	70.0b	82.0ab
CV(%)	8.9	0.4	12.6	10.7

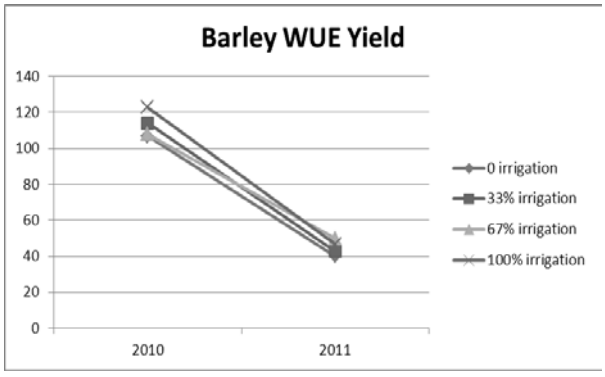
In the table, numbers within a column followed by the same letter are not significantly different (0.05)

Barley

Barley Water Use Efficiency (WUE) trial was planted 18 May 2011. The emergence date was 25 May 2011. The first irrigation occurred on 5 July 2011 with the final irrigation 6 August 2011. There were a total of 7 irrigations from 5 July – 6 August. Rainfall amounts were recorded from 1 May – 1 October and were above normal. The growing season temperatures were a couple degrees above normal for the 2011 growing season. The irrigation rates of 100%, 66%, 33% and 0% from 5 July – 7 September resulted in 4.2, 2.8, 1.4, and 0 inches of water applied respectively. Total water received from planting through harvest was, 15.5, 14.1, 12.7 and 11.3 inches respectively. Soil water content values for the four water treatments are shown at the right.



Barley was harvested on 17 August 2011. Barley was harvested using a small plot combine and each plot was harvested adjacent to the access tubes. There were several issues that affected barley growth and production. Early in the growing season nitrate leaching caused major plant stress and there were considerable amounts of disease that occurred during heading. Yield and quality analysis was done by the WREC. The 2011 results show that there were statistically significant differences on barley yield and quality among watering treatments.

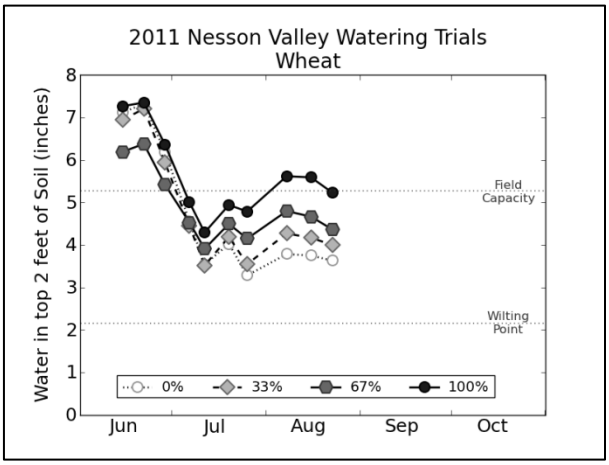


Water Trt	Yield	TW	Plump	Protein
------%------	Bu/A	Lbs./bu	%	%
0	40.3c	42.8a	62.1b	13.3 a
33	42.9bc	43.1a	68.2ab	12.4 ab
67	49.8a	43.3a	66.2ab	12.5 ab
100	46.7ab	43.8a	70.9a	11.9 b
CV(%)	8.4	2.3	8.2	5.3

In the table, numbers within a column followed by the same letter are not significantly different (0.05)

