MEMBERSHIP FORM

2014

Member since? _____

NAME: _____

ADDRESS: _____

_____

POSTAL CODE: _____

PHONE: _____ **FAX:** _____

EMAIL: _____

Individual/Partnership/Farm Unit: $30/yr (GST included)
Corporate Affiliate: $30/yr (GST included)

Please return to:

Gateway Research Organization
Box 5865
Westlock, Alberta
T7P 2P6

Any questions or comments:

Phone: **780-349-4546**
Fax: **780-349-2012**
Email: **grohome@telus.net**

(OPTIONAL)
My current primary production and/or area of interest is

CROPS
__ Cereal/Oilseed
__ Pulse Crops
__ Other Specialty Crops

LIVESTOCK
__ Pasture Management
__ Livestock Management
__ Forage Production/Mixes

CONSERVATION/ENVIRONMENT
__ Conservation Tillage
__ Riparian Management
__ Manure Management
__ Environmental Farm Plans
__ Pest Management

NON-TRADITIONAL/SPECIALTY PRODUCTION
(i.e. Elk, Alpaca, Organic, Poultry, Hogs, Bison, etc.)

(Specify) _____

Any ideas or suggestions for future research are appreciated:

_____

_____

_____

_____

_____

_____

_____

THANK YOU!

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GATEWAY RESEARCH ORGANIZATION

Our History

Gateway Research Organization was formed from consolidation with the Pembina Forage Association in 1994. The Pembina Forage Association was started in 1975 by local producers interested in pasture management and forage & livestock research. While maintaining its interest in forage & livestock issues, the new organization became more involved in applied research and demonstrations in crops and environmental sustainability.

Our Vision

Gateway Research Organization will be a renowned and respected agriculture research and extension organization that is the preferred source of unbiased farm production information.

Our Mission

Gateway Research Organization provides cost-effective applied agricultural research, demonstration, and extension for producers in order to facilitate greater returns to farms by providing economically and scientifically sound information that enables our clients to make informed decisions.

The Goals of our Organization

1. To increase the profitability of our members.

2. To encourage active participation by local producers.

3. To provide a valuable resource for information transfer and extension to producers.

4. To produce high quality, unbiased, and scientifically sound research.

5. To produce research based on local growing conditions and soil properties.

6. To collaborate with specialists from the agricultural industry, government, and educational institutions.

CHAIRMAN'S REPORT

Keith Taylor
Chairman

Gateway Research Organization strives to provide a variety of applied research projects, and demonstrations in forage, livestock, crops and environmental sustainability. This information is invaluable to the local agricultural producers and we hope that the local unbiased information GRO generates and puts forth to its members has become a reliable decision making tool both for them and the industry as a whole.

We attempt to locate our research sites in locations throughout our membership area and are very thankful for the generosity of our co-operating producers in achieving this. We are also very thankful for the co-operation and donations of the vendors that support our efforts.

Financially, GRO continues to maintain a healthy financial position. We were able to complete the purchase of a new seeding tool which was used effectively this year and is more reflective of the technology we see on local producer's fields. It is our hope to continue to upgrade our equipment on a regular basis so that the relevance of our data can remain first rate and we can expand our areas of research.

On behalf of the board I would like to thank all the members for continuing to support GRO. I would like to thank the staff for their efforts through the year and especially for the well-received summer tour. If you were at the tour I hope it was informative and if you were not I encourage you to attend this year. I would also like to encourage each and every one involved with GRO to feel free to contact any of the staff or directors with suggestions or ideas that would allow the organization to expand our horizons and increase our data for the producers.

Sincerely,

Keith Taylor

GRO Chairman

MANAGER'S REPORT

Michelle Holden
Manager

Thank you to all those who made our 2013 season a success. This year we had three main sites which were located in Stony Plain, Neerlandia and Jubilee.

Weather has once again been an obstacle for our plots this year, just as it was for many of the producers in our area. We saw higher precipitation than normal with high winds, resulting in flooding, hail damage and disease emergence. Many producers saw a great deal of hail damage in some areas.

Thank you to Kevin and Brian Ratke for the donation of land at Stony Plain, Jubilee Feedlot at Westlock, and Seth Olthius at Neerlandia. Without your cooperation, we would not have had such a successful year. An extra special thanks to Seth, who spent much of his time and expertise helping us with our equipment. His arsenal of spare parts and tools, and his mechanical knowledge definitely made my life easier. Thanks to the GRO directors also, who assisted with our duties at the heifer pasture, and with equipment repairs in the field. Your help was appreciated more than you know.

2013 seemed to be a year of Murphy's Law with everything from equipment failure to staffing issues. However, we carried on and worked through our setbacks. Sometimes we were delayed a day or two longer than we had hoped, but even so, we had many successes; The plots came off and seed was processed in record time, our events were well attended, and our heifers were happy. The lateness of the season contributed to the delayed seeding of three Winter Wheat trials in Westlock County. Our co-operator combined enough of his canola swaths to allow us room for seeding and we are eternally grateful.

We are planning three sites again for the coming growing season with our partnering counties. We thank Westlock, Barrhead and Parkland Counties for their continued support with our trials and demonstrations.

GRO would like to thank all of the members of our organization for their support. The work we do truly would not be possible without the support of local producers who believe in the value that applied research associations provide to the industry. We are always searching for fresh ideas to put into action. Any suggestions for demonstrations or research trials are always welcome.

Sincerely,

Michelle Holden
Manager

A year in review...

Message from the Executive Director

Agricultural Research and Extension Council of Alberta

2013 provided opportunities as we **repainted the wagon**! We began by evaluating and refining the operational and Board functions of ARECA for the benefit of our Association members, clients and partners. We hired a consultant, John Souman with Can-Europe Consulting, who is an expert in the field of strategic planning to visit each of our Associations. At the same time, the ARECA Board moved to becoming a governance board with the coaching of Graham Gilchrist and revised the policy manual. To support the policy, the Board approved an operational manual for ARECA (these documents are posted on the ARECA information folder that can viewed by all).

Over the past eleven months, we've spent a tremendous amount of effort and resources to address issues of conflict resolution, organizational restructuring and policy governance. We utilized the expertise of John Souman and adopted a new structure recommended by Mr. Souman which provides more transparency, clarity and accountability for our member Associations. With these changes, we expect all aspects of our operations, including communications, succession planning and HR, will be improved to better serve all ARA's and Forage Associations.

The ARECA board has taken training with Graham Gilchrist to improve our understanding and implementation of **policy governance**. One focus was the separation of our governance and operational policies which has resulted in simplification of the policy manual. A review process has been established in the new policy manual which will help the board to review the manual in its entirety over the next twelve months.

As we move forward with **ARECA's new structure**, the Forage & Livestock Team, Crops, Environment and Planning Team have put together new Terms of Reference. The team chairs are Lacey Ryan (CARA) Environment, Kabal Gill (SARDA) and Tom Fromme (NPARA) Crops, Morgan Hobin (PCBFA) Forage/Livestock and Dianne Westerlund (CARA) Planning. The Planning Team consists of Association managers and has worked with the Executive Director to put together the ARECA business plan and budget for 2014.

A special meeting was held last fall at which the ARECA bylaws were changed. The new bylaws have been posted and they expand the ARECA board to include three managers who are voting members on the Board. Currently, these positions are filled by Nora Paulovich with NPARA and Laura Gibney with FFGA. The third manager will be added to the Board at the time of the ARECA Annual General meeting in Leduc on March 5.

Our Chair, David Eaton along with board members Herman Wyering and Association staff Dianne Westerlund (CARA), Ken Coles (FS) and myself were active in **telling a great story** to government and the opposition. The meetings began with the Minister of Agriculture in February and were followed by a meeting with the Calgary caucus in the spring and the Rural Caucus in November. A brief which was an overview of ARECA and its members was provided at each meeting. Our delegation met with the Opposition and their Agriculture critic in early January to discuss ARECA and Association's impact and outcomes.

The **ARECA website** continues to about 4000 page views per month while the e-newsletter has about 55% readership. The Twitter (@ARECAResearch) account became functional in August and currently, we have about 170 followers. Please make sure to follow us on @**ARECAResearch** and get the word out.

Data for crop varieties in Alberta is generated through the **Regional Variety Testing** trials by a partnership of ARECA Associations, government and industry. RVT's compare different crop varieties side by side in actual field and weather conditions. They allow farmers to decide which variety will perform best in their soil zone, climate and management style. The pulse Regional Variety Trials received significant funding from the Pulse Cluster for the next five years.

Barley 180 What does it take to achieve 180 bus/ac? Researchers evaluated crop management strategies using the cool growing conditions of central Alberta and were successful in achieving 190 bus/ac in 1990. Despite advances in yield improvement, overall barley yield in Alberta has remained relatively low. There is interest to develop a set of Best Management Practices (BMP) and evaluate the concept of maximum yield and maximum economic yield on a field scale basis in Alberta. So far top yields in this project have been156 & 141 bu/ac on 80 acres in central Alberta. BMP's have included plant growth regulators to keep the crop standing and prevent lodging. High nitrogen rates in the spring have been successful in improving yields along with key timing of fungicides to manage disease levels. Funding for this project is being provided by the Alberta Crop Industry Development Fund and the Alberta Barley Commission.

This summer ARECA became involved in delivering the **Environmental Farm Plan** under the leadership of Fiona Briody. She has been able to engage Commissions, agencies and producer associations with promoting it to their membership.

Our mission is to support member associations as leaders in applied agricultural research and extension in Alberta. As we go forward in 2014, I wish to thank everyone for their contributions and efforts this past year.

Ty Faechner, Executive Director, ARECA

ACKNOWLEDGEMENTS

Gateway Research Organization gratefully acknowledges the generous support of the following businesses, organizations and individuals which have provided financial support, products and/or services to us, as well as partner organizations who have offered their time and expertise to support our projects. The Board of Directors and staff extend their sincere appreciation for the active support of our research programs.

Funding Partners

AOF
Alberta Agriculture & Food
Barrhead County
Parkland County
Westlock County

Project Partners

SeCan
Canola Council of Canada
Alberta Canola Producers Commission
Ducks Unlimited
Alberta Agriculture

In-Kind Contributors
(Including a combination of goods, land, equipment, product, services, percentage markdowns, etc.)

Agriculture and Agri-Food Canada
Curtis Webber
Flatlander
Glen and Cole Siegle
Greg Thompson
Hal Creek Seeds – Glen & Tanya Pidsadowski
Kevin & Brian Ratke
Monsanto
Neerlandia Coop
Pickseed Canada
Pioneer Hybrid Seeds
UFA
Viterra Stony Plain
Viterra Westlock
Westlock Seed Cleaning Co-op
Westlock County
Westlock Terminals
William Punko
Gallagher
Legal Alfalfa Products
Lantic Inc.
Brett Young
Sturgeon Valley Fertilizers
Joe Rienhardt

GATEWAY RESEARCH ORGANIZATION

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Crops / F & L Agronomist	Michelle Holden	grocrops@telus.net groforage@telus.net

2013 BOARD OF DIRECTORS

Chairman	Keith Taylor	(780) 307-5563
Vice Chairman	Maurice Kruk	(780) 349-0589
Secretary	Bryan Penno	(780) 674-4534
Treasurer	Chelsea Geiger	(780) 307-6617
Director	Keith Wiart	(780) 307-1564
Director	Cole Siegle	(780) 819-8451
Director	Nick Jonk	(780) 349-0483
Director	Larry Speers	(780) 698-2242

2013 EXTENSION ACTIVITIES

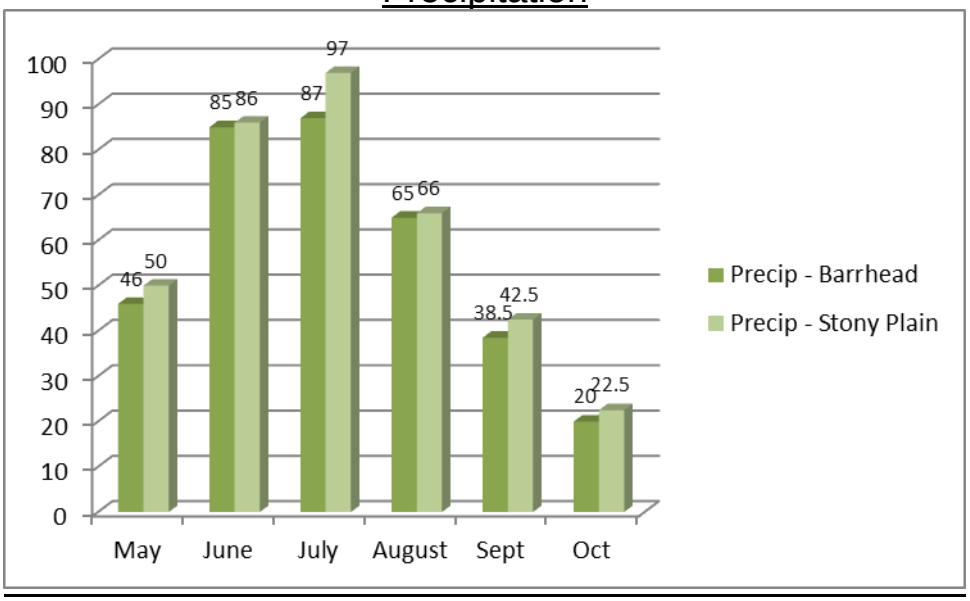
February 14	GRO Annual Meeting	53	Westlock
February 11-12	Precision Ag Conference	130 +/-	Calgary
July	Lacombe ARA Tour	all ARA's	Lacombe
August 1	GRO Summer Tour	35	Westlock
August 1	SeCan Tour	20	Neerlandia
August 1	Winter Wheat Tour	30	Jubilee

As well as planning and participating in the above events, GRO staff attend many agricultural meetings and seminars held locally and provincially, including:

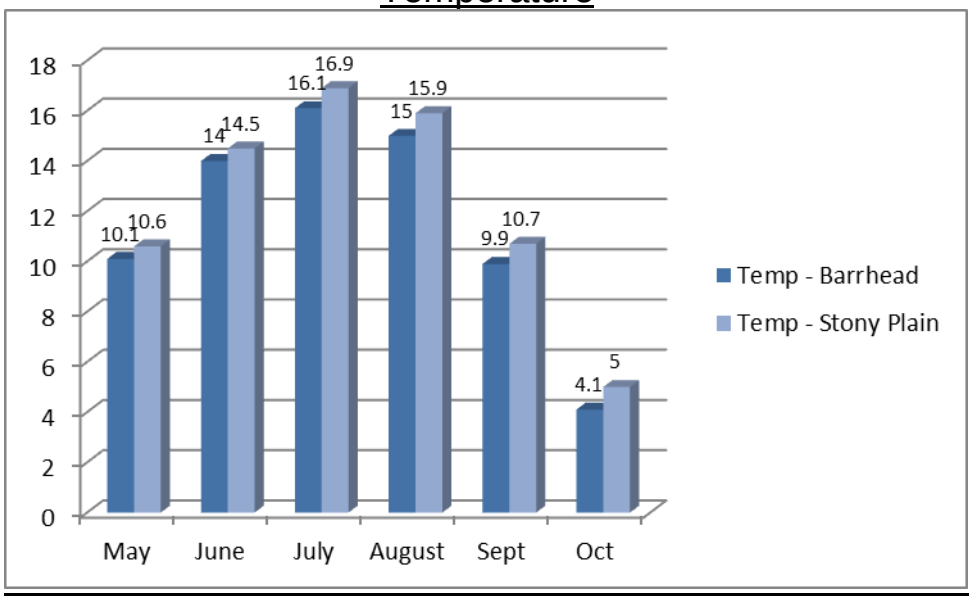
- Workshops
- Commodity group meetings and seminars
- Growers Field Days
- FarmTech
- Western Canadian Grazing Conference (Every 2nd year)
- Forage Agronomy Update
- Lacombe Field Day
- ARECA training, updates and conferences
- Precision Ag Conference - Planning Committee

WEATHER STATION DATA

Precipitation



Temperature



BUSHEL WEIGHT CONVERSIONS DEFINED

lb/Avery bu (lb/A bu)

Derived by dividing the determined approximate kg/hL by 1.247. The value 1.247 represents the arithmetic relationship between the lb/British Dry Bushel and kg/hL:

1. 1 British Bushel = 0.3637 hectolitre
2. 1 kg = 1000 grams
3. 1 lb = 453.59 grams
4. kg/hL = 0.45359/0.3637 = 1.247 lb/bu (arithmetic conversion)

Note: The Canadian Grain Commission determined approximate kg/hL by definition takes into account the compaction of grain. Conversion to approximate lb/bu from this number will result in the lb/bu figure also allowing for grain compaction... therefore referred to as Avery.

EXPERIMENTAL PLOT DESIGN

Most of the field trials conducted by GRO contain statistical analyses to give the reader a greater understanding of what went on in the trial and illustrate the reliability of the data. ARM 7 was the program used to conduct this analysis.

Average (Mean): The average or mean of a given set of numbers (e.g. yield) provides a mechanism to gauge the overall performance of the trial. Its usefulness is limited, however, as it may not reflect many important internal trends in the data.

Coefficient of Variation (CV): This value, given in %, reflects the magnitude of variation between replicates in a project. A low CV indicates low variability between replicates and therefore higher reliability in the data, whereas a high CV indicates wide variation between replicates and makes it more difficult to distinguish between differences in treatments. A high CV reduces the confidence in the data and can reflect adverse environmental conditions, wide environmental variability, or flaws in experimental design. Tightly grouped measurements make it easier to gauge the consistent performance of a variety and in turn contribute to a greater confidence in distinguishing superior varieties. For yield trials, a CV of less than 20% is considered acceptable.