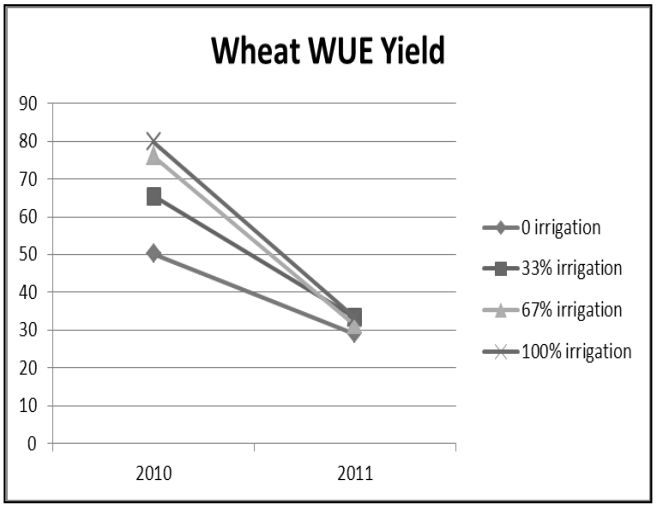
Wheat

The Wheat Water Use Efficiency (WUE) trial was planted 19 May 2011. The emergence date was 25 May 2011. The first irrigation occurred on 5 July 2011 with the final irrigation 6 August 2011. There were a total of 7 irrigations from 5 July – 6 August. Rainfall amounts were recorded from 1 May – 1 October and were above normal. The growing season temperatures were a couple degrees above normal for the 2011 growing season. The irrigation rates of 100%, 66%, 33% and 0% from 5 July – 7 September resulted in 4.7, 3.1, 1.6, and 0 inches of water applied respectively. Total water received from planting through harvest was, 16.0, 14.4, 12.9 and 11.3 inches respectively. Throughout the growing season the neutron probe readings of top two feet were taken weekly from the different water treatments. The graph to the right shows the soil water content values for the four treatments.



Wheat was harvested on 26 August 2011 and harvested using a small plot combine. Each plot was harvested adjacent to the access tubes. There were considerable amounts of disease that occurred to the wheat during the late heading stages. Yield and quality analysis was done by the

WREC seed processing lab. The 2011 results show that there were statistically significant differences between watering treatments on wheat yield and quality.



Water Trt	Yield	TW	Protein
------%------	Bu/A	Lbs./bu	%
0	29.0b	56.3a	17.5a
33	33.4a	57.2a	16.4ab
67	31.4ab	57.2a	16.2b
100	33.2a	56.8a	16.6ab
CV(%)	**7.5**	**1.6**	**4.4**

In the table, numbers within a column followed by the same letter are not significantly different (0.05)

The previous two growing seasons have been difficult to determine adequate water use for the various crops with the above normal precipitation, but we will continue to work on maximizing yield while becoming more efficient with our important resource, water. I have heard the assumption that water is water and as long as the crop gets it, that is all that matters. Water is not just water, it is a very important resource that we are finding out now is limiting in some areas and aquifers. There are things we can do to maximize this resource and expand on what is available.

[1] Tyler Tjelde, and James Staricka, NDSU-Williston Research Extension Center

Barley Yields Not Affected by Soil Water Use of Preceding Crops[1]

A cooperative project by NDSU researchers is investigating the effect of previous crop on barley performance at several locations in North Dakota. In northwest North Dakota, water availability is often the limiting factor for crop production. Thus it was hypothesized that in northwest North Dakota, differences in soil water use by various crops will have a major impact on the performance a barley crop planted the following year.

At the Williston Research Extension Center, the performance of barley following six different crops was investigated. The six antecedent crops were barley, canola, corn, durum, HRS wheat, and pea. Data is available from two sets of plots. The first set was planted to the antecedent crops in 2009 and barley in 2010. The second set of plots was planted to the antecedent crops in 2010 and barley in 2011.

Soil water content was measured each week during the growing season of both the antecedent crops and the barley crop. The measurements were taken at 6, 18, 30, and 42-inch depths.

In the first set of plots (Table 1), there was 4.7 inches of available water in the top 4 feet of soil shortly after planting in 2009. The available soil water had decreased to 2.5 inches at the end of the growing season. The amount of water removed from the soil varied among crops and ranged from 1.0 inches in the pea plots to 2.9 inches in the corn plots. During winter, the soil profile was partially recharged, resulting in an available soil water content of 3.6 inches in the top 4 feet of soil at the start of the 2010 growing season. There were no significant differences related to the antecedent crops.

In the second set of plots (Table 2), there was 6.7 inches of available water in the top 4 feet of soil shortly after planting in 2010. The amount of water removed from the soil varied among crops and ranged from 1.7 inches in the pea plots to 4.5 inches in the corn plots. This resulted in a variation in the amount of available soil water among the antecedent crops at the end of the growing season. The amounts of remaining available water ranged from 2.0 inches after corn to 5.6 inches after HRS wheat. A record amount of snow was received during the 2010-2011 winter, resulting in a nearly complete recharge of the soil profile. The available soil water content was 8.1 inches in the top 4 feet of soil at the start of the 2011 growing season. The recharge also obliterated the differences in soil water related to the antecedent crops.

Because the differences in available soil water occurring after different crops did not remain after the following winter, these differences did not appear to be a major determinant of barley yield. There were no differences in barley yields related to antecedent crop in 2010 but there were in 2011 (Table 3). Similarly, there were no differences in soil water use by barley in 2010 but there were in 2011. The water use and yields appeared to be only weakly related. Barley following broadleaf crops generally removed more water from the soil and had greater yields than did barley following cereal crops.

It was surprising to me that barley yield was not affected by differences in water use of previous crops. Previous studies at the Williston Research Extension Center have found that crop related differences in soil water often persist into the next year and many times impact the yield of a subsequent crop. The difference in this study, especially for the second set of plots, is likely related to the record amount of snow that was received during the 2010-2011 winter. Other time periods having precipitation amounts closer to normal are more likely to show a greater effect of preceding crop water use on barley yields.

Table 1: First Plot Set (2009 & 2010 Growing Seasons)

2009				2010			
	Available Soil Water		Soil Water		Available Soil Water		Soil Water
Crop	May 29	Sep 30	Depletion	Crop	Apr 16	Aug 26	Depletion
	---------- *in/4 ft* ----------				---------- *in/4 ft* ----------		
Barley	4.6	2.4	2.2	Barley	3.6	2.1	1.5
Canola	4.6	2.2	2.4	Barley	3.1	1.9	1.2
Corn	4.2	1.3	2.9	Barley	2.9	1.8	1.1
Durum	4.3	2.0	2.3	Barley	3.1	2.4	0.7
HRSW	5.8	3.3	2.5	Barley	4.5	2.8	1.7
Pea	4.6	3.6	1.0	Barley	4.6	2.2	2.4
Avg	4.7	2.5	2.2		3.6	2.2	1.4
LSD 5%	N.S.	N.S.	0.88		N.S.	N.S.	N.S.

Table 2: Second Plot Set (2010 & 2011 Growing Seasons)

2010				2011			
	Available Soil Water		Soil Water		Available Soil Water		Soil Water
Crop	Jun 9	Sep 24	Depletion	Crop	May 17	Aug 31	Depletion
	---------- *in/4 ft* ----------				---------- *in/4 ft* ----------		
Barley	6.1	3.3	2.8	Barley	7.7	3.2	4.5
Canola	6.4	2.6	3.8	Barley	8.8	2.9	5.9
Corn	6.5	2.0	4.5	Barley	7.0	1.6	5.4
Durum	6.1	3.2	2.9	Barley	7.5	2.1	5.4
HRSW	8.0	5.6	2.4	Barley	9.0	3.6	5.4
Pea	6.9	5.2	1.7	Barley	8.9	2.7	6.2
Avg	6.7	3.6	3.0		8.1	2.7	5.5
LSD 5%	N.S.	1.34	0.85		N.S.	N.S.	0.95

Table 3: Yield of Barley Following Various Crops

Antecedent Crop	2010 Yield	2011 Yield
	-------- bu/a --------	
Barley	35.3	28.1
Canola	32.5	37.3
Corn	32.2	32.0
Durum	25.8	27.5
HRSW	39.4	25.3
Pea	42.0	32.6
Avg	34.5	30.5
LSD 5%	NS	7.4

[1]James Staricka, NDSU-Williston Research Extension Center

Soil Water Use by Trees in Windbreaks[1]

A cooperative project by NDSU and NRCS personnel is investigating weed control methods in tree plantings for windbreaks. The tree row was established in 1998. It consists of five species of trees planted in rows running east and west. The species are (from North to South):

- Cotoneaster (*Cotoneaster integerrimus* Medik.),
- Rocky Mountain Juniper (*Juniperus scopulorum* Sarg.),
- Green Ash (*Fraxinus pennsylvanicus* Marsh.),
- Ponderosa Pine (*Pinus ponderosa* P. & C. Lawson),
- Blue Spruce (*Picea pungens* Engelm.)