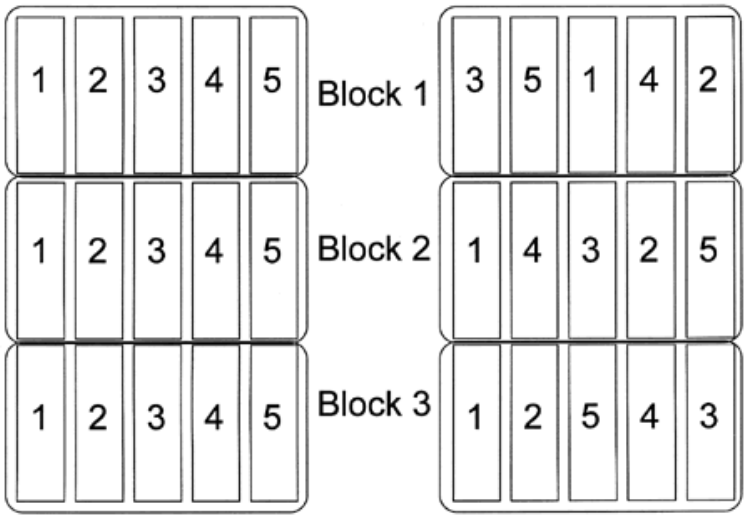
Means Separation (Ranking): When looking at the data, the reader will notice an alphabetical listing behind each column. These letters denote groups of statistically similar varieties. For example, varieties followed by the letter “a” are not statistically different from

each other within the bounds of the trial (at that location in that year). Thus, if two varieties have different yields but are followed by the same letter, they are considered the same, statistically. Each different producer will know what constitutes a “significant” difference for his farm, but this ranking helps give an unbiased idea of how each variety performed compared with the others.

Lodging (0-9): The rating scale for lodging is a 10-point scale with 0 representing perfect stand-ability and 9 equal to severe lodging where pickup was impossible.

Replication

In an experiment, replication means that individual treatments (such as each of the five pesticides being tested in an experiment) have been applied to more than one plot. ***Replication is necessary because all test plots are not identical,*** *and that leads to variation in the data you collect; you will not get exactly the same results from two plots that received the same treatment. You can take steps to minimize the effect of variation if it has an identifiable cause, but there will always be some variation among plots that cannot be controlled. In statistical terms, uncontrolled variation is called experimental error. The purpose of replication is to allow you to make a more accurate estimate of how each treatment performed even though there is uncontrolled variation in the experiment. This can best be shown in an example.*



Regional Cereal Variety Trials

Co-operators:
Kevin & Brian Ratke – Stony Plain – SW 21-1-1-W5
Seth Olthius – Neerlandia – SE 34-61-3-W5

Objectives

1. To provide yield and agronomic information of current cereal varieties to producers in west central Alberta.
2. To provide yield and agronomic data for use in the Alberta Agriculture publication "Varieties of Cereals and Oilseed Crops for Alberta."

Introduction

Variety selection plays an important role in production management due to the impact that yield, maturity and other agronomic characteristics can have on producer profitability. Variety testing continues to be important in providing producers with information on the performance of newly registered and established varieties. The yield and characteristics of cereals grown in the Northwest region are presented below.

Project Details

Table 1. Plot Information.

	Jubilee - Winter Wheat **LSD NW 34-60-27-W4**	**Stony Plain** **LSD SW 21-1-1-W5**	**Neerlandia** **LSD SE 34-61-3-W5**
Seeding Date	**Aug 21/2012**	**May 19**	**May 17**
Seeding Specifics	Fabro zero till drill Seeding Depth: 3/4 inch Seeding Rates: 30-32 plants/ft2 Seed treatment: Raxil	same same Seeding Rates: 28 plants/ft^2 - 2-Row & 6-Row Barley 28 plants/ft^2 - HRS & Utility Wheat, Oats 30 plants/ft^2 - Triticale Raxil	same same Seeding Rates: 28 plants/ft^2 - 2-Row & 6-Row Barley 28 plants/ft^2 - HRS & Utility Wheat, Oats 30 plants/ft^2 - Triticale Raxil
Fertilizer	50-30-20-10	50-30-20-10	50-30-20-10
Herbicide	WW: CleanStart Pre Seed In Crop: Buctril M	Cereals: RoundUp Pre Seed In Crop: Buctril M / Curtail M	Cereals: RoundUp PreSeed In Crop: Buctril M
Harvest Date	Sept 11	Sept 25 (6-row & 2-row Barley) Sept 26 (GP & Utility Wheat) Sept 27 (Oats & Triticale)	Sept 16 - GP Wheat Sept 17 - HRS Wheat Sept 19 - Oats Sept 23 - Barley (2-row and 6-row)

Results:

Winter Wheat - Jubilee

Farmers who grow winter wheat enjoy many benefits including higher yields, as well as more efficient use of crop input products. Winter wheat fields provide significantly more productive habitat for many prairie wildlife species, such as waterfowl that are 24 times more productive nesting in winter wheat than in spring sown varieties.

Beyond being a smart choice for the environment, growing winter wheat benefits your farm in many ways like:

- increasing return on investment
- improving overall rotational productivity and profitability
- spreading out spring and fall workload resources
- longer harvesting window
- improving weed control
- improving efficiency use of inputs
- reducing soil erosion

Table 1: Winter Wheat at Jubilee

Variety	Yield (bu/ac)	Height	Lodging
DH00W31N*34	83.55	112.61	1
Sunrise	81.90	110.07	1
1603-137-1	81.85	111.76	1
Accipiter	80.71	107.53	1
CDC Ptarmigan	80.31	121.07	1
DH99W18I*45	80.27	112.61	1
Swainson	79.23	121.92	1
CDC Falcon	78.28	104.99	1
DH99W19H*16	77.63	99.91	1
AC Bellatrix	75.69	122.77	1
Flourish	75.45	103.29	1
Emerson	75.40	110.07	1
CDC Osprey	74.42	115.99	1
AAC Gateway	72.74	95.67	1
Peregrine	72.47	125.31	1
Moats	71.91	106.68	1
Radiant	71.56	104.99	1
CDC Buteo	67.89	113.45	1
Pintail	67.75	106.68	1
Broadview	66.01	100.75	1
	CV% 7.2		

2-Row Barley – The majority of malt-grade barley produced is two-row. Two-row barley is characterized by having only one fertile spikelet at each node. Six-row barley has three fertile spikelets at each node. This lack of crowding in two-row barley allows for straight, symmetrical kernels with low dormancy; key characteristics essential for malting. The malting process begins by soaking the grain and causing it to germinate. The low dormancy and high seed viability in two-row barley is important for this process.

Table 2. Two-row barley Neerlandia

Variety	Yield (Bu/AC)	Yield % Metcalfe	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)	Lodging
AAC SYNERGY	143.15	119	a	45.8	51	108	3
XENA	142.73	118	a	51.4	62	114	4
CDC COALITION	142.07	118	a	52.1	59	107	1
TR 07728	133.66	111	ab	55.4	60	109	3
CHAMPION	130.16	108	ab	53.0	56	103	3
TR10214	129.67	108	ab	45.9	58	105	1
TR11698	129.52	107	ab	45.9	53	108	3
MAJOR	127.06	105	ab	49.8	35	102	1
ABI VOYAGER	126.30	105	abc	52.1	53	108	1
TR10694	125.61	104	abc	48.9	51	110	2
BUSBY	124.19	103	a-d	51.4	63	124	3
AC METCALFE	120.49	100	bcd	45.7	47	112	5
CDC CLEAR	113.64	94	bcd	*	62	113	1
CDC POLARSTAR	113.56	94	bcd	49.8	50	108	5
SUNDRE	106.20	88	cd	50.5	47	115	5
CDC MAVERICK	104.63	87	d	46.5	64	129	2
	CV% 9.6						

*Check Variety is AC Metcalfe
** Lodging Scale: 1-standing, 9-flat
***CDC Clear - a 2011 hulless malting variety was off the charts for test weight

Table 3. Two-row barley Stony Plain

Variety	Yield (Bu/AC)	Yield % Metcalfe	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)	Lodging
TR11698	67.13	1.009	a	42.5	50	91	2
TR10214	66.69	1.002	a	40.9	45	85	4
AC METCALFE	66.53	1.000	a	40	45	91	2
CDC MAVERICK	65.64	0.987	a	40	55	90	2
MAJOR	63.90	0.961	a	41.8	47	83	1
TR 07728	63.70	0.957	a	46.5	49	80	1
CHAMPION	62.46	0.939	a	42.5	48	86	1
XENA	62.10	0.933	a	43.3	51	83	1
AAC SYNERGY	61.22	0.920	a	42.5	42	81	1
CDC COALITION	61.11	0.919	a	43.3	53	88	2
CDC CLEAR	57.60	0.866	a	55.4	53	86	2
TR10694	54.95	0.826	a	40.1	48	75	2
CDC POLARSTAR	53.71	0.807	a	41.7	44	89	2
BUSBY	50.69	0.762	a	46.5	56	88	2
ABI VOYAGER	48.34	0.727	a	45.7	44	82	1
	CV% 29.45						

*Check Variety is AC Metcalfe

** Lodging Scale: 1-standing, 9-flat

Yields in 2013 generally followed past trends, however the crop stress that the weather and weed pressure caused at Stony Plain resulted in a higher coefficient of variance (CV) within the trial. A high CV results from a large amount of variability within a trial due to such conditions as moisture, temperature, and seedling vigour among others. Data which has a high CV (usually over 15 is considered high) means that the data is not statistically relevant and should not be used to make production decisions regarding which varieties yielded the highest in that trial. I would suggest that producers looking to select a variety refer to the Neerlandia results (tables 2 & 4).

At Neerlandia there were some statistically significant differences in yield between the varieties. This means there was enough of a difference in yield between, for example, the highest yielding and the lowest yield variety to consider one more desirable than the other.

6-Row Barley- The world's most important crop for feeding livestock. As feed, it is nearly equal in nutritive value to corn, which is very high in energy. This leads it to be valuable in feedlots and as hog feed. Six-row barley allows for desirable portions of firm fat and lean meat.

Table 4. 6-Row Barley Neerlandia

Variety	Yield (Bu/AC)	Yield % Metcalfe	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)	Lodging
VIVAR	133.37	1.006	a	46.5	53	101	1
MUSKWA	132.85	1.002	a	48.1	47	96	2
AC METCALFE	132.62	1.000	a	48.9	51	105	2
BT593	122.62	0.925	a	44.9	51	101	1
BRETON	122.08	0.920	a	40.9	52	104	5
CDC ANDERSON	120.03	0.905	a	48.1	49	103	2
	CV% 8.85						

*Check Variety is AC Metcalfe

** Lodging Scale: 1-standing, 9-flat

Table 5. 6-Row Barley Stony Plain

VARIETY	**Yield bu/Acre**	**Yield (%Metcalfe)**	**Significance**	**Tes Weigh (lb/bu Aver**	**Seed Size g/1000**	**Height (cm)**	**Lodging**
AC METCALFE	39.3	100	a	*	34	79	1
BRETON	39	99.4	a	*	28	93	1
CDC ANDERSON	35.5	90.5	a	*	32	84	1
VIVAR	34.1	86.7	a	*	36	80	1
MUSKWA	33.3	84.8	a	*	38	76	1
BT593	31.3	79.8	a	*	38	80	1
		CV% 13.77					

*Check Variety is AC Metcalfe

** Lodging Scale: 1-standing, 9-flat

*** Test Weights not available for SP 6-row barley

Hard Red Spring (HRS) Wheat – The Canadian Grain Commission currently classes 56 varieties under the Canadian Western Red Spring (CWRS) class. HRS is known for its hard texture, high protein and high gluten content. These attributes contribute to making superior bread making flour. The top two grades, No. 1 and No. 2, are segregated by protein level, with guaranteed minimum protein contents.

Table 6. HRS Wheat Neerlandia

Variety	Yield (bu/AC)	Yield % AC BARRIE	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)	Lodging
AC BARRIE	79.107032	100%	abc	64.9	39	100	1
BW918	86.8917798	110%	a	65.7	40	108	1
CDC STANLEY	84.9149787	107%	ab	61	38	102	1
CDC MORRIS	77.4976011	98%	bc	64.2	41	96	1
SY433	76.2555402	96%	bcd	64.2	43	110	1
CARDALE	73.0716658	92%	cde	64.2	43	96	1
HW612	72.8967277	92%	cde	61.8	35	101	1
5604HR CL	71.6896544	91%	c-f	63.4	37	96	1
AAC BRANDON	68.1034223	86%	d-g	63.2	43	91	1
AAC REDWATER	67.8760027	86%	d-g	64.9	37	97	1
CDC THRIVE	67.0362996	85%	d-h	58.6	42	102	1
AAC ELIE	66.3540408	84%	e-i	59.4	37	91	1
CDC PLENTIFUL	65.7242635	83%	e-i	62.6	34	96	1
PT765	64.8320789	82%	e-i	61.8	39	113	1
PT584	63.2051541	80%	f-j	62.4	43	94	1
AAC ICEBERG	61.0009334	77%	g-j	62.6	41	96	1
KATEPWA	58.5517993	74%	hij	61	44	109	1
AAC BAILEY	58.2718982	74%	hij	62.6	43	97	1
BW947	57.3097384	72%	ij	66.5	43	107	1
WHITEHAWK	54.0733826	68%	j	56.1	39	99	1
	CV% 8.22						

*Check Variety is AC Barrie

**Lodging Scale 1-Standing, 9-Flat

Utility Wheat – The Western Canadian wheat classes consist of eight individual descriptions. This trial consisted of two classes: Canadian Prairie Spring Red (CPSR) and Canadian Wheat Soft White Spring (CWSWS). CPSR has medium to hard kernels and medium to hard dough strength. It has two milling grades, and is used for hearth, flat, and steamed breads, and noodles. CWSWS is a soft white wheat with low protein. It has three milling grades used for cookies, cakes, and pastry. The trial this year also contains two General Purpose (GP) varieties, a Canadian Prairie Spring White (CPS-W) and a Canadian Western Extra Strong (CWES) variety.

Table 7. Utility Wheat Neerlandia

Variety	Yield (bu/AC)	Yield % AC Barrie	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)	Lodging
Pastuer	98.66	145%	a	67.3	52	80	1
AAC Chiffon	90.35	133%	ab	68.1	54	76	1
Conquer VB	84.27	124%	bc	72.1	56	82	1
AC Andrew	81.45	120%	bcd	67.3	51	76	1
HY1610	80.41	118%	bcd	68.1	63	81	1
AAC Ryley	80.30	118%	bcd	72.9	62	86	1
Enchant VB	80.30	118%	bcd	66.5	57	83	1
GP087	78.47	116%	b-e	67.3	47	84	1
AAC Proclaim	76.01	112%	cde	66.5	52	91	1
HY995	74.47	110%	cde	67.3	54	85	1
HY1319	71.48	105%	de	71.3	60	82	1
GP097	70.84	104%	de	67.3	55	85	1
CDC NRG 003	70.38	104%	de	67.3	50	86	1
AC Barrie	67.93	100%	e	68.1	50	92	1
	CV% **9.3**						

*Check Variety is AC Barrie

**Lodging Scale 1-Standing, 9-Flat

***It is important to remember that the high CV% could be indicative of one or more plots that were mis-seeded and/or weather and disease interference, yet data was still collected and recorded on them. Weed pressure differed from plot to plot also. Higher CV% is relative to how precisely the tests were performed and how differently each plot was treated.**

Oats – Oats are a valuable part of crop rotation. They provide disease and insect breaks for wheat, barley, and canola. Their rapid establishment and growth provide excellent weed suppression. Oats also work well as a "catch crop" for taking up and storing excess nitrogen, and the straw provides a nutrient source for the following year's crop. The straw also protects against soil erosion, and contributes to an increase in the soils organic matter content.

Table 8. Oats Neerlandia

Variety	Yield % of CDC Dancer	Yield bu/Ac	Significance	Test Weight (lb/Bu) Avery	Seed Size (g/1000)	Height	Lodging
CDC NASSER	141%	94.01	a	38.5	49	***	7
CDC HAYMAKER	120%	80.40	ab	35.3	46	***	7
SOURIS	120%	79.87	ab	37.7	39	***	7
CDC SEABISCUIT	117%	78.07	ab	36.1	49	***	7
AAC DEON	109%	72.59	ab	36.1	39	***	6
CDC DANCER	100%	66.78	ab	37.7	39	***	6
STRIDE	90%	59.86	ab	39.3	42	***	5
CDC RUFFIAN	71%	47.27	b	39.3	43	***	6
		CV% 29.62					

Check Variety is CDC Dancer
**Lodging Scale 1-Standing, 9-Flat
***No height notes recorded at this site

Table 9. Oats Stony Plain

Variety	Yield (Bu/AC)	Yield % CDC Dancer	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)	Lodging
RUFFIAN	141.08	113%	a	0.0	45	94	9
SOURIS	138.87	111%	ab	0.0	47	97	7
DEON	132.44	116%	ab	0.0	44	95	8
SEABISCUIT	125.24	105%	abc	0.0	41	98	8
CDC DANCER	119.21	100%	abc	0.0	43	105	6
HAYMAKER	115.38	97%	abc	0.0	43	98	7
NASSER	114.35	96%	bc	0.0	36	97	8
STRIDE	103.76	87%	c	0.0	44	106	6
	CV% 12.11						

*Check Variety is CDC DANCER
** Lodging Scale: 1-standing, 9-flat

Triticale – A hybrid of wheat and rye. Early breeding efforts concentrated on developing a high yielding, drought tolerant, human food crop species suitable for marginal wheat producing areas. More recent programs concentrate on developing improved animal feed and fodder varieties for production under diverse conditions.