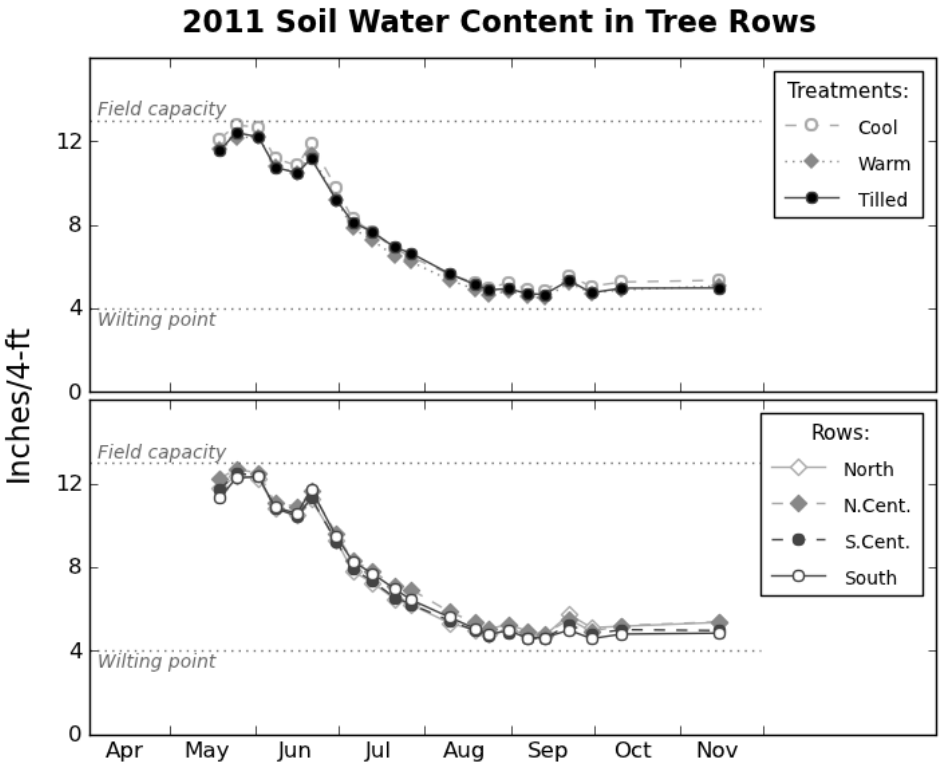
The weed control treatments were established the same season as when the trees were planted. The three methods being compared are 1) warm-season grasses planted between the rows (labeled "Warm"), 2) cool-season grasses planted between the rows (labeled "Cool"), and 3) bare soil with tillage between the rows (labeled "Tilled"). Treatments were laid out in a randomized complete block design with four replications, resulting in a total of twelve plots.

In June 2005, access tubes for a neutron moisture meter were installed to the 4-ft depth. Four tubes were installed in each plot, in the areas between the tree rows, for a total of 48 tubes. Since then, soil water content measurements have been taken at approximately weekly intervals from mid-April to mid-November each year. Measurements are taken at the 6, 18, 30, and 42-inch depths.

At the beginning of the 2011 growing season, the soil water content was near field capacity (Fig 1). Other than 1-week increases in soil water content on May 25th and June 21st, the soil water content decreased steadily until nearly reaching wilting point in early August. There was also a 1-week increase on September 22nd.

The differences in soil water content among the weed control treatments and among the row positions were insignificant during the entire 2011 growing season (Figs. 1a&b). This differed from previous years, when there were differences among the row positions, especially during the early part of the growing season.

This study will terminate next spring. A complete report including tree growth information is planned to be available to interested persons by next year.



[1]James Staricka, NDSU-Williston Research Extension Center

News on Agriculture Diversification/Processing[1]

If we thought 2010 was a different weather year, well, 2011 was off the chart. Over 100 inches of snow and a wet planting season made for many crop acres not planted in the region. Many areas again in the region received over 20 inches of moisture. No planting to late planting made for a very poor year for producers. The warm weather in July affected crops in the blooming stage and made for the right environmental conditions for disease pressure. Here at the WREC we did not finish planting until the first week of June. Both research centers are moving forward in expanding their facilities to better serve our clientele and develop future research that will improve crop production in the region. The new addition at the WREC was completed this summer and was named the Neil Riveland Seed Processing/Research Laboratories. The irrigation research at Nesson Valley continues to learn more about crop and disease management and provide that information to our growers.

Here is a summary of some of the projects I have assisted with this past year.

CROPS – What a difficult growing season for producers in the region – frost, cool weather, wet conditions throughout the growing season, and hail to name a few. The northwest part of North Dakota was the hardest hit with preventative plant areas. No yields to below average yields sounded like the norm among producers. If one got in their crops, then disease pressure was the next obstacle to a decent crop. Among all the crops, pulse crops took the hardest hit based on percentages. Field pea acres in North Dakota were down over 80% from last year and lentils were down over 70%. The bright spot is grain prices have rebounded, but many producers do not have the bushels to sell.

For the producers utilizing irrigation the warm season crops like corn, soybeans, sunflowers did well this year. Disease scouting and fungicide management are still the keys to improve yield and quality management. Pulse and oilseed crops will work but need to better manage the rotation of those crops and scout the fields more frequently to stay on top of potential disease pressure. Tools are available like NDAWN weather system website to assist producers on the risk of disease based on weather conditions. There is still a strong push of switching from flood irrigation to pivot irrigation in the Yellowstone valley.

With all of the preventive plant acres this year, cover crop mixes and planting was a much discussed question. This year WREC included a small demonstration plot of cover crop mixes at Ray, Crosby, Powers Lake, and New Town off-station variety trial plots. A fall seeded cover crop demonstration plot was also planted near Noonan. The plot was very successful this year with some of the mixes producers two to three tons of biomass. Overall, the fall seeded cover crop plots have seen limited success in our region. Fall seeded cover that crops mixes should be planted by mid-August so adequate growth can occur. Moisture and insect issues are the biggest concerns when seeding in the fall. The spring/summer seeded cover crops yields continue to generate three to four tons of biomass.

WREC – With Neil retiring this past June, the staff and myself fielded many of the questions producers had about crop production. I continue to update the variety ranking tables for spring wheat, durum and barley. I utilize the off-station variety trial plots along with the same varieties here at the center to develop information that would assist a producer in making variety selections. First, I ranked the varieties (1, 2, 3, etc.) based how on their 3-year average yield or try to fit that variety in the ranking if it only had one or two years of data. Second, I show the 3- year average yields for the different varieties. Each of tables then have overall averages both in ranking and yield so that one can see how that particular variety stood up among the rest of the varieties. You will find it the Williston R/E Center website - http://www.ag.ndsu.nodak.edu/willisto/

PROJECTS – I continue to receive questions from possible pulse crop processors to determine the viability of locations of possible processing plants. Another interesting project I was involved with this past year was facilitating a committee of area specialists that surveyed the effects of road dust on yields on crops and forage. Dust, forage and crop samples were collected to determine the correlation between dust levels and yield impacts. With the amount and timing of rainfall events during the growing season, minimal effects were seen in the test results. Further investigation needs to take place on this impact.