Table 10. Triticale Neerlandia

Variety	Yield (Bu/AC)	Yield % AC ULTIMA	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)		Lodging
AC ULTIMA	123.28	100%	a	50.5	45	94		1
TAZA	121.60	99%	a	57.7	41	98		1
BREVIS	109.01	88%	a	55.3	47	97		1
SUNRAY	107.15	87%	a	68.1	44	95		1
	CV% 8.46							
*Check Variety is AC ULTIMA								
** Lodging Scale: 1-standing, 9-flat								
***Trit measured at 55 LBS/BU for our calculations								

Table 11. Triticale Stony Plain

Variety	Yield (Bu/AC)	Yield % AC ULTIMA	Significance	Test Weight (lb/bu) Avery	Seed Size g/1000	Height (cm)	Lodging
AC ULTIMA	29.42	100%	a	52.9	61	74	1
TAZA	25.53	87%	ab	44.9	51	74	1
SUNRAY	25.30	86%	ab	50.5	60	76	1
BREVIS	20.76	71%	b	53.7	47	69	1
	CV% 11.42						
*Check Variety is AC ULTIMA							
** Lodging Scale: 1-standing, 9-flat							
***Triticale 55 LBS/BU for our calculations							

****It is essential to note that the triticale at the Stony Plain site was severely infected with Ergot. (See photos on following page)**

Photos: Ergot in Stony Plain Triticale Plots 2013

Conclusions

The following were the highest yielding varieties of each crop tested:

2-Row Barley	- Synergy, Xena and Coalition with Coalition having the best standability
6-Row Barley	- Vivar***, Muskwa and Metcalfe with Vivar having the best standability
HRS Wheat	- BW918, CDC Stanley
Utility Wheat	- Pasteur, Conquer VB, AAC Chiffon
Oats	- Ruffian, Souris, Deon
Triticale	- Ultima, Taza

***Were among highest yielding varieties in 2009 and 2010 annual report.

2013 Heifer Pasture Summary

Heifer Pasture - SE-23-61-26 W4

Manager: Michelle Holden / Chelsea Jaeger

Stocking Rate: 106 heifers & two bulls (6 contributors)
128 total grazing days

Entry Date: June 10, 2013 (Average heifer weight 928 lbs.)

Exit Date: October 7, 2013
(Average heifer weight 1146 lbs., ADG 1.7 lbs./day)

Objectives:

1. To demonstrate a rotational grazing system and its effect on carrying capacity.
2. Provide a site for further research and producer learning activities.

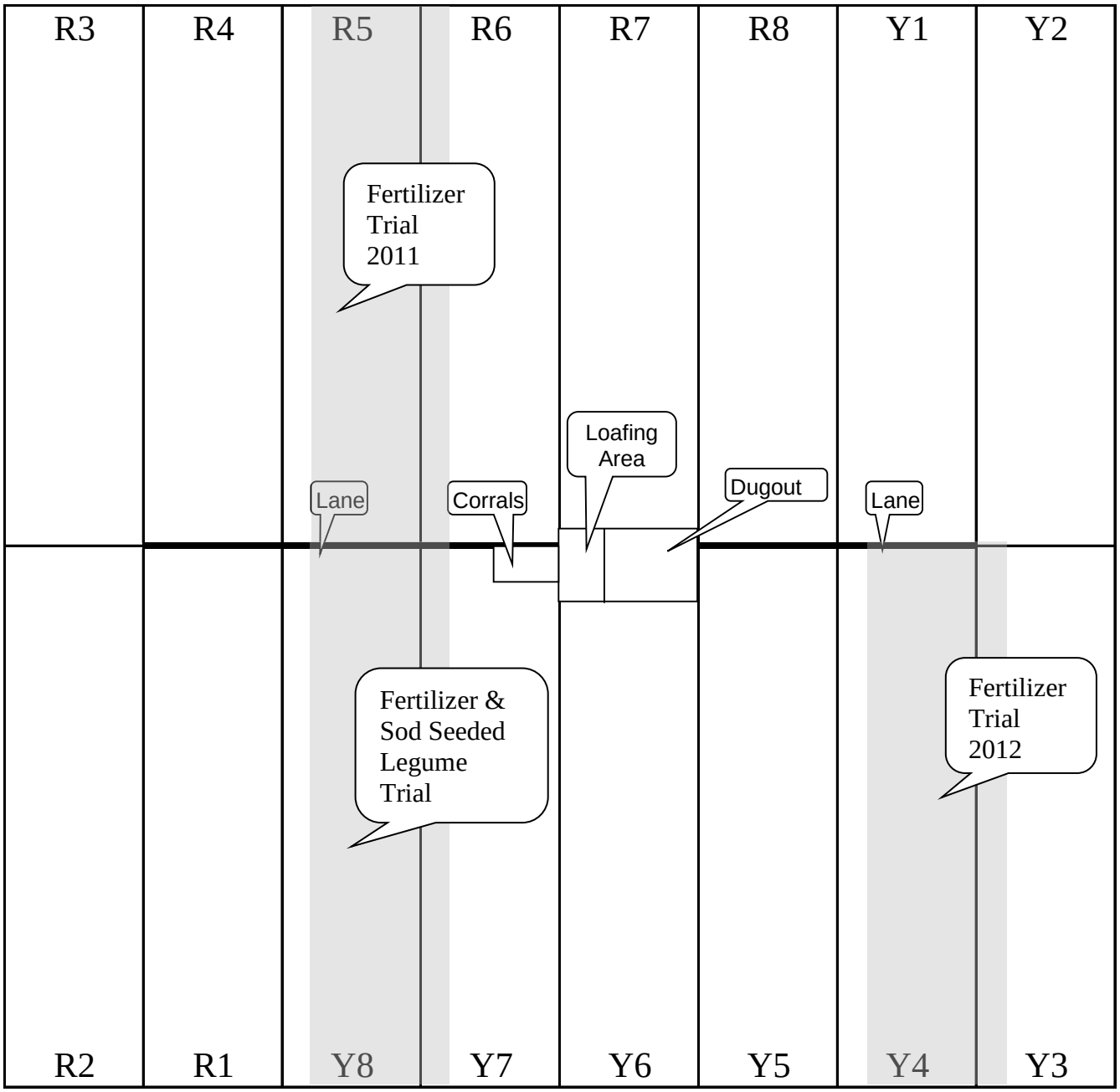
History & Field Design (see next page for map):

The pasture was established in 1978 and was originally used for steers. In 1988 the first heifers were put into the pasture, and have remained ever since. The 160-acre pasture is split into 16 paddocks; approximately 10 acres each. There is a central watering (loafing) area as well as a handling facility. The perimeter is fenced with 4 double strand barbed wire, and cross fencing is done with 2 single strand barbed wires that are powered with a solar electric fencer. Each paddock is rotationally grazed to allow alternate periods of grazing and rest. If managed properly, these rest periods allow the grass a chance to replenish nutrients after defoliation and therefore increase grass production. In a continuous grazing situation some forage resources are continually stressed (no rest); while others may be underutilized as the animals will repeatedly graze the most palatable species. In this situation the preferred species will begin to decline and less palatable species or weeds will begin to dominate the pasture.

Water:

In September 2002, the dugout and Dutch Industries windmill water system were replaced with a free flowing well delivering a rate of approximately 2 gal/min (cut back from 4 gal/min). A 580-gallon poly trough was installed with an over-flow pipe to prevent over filling, and spillage into the watering area.

GRO Heifer Pasture Map



Herd Health:

All heifers were weighed and inspected for overall health and soundness on entry day in June. The heifers were weighed again on exit day in October. Oilers containing a 2% Malathion solution (diesel fuel carrier), for fly control, were hung on the mineral feeders upon entry. Nineteen heifers were treated for foot rot and/or pinkeye while on pasture, and all animals were treated for face flies in early August.

Breeding:

Two bulls owned by Ross and Beau Lyons were used in the pasture, and entered heifer pasture at the same time as the heifers (June 10) and remained in the pasture until October 7th when the heifers were removed. The heifers were palpated for pregnancy upon exit it was determined that the overall open rate was 6.6% which is slightly higher than our average.

Grazing:

The order that the paddocks were grazed was determined by the quantity of growth on a visual basis. The paddocks with a high proportion of meadow foxtail were generally grazed first. Meadow foxtail grows vigorously in the spring and sets seed early. If allowed to set seed, the palatability decreases, and cattle are very hesitant to graze it. Grazing periods in all rotations were kept short (about 2-3 days) to ensure that new regrowth was not grazed. This also allowed all 16 paddocks to be grazed before they set seed, thereby preventing a decrease in seasonal yield, quality and palatability. Table 1 contains the number of grazing days supported by each paddock, as well as the rotation schedule.

Table 1: 2013 Paddock Rotation Schedule (Days)

Paddock #	1st Rotation	2nd Rotation	3rd Rotation	4th Rotation	Total Days Grazed
R1	2	2	2	2	8
R2	2	3	2	2	9
R3	2	3	2	2	9
R4	3		2		5
R5	3		2	2	7
R6	2		2		4
R7	3		4		7
R8	2	2	3	2	9
Y1	2	Sprayed	Sprayed		2
Y2	2	2	2	2	8
Y3	2	4	3	2	11
Y4	2	2	3	3	10
Y5	3	6	3	3	15
Y6	2	4	4	3	13
Y7		2		3	5
Y8	1			3	4
Rotation Length	**33**	**30**	**34**	**29**	**126**

Table 2: AUM for Replacement Heifers on Pasture

Year	# of Animals	Grazing Days	# AUM on 150 Acres	# AUM/Acre
2005	101	117	291	1.94
2006	98	127	307	2.05
2007	110	135	366	2.44
2008	78	133	256	1.71
2009	103	118	300	2.00
2010	94	126	292	1.95
2011	82	112	226	1.51
2012	76	133	249	1.66
2013	108	126	364	2.28
Average	94.44	**125.22**	**254.11**	**1.7**

AUM calculated as follows: (0.75AU x # heifers x # months)

Table 3: Summary of Production

Year	Entry Weight	Exit Weight	Gain (lbs.)	ADG (lbs.)
1988-2004	922	1124	208	1.74
2005	891	1059	168	1.44
2006	907	1083	176	1.38
2007	873	1117	244	1.82
2008	843	1106	263	1.98
2009	869	1073	204	1.73
2010	913	1049	136	1.08
2011	**953**	**1134**	**181**	**1.62**
2012	**867**	**1052**	**185**	**1.39**
2013	**928**	**1146**	**218**	**1.7**
Average	**896.6**	**1094.3**	**198.3**	**1.59**

Table 4: Heifer Pasture Precipitation (inches)

Year	May	June	July	August	September	October	Total
1988-2004	1.11	2.67	3.21	2.24	0.78	0.36	9.17
2005	1.44	4.08	1.64	1.20	0.56	0.80	9.72
2006	4.50	3.12	1.36	2.28	1.76	0.12	13.14
2007	3.10	5.36	2.52	1.10	0.72	0.04	12.84
2008	3.60	2.04	3.60	1.40	0.96	0.00	11.60
2009	0.18	0.39	3.43	1.06	0.74	--	5.80
2010	1.54	1.69	1.64	2.06	1.00	0.10	8.01
2011	**0.03**	**3.32**	**0.48**	**0.98**	**0.41**	**0.02**	**5.24**
2012	**0**	**1.63**	**4.77**	**1.47**	**.61**	**.26**	**8.74**
2013	**1.16**	**2.68**	**3.26**	**2.98**	**.98**	**.89**	**11.95**
Average	**1.55**	**2.43**	**2.27**	**1.38**	**0.75**	**0.1**	**8.48**

Income and Costs:

Tables 5-8 illustrate the income derived from, as well as costs incurred by, the Heifer Pasture project. 1988 fees were based on gain only; however, this proved to be a problem as some heifers actually had negative gain and paid nothing, while others paid much more. In 1989 grazing fees were changed to $10/animal/month; gain at $.10/lb, and by 2002 had increased to $15/animal/month; gain at $.12/lb. In 2003 the animal gain charge was dropped, and grazing fees were based on a monthly charge of $20/animal/month. In 2005 grazing fees were changed to $0.65/head/day (approximately $20/animal/month) as it was deemed more accurate than a monthly charge.

Table 5: Historical Contributor Cost Summary

Year	Animal Gain	Monthly Charge	Breeding Fee	Veterinary Costs	Average Cost /head/day
1988-2004	$22.20	$46.85	$13.80	$1.77	$0.68
2005	--	$76.05	$15.00	$4.05	$0.81
2006	--	$82.55	$15.00	$4.00	$0.80
2007	--	$87.10	$15.00	$4.00	$0.79
2008	--	$86.45	$0.00	$4.00	$0.68
2009	--	$76.70	$23.00	$4.00	$0.88
2010	--	$81.90	$23.00	$4.50	$0.87
2011	**--**	**$72.80**	**$23.00**	**$3.25**	$0.88
Average	**$22.20**	**$56.67**	**$14.52**	**$2.41**	**$0.72**

NOTE: Majority of veterinary cost is for pregnancy checking.

Table 6: Historical Income Breakdown

Year	Animal Gain	Monthly	Breeding	Vet Charges	Total
1988-2004	$2,439.89	$5,056.12	$1,544.37	$183.61	$8,936.94
2005	--	$7,651.80	$1,500.00	$404.80	$9,556.60
2006	--	$8,089.90	$1,470.00	$392.00	$9,951.90
2007	--	$9,581.00	$1,290.00	$440.00	$11,311.00
2008	--	$6,743.10	$0.00*	$312.00	$7,055.10
2009	--	$7,900.10	$2,369.00	$412.00	$10,681.10
2010	--	$7,698.60	$2,162.00	$423.00	$10,283.60
2011	**--**	**$5,969.60**	**$1,886.00**	**$263.25**	**$8,118.85**
Average	**$2439.89**	**$6,069.05**	**$1,544.85**	**$237.78**	**$9,120.25**

Table 7: 5-Year Summary of Costs, 2005-2011

	2009	2010	2011	2012	2013
Operating Costs					
Rent	3500	3500	**3500**	3500	3500
Fertilizer	0	0	**0**	0	0
Insecticide	0	0	**0**	0	0
Ear Tags	0	0	**144**	0	0
Fly Control	0	0	**0**	0	43
Veterinary	431	423	**265**	619	1365
Breeding/Bull Insurance	400	400	**0**	0	0
Bull Rental			**1400**	2000	2000
Salt/Mineral	581	758	**325**	1531	740
Labour	1155	1120	**1020**	1050	3000
Travel	1463	1400	**840**	850	600
Misc/Other	525	350	**452**	315	438
Total Operating Costs	*8054*	*7951*	***7946***	*9865*	*11986*
Capital Costs					
Establishment	0	0	**0**	0	0
Capital Investment	0	0	**0**	0	0
Bulls	1500	1500	**0**	0	0
Total Capital Costs	*1500*	*1500*	*0*	*0*	*0*
Total Costs	**$9,554**	**$9,451**	**$7,946**	**0**	**0**

NOTES:

Capital Investment notes: A well was drilled in 2002; Water trough purchased in 2005; Bull was injured in 2005, and had to be purchased; Bull was injured in 2006, and had to be purchased.

** Bull insurance was purchased for two bulls for $400 each ($800 total) this is to be amortized over the two years the bulls will be used (2009-2010)*

*** Two bulls were purchased @ $4000 each, both will be sold at the end of 2010 for $2500, the remaining ($1500 each) will be amortized over the two years that they are to be used.*

Table 8: 2013 Heifer Pasture Gross Margin and Profit/Loss

Gross Revenue	**2013**
Monthly Grazing	8044.40
Breeding	2600
Veterinary	905.89
Bull Salvage	0
Total Revenue	*13563.29*
Direct Costs	
Salt/Mineral	**740**
Vet Charges	2000
Bull/ Bull Insurance	0
Other	2403
Total Direct Costs	*5143*
Gross Margin (GR – DC)	*8420.29*
Gross Margin/Acre	*52.63*
Overheads	
Capital	0
Labour/Travel	3000
Lease	**3500**
Total Overheads	*6500*
Profit / Loss (GM – TO)	1920.29

GRO Heifer Pasture 2013 Contributors: Back Row L – R Chelsea Geiger, Richard Geiger, Calvin Wruk, Georges Kerkhoff, Ross Lyons, Matt Haisen, Beau Lyons, Maurice Kruk, Front row L – R Alex Bowen (summer staff), Chelsea Jaeger (staff), Graeme Harper (summer staff), Michelle Holden – (GRO Manager), Anita Wruk

Discussion:

Managing the heifer pasture for the grazing season has allowed us to clearly assess the quality and potential of the stand. It has been more than 30 years since the stand was established, which more than classifies it as an old pasture and this year we have continued conducting various trials to improve pasture quality at the heifer pasture. In years to come, we will continue with pasture rejuvenation by subsoiling and re-seeding some areas.

The average daily gain of 1.7 lbs. was slightly above the average of 1.59 lbs. This is a good ADG for replacement heifers on pasture. These numbers are reflective of a good grazing program. Tables 5-8 summarize the historical expenses and income of the heifer pasture as well as in the current year. ***The pasture did make money this year ($1920.29).*** This is due to the fact that stocking rates were increased this year compared to previous years. Grass production has increased due to the rest it was given in previous years and the amount of precipitation we received this spring.

Barley Silage

Kevin & Brian Ratke SW 21-1-1-W5 (Stony Plain)
Seth Olthius SE 34-61-3-W5 (Neerlandia)

Objectives:

1. Compare silage yield and nutritional value of new and commonly used barley varieties.
2. Summarize historical silage data.

Background:

A randomized complete block with 3 replicates of each treatment was used. Plot size was 1.37 metres wide (6 rows with 9 inch spacing) by 6 metres long. Barley was harvested in the soft dough stage. Samples were weighed and sent for wet chemistry analysis to obtain moisture and feed quality.

Table 1: Plot Information

Action	Neerlandia	Stony Plain
Seeding	May 18, 2013	May 19, 2011
Seeding Specifics	Depth: 1 inch Row Spacing: 9 inches	Depth: 1 inch Row Spacing: 9 inches
Plot Activities	**1.** Direct Seeded into stubble **2.** Pre-seed Roundup **3.** In-crop herbicide Buctril M	**1.** Cultivated and harrowed prior to seeding. **3.** Buctril M and Curtail M in-crop
Equipment	Fabro Zero-till Drill with Atom Jet Openers	Fabro Zero-till Drill with Atom Jet Openers
Fertilizer (actual)	50 lbs/ac N 30 lbs/ac P 20 lbs/ac K 10 lbs/ac S	50 lbs/ac N 30 lbs/ac P 20 lbs/ac K 10 lbs/ac S
Harvest	August 9	August 11

Barley Varieties used In the Trial:

Barley

CDC Cowboy: A rough-awned, two-row forage barley that does very well with less management, is resistant to stem rust, covered and false loose smuts and moderately resistant to net blotch. A tall growing plant, it is said to produce high amounts of biomass, but is susceptible to lodging, spot blotch, loose smut and scald.

Ponoka: A rough-awned two-row feed barley with excellent disease resistance; silage yields as high as or higher than AC Lacombe. Could replace Seebe in some areas. Resistant to loose smut & surface-borne smuts. Intermediate resistance to net blotch, common root rot, spot blotch, and scald.

AC Ranger: A smooth-awned six-row forage barley with good lodging resistance and grain yield. Intermediate resistance to net blotch and resistance to non-QCC stem rust. It is susceptible to scald, septoria, and QCC races of stem rust.

Seebe: A rough-awned two-row feed barley that is noted for its outstanding forage yields and has very good straw strength. Adapted to the high scald areas of Alberta, with scald resistance superior to all registered 2-row varieties. Also resistant to the surface-borne smuts. Susceptible to loose smut, common root rot, and net blotch.

Sundre: A smooth-awned six-row barley. High silage yield. Sundre has multiple gene resistance to scald, and has resistance to covered smut and false loose smut. Intermediate resistance for net blotch (spot form), spot blotch and stem rust. Susceptible to septoria, loose smut, net blotch (net form), and common root rot.

Trochu: A smooth-awned six-row barley with moderate disease resistance for scald but different strains than AC Lacombe; provides a rotation opportunity. The high % plump kernels facilitate even processing for cattle feed resulting in increased feed efficiency. Lodging resistance is similar to AC Lacombe. Resistant to the surface-borne smuts and common root rot. Intermediate resistance to scald and net blotch. Susceptible to loose smut.

Vivar: A rough-awned six-row semi-dwarf feed barley that has high grain yields. Intermediate reaction in the field to scald and net blotch.

Xena: A rough-awned two-row that has good lodging resistance with a high percentage of plump kernels. Xena has resistance to common root rot, intermediate resistance to surface-borne smuts and is susceptible to loose smut, scald and net blotch.

Chigwell: A smooth-awned hulled, six-row feed barley that is a good multi-use feed barley. Silage yield similar to Vivar and AC Lacombe. Medium height, good lodging

resistance. Resistant to surface-borne smuts, moderately resistant to scald, spot-blotch and spot-form net blotch. Moderately susceptible to loose smut and susceptible to common root rot, fusarium head blight, septoria and leaf blotch.

CDC Austenson: A two-row rough awned hulled feed barley with very high grain yield and short, strong straw. Large plump kernels. A top yielding two-row with improved performance over Xena. Resistant to stem rust and covered and false loose smut. Medium maturity. Susceptible to scald and true loose smut.

Busby: Newer two-row, rough awned feed barley. Excellent disease resistance, good grain yields and feed quality make it a good feed barley choice for the scald areas of Western Canada.

CDC Coalition: A two-row general purpose barley. It has excellent straw strength and lodging resistance. Good yield potential and high test weight. Resistant to loose and false loose smut and rpg1 stem rust with moderate resistance to covered smut. Mildly susceptible to net blotch and spot blotch. Susceptible to septoria and scald

Gadsby: Rough awned. Similar straw strength to xena. Yields 10% higher than seebe for both grain and biomass. Heads and matures two days later than Xena but two days earl8ier than Seebe. Plumper, heavier jernels than Xeno with lower fibre and higher digestible energy content. Resistant to the covered and loose smuts and scald. Moderately resistant to the spot form of net blotch. Moderate resistance / moderately susceptible reaction to common root rot, fusarium head blight and stem rust. Susceptible to the net form of net bltch and spot blotch.

Muskwa: Six-row, smooth-awned, hulled, general purpose. Semi-dwarf with strong straw, smut resistant and intermediate maturity traits. Stable grain yield and well-adapted to Western Canada. Better than average combination of disease resistant package of spot blotch, scald and stem rust. Good lodging resistance and quality traits similar to Vivar.

Seeding Rates:

Seeding rates were based on 1000-kernel weight and germination in order to achieve 24 plants per square foot for barley. It is very important to calculate seeding rates using this method (using germination % and 1000-kernel weight) to prevent under or over seeding. Crops with larger seed size have fewer seeds per pound/bushel. They need to have more pounds/bushels seeded per acre to keep viable seed counts the same as crops with small seed size.

Results:

Table 2: Neerlandia Silage Yields & Nutritional Analysis

BARLEY VARIETY	YIELD @ 65% Moisture (ton/acre)	CP (%)	TDN (%)
SUNDRE	*	11.0	62.5
CDC AUSTENSON	15.65	9.0	*
AC RANGER	13.93	9.5	68.8
MUSKWA	13.35	8.5	60.6
CDC COALITION	13.24	8.1	61.4
XENA	12.95	9.6	*
CDC COWBOY	12.03	6.4	51.8
CONLON	11.91	8.8	63.2
VIVAR	11.85	8.5	62.4
SEEBE	11.28	7.6	*
TROCHU	11.11	9.7	*
CDC MAVERICK	10.99	7.3	61.0
CHIGWELL	10.30	9.0	59.4
PONOKA	10.07	8.2	63.1
GADSBY	9.73	6.8	56.1
BUSBY	*	10.5	62.5

Table 3: Stony Plain Silage Yields & Nutritional Analysis

BARLEY VARIETY	YIELD @ 65% Moisture (ton/acre)	CP (%)	TDN (%)
CONLON	*	10.84	73.51
CDC AUSTENSON	13.74	11.52	74.39
BUSBY	12.87	10.67	68.97
CDC MAVERICK	12.58	11.91	76.36
TROCHU	12.52	10.23	66.89
PONOKA	11.38	10.25	76.73
GADSBY	11.31	10.03	64.28
SEEBE	10.93	11.95	69.86
AC RANGER	10.17	10.22	74.44
XENA	9.60	11.31	74.95
CDC COWBOY	8.26	7.93	64.01
MUSKWA	8.23	11.85	74.66
CDC COALITION	7.84	8.51	66.67
CHIGWELL	7.65	11	70.66
VIVAR	6.67	8.29	67.59
SUNDRE	5.47	10.75	71.68

Historical Summary of Average Yields & Indexing for 2006-2011: In order to get a better indication of production, I have summarized yield results from 14 sites over six years in Table 6 below. Chigwell and CDC Austenson were grown for the first time in 2010 and subsequently, are not included in the table.

Table 4: Summary of Average Yield & Index for 2006-2011 (14 trials)

Barley Variety	Yield @ 65% moisture (tons/ac)	Average Index
Sundre	9.6	107
Busby	7.0	107
Seebe	9.6	106
Cowboy	9.4	104
Ponoka	9.4	102
Vivar	9.2	101
Xena	8.1	101
AC Lacombe	9.1	100
Trochu	8.8	97
Ranger	8.3	90

Discussion:

Most varieties performed better than historical data would have predicted this year at both sites, however, it seems that some of the varieties are yielding lower than normal. My assumption is they are just reflecting the growing conditions and precipitation patterns that we experienced this year and a significant portion of our historical data is comprised of drought years. We may see a trend of the varieties starting to **not** follow the historical trends but creating more accurate historical data from this point forward.

There was quite a bit of lodging at our sites this year, which can also contribute to the fluctuation in data. The barleys at Neerlandia tended to have lower crude protein values and TDN than those at Stony Plain. There has been little difference in nutritional value among most of the barleys tested, however, there are a couple of varieties that seemed to fall short. As a general rule, nutritional value can be increased more easily by adjusting harvest time or fertilizer rates than through variety selection.

GRO Staff seeding 2013 plots with zero-till drill

Neerlandia Oats 2013

Harvesting Silage Plots at Neerlandia

Oat Silage

Kevin & Brian Ratke SW 21-1-1-W5 (Stony Plain)
Seth Olthius SE 34-61-3-W5 (Neerlandia)

Objectives:

1. Compare silage yield and nutritional value of new and commonly used oat varieties.
2. Summarize historical silage data.

Background:

A randomized complete block with 3 replicates of each treatment was used. Treatment size was 1.37 metres wide (6 rows with 9 inch spacing) by 10 metres long and trimmed back accordingly. The oats were harvested in the late milk stage. Samples were weighed and sent for wet chemistry analysis to obtain moisture and feed quality.

Table 1: Plot Information

Action	Neerlandia	Stony Plain
Seeding	May 18	May 19
Seeding Specifics	Depth: 1 inch Row Spacing: 9 inches	Depth: 1 inch Row Spacing: 9 inches
Plot Activities	**1.** Direct Seeded into canola stubble **2.** Pre-seed Round-Up **3.** Buctril M in-crop	**1.** Cultivated and harrowed prior to seeding. **2.** Buctril M & Curtail M in-crop
Equipment	Fabro Zero-till Drill with Atom Jet Openers	Fabro Zero-till Drill with Atom Jet Openers
Fertilizer (actual)	50 lbs/ac N 30 lbs/ac P 20 lbs/ac K 10 lbs/ac S	50 lbs/ac N 30 lbs/ac P 20 lbs/ac K 10 lbs/ac S
Harvest	August 12-13	August 15-17

Varieties used In the Trial:

CDC Baler: A forage oat with very long wide leaves, slightly taller than the standard forage variety, excellent lodging resistance and exceptional forage yield. It generally has higher energy and protein values than other forage oats.

AC Morgan: A milling oat. Susceptible to crown and stem rust, moderately susceptible to smuts. Adapted to black and grey wooded soil zones of Alberta.

Murphy: A forage oat bred specifically for use for silage/greenfeed production. A taller variety than others tested (other than Foothills).

AC Mustang: A feed oat with good lodging resistance. High hull percent content - not a milling oat. Susceptible to crown and stem rust. Adapted to the Black and Gray soil zones of Alberta and Saskatchewan.

Waldern: A feed oat with good lodging resistance. High percent hull, relatively late maturity, susceptible to rust and smut, low test weight.

Jordan: A new feed, milling, and forage oat with a high silage yield, high grain yield and larger seed size. Superior lodging resistance.

CDC SO-1 Designed for ruminant feeding programs. Low lignin hull with high oil groat (better digestibility).

Seeding Rates:

Seeding rates were based on 1000-kernel weight and germination in order to achieve 24 plants per square foot. It is very important to calculate seeding rates using this method (using germination % and 1000-kernel weight) to prevent under or over seeding. Crops with larger seed size have fewer seeds per pound/bushel. They need to have more pounds/bushels seeded per acre to keep viable seed counts the same than crops with smaller seed size.

Results:

Table 2: Neerlandia Silage Yields & Nutritional Analysis

OAT VARIETY	YIELD @ 65% Moisture (ton/acre)	CP (%)	TDN (%)
CDC BALER	*	9.5	62.01
AC MUSTANG	29.5	*	*
MURPHY	21.2	*	*
WALDERN	18.3	10.66	72.72
CDC HAYMAKER	16.9	10.65	73.13
JORDAN	12.0	11.19	68.52
CDC SO-I	9.3	*	*
AC JUNIPER	8.8	9.04	61.87

Table 3: Stony Plain Silage Yields & Nutritional Analysis

OAT VARIETY	YIELD @ 65% Moisture (ton/acre)	CP (%)	TDN (%)
CDC HAYMAKER	13.6	10.81	70.71
FOOTHILLS	13.5	11.08	71.26
WALDERN	11.1	8.27	68.08
AC MORGAN	14.0	9.2	68.52
AC JUNIPER	6.8	10.75	70.03
CDC SO-I	6.3	11.09	70.31
MURPHY	9.3	9.96	
AC MUSTANG	4.7	9.14	67.53

Historical Summary of Average Yields & Indexing for 2006-2011:

In order to get a better indication of production, I have summarized yield results from 2006 to 2011 below. This table summarizes data from 14 sites over the six years. CDC SO-1 was grown for the first time in 2011 and therefore was excluded from this table; however it should be noted that it indexed very high this year.

Table 4: Summary of Average Yield & Index for 2006-2011 (14 trials)

Oat Variety	Yield @ 65% moisture (tons/ac)	Average Index
Jordan	8.8	105
Waldern	10.1	104
Murphy	10.0	104
Mustang	9.8	101
Baler	9.7	97
Morgan	9.6	97
Everleaf	9.6	93

Discussion:

AC Mustang was one of few stand-alone varieties at Neerlandia, meaning there was enough of a statistical difference between Mustang and the rest that we can say it yielded statically significantly more than the other varieties. Murphy, Waldern and Haymaker also yielded well at this site while Juniper yielded fairly poorly at Neerlandia.

The oats at the Neerlandia site tended to have no real differences in protein and TDN values than the oats at Stony Plain. One thing to watch for is higher levels of potassium (K) in oat silage. None of the varieties had levels in excess of 2%. At these levels cattle would be in danger of developing tetany, especially with lower levels of calcium and magnesium and special considerations must be taken when formulating rations.

Triticale Silage

Kevin & Brian Ratke SW 21-1-1-W5 (Stony Plain)
Seth Olthius SE 34-61-3-W5 (Neerlandia)

Objectives:

1. Compare silage yield and nutritional value of new and commonly used triticale varieties.
2. Summarize historical silage data.

Background:

A randomized complete block with 3 replicates of each treatment was used. Treatment size was 1.37 metres wide (6 rows with 9 inch spacing) by 10 metres long and trimmed back accordingly. The triticale was harvested at the late milk stage/early dough. Samples were weighed and sent for wet chemistry analysis to obtain moisture and feed quality.

Table 1: Plot Information

Action	Neerlandia	Stony Plain
Seeding	May 18	May 19
Seeding Specifics	Depth: 1 inch Row Spacing: 9 inches Seeding Rates: See Table 2	Depth: 1 inch Row Spacing: 9 inches Seeding Rates: See Table 2
Plot Activities	**1.** Direct Seeded into Canola stubble **2.** Pre-Seed Round-Up **3.** Buctril M In-crop	**1.** Cultivated and harrowed prior to seeding. **2.** Buctil M In-crop
Equipment	Fabro Zero-till Drill with Atom Jet Openers	Fabro Zero-till Drill with Atom Jet Openers
Fertilizer (actual)	50 lbs/ac N 30 lbs/ac P 20 lbs/ac K 10 lbs/ac S	50 lbs/ac N 30 lbs/ac P 20 lbs/ac K 10 lbs/ac S
Harvest	August 9	August 11

Varieties used In the Trial:

Bunker: A reduced awn spring triticale that is earlier maturing than Pronghorn or Ultima, and has good disease resistance.

Taza: New spring variety

Pronghorn: A spring triticale that is susceptible to some races of stem rust.

Tyndal: A reduced awn spring triticale designed for conserved forage production (silage/greenfeed). Good leaf and stem rust resistance. An earlier maturing variety with good lodging resistance and high forage yields.

AC Ultima: A spring triticale with good disease resistance.

Seeding Rates:

Seeding rates (Table 2) were based on 1000-kernel weight and germination in order to achieve 24 plants per square foot. It is very important to calculate seeding rates using this method (using germination % and 1000-kernel weight) to prevent under or over seeding. Crops with larger seed size have fewer seeds per pound/bushel. They need to have more pounds/bushel seeded per acre to keep viable seed counts the same as crops with smaller seed size.

Table 2: Seeding Rates

Triticale Variety	Seeding Rate (lbs/ac)
Bunker	116
Taza	201
Pronghorn	124
Tyndal	98
AC Ultima	119

Results:

Table 3: Stony Plain Silage Yields & Nutritional Analysis

TRITICALE VARIETY	YIELD @ 65% Moisture (ton/acre)	CP (%)	TDN (%)
PRONGHORN	12.06	9.92	71.56
SUNRAY	11.53	10.76	74.59
TAZA	10.45	11.92	76.69
BUNKER	9.67	6.92	64.18
TYNDAL	8.07	9.53	67.87

Summary of Average Yields & Indexing for 2009-2011:

In order to get a better indication of production, I have summarized yield results from 2009 to 2011 below. This table summarizes data from six sites over the three years.

Table 4: Summary of Average Yield & Index for 2009-2011 (6 trials)

Triticale Variety	Yield @ 65% moisture (tons/ac)	Average Index
Pronghorn	8.3	104
AC Ultima	8.2	102
Tyndal	8.0	100
Bunker	8.0	98
Taza	8.1	94

Discussion:

Pronghorn triticale has consistently been one of the top yielding varieties on the market; this was reflected this year at the Stony Plain site with AC Ultima being the highest yielding variety Tyndal being the lowest. .