[1]Chet Hill, NDSU Area Ag Diversification Extension Specialist

Horticulture Program[1]

The 2011 growing season was unusual. May and June had 25 days of rain events with 11 days of significant rainfall, with more than 9 inches of rainfall for those two months. Over the 5 month growing season, from May 1 to September 30 we received 12.59 inches of rain compared to a normal of 10.45 inches. This was on top of a record 97.5 inches of snow. A heavy wet snow accompanied by wind gusts of 59 mph on April 29 and 30, toppled trees and delayed planting while we waited for snow drifts to melt. There were no days of 100^{o} F or more and only 8 days when the recorded maximum temperature reached 90^{o}F or more. Our last frost date was May 2 with a low temperature of 29^{o} F, and the first killing frost in September was on the 14th with a low of 29^{o} F. Our first snowfall occurred on November 7.

Grapes

Grapes were fertilized with ammonium phosphate (11-52-0) fertilizer on July 29, at a rate of 20 lb N per acre. Petiole samples were not tested this year. Soil samples showed N levels still much lower than optimum. Growth of the vines still seemed to be far more dependent on water availability and weed control than on available N. Production of grapes also was greater with the increased supply of water early in the growing season.

All varieties had survived the winter and were alive in the spring of 2011. Pruning started in April and continued as weather permitted through June. Because the summer was cool and frost came September 14, there were just not enough heat units to ripen the grapes. We picked the last variety on September 26.

Grape Cultivar Name	Brix[1]	pH[1]	RU[2]	Yield (lbs)				# of producing plants
				2009	2010	2011	3 yr ave	2011
Prairie Star*				0.71	0.13	0.25	0.36	1
St Croix				2.57	2.20	9.98	4.92	9
Bluebell				0.46	2.71	3.54	2.24	11
Valiant				20.22	18.79	22.85	20.62	12
LaCrescent	23.4	3.03	215	5.47	2.30	19.08	8.95	12
Frontenac	25.9	2.84	209	7.46	7.24	14.50	9.73	12
Somerset Seedless	24.2	3.27	259	3.10	2.98	5.60	3.89	11
Sabrevois				4.12	1.48	4.45	3.35	10
Frontenac Gris	25.5	2.92	217	4.11	2.41	6.77	4.45	11
King of the North				7.13	8.43	12.71	9.40	12
Hasansky Sladky	22.4	2.84	181	6.31	1.37	9.90	5.86	9
MN 1131	25.1	2.97	221	13.43	9.70	11.55	11.56	12
MN 1200	21.8	3.03	200	5.35	2.59	10.43	6.12	12
ES 5-4-71*				0.24	0.73	0.98	0.65	10
ES 12-18-06	24.0	2.81	190	17.04	11.52	13.53	13.72	12
ES 15-53	23.3	2.91	197	5.68	7.05	13.14	8.56	12

[1] Brix and pH measured at harvest.

[2] RU = Brix * pH^2 (target for white grapes = 200, for red grapes = 260)

*These cultivars had very few grapes so no Brix or pH was done for them

The St Croix in the depth of planting trial survived the winter, grew rampantly, and set a load of fruit, as did the four year old Edelweiss vines. Edelweiss was harvested September 9 and St Croix was picked September 19.

Variety/treatment	Brix	pH	Avg. Yield (kgs)	Avg. Yield (lbs)
St Croix – 1 foot	19.5	3.09	13.2	29.0
St Croix – 2 foot	17.6	3.01	4.06	8.93
St Croix – 3 foot	18.0	3.05	12.94	28.46
Total Harvested			94.66	208.25
Edelweiss – 1 foot	17.0	3.04	2.71	5.97
Edelweiss – 2 foot	17.5	3.03	1.00	2.20
Edelweiss – 3 foot	15.0	2.98	5.03	11.07
Total Harvested			18.89	41.57

Strawberries

This year we covered the strawberries with bird netting and surrounded the bed with rabbit fence. We started picking June 28 and ended July 26. Cavendish yielded the most berries and was rated the highest by our taste testers.