Calcium levels in the triticale silage are typically lower than most cereal silages and are usually very close to the phosphorus levels. This causes an imbalance in the proper calcium to phosphorus ratio which can lead to milk fever or tetany problems in cattle. For more on nutritional analysis of silage see Appendix 1.

Triticale also has a wider window for harvest than barley, and is later maturing than barley, allowing for a less hectic silage season. On the down side, it is harder chopping, extremely hard on harvester knives and can be less palatable than barley silage.

Table 1: Harvest Timing of Forages for Silage

SPECIES	IDEAL HARVEST	ADDITIONAL INFO
Barley	Soft Dough	
Corn	2/3 Line on kernel or 70% whole plant moisture	May require waiting for a killing frost. Will not wilt.
Fababeans	One or two bottom pods on ¼ to 1/3 of the plants turn brown.	Store after wilting.
Oats	Late Milk	
Peas (Forage/Grain)	First Pods Wrinkle	Store after wilting.
Sunflowers	Back of head turns yellow and the leaves around head turn brown.	May require waiting for a killing frost. Will not wilt.
Millet (Proso/Foxtail)	Late Milk/Early Heading	Store after wilting.
Triticale	Soft Dough	

Appendix 1 – Silage Quality

This page is intended as a quick guide only. For more information consult the Silage Manual available from Alberta Agriculture & Food (AAF), or your local animal nutritionist.

Harvest timing and storage are the most critical factors influencing nutritional quality of silage. Harvest should take place as near to 65% moisture as possible (see Table 1 for species timing) as yield, nutrition, packing and ensiling are optimized. Drier forage packs poorly (leads to rotting/mould) while wet crops reduce intake and increase clostridial bacteria growth.

It is very important to test any forage that is fed to cattle, but especially critical with silage as the amount of moisture can vary significantly. Knowing the moisture level will minimize under or over feeding.

When looking at the feed test always look at the dry matter column. This gives the amount of nutrients in the feed minus the water (which has no nutritional value). Some of the more important measures you will find on the feed test are:

- Crude protein (CP) measures of the amount of total protein in the feed. In general, beef cows need 7% CP in early to mid-gestation, 9% mid to late gestation and 11% for lactation.
- Total digestible nutrients (TDN) is a measure of energy. Normal values are: grass/alfalfa 59-62% and cereal forage 62-64%.
- Calcium (Ca) should be above 0.3%. Calcium must be in at least a 1:1 ratio with phosphorus, but no more than 7:1. Legumes are high in calcium, grasses are moderate.
- Phosphorus (P) should be above 0.2%. Grain/grain forages are high in phosphorus and usually require supplementation of calcium and/or magnesium.
- Magnesium (Mg) should be above 0.2%.
- Potassium (K) should be below 2%. Animals eating forage containing high potassium require supplementation of calcium and/or magnesium.

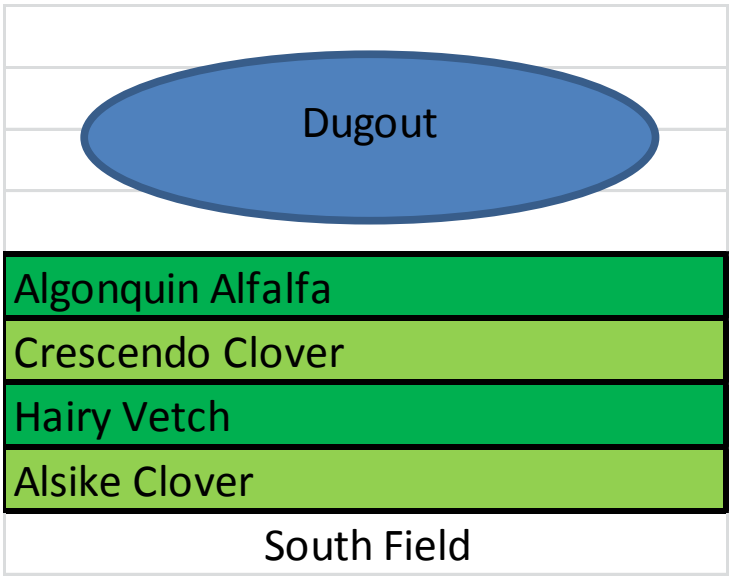
SOD SEEDING & AGRODRILL PASTURE REJUVINATION
Strip Demonstration

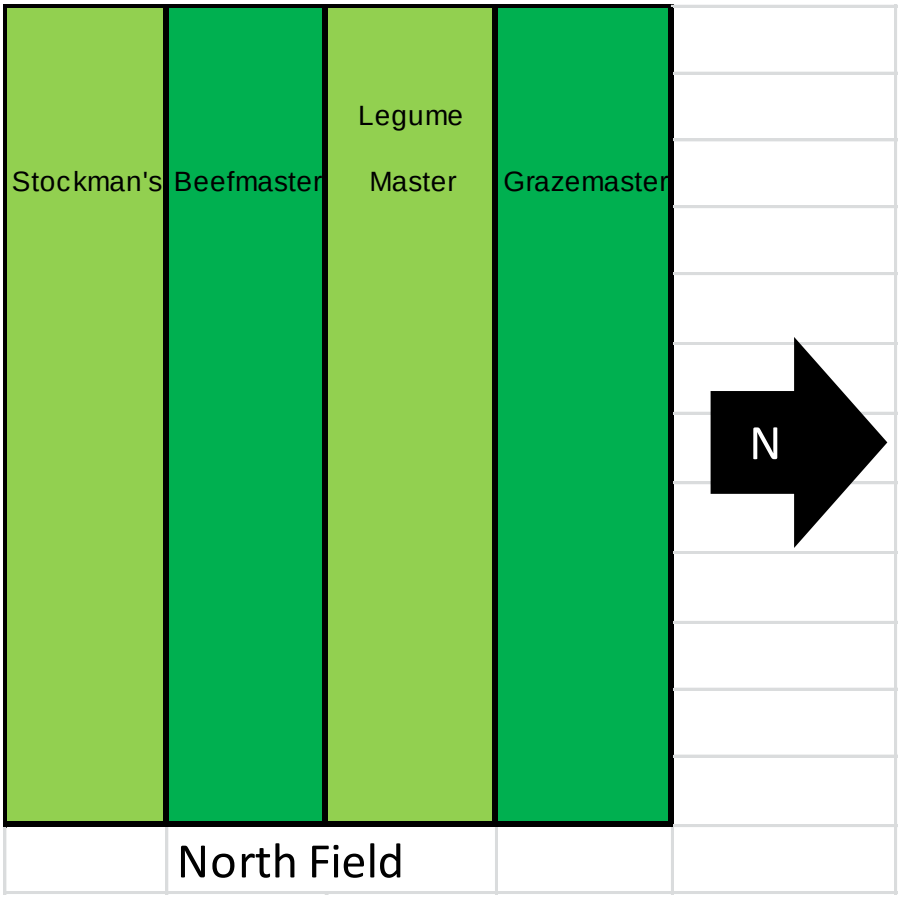
Cooperating Producer: Maurice Kruk
LSD: 9-5-60-20-W4 (South Field)
LSD: 16-5-60-20-W4 (North Field)

Our Cooperator was interested in using the AgroDrill to direct seed into an old stand of Bromegrass/Alfalfa hay land. With the assistance of Colby Simpson and his AgrowPlow drill, we seeded strips of legumes into two separate fields. In the north field, we made several passes directly into the old stand. In the south field, we seeded into a stand which had been previously sprayed out with 1L/acre rate of RoundUp. Seeding rates were 7-8 lbs per acre for all varieties with 25 lbs/acre Phosphorus and 35 lbs/acre Potassium.

Plant growth on the north field was slow and field production was low due to competition with existing plant stand and lower fertility. In the south field, co-operator was able to bale the strips in the fall. The vetch outperformed all other crops in production mid-summer.

Due to low production in the north field, co-operator sprayed out entire field and will seed it to silage barley in the spring of 2014.




Stockman's
Beefmaster
Legume
Master
Grazemaster
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North Field

REGIONAL VARIETY & SILAGE TRIAL AREA MAP

Regional Silage Trial Results by Zone

BARLEY

Variety	Overall Yield	Overall Station Years of Testing	Yield Category (% Vivar) Low < 2.0 (t/ac)	Medium 2.0 - 4.0 (t/ac)	High > 4.0 (t/ac)	Yield by Area (see map) 2	3	4	5	Nutritional Data CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Varieties tested in the 2012 - 2013 trials (Yield and agronomic data only directly comparable to Vivar)															
Vivar (t/ac)	**4.3**		**1.5**	**3.1**	**5.3**	**5.4**	**5**	**3**	**4.6**	**10.4**	**66.2**	**0.4**	**0.2**	**1.3**	**0.2**
Vivar	**100**	**17**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Busby	101	17	101	99	102	100	100	94	109+	101	99	100	103	98	92
CDC Austenson	111+	17	125	108	111	102	104	127	113+	108	100	87	105	108	94
CDC Coalition	101	17	97	103	100	106	91	104	101	104	100	82	104	104	88
CDC Cowboy	110+	17	133	108	109	95	109	120	111	98	97	100	107	114	105
CDC Maverick	99	7	XX	106	94	84	80	89	108+	97	97	97	104	109	101
Chigwell	96	17	104	96	96	93	88	100	100	104	97	109	100	106	100
Conlon	94	7	XX	101	88	85	90	98	100	98	98	86	107	97	88
Gadsby	110+	17	148	105	110	95-	103	119	113+	100	99	101	106	98	97
Muskwa	99	7	XX	103	97	109	87	102	103	104	97	104	103	124	97
Ponoka	106	17	120	100	109	105	100	112	111+	97	98	118	107	106	98
Ranger	101	7	XX	96	104	122	89	90	110	101	99	103	115	125	104
Seebe	105	17	118	103	106	101	103	113	107	109	97	103	118	115	91
Sundre	96	17	102	97	95	82	91	95	104	107	98	104	108	120	103
Trochu	96	17	112	92	97	96	90	101	101	105	100	108	108	111	107
Xena	105	17	111	108+	103	99	107	106	106	104	100	82	116	98	89

OATS

Variety	Overall Yield	Overall Station Years of Testing	Yield Category (% Murphy) Low < 2.0 (t/ac)	Medium 2.0 - 4.0 (t/ac)	High > 4.0 (t/ac)	Yield by Area (see map) 2	3	4	5	Nutritional Data CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Varieties tested in the 2012 - 2013 trials (Yield and agronomic data only directly comparable to Murphy)															
Murphy (t/ac)	**3.7**		**1.5**	**3.3**	**4.5**	**3.7**	**3.4**	**3.2**	**4.4**	**8.9**	**59.4**	**0.3**	**0.2**	**1.9**	**0.2**
Murphy	**100**	**17**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
AC Juniper	103	12	108	97	109	108	113	95	92	126	104	104	110	105	108
AC Morgan	104	17	97	102	108	108	105	100	100	116	106	107	109	95	96
AC Mustang	98	17	108	93	104	110	107	86	97	130	104	104	105	100	101
CDC Baler	98	17	93	95	103	102	111	103	95	129	105	108	109	105	101
CDC Haymaker	101	9	XX	99	104	99	135	125	93	128	104	108	107	111	98
CDC So-i	95	17	89	91	101	99	119	79-	96	123	105	105	94	106	106
Foothills	101	17	111	94	108	93	107	107	99	121	102	102	103	101	98
Jordan	100	17	100	95	107	114+	112	84	99	122	103	99	99	104	109
Waldern	103	17	126	101	102	96	120	99	98	113	103	117	98	98	99

PULSE MIXTURES

Variety	Overall Yield	Overall Station Years of Testing	Yield Category (% Vivar)			Yield by Area (see map)				Nutritional Data					
			Low < 2.0 (t/ac)	Medium 2.0 - 4.0 (t/ac)	High > 4.0 (t/ac)	2	3	4	5	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Varieties tested in the 2012 - 2013 trials (Yield and agronomic data only directly comparable to Vivar)															
Vivar (t/ac)	**4.1**		**2.7**	**3.5**	**7.3**	**4.4**	**4.4**	**2.3**	**3.5**	**9.6**	**63.1**	**0.5**	**0.2**	**1.5**	**0.2**
Vivar	**100**	**18**	**100**	**100**	**100**	**XX**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Murphy	117	17	132	119	98	86	106	157	120	91	95	85	103	122	97
Pronghorn	112	18	102	116	117	98	93	109	120	106	103	61	116	96	80
40-10 /murphy	96	18	105	97	82	55	76	132	99	130	98	153	122	119	133
40-10 /pronghorn	95	18	98	94	95	62	78	113	101	125	97	148	117	103	126
40-10 /vivar	94	18	91	94	101	70	77-	108	94	143	99	174	112	106	137
CDC Horizon/murp	107	18	116	107	98	52	90	144	113	109	95	129	103	118	117
CDC Horizon/pron	106	18	106	108	102	67	87	132+	111	127	99	136	109	104	110
CDC Horizon/vivar	95	18	95	99	86	74	85	112	97	134	99	146	111	105	121

Regional Variety Trial Results by Zone

MALTING BARLEY																				
					Yield Category[2] (% AC Metcalfe)				Agronomic Characteristics:					Disease Tolerance:[6]						
Variety	2 or 6 row	Awn Type[1]	Overall Yield	Overall Station Years of Testing	Low < 60 (bu/ac)	Medium 60 - 90 (bu/ac)	High 90 - 120 (bu/ac)	V. High > 120 (bu/ac)	Maturity Rating[4]	Test Weight (lb/bu)	TSW[5] (g)	Height (cm)	Resistance to Lodging[6]	Loose Smut	Other Smuts	Root Rot	Scald	Net Blotch: spot form	Net Blotch: net form	Fusarium Head Blight
MALTING ACCEPTANCE: RECOMMENDED																				
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Metcalfe)																				
AC Metcalfe (bu/ac)			**99.1**		**47**	**78.8**	**103.4**	**132.9**												
AC Metcalfe[3] ❀	**2**	**R**	**100**	**482**	**100**	**100**	**100**	**100**	**M**	**52**	**46**	**80**	**F**	**VG**	**F**	**F**	**VP**	**F**	**VP**	**F**
CDC PolarStar ❀	2	R	101	43	XX	103	105+	97	M	52	44	79	G	VP	VG	P	VP	G	VP	G
Major ❀	2	R	107+	72	104	108+	107+	106+	M	51	45	73	G	VG	G	F	P	G	F	F
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
Bentley ❀	2	R	105+	77	109	102	105+	106+	M	52	47	81	G	P	G	G	VP	VG	P	P
CDC Copeland ❀	2	R	103+	137	96	101	106+	104+	M	51	47	81	F	P	F	F	VP	F	F	F
CDC Kindersley ❀	2	R	104+	47	XX	102	104	104+	E	53	43	78	G	VP	VG	F	VP	G	P	F
CDC Meredith ❀	2	R	107+	65	102	108+	108+	107+	L	51	46	76	F	VG	G	G	VP	VG	VP	F
LEGACY ❀	6	SS	99	122	93	95-	102	103	M	49	39	82	G	F	G	G	VP	G	VP	P
Merit 57 ❀	2	R	109+	87	110+	108+	109+	111+	VL	51	44	79	F	P	VP	F	P	G	P	G
Newdale ❀	2	R	105+	94	106	104+	105+	106+	M	52	46	73	F	VP	G	G	P	G	F	F
Tradition ❀	6	SS	98	121	90-	95-	101	103	E	50	40	81	G	VP	G	G	VP	F	VP	VP
MALTING ACCEPTANCE: UNDER TEST																				
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Metcalfe)																				
AAC Synergy ▲	2	R	115+	27	XX	116	115+	113+	M	51	47	75	F	VP	F	F	VP	VG	G	P
CDC Anderson	**6**	R	96	44	XX	96	92	100	M	50	39	80	G	G	VG	F	P	G	P	F
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
CDC Mayfair ❀	6	R	97	56	XX	93-	96	104	E	49	40	76	G	VP	G	F	VP	G	P	P
Cerveza ▲	2	R	109+	49	XX	109+	108+	109+	M	51	46	74	F	VG	VG	F	VP	G	P	F
MALTING ACCEPTANCE: OTHER																				
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
Harrington	2	R	93-	284	96-	94-	93-	91-	M	51	44	78	F	P	P	F	VP	P	VP	G

Remarks: Malting Barley varieties are described as follows: Recommended: varieties with market acceptance and recommended by the Canadian Malting Barley Technical Centre (CMBTC); Under Test: varieties currently undergoing evaluation for market acceptance; and Other: not currently recommended but varieties where a market may exist. ABI Voyager and TR10214 - insufficient information to describe. ❀ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for. † - Flagged for removal.

[1]Awn types describe as R = rough, S = smooth and SS = semi-smooth. [2]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Metcalfe are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. [3]Yield is reported relative to AC Metcalfe.Varieties that are statistically higher (+) or lower (-) yielding than AC Metcalfe are indicated. No symbol after the yield figure indicates that there is no statistical difference. [4]Maturities rated as: VE - Very Early; E - Early; M - Medium; L - Late and VL - Very Late. Long term average days to maturity for AC Metcalfe is 95 days and rated as Medium maturing (M). [5]TSW: Thousand Seed Weight. [6]Resistance/Tolerance Ratings: VG - Very Good; G - Good; F - Fair; P - Poor and VP - Very Poor. Varieties having a rating of Fair (F) or Poor (P) to smuts should be treated with a systemic seed treatment to reduce the potential for plant infection.

FEED AND FOOD BARLEY

Variety	2 or 6 row	Awn Type[1]	Overall Yield	Overall Station Years of Testing	Yield Category[2] (% AC Metcalfe) Low < 60 (bu/ac)	Medium 60 - 90 (bu/ac)	High 90 - 120 (bu/ac)	V. High > 120 (bu/ac)	Agronomic Characteristics: Maturity Rating[4]	Test Weight (lb/bu)	TSW[5] (g)	Height (cm)	Resistance to Lodging[6]	Disease Tolerance:[6] Loose Smut	Other Smuts	Root Rot	Scald	Blotch: spot form	Blotch: net form	Fusarium Head Blight
GENERAL PURPOSE																				
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Metcalfe)																				
AC Metcalfe (bu/ac)			**99.1**		**47**	**78.8**	**103.4**	**132.9**												
AC Metcalfe[3] ❀	**2**	**R**	**100**	**482**	**100**	**100**	**100**	**100**	**M**	**52**	**46**	**80**	**F**	**VG**	**F**	**F**	**VP**	**F**	**VP**	**F**
Breton ▲	6	S	106+	29	XX	107	XX	108+	M	49	45	81	F	P	G	F	F	G	F	VP
CDC Maverick ▲	2	S	95-	43	XX	90-	97	96	M	54	55	98	F	VP	VG	F	P	G	F	F
Champion ❀	2	R	113+	124	124+	113+	112+	110+	M	53	49	77	G	VP	VG	XX	VP	F	VP	F
Muskwa ▲	**6**	S	105+	44	XX	103	105	110+	**M**	50	42	73	G	P	VG	P	G	G	P	VP
Brahma ▲	2	R	112+	72	109	110+	114+	112+	M	53	47	74	G	P	VG	G	VP	F	F	F
XENA ❀	2	R	112+	256	111+	109+	114+	112+	M	52	49	78	G	P	P	G	VP	F	VP	G
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
AC Harper ❀	6	SS	103+	166	95	96-	102	111+	M	48	40	80	G	P	F	F	F	F	F	P
AC Ranger	6	S	107+	48	101	99	118+	107+	L	49	43	74	F	P	F	G	P	G	F	VP
AC Rosser ❀	6	S	108+	166	101	102	109+	113+	M	48	41	82	G	P	VG	G	VP	G	F	VP
Busby ❀	2	R	104+	45	107	103	106	103	M	53	49	78	G	VP	G	VP	F	G	P	F
CDC Austenson ❀	2	R	112+	65	108	113+	111+	112+	L	54	46	78	G	VP	VG	F	VP	VG	P	F
CDC Coalition ❀	2	R	110+	57	107	112+	108+	109+	L	53	47	74	G	VG	VG	F	VP	G	VP	F
CDC Cowboy ❀	2	R	95-	75	107	94-	93-	96-	L	52	55	103	F	P	G	F	P	G	F	G
CDC Dolly	2	R	101	184	97	100	103+	100	M	53	49	74	F	VP	F	F	F	P	VP	G
CDC Trey ❀	2	R	103+	106	101	105+	101	105+	M	52	50	80	G	P	VG	G	P	VG	F	F
Chigwell ❀	6	S	104	43	XX	98	106	111+	M	49	41	76	G	P	G	P	G	G	F	VP
CONLON ❀	2	S	94-	63	97	93-	93-	96-	VE	52	52	80	G	F	F	G	VP	G	F	G
Gadsby ▲	2	R	112+	45	XX	114+	114+	108+	M	53	51	83	F	VG	VG	F	VG	G	P	F
Ponoka ❀	2	R	108+	120	101	107+	110+	109+	L	51	46	80	G	VG	VG	F	G	G	P	F
Seebe	2	R	101	229	97	100	102	100	VL	52	50	86	G	VP	VG	F	G	P	VP	G
Sundre ❀	6	S	110+	72	100	105	112+	117+	L	51	43	86	G	P	VG	P	VG	F	P	VP
Trochu ❀	6	S	107+	136	101	102	109+	112+	M	49	41	78	G	P	G	G	F	G	VP	F
SEMI - DWARF																				
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Metcalfe)																				
Vivar ❀	6	R	110+	203	99	105+	111+	117+	M	49	44	74	VG	F	VG	G	F	G	VG	VP
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
CDC Bold	2	R	106+	77	111+	107+	106+	102	M	53	48	72	VG	P	G	G	VP	F	VP	VP
HULLESS																				
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Metcalfe)																				
CDC Clear ▲	2	R	95-	43	XX	92-	100	XX	L	62	47	85	G	VG	VG	F	VP	VG	P	G
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
CDC Carter ❀	2	R	97-	45	97	99	94-	XX	M	62	39	77	VG	VG	VG	VP	P	G	F	F
CDC McGwire ❀	2	R	93-	107	88-	93-	99	XX	M	61	39	80	VG	P	G	G	F	G	F	G
Tyto	6	S	81-	72	79-	84-	96	96	M	55	40	73	VG	VP	VG	F	P	F	VP	P

Remarks: General Purpose barley varieties are described as follows: 1) General Purpose varieties - standard height; 2) Semi Dwarf - varieties shorter than standard General Purpose varieties and 3) Hulless - Hulless General Purpose type. In hulless varieties comparable yields are 9-12% lower. Hulless seed is more susceptible to damage than hulled seed, so handling should be minimized. CDC Carter, CDC McGwire are normal starch hulless barleys suitable for food use. CDC Clear is a hulless malting variety. TR10694 and TR11698 - insufficient information to describe. New names: Brahma (TR07728). ❀ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for. † - Flagged for removal. XX - Insufficient data to describe.

[1]Awn types describe as R = rough, S = smooth and SS = semi-smooth. [2]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Metcalfe are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. [3]Yield is reported relative to AC Metcalfe. Varieties that are statistically higher (+) or lower (-) yielding than AC Metcalfe are indicated. No symbol after the yield figure indicates that there is no statistical difference. [4]Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Metcalfe is 95 days and rated as Medium maturing (M). [5]TSW: Thousand Seed Weight. [6]Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

OAT

Variety	Overall Yield	Overall Station Years of Testing	Yield Category[1] (% CDC Dancer)				Agronomic Characteristics					Tolerance to Smuts[5]
			Low < 70 (bu/ac)	Medium 70 - 100 (bu/ac)	High 100-130 (bu/ac)	Very High > 130 (bu/ac)	Maturity Rating[3]	Test Weight (lb/bu)	TSW[4] (g)	Height (cm)	Resistance to Lodging[5]	
MILLING												
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to CDC Dancer)												
CDC Dancer (bu/ac)	**94**		**48.7**	**84.2**	**113.5**	**145.9**						
CDC Dancer[2] ❀	**100**	**118**	**100**	**100**	**100**	**100**	**E**	**41**	**37**	**94**	**G**	**VG**
CDC Ruffian ▲	111+	20	110	XX	XX	XX	M	40	39	95	G	VG
CDC Seabiscuit ❀	111+	30	124	106	108	108	**M**	39	41	101	**G**	**G**
Souris ❀	114+	20	126+	XX	XX	XX	M	41	34	92	VG	VG
Stride ❀	104+	30	101	102	107	106	M	42	35	104	G	VG
Previously tested varieties (Yield and agronomic data only directly comparable to CDC Dancer)												
AC Juniper	104+	80	102	104	106+	105+	E	41	38	94	VG	F
AC Morgan	111+	95	110+	110+	111+	115+	M	40	40	92	VG	F
Bradley ❀	104+	31	XX	103	108	106	M	39	39	92	VG	VG
CDC Boyer	102	89	103	102	100	105	M	39	42	101	G	P
CDC Minstrel ❀	104+	61	103	103	105	105+	M	39	38	88	VG	VG
CDC Orrin ❀	109+	52	113+	107+	107+	XX	M	41	40	84	G	VG
CDC Weaver ❀	104	44	108+	103	100	100	M	40	43	91	F	VG
Derby	101	79	103	102	96-	105	L	41	39	103	G	P
Jordan ❀	112+	36	112+	109+	117+	XX	VL	38	44	87	G	VG
Triactor ❀	110+	47	109	108+	114+	110+	M	38	38	89	G	VG
FEED												
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to CDC Dancer)												
CDC Nasser	116+	31	132	107	115+	110	L	38	36	98	G	G
Previously tested varieties (Yield and agronomic data only directly comparable to CDC Dancer)												
AC Mustang *	114+	108	118+	112+	110+	116+	L	42	37	103	G	F
Lu *	100	58	99	98	99	108	VE	41	39	85	G	VG
FORAGE												
Previously tested varieties (Yield and agronomic data only directly comparable to CDC Dancer)												
CDC Baler *	99	42	96	106	96	XX	L	40	43	99	XX	VP
Murphy ❀ *	95-	51	93	96	97	94	M	39	36	108	XX	VP

Remarks: Use higher seeding rates for large seeded varieties. New names: CDC Ruffian (OT3054) and Souris (ND961161). AAC Justice and CDC Haymaker - insufficient data to describe. ❀ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for. † - Flagged for removal.

* These varieties have limited data compared to CDC Dancer and yields have been adjusted to CDC Dancer from Cascade.

[1]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields (bu/ac) for CDC Dancer are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories.

[2]Yields are reported relative to CDC Dancer. Varieties that are statistically higher (+) or lower (-) yielding than CDC Dancer are indicated. No symbol after the yield figure indicates that there is no statistical difference. [3]Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for CDC Dancer is 98 days and rated as Early maturing (E).

[4]Thousand Seed Weight. [5] Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor.

SPRING TRITICALE

Variety	Overall Yield	Overall Station Years of Testing	Yield Category[1] (% AC Ultima) Low < 60 (bu/ac)	Medium 60 - 80 (bu/ac)	High 80-110 (bu/ac)	V. High > 110 (bu/ac)	Agronomic Characteristics: Maturity Rating[3]	Test Weight (lb/bu)	TSW[4] (g)	Height (cm)	Resistance to:[5] Lodging	Shattering	Sprouting	Disease Tolerance:[5] Ergot	Bunt	Fusarium Head Blight
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Ultima)																
AC Ultima (bu/ac)	**86**		**47**	**73**	**99**	**143**										
AC Ultima[2]	**100**	**188**	**100**	**100**	**100**	**100**	**E**	56	45	97	**G**	**G**	**F**	**P**	**VG**	**F**
Brevis	109+	35	103	107+	112+	110+	M	60	45	91	G	G	F	P	VG	P
Sunray	98-	48	100	98	97	95	E	56	45	92	VG	G	F	G	VG	P
Taza ❀	98	48	101	97	100	95-	M	57	47	99	G	G	F	F	VG	VP
Previously tested varieties (Yield and agronomic data only directly comparable to AC Ultima)																
Bumper ❀	104	41	117+	99	101	96	E	45	45	89	VG	G	F	XX	VG	P
Bunker ❀	91-	49	87-	93-	89-	93	VL	48	48	107	F	G	F	XX	VG	F
Pronghorn	101	179	99	100	101	100	M	43	43	99	G	G	F	F	VG	G
Tyndal ❀	101	55	106	101	97	96	L	44	44	97	G	G	P	XX	VG	P

Remarks: All varieties are late maturing compared to CWRS wheat (approximately five days later). AC Ultima yields about 30% more than AC Barrie (CWRS Wheat) in areas of adaptation. Companion is a forage type. Bunker, Taza, and Tyndal are reduced-awn varieties. ❀ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for.

[1]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Ultima are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. [2]Yields are reported relative to AC Ultima. Varieties that are statistically higher (+) or lower (-) yielding than AC Ultima are indicated. No symbol after the yield figure indicates that there is no statistical difference.

[3]Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Ultima is 112 days and rated as Late maturing (M). [4]Thousand Seed Weight. [5]Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor.

DURUM

Variety	Overall Yield	Overall Station Years of Testing	Yield Category[1] (% Strongfield) Low < 45 (bu/ac)	Medium 45 - 75 (bu/ac)	High > 75 (bu/ac)	Agronomic Characteristics: Maturity Rating[3]	Protein (%)	Test Weight (lb/bu)	TSW[4] (g)	Height (cm)	Resistance to:[5] Lodging	Shattering	Sprouting	Disease Tolerance:[5] Loose Smut	Bunt	Stripe Rust	Leaf Spot	Fusarium Head Blight
CANADA WESTERN AMBER DURUM																		
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to Strongfield)																		
Strongfield (bu/ac)	**63.8**		**34.5**	**60.8**	**95.3**													
Strongfield[2] ❀	**100**	**118**	**100**	**100**	**100**	**M**	**13.9**	**62**	**46**	**84**	**F**	**VG**	**F**	**VP**	**F**	**G**	**P**	**VP**
AAC Raymore	98	24	XX	100	XX		0.6	62	47	80				P	G	G	F	VP
Brigade ❀	103	69	105	103	102	L	-0.6	63	48	88	G	XX	F	P	VG	G	F	P
CDC Desire	105+	24	XX	104	XX		-0.1	62	44	81				P	VG	G	F	VP
CDC Vivid	100	24	XX	100	XX		-0.2	62	45	80				F	VG	XX	F	VP
Previously tested varieties (Yield and agronomic data only directly comparable to Strongfield)																		
AC Avonlea ❀	94-	60	100	89-	95-	M	XX	63	44	90	F	G	F	VP	VG	F	P	P
AC Navigator ❀	95-	65	102	93-	93-	M	XX	63	45	77	G	G	G	VP	VG	VG	VP	VP
CDC Verona ❀	102	46	103	103	99	M	1.1	62	46	82	G	XX	F	P	VG	VG	P	P
Enterprise ❀	101	48	104	100	102	M	-0.1	63	44	83	G	XX	F	P	G	VG	F	P
Eurostar ❀	102	47	100	105+	99	L	1	64	47	88	G	XX	F	P	VG	VG	F	P
Transcend ❀	102	35	103	101	100	M	1	62	47	89	F	XX	F	VP	VG	VG	F	P

Remarks: Generally durum wheat should only be grown in south and south-eastern portion of Alberta due to late maturity. Outside these areas, durum is late maturing and subject to quality loss. All durum varieties are susceptible to two new races of loose smut and are generally more susceptible than CWRS varieties to Fusarium Head Blight. Strongfield yields about 10% higher than AC Barrie in areas of best adaptation. Navigator is grown under contract. New names: AAC Raymore (DT818), CDC Desire (DT561) and CDC Vivid (DT562). DT570, DT832 and DT833 - insufficient data to describe. ❀ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for. † - Flagged for removal. XX - Insufficient data to describe.

[1]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for Strongfield are reported in the Overall and Low, Medium and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. [2]Yields are reported relative to Strongfield. Varieties that are statistically higher (+) or lower (-) yielding than Strongfield are indicated. No symbol after the yield figure indicates that there is no statistical difference. [3]Maturities rated as: VE - Very Early; E - Early; M - Medium; L - Late and VL - Very Late. Long term average days to maturity for Strongfield is 105 days and rated as Medium maturing (M). [4]Thousand Seed Weight. [5]Resistance/Tolerance Ratings: VG - Very Good; G - Good; F - Fair; P - Poor and VP - Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

SPRING WHEAT

Variety	Overall Yield	Overall Station Years of Testing	Yield Category[1] (% AC Andrew) Low < 55 (bu/ac)	Medium 55 - 85 (bu/ac)	High > 85 (bu/ac)	Agronomic Characteristics: Maturity Rating[3]	Protein (%)	Test Weight (lb/bu)	TSW[4] (g)	Height (cm)	Resistance to:[5] Lodging	Shattering	Sprouting	Disease Tolerance:[5] Loose Smut	Bunt	Stripe Rust	Leaf Spot	Fusarium Head Blight
SOFT WHITE SPRING WHEAT (Yield and agronomic data only directly comparable to AC Andrew)																		
AC Andrew (bu/ac)	**81**		**42**	**76**	**115**													
AC Andrew[2]	**100**	**140**	**100**	**100**	**100**	**L**	**10.9**	**63**	**39**	**79**	**VG**	**VG**	**P**	**VP**	**VP**	**F**	**P**	**F**
AC Meena	97-	51	101	97-	95	L	0	61	37	80	G	G	F	P	VP	VG	F	VP
Sadash ❀	110+	51	113+	109+	109+	L	0.2	63	39	82	VG	VG	P	F	VP	VG	F	VP

Remarks: All soft white spring wheat varieties have a semi-dwarf stature. AC Andrew yields about 35% more than AC Barrie. SWS varieties may have potential demand as a feedstock in the production of ethanol. Soft white spring wheat is susceptible to pre-harvest sprouting. AAC Chiffon - insufficient information to desacribe.

❀ - Plant Breeder's Rights. XX - Insufficient data to describe.