STRAWBERRY VARIETY			
			Avg. Berry
	Yield	Yield	Size
Cultivar	grams	lb/a	grams
Honeoye	3012.5	6027.0	9.2
Kent	2925.8	5853.6	8.7
Cavendish	2577.5	5156.7	7.9
Glooscap	2352.5	4706.6	7.5
Mesabi	1840.8	3682.9	7.9
Brunswick	1833.5	3668.2	9.9
Itasca	1783.5	3568.2	7.6
Annapolis	1685.1	3371.3	10.1
LSD 5%	NS	NS	NS

AAS Flowers

The plants had a slow start in the cool cloudy early summer, but had filled in and were in full bloom by mid-August and bloomed nicely until our first frost.

Extension Vegetable Program

We took part in the NDSU Extension garden research project and enjoyed taste testing and rating the many vegetable varieties that were supplied to us by Extension Horticulturist Tom Kalb. We tested several varieties of beans, carrots, melons, cantaloupe, and watermelon. The results of the home garden vegetable trials will be available at the following web site www.dakotagardener.com/***trials***/*index.html*

Sweet Potatoes

Sweet potato varieties Beauregard, Georgia Jet, White Yam, and Vardaman were planted on June 10 and O'Henry, Covington, and Beauregard were planted on June 17 at Nesson Valley under sprinkler irrigation in a randomized complete block design. Centennial and Carolina Ruby were ordered but due to a plant shortage, Beauregard was substituted. They were harvested September 15 just after our first killing frost. The roots were cured and then graded for size.

Variety	No 1*	Petite	Commercial	total
	Cwt/a	Cwt/a	Cwt/a	Cwt/a
Georgia Jet	49.6	11.0	33.8	94.4
Beauregard(5)#	42.4	13.5	14.3	70.2
Beauregard(1)	33.1	15.6	7.6	56.3
Beauregard(7)	30.7	18.6	4.8	54.1
Covington	20.6	17.2	1.2	39.0
O'Henry	7.0	12.5	1.0	20.5
Vardaman	6.1	9.4	2.2	17.7
White Yam	2.5	5.4	0.8	8.7

Numbers denote position in trial

*No 1 grade is any root in good condition between 2.25 and 3.5 inches in diameter.
Petites are any root in good condition between 1.5 and 2.25 inches in diameter.
Commercial is any root in damaged condition between 2.25 and 3.5 inches in diameter.

Hops

Four rhizomes each of five cultivars of hops, Cascade, Centennial, Chinook, Glacier, and Willamette were planted in 2009 and in 2011 all had survived the winter with the help of a layer of straw mulch. They all produced hops that were harvested in mid-September. The flowers were then dried in a grain dryer, placed in plastic bags and stored in a freezer. A sixth cultivar, Nugget, was planted in May 2011, grew but did not produce any hop cones this year.

Hops Yields		
	Yield (grams)	
	2010	2011
Cascade	335	370
Centennial	305	175
Chinook	300	400
Glacier	205	290
Willamette	165	210
Nugget	0	0

Tomato Demonstration

Six plants each of six tomato cultivars were planted this year. Terenzo and Lizziano, All America Selections were cherry tomatoes. We started picking these on August 8 and they produced up to frost. Summer Choice, a plum shaped tomato and Big Boy, Marglobe, and Rutgers, slicing tomatoes were picked on September 9 and 14.

Tomato Demonstration Planting			
Cultivar	Number of fruits Harvested	Total Weight Harvested(gm)	Ave fruit wgt. (ounces)
Terrenzo	1152	12900	0.39
Lizziano	2692	18880	0.25
Summer Choice	246	16910	2.4
Big Boy	78	15435	7.0
Marglobe	145	14185	3.4
Rutgers	102	14815	5.1

Raspberries

Raspberries were picked from July 20 through August 15. Boyne produced the highest yield and was the preferred fruit according to the taste testers.

	Total Yield		
Cultivar	grams	pounds	lb/a
Reveille	11895	26.2	5287.8
K81-6	2570	5.7	1142.5
Nova	4570	10.1	2031.6
Boyne	17030	37.5	7570.6

[1] Lorna Bradbury, NDSU-Williston Research Extension Center

Williston Research Extension Center Foundation Seed Increase

Varieties include the following:

HRSW	DURUM	BARLEY	SAFFLOWER	LENTIL	HRWW
Barlow	Alkabo	Conlon	Finch	Riveland	Decade
Mott	Grenora	Pinnacle			Ideal
Reeder	Tioga				Jerry
Velva	Mountrail				
905CL					

Seed availability and prices can be obtained by calling 701-774-4315, by writing to the Williston Research Extension Center, 14120 Hwy 2, Williston, ND 58801, or by email at NDSU.Williston.REC@ndsu.edu.