[1]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Andrew are reported in the Overall and Low, Medium and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. [2]Yields are reported relative to AC Andrew. Varieties that are statistically higher (+) or lower (-) yielding than AC Andrew are indicated. No symbol after the yield figure indicates that there is no statistical difference. [3]Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Andrew is 110 days and rated as Late maturing (L). [4]Thousand Seed Weight. [5]Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

SPRING WHEAT

Variety	Overall Yield	Overall Station Years of Testing	Yield Category[1] (% AC Barrie) Low < 45 (bu/ac)	Medium 45 - 70 (bu/ac)	High > 70 (bu/ac)	Agronomic Characteristics: Maturity Rating[3]	Protein %	Test Weight (lb/bu)	TSW[4] (g)	Height (cm)	Resistance to:[5] Lodging	Sprouting	Disease Tolerance:[5] Loose Smut	Bunt	Stripe Rust	Leaf Spot	Fusarium Head Blight
CANADA WESTERN RED SPRING																	
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Barrie)																	
AC Barrie (bu/ac)	**59**		**35**	**55**	**79**												
AC Barrie[2] ❀	**100**	**398**	**100**	**100**	**100**	**M**	**14.1**	63	37	88	**G**	**G**	**G**	**F**	**VP**	**P**	**F**
5604HR CL ❀	99	76	102	98	99	M	-0.7	63	33	87	G	G	P	F	XX	P	F
AAC Bailey ▲	104	44	104	104	105	**E**	-0.8	63	37	91	**G**	**G**	P	F	XX	F	F
AAC Brandon	112+	27	XX	115+	110+		-0.3	65	38	81			G	VP	G	F	G
AAC Elie	114+	27	XX	118+	110+		-0.3	65	38	81			F	F	G	F	F
AAC Redwater	102	27	XX	106	100		-0.1	64	35	87			P	F	G	P	F
Cardale	105+	27	XX	107	102		-0.4	63	36	84			F	VP	G	P	G
CDC VR Morris	107+	27	XX	111+	106		0	65	37	88			F	F	XX	F	G
CDC Plentiful	105+	27	XX	107	106		-0.3	64	35	87			VG	F	G	F	G
CDC Stanley ❀	113+	76	114+	114+	113+	M	-0.8	63	34	87	G	G	G	VP	F	F	P
CDC Thrive ▲	108+	66	107	107+	110+	E	-0.4	63	36	88	G	P	G	F	F	F	P
Katepwa	98-	328	97-	98-	98-	M	-0.2	62	35	93	F	F	G	G	P	P	F
SY433 ▲	104	44	101	104	104	M	-1	64	39	95	G	G	F	VP	XX	F	G
Previously tested varieties (Yield and agronomic data only directly comparable to AC Barrie)																	
5602HR ❀	105+	80	101	104	109+	M	0.7	63	37	91	G	F	VG	G	F	P	G
5603HR ❀	105+	63	104	107+	104+	L	-0.5	63	33	87	G	VG	P	F	P	G	F
AC Eatonia ❀	94-	78	87-	97	92-	M	0.4	62	35	92	P	G	F	G	F	P	XX
AC Elsa ❀	103+	110	99	105	104	M	0.2	62	35	89	G	F	G	F	F	F	P
AC Intrepid ❀	102	107	98	103	105+	E	0	62	39	90	G	P	F	G	G	P	P
AC Splendor	95-	153	93-	96-	98	VE	0.9	61	37	89	F	F	F	F	F	F	P
Alvena ❀	101	68	100	101	103	E	0.1	63	37	90	G	P	G	G	F	XX	P
Carberry ❀	107+	53	117+	104	104	L	-0.6	64	38	79	VG	F	G	VG	G	P	G
CDC Abound ❀	110+	88	108+	110+	112+	M	-0.1	63	40	82	G	F	F	F	P	P	VP
CDC Go	110+	92	103	111+	116+	M	-0.1	61	42	83	G	VP	P	F	G	VP	P
CDC Imagine ❀	104+	76	102	104	109+	M	0.1	61	37	83	G	F	G	G	F	P	VP
CDC Kernen ❀	107+	61	110	102	110+	M	-0.3	63	37	92	G	F	VG	F	F	P	F
CDC Osler	106+	74	103	106+	108+	E	0	61	35	85	G	F	G	G	F	F	VP
CDC Utmost VB▲	112+	53	115+	112+	111+	M	-0.2	64	36	85	G	G	P	VP	F	F	P
Fieldstar VB❀	102	50	102	102	102	M	-0.4	63	33	88	F	VG	F	F	P	F	F
Glenn ❀	104	61	110+	100	104	L	-0.2	65	36	85	VG	F	F	F	G	F	F
Goodeve VB❀	105+	96	107+	103	104	M	-0.1	62	36	88	VG	G	G	P	F	P	VP
Harvest ❀	102	118	98	103	104	M	-0.1	62	36	84	VG	VG	G	VP	G	P	VP
Infinity ❀	104+	74	104	104+	106+	M	-0.4	62	33	89	G	G	G	G	P	P	VP
Kane ❀	99	51	95-	98	102	M	0.4	64	36	85	G	VG	P	F	F	F	F
Lillian ❀	104+	87	111+	100	104	M	0.2	61	37	86	G	G	F	G	VG	G	VP
McKenzie	103+	104	101	104	105+	M	-0.4	62	34	90	F	VG	P	VG	P	F	F
Muchmore ❀	110+	53	119+	107	109	L	-0.9	63	37	75	VG	G	G	VG	G	P	P
Park	97	45	91-	98	102	VE	-0.2	62	35	92	F	G	G	XX	P	P	VP
Peace	100	53	100	97	103	M	0.1	63	37	92	G	P	VG	VG	G	XX	VP
Shaw VB❀	112+	53	116+	109+	113+	M	-0.9	63	37	92	G	G	vp	G	F	P	P
Stettler ❀	112+	69	119+	109+	111+	M	-0.3	63	37	84	G	G	VG	F	F	VP	P
Superb ❀	112+	184	110+	112+	115+	L	-0.4	62	42	85	G	F	F	G	VP	VP	P
Unity VB❀	110+	71	111+	110+	111+	M	-0.7	64	36	89	G	G	P	VG	P	P	P
Vesper VB ❀	106+	45	106	108+	104	M	-1.5	63	37	90	VG	F	F	VP	VP	F	F
WR859 CL ❀	106+	79	110+	103	107+	M	-0.4	64	34	81	G	G	VG	VG	F	P	G
Waskada ❀	100	67	101	98	102	M	0.1	64	37	92	G	VG	G	VG	P	P	G
CANADA WESTERN HARD WHITE																	
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Barrie)																	
AAC Iceberg	103	25	XX	105	104		-0.9	64	39	86			P	F	G	P	F
Whitehawk ▲	95	27	XX	98	97	E	-0.9	63	33	90	G	G	F	P	P	P	F
Previously tested varieties (Yield and agronomic data only directly comparable to AC Barrie)																	
Snowbird ❀	101	94	99	101	101	M	-0.2	62	36	89	G	G	G	P	P	VP	F
Snowstar ❀	102	58	99	103	102	M	-0.8	64	30	82	XX	G	P	VP	P	F	P

Remarks: AC Eatonia and Lillian are adapted to sawfly areas. Alikat is adapted to acid soils. C.W. Red Spring Wheat grown under irrigation tends to have lower grades. 5604HR CL, CDC Abound, CDC Imagine, CDC Thrive and WR589 CL are tolerant to the CLEARFIELD® herbicides Adrenalin SC and Altitude FX. VB - designates a varietal blend for midge tolerance. New names: AAC Brandon (BW932); AAC Elie (BW931); AAC Iceberg (HW021), AAC Redwater (PT457) and Whitehawk (HW024). BW918, BW947, HW612, PT584 and PT765 - insufficient data to describe. ❀ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for. † - Flagged for removal.

XX - Insufficient data to describe.

[1]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Barrie are reported in the Overall and Low, Medium, and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results.

[2]Yields are reported relative to AC Barrie. Varieties that are statistically higher (+) or lower (-) yielding than AC Barrie are indicated. No symbol after the yield figure indicates that there is no statistical difference. [3]Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Barrie is 106 days and rated as Medium maturing (M). [4]Thousand Seed Weight. [5]Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

SPRING WHEAT

Variety	Overall Yield	Overall Station Years of Testing	Yield Category[1] (% AC Barrie) Low < 45 (bu/ac)	Medium 45 - 90 (bu/ac)	High > 90 (bu/ac)	Agronomic Characteristics: Maturity Rating[3]	Protein (%)	Test Weight (lb/bu)	TSW[4] (g)	Height (cm)	Resistance to:[5] Lodging	Sprouting	Disease Tolerance:[5] Loose Smut	Bunt	Stripe Rust	Leaf Spot	Fusarium Head Blight
CANADA PRAIRIE SPRING - RED																	
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Barrie)																	
AC Barrie (bu/ac)	**64**		**XX**	**XX**	**XX**												
AC Barrie ❀ [2]	**100**	**14**	**100**	**100**	**100**	**L**	**13**	**62**	**42**	**79**	**G**	**P**	**F**	**VG**	**VP**	**F**	**VP**
AAC Ryley	112	23	XX	XX	XX		0	61	48	82			F	VG	VP	P	P
Conquer ❀	120	51	XX	XX	XX	M	0.3	62	45	84	G	P	P	VG	G	F	P
Enchant ❀	95	23	XX	XX	XX		-0.2	62	48	85			P	VG	XX	P	VP
Previously tested varieties (Yield and agronomic data only directly comparable to AC Crystal)																	
5700PR ❀	104+	117	110+	103+	103	M	-0.8	62	42	75	VG	F	P	VG	P	P	P
5701PR ❀	103	113	102	102	110	M	-0.5	61	42	78	G	P	F	F	G	P	VP
5702PR ❀	103	52	114	102	100	M	-0.7	61	40	79	G	P	P	F	P	F	P
AC Foremost	99	124	101	98-	100	M	0.1	62	43	73	VG	F	F	VG	VP	P	VP
SY 985 ❀	115	37	XX	116	86-	M	-0.1	62	44	78	G	F	VG	G	XX	F	F
CANADA WESTERN GENERAL PURPOSE																	
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to AC Barrie)																	
CDC NRG003 ❀	124+	38	XX	127+	97	M	-0.8	61	43	80	G	F	P	VG	XX	P	VP
Pasteur	120	23	XX	XX	XX		-0.9	62	45	83			P	VP	G	F	F
Previously tested varieties (Yield and agronomic data only directly comparable to AC Crystal)																	
NRG010 ❀	123+	51	XX	125+	102	L	-1.5	62	41	83	G	P	P	VG	VG	F	P
Minnedosa ❀	116+	44	130+	117+	95	M	-0.8	62	43	82	G	G	F	G	G	P	P

Remarks: CPS varieties are more susceptible to take-all root rot than other wheat classes. AC Crystal, 5700PR, 5701PR, and 5702PR have improved quality compared to AC Foremost and AC Taber. 5700PR and 5702PR are grown under contract. Conquer VB is the only CPS-red midge variety. Varieties in the General Purpose market class are intended for ethanol and livestock feed purposes. AAC Chiffon, AAC Proclaim, GP087, GP097, HY995, HY1319 and HY1610 - insufficient data to describe. ❀ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for. XX - Insufficient data to report.

[1]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for AC Barrie are reported in the Overall and Low, Medium and High Yield Test Categories. Note that small plot yields may be 10-15% higher than field scale results. [2]Yields are reported relative to AC Barrie. Varieties that are statistically higher (+) or lower (-) yielding than AC Barrie are indicated. No symbol after the yield figure indicates that there is no statistical difference. [3]Maturities rated as: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average days to maturity for AC Barrie is 106 days and rated as Late maturing (L). [4]Thousand Seed Weight. [5]Resistance/Tolerance Ratings: VG - Very Good; G - Good; F - Fair; P - Poor and VP - Very Poor. Varieties having a rating of Fair (F) or Poor (P) to loose smut or bunt should be treated with a systemic seed treatment to reduce the potential for plant infection.

Changes:

1. AC Crystal yields about 20% higher than AC Barrie. - removed
2. Should we add to Remarks - AC Barrie was used for one year as the check because AC Crystal and AC Taber were removed from the test.

AC Barrie was only used for 1 year as the check but the varieties tested were there for 2 or more years. Also, if the comment at the bottom that says AC Crystal out yield by 20% on average then all the CPS's that are currently in test would only yield as much as AC Crystal or less which I find very hard to believe - Trent

3. Proteins - one year data (2013).

SOYBEANS

Variety	Type	Overall Yield[1]	Station Years of Testing	Agronomic Characteristics					
				Days to Flowering	Pod height[2]	Plant Height (cm)	Days to Maturity[3]	TSW[4] (g)	Relative Seeds, (lb)
Varieties tested in the 2013 trials									
NSC Warren (kg ha[1])		**3028**							
NSC Warren	**RR**	**100**	**5**	48	13	**55**	**118**	**126**	**3600**
900Y61	RR	80	5	49	13	54	119	158	2870
900Y71	RR	99	5	49	14	55	116	159	2850
CFS12.3.02	RR2Y	121	5	53	18	57	119	146	3100
CFS13.2.02	RR2Y	92	5	48	17	62	118	171	2650
McLeod	RR2Y	110	5	51	17	65	117	163	2780
NSC Moosomin	RR2Y	98	5	48	13	48	112	148	3060
NSC Reston	RR2Y	110	5	48	14	56	114	143	3170
P001T34	RR	66*	5	48	10	41	107	143	3170
Pekko	RR2Y	94	5	53	16	57	117	155	2920
Sampsa	RR2Y	93	5	51	14	55	120	152	2980
SC2380	RR2Y	98	5	48	15	61	119	150	3020
TH 29002	RR	80*	5	49	13	53	114	131	3460
TH 32004	RR2Y	100	5	51	14	58	118	141	3210
TH 33003	RR2Y	117	5	48	16	67	117	143	3170
TH 33005	RR2Y	95	5	51	16	61	120	149	3040
Vito	RR2Y	87	5	48	13	68	118	146	3100

Remarks: Straight combining is commonly used method of harvest. Swathing soybean can result in excessive field losses (up to 25%) due to shattering. Approximately four beans or one to two pods per square foot represent a yield loss of "one bushel" per acre. In 2013, only five locations of possible 10 had soybeans which was harvestable. These locations are: Bow Island, Brooks, Fahler, Medicine Hat and Vegreville.

[1]Yields are reported relative to NSC Warren. *Indicates that seed yields are statistically significant from that of NSC Warren. No symbol after the yield figure indicates that there is no statistical difference.

[2]Distance from the ground level to lowest pod. [3]Maturity - avarege days for the Brooks and Bow Island trials.

[4]Thousand Seed Weight, g.

FIELD PEA - YELLOW

Variety	South		East Central		West Central		Peace		Total Site Years	Overall Yield (%)	Agronomic Characteristics				Tolerance to[4]					
	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)			Maturity Rating[1]	Vine Length (cm)	TSW[2] (g)	Standability[3] (1 - 9)	Powdery Mildew	Mycosphae-rella Blight	Fusarium Wilt	Seed Coat Breakage	Seed Coat Dimpling[5]	Green Seed Coat[6]
Varieties tested in the 2013 trials (Relative Yield as % of CDC MEADOW)																				
CDC MEADOW (kg/ha)		**3821**		**4262**		**6082**		**5478**		**4868**										
CDC MEADOW		**100**		**100**		**100**		**100**	101	**100**	**E**	**82**	**209**	**3.6**	**VG**	**F**	**F**	**G**	**G**	**G**
AAC Peace River (A)	4	98	5	95	1	97	6	96	16	96	E	78	212	3.7	VG	F	F	F	G	G
Abarth ▲	8	113+	10	104	3	107	11	99	32	105	M	79	248	4.1	VG	F	F	F	G	G
CDC Amarillo	8	108	10	100	3	114	11	109+	32	106+	M	86	222	3.4	VG	F	G	F	F	G
CDC Saffron	13	108	14	101	4	100	16	101	47	103	M	84	236	4.3	VG	F	F	G	F	G
AAC Lacombe (A)	4	124+	5	110	1	126	6	115+	16	116+	M	83	259	3.7	VG	F	P	G	F	G
Fully Tested Varieties (Relative Yield as % of CDC MEADOW)																				
Hugo ❀	11	102	14	83-	5	90	17	96	47	93-	M	73	210	5.2	VG	F	F	G	F	F
Stella ❀ NR F	11	76-	14	80-	5	83-	15	81-	45	80-	M	95	213	3.9	VG	F	F	G	G	F
Fully Tested Varieties (Relative Yield as % of CUTLAS: 2003 - 2011)																				
CUTLASS (kg/ha) ❀		**3243**		**3485**		**5665**		**4684**		**4292**										
CUTLASS ❀	**26**	**100**	**38**	**100**	**25**	**100**	**61**	**100**	**151**	**100**	**M**	**71**	**228**	**4**	**VG**	**F**	**F**	**F**	**F**	**G**
Agassiz ❀	6	100	11	102	9	102	20	104	46	103	M	77	236	2.9	VG	F	F	G	VG	G
Argus ❀	7	100	9	114+	3	103	14	101	33	105+	M	89	227	4.1	VG	F	F	F	F	G
CDC Centennial	5	101	12	99	9	104	14	100	40	101	E	61	259	4.8	VG	F	G	G	G	F
CDC Hornet	10	101	12	116+	6	110	15	103	43	107+	M	89	215	3.7	VG	F	F	F	F	G
CDC Prosper NR	6	93	12	97	8	97	19	98	45	97-	E	73	149	4	VG	F	G	G	F	G
CDC Treasure NR	6	96	12	105	8	98	19	100	45	101	E	81	217	3.5	VG	F	F	G	F	F
DS-Admiral ❀	13	97	18	108	13	98	24	104	69	102	M	68	246	3.1	VG	P	F	F	G	F
Eclipse ❀	17	103	27	103	20	99	33	103	98	102	M	64	255	3.2	VG	F	F	G	F	G
Polstead ❀	5	97	12	99	9	99	16	104	42	101	E	62	262	3.7	VG	P	P	F	VG	F
Reward ❀	5	86	12	106	9	102	13	101	39	101	M	76	248	2.5	VG	F	F	G	VG	F
SW Midas ❀	10	103	17	106	11	91-	21	99	59	100	E	65	213	3.1	VG	P	F	G	G	G
Thunderbird	6	89	11	96	9	99	14	99	40	97	M	76	229	2.1	VG	F	F	G	VG	XX
Fully Tested Varieties (Relative Yield as % of CARRERA: 2000 - 2005)																				
CARRERA (kg/ha)		**2593**		**2926**		**5098**		**3986**		**3677**										
CARRERA ❀	**14**	**100**	**28**	**100**	**15**	**100**	**33**	**100**	**96**	**100**	**E**	**53**	**257**	**4.6**	**P**	**P**	**F**	**F**	**G**	**XX**
CDC Bronco	11	91	14	102	8	94	15	117	49	102	M	63	218	4.1	VG	F	F	G	G	G
CDC Golden	11	101	14	105	8	102	15	109	49	105	M	68	224	3.4	VG	F	F	G	G	G
CDC Minuet	12	97	26	100	11	92	22	111	76	102	M	64	192	4.9	VG	F	F	F	G	F
CDC Mozart	8	108	17	100	7	97	14	105	48	103	M	62	241	5.9	VG	F	F	G	G	F

Remarks: Stella is a silage type pea. ❀ = Protected by Plant Breeder's Rights (PBR); ▲ = Applied for PBR protection; A = First year entries (2013); NR = Variety not registered with CFIA; F = Forage type. XX = No data available.