Eastern Agricultural Research Center Foundation Seed Increase

Varieties include the following:

HRSW	BARLEY
Vida	Hays
DuClair	

Seed availability and prices can be obtained by calling 406-433-2208, by writing to the Eastern Agricultural Research Center, 1501 N Central Avenue, Sidney, MT 59270, or by email at msu.earc@montana.edu.

Eastern Ag Research Center Staff

Jerald Bergman	Superintendent
Ron Brown	Farm Mech/Res Asst
Lisa Curtis	Research Aide
Joyce Eckhoff	Agronomist
Charles Flynn	Chemist
Becky Garza	Research Assistant
Cherie Gatzke	Administrative Officer
Calla Kowatch	Research Assistant
Debbie Kunda	Research Assistant
Mary Schaff	Research Assistant
Renee Sundheim	Research Assistant

Williston Research/Ext Center Staff

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Lorna Bradbury	Horticulturalist
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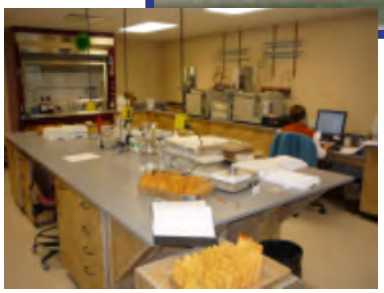
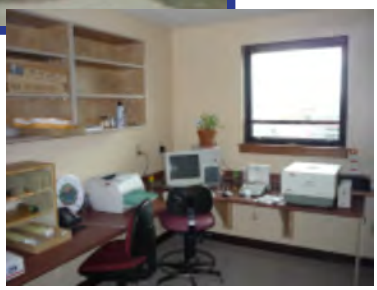
Sanford Qvale	Seed Production Spec
Neil Riveland	Asst Director/Agronomist
James Staricka	Soil Scientist
Katie Stromme	Ag Research Tech
Tyler Tjelde	Irrigation Agronomist
Cameron Wahlstrom	Irrigation Research Specialist

MSU-EARC Ag Research / MSU Richland County Extension Center Service Facility





The ribbon cutting for the MSU-EARC Ag Research / MSU Richland County Extension Center Service Facility took place on July 26, 2011 during the EARC Field Day. The opening of this beautiful building marked the integration of the MSU Eastern Agricultural Research Center and the MSU Richland County Extension Service into one facility. The new research laboratories, greenhouses, and video-conference meeting room will enhance the research and education opportunities for the MonDak region and its citizens.

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Upcoming Events for 2012

January 9th -11th	Manitoba-North Dakota Zero Till Conf. -Minot, Holiday Inn
January 12th -13th	MonDak Ag Days -Sidney, Richland County Event Center
January 18th	New Trends in Agriculture -Glasgow, Cottonwood Inn
January 23rd -24th	Northern Pulse Growers Assoc. Conference -Minot, Holiday Inn
February 7th -8th	National Hard Spring Wheat Show -Williston, Airport International Inn
February 10th -11th	GATE -Glendive, Eastern Plains Event Center
February 15th	MonDak Pulse Day -Wolf Point, Elks Club
March 6th -7th	Western Crop/Pest Management School -Minot, Grand International Inn
March 13th -14th	KUMV-TV Farm & Ranch Showcase -Williston, Raymond Center
March 16th -17th	NE Montana Ag Expo -Plentywood, Civic Center
July 19th	Eastern Ag Research Center Field Day -Sidney
July 19th	Swank Tour - Poplar
July 24th	Williston Research Ext. Center Field Day -Williston
July 25th	Nesson Valley Irrigation Field Day -Nesson Valley
July 24th -26th	MonDak Ag Showcase -Williston