[1]Maturity: E = early, M = medium, L = Late; [2]Thousand Seed Weight: g; [3]Standability: 1 = erect, 9 = flat; [4]Tolerance to: P = poor, F = fair, G = good, VG = very good; [5]Seed Coat Dimpling: VG = very good (0 - 5%), G = good (6 - 20%), F = fair (21 - 50%); [6]Green Seed Coat: G = good (0 - 10%), F = fair (11 - 25%).

FIELD PEA - GREEN

Variety	South		East Central		West Central		Peace		Total Site Years	Overall Yield (%)	Agronomic Characteristics				Tolerance to:[4]					
	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)			Maturity Rating[1]	Vine Length (cm)	TSW[2] (g)	Standability[3] (1 - 9)	Powdery Mildew	Mycosphae-rella Blight	Fusarium Wilt	Bleaching	Seed Coat Breakage	Seed Coat Dimpling[5]
Varieties tested in the 2013 trials (Relative Yield as % of CDC PATRICK)																				
CDC PATRICK		**4420**		**4343**		**6232**		**4522**		**4688**										
CDC PATRICK	**20**	**100**	**27**	**100**	**13**	**100**	**33**	**100**	**93**	**100**	**M**	**81**	**188**	**4.6**	**VG**	**F**	**G**	**G**	**G**	**G**
CDC Limerick	9	106	10	107+	3	98	12	104	34	105+	L	79	211	3.8	VG	F	F	G	VG	G
CDC Pluto	14	100	14	94	5	91	19	96	52	96-	M	82	170	6	VG	F	F	G	G	G
CDC Raezer	14	95	14	116+	5	103	19	104	52	105	M	89	227	4.2	VG	F	G	G	G	G
CDC Tetris	14	104	14	111+	5	98	19	106	52	106	L	91	215	4.4	VG	F	G	G	G	G
Fully Tested Varieties (Relative Yield as % of COOPER: 2004 - 2012)																				
COOPER (kg/ha)		**4111**		**3843**		**5979**		**4793**		**4609**										
COOPER ❀		**100**		**100**		**100**		**100**		**100**	**L**	**75**	**270**	**3.5**	**VG**	**F**	**F**	**G**	**F**	**G**
CDC Sage	5	79-	8	83-	8	81-	15	85-	36	82	M	72	198	3.1	VG	F	G	G	VG	G
CDC Striker	5	96	12	108	5	104	22	95-	44	100	M	70	253	2.9	P	F	G	G	G	F
Mendel ❀	6	85-	11	95	4	92	17	90-	38	91	M	78	205	3.9	VG	F	F	G	F	G

Remarks: CDC Tetris is an Espace type with blocky seed shape; ❀ = Protected by Plant Breeder's Rights (PBR); XX = No data available; † = Flagged for removal.

[1]Maturity: E = Early, M = Medium, L = Late; [2]Thousand Seed Weight: g; [3]Standability: 1 = Erect, 9 = Flat; [4]Tolerance to: P = Poor, F = Fair, G = Good, VG = Very Good; [5]Seed Coat Dimpling: VG = Very Good (0 - 5%), G = Good (6 - 20%), F = Fair (21 - 50%).

LENTILS

Market Class	Variety	Overall Yield	Station Years of Testing	Agronomic Characteristics					Disease Tolerance[6]	
				TSW[2] (g)	Plant Height (cm)	Maturity Rating[3]	Cotyledon Colour[4]	Seed Coat Colour[5]	Ascochyta	Anthracnose
Varieties tested in the 2013 trials										
	CDC REDBERRY (kg/ha)	**3116**								
	CDC REDBERRY[1]	**100**	**22**	**43**	**36**	**E**	**R**	**GR**	**G**	**G**
Extra Small Red	CDC Impala (CL)	95	12	31	34	E	R	GR	G	G
	CDC Imperial (R; CL)	82*	15	30	37	E	R	GR/BR	G	G
	CDC Redbow	104	12	32	35	E	R	GR	G	G
	CDC Rosebud	100	12	30	35	E	R	T	G	G
	CDC Rosetown	102	15	31	38	E	R	GR	G	G
	CDC Rosie (A)	123	3	31	34	EM	R	GR	G	G
	CDC Ruby	96	10	29	33	E	R	GR	G	G
Small Red	CDC Dazil (CL)	95	10	36	36	E-M	R	GR	G	F
	CDC Imax (CL)	97	11	45	37	E-M	R	GR	G	F
	CDC Maxim (R; CL)	104	12	42	35	E-M	R	GR	G	G
	CDC Redcliff	112*	10	39	36	E-M	R	GR	G	F
	CDC Redcoat	100	12	42	35	E	R	GR	G	G
	CDC Scarlet (A)	124	3	40	36	EM	R	GR	G	F
Large Red	CDC KR-1	109	7	54	39	M	R	GR	G	G
Small Green	CDC Imvincible (CL)	100	11	34	36	E	Y	G	G	G
Medium Green	CDC Imigreen (CL)	78*	7	60	41	M	Y	G	G	VP
	CDC Impress (R; CL)	86*	7	51	37	M	Y	G	G	P
Large Green	CDC Greenland (R)	82*	7	66	37	M-L	Y	G	G	VP
	CDC Impower (CL)	77*	7	71	37	ML	Y	G	G	VP
	CDC Improve (R; CL)	83	7	74	39	M	Y	G	F	VP
Previously tested varieties										
Extra Small Red	CDC Robin (R)	87*	15	28	34	E	R	BR	G	G
Small Red	CDC Blaze (R)	85*	10	38	30	E-M	R	GR	G	P
	CDC Cherie	108	3	41	35	E-M	R	G	G	F
	CDC Impact (R; CL)	84*	8	36	37	E	R	GR	G	P
	CDC Rouleau (R)	106	5	37	37	M	R	GR	G	G
	Crimson (R)	75	10	39	27	E	Y	BR	VP	VP
Small Green	CDC Milestone (R)	101	18	39	32	E	Y	G	G	VP
	CDC Viceroy (R)	107	13	35	33	E	Y	G	G	G
	Eston (R)	89	5	34	35	E	Y	G	VP	VP
French Green	CDC Peridot (CL)	116	1	37	XX	E	Y	MRB	F	P
Spanish Brown	Pardina	106	1	40	XX	X	Y	GR/DT	VP	VP

Remarks: Weight, diameter and thickness of lentil seeds will vary depending on environmental conditions and agronomic factors. Note yield results for the new varieties (2013; A) are not significantly different, due to limited years of testing. All four trials: Bow Island, Brooks, Lethbridge and Medicine Hat were grown in Area 1. R = Registered with CFIA; CL= Clearfield variety; XX = No data.

[1]Yields are reported relative to CDC Redberry. CDC Redberry belongs to Small Red Market Class. *Seed yields are statistically significant from that of CDC Redberry at p=0.05 level. No symbol after the yield figure indicates that there is no statistical difference.

[2]Thousand Seed Weight: g; [3]Maturity: E = Early, M = Medium, L = Late, VL = Very Late. [4]Cotyledon Color: R = Red, Y = Yellow, G = Green;

[5]Seed Coat Color/Patterns: G = Green, GR = Grey, BR = Brown, FG = French Green, T = Tan, MRB = Marbled, DT = Dotted;

[6]Disease resistance: VP = Very Poor, P = Poor, F = Fair and G = Good.

CHICKPEA

Variety	Type	Overall Yield[1]	Station Years of Testing	Agronomic Characteristics			Tolerance to Ascochyta[4]
				TSW[2] (g)	Maturity Rating[3]	Plant Height (cm)	
Varieties tested in the 2013 trials							
CDC FRONTIER (kg ha)		**4699**					
CDC FRONTIER[1]	**Kabuli**	**100**	**25**	**365**	**L**	**43**	**F**
CDC Cabri	Desi	93*	21	330	E	45	F
CDC Corinne	Desi	113	6	255	M	47	F
CDC Cory	Desi	103	6	290	M	48	F
CDC Vanguard	Desi	95	9	237	ML	47	F
Amit (R)	Kabuli	90*	25	270	L	44	F
CDC Alma	Kabuli	84*	10	396	ML	39	VP
CDC Leader	Kabuli	100	6	409	ML	42	F
CDC Luna	Kabuli	85*	10	383	ML	41	P
CDC Orion	Kabuli	89*	10	460	ML	42	P
Previously tested varieties							
CDC Chichi	Kabuli	77	8	340	M	47	P
CDC Chico	Kabuli	87	8	250	E	46	VP
CDC Diva	Kabuli	71*	15	450	L	41	F
CDC Xena	Kabuli	72*	15	450	L	41	VP
CDC Yuma	Kabuli	73*	15	420	L	45	P
Sanford	Kabuli	69*	15	410	L	47	VP

Remarks: Note yield results for some varieties are not significantly different, due to limited years of testing. All four trials: Bow Island, Brooks, Lethbridge and Medicine Hat were grown in Area 1.

[1]Yields are reported relative to CDC Frontier. *Seed yields are statistically significant from that of CDC Frontier at p=0.05 level. No symbol after the yield figure indicates that seed yields are statistically comparable. [2]Thousand Seed Weight: g;

[3]Maturity Rating: E = Early, M = Medium, ML = Medium Late, L = Late; [4]Tolerance to Ascochyta: VP = Very Poor, P = Poor, F = Fair.

DRY BEANS - NARROW ROW

Variety	Type	Site Years 1997 - 2012	Yield (% of check)	Days to Bloom[1]	Days to Maturity	TSW[2] (g)	Plant Height	Lodging[3] (1 - 5)	Growth Habit[4]
AC BLACK DIAMOND (kg/ha)			**2898**						
AC BLACK DIAMOND	**Black Shiny**	**18**	**100**	**56**	**102**	**247**	**38**	**2.4**	**II**
CDC Blackcomb	Black Matte	2	89	64	-1	200	39	1.8	II
ISLAND (kg/ha)			**2838**						
ISLAND	**Pinto**	**8**	**100**	**60**	**103**	**322**	**43**	**2.9**	**II**
2537-12 (A)	**Pinto**	1	67	53	-6	429	35	1.8	**II**
CDC WM-2	Pinto	5	72	60	1	326	43	2.5	II
L09PT129 (A)	Pinto	1	111	58	-3	373	44	1.8	II
Medicine Hat	Pinto	4	96	63	4	313	46	2	II
Winchester	Pinto	5	80	58	2	302	45	2.6	II
AC Resolute (kg/ha)			**2602**						
AC Resolute	**Great Northern**	**14**	**100**	**54**	**102**	**323**	**40**	**2.4**	**II**
AAC Tundra	Great Northern	2	110	64	-4	342	43	2	II
AC Polaris	Great Northern	14	117	58	4	293	41	3.5	II
L08GN743 (A)	Great Northern	1	115	52	-8	349	45	2.3	II
AC REDBOND (kg/ha)			**2569**						
AC REDBOND	**Small Red**	**17**	**100**	**51**	**100**	**303**	**39**	**2.3**	**II**
CDC Sol (kg/ha)			**1333**						
CDC Sol	**Yellow**	**4**	**100**	**51**	**114**	**347**	**32**	**2.0**	**I**
VIVA (kg/ha)			**2307**						
VIVA	**Pink**	**15**	**100**	**52**	**99**	**249**	**32**	**3.5**	**III**

Remarks: A = First year entries; [1]Days to bloom from seeding; [2]Thousand Seed Weight; [3]Lodging: 1 = erect, 5 = flat.

[4]Growth Habit: I = determinate bush, II = indeterminate bush, III = indeterminate prostrate.

DRY BEANS - WIDE ROW

Variety	Type	Site Years 1997 - 2012	Yield (% of check)	Days to Bloom[1]	Days to Maturity	TSW[2] (g)	Plant Height	Lodging[3] (1 - 5)	Growth Habit[4]
AC BLACK DIAMOND (kg/ha)			**2978**						
AC BLACK DIAMOND	**Black Shiny**	**42**	**100**	**57**	**104**	**261**	**39**	**2.1**	**II**
CDC Blackcomb	Black Matte	6	79	63	-1	171	35	1.8	II
ISLAND (kg/ha)			**3642**						
ISLAND	**Pinto**	**16**	**100**	**57**	**101**	**364**	**41**	**2.8**	**II**
CDC WM-2	Pinto	11	75	60	0	359	41	1.5	II
Medicine Hat	Pinto	9	87	68	3	341	41	1.3	II
Othello	Pinto	8	90	58	0	353	36	3.5	III
Winchester	Pinto	16	86	55	0	336	40	2.3	II
AC Resolute (kg/ha)			**2814**						
AC Resolute	**Great Northern**	**22**	**100**	**53**	**101**	**338**	**42**	**2.3**	**II**
AAC Tundra	Great Northern	6	116	61	-3	340	39	2.3	II
AC Polaris	Great Northern	25	116	57	4	316	40	3.5	II
L08GN743 (A)	Great Northern	3	121	52	-3	364	41	2.7	II
AC REDBOND (kg/ha)			**3203**						
AC REDBOND	**Small Red**	**39**	**100**	**53**	**101**	**316**	**41**	**2.4**	**II**
CDC Sol (kg/ha)			**1936**						
CDC Sol	**Yellow**	**9**	**100**	**66**	**105**	**365**	**32**	**1.0**	**I**
Myasi	Yellow	6	91	67	6	342	31	1.0	I
VIVA (kg/ha)			**3090**						
VIVA	**Pink**	**39**	**100**	**55**	**104**	**255**	**36**	**3.6**	**III**

Remarks: A = First year entries; [1]Days to bloom from seeding; [2]Thousand Seed Weight; [3]Lodging: 1 = erect, 5 = flat.

[4]Growth Habit: I = determinate bush, II = indeterminate bush, III = indeterminate vine.

FABABEANS

Variety	Overall Yield	Station Years of Testing	Type	Relative Maturity[1]	Plant Height (cm)	Thousand Seed Weight (g)	Flower Color[2]
Varieties tested in the 2013 trials							
SNOWBIRD (KG/HA)	**7650**						
SNOWBIRD ❀	**100**	**22**	**Zero Tanin**	**E**	**92**	**480**	W
FB18-20	103	8	Tanin	M	77	670	C
Imposa ❀	99	8	Zero Tanin	L	80	540	W
Malik	98	8	Tanin	M	80	610	C
Snowdrop ❀	85-	8	Zero Tanin	E	84	297	W
Fully Tested Varieties: 2000-2007							
EARLIBIRD ❀ KG/HA[1]	**7300**						
EARLIBIRD ❀	**100**	Fully Tested	Tanin	**E**	**93**	**520**	**C**
Ben ❀	112+	Fully Tested	Tanin	E	101	580	C
CDC Blitz R	102	Fully Tested	Tanin	ML	96	460	C
CDC Fatima R	97	Fully Tested	Tanin	M	92	530	C
Cresta	96	Fully Tested	Zero Tanin	M	86	590	W
Scirocco	106	Fully Tested	Tanin	ML	89	580	C

Remarks: All colored flower types have seed coats that contain tannins and may be suitable for export food markets if seed size and quality match customer demand. Varieties with more than ten site years are Fully Tested. ❀ = Protected by Plant Breeders' Rights (PBR); R = Registered with CFIA.

New varieties: Malik (FB9-4) and FB18-20.

[1]Maturity: E = early, M = medium, ML = medium late, L = late; [2]Flower Colour: W = white flower, zero tannin, C = colored flower, tannin.

FLAX

Variety	Overall Yield	Overall Station Years of Testing	Yield Category[1] (% CDC Bethune)				Agronomic Characteristics:			
			Low < 20 (bu/ac)	Medium 20 - 35 (bu/ac)	High 35 -50 (bu/ac)	Very High > 50 (bu/ac)	Maturity Rating[3]	Seed Size	Height (cm)	Resistance to Lodging[4]
Varieties tested in the 2013 trials (Yield and agronomic data only directly comparable to CDC Bethune)										
CDC Bethune (bu/ac)	**36.3**		**14.5**	**29.1**	**44.5**	**59.4**				
CDC Bethune[2] ❀	**100**	**115**	**100**	**100**	**100**	**100**	**L**	**M**	**59**	**VG**
AAC Bravo ▲	104	23	XX	XX	103	104+	VL	L	64	VG
CDC Glas	105+	15	XX	XX	104	XX			64	
CDC Sanctuary	105+	28	XX	100	100	108+	VL	M	64	G
WestLin 70	91-	15	XX	XX	93	XX			68	
Prairie Grande ❀	98-	59	102	100	92-	99	M	M	55	VG
Prairie Sapphire ❀	96	23	XX	XX	97	101	M	M	64	G
Previously tested varieties (Yield and agronomic data only directly comparable to CDC Bethune)										
CDC Sorrel ❀	104	32	112	104	100	99	L	L	61	G
Flanders	99	49	93	101	101	99	VL	S	58	G
Hanley ❀	97-	37	99	97	95	97	L	M	53	VG
Prairie Thunder ❀	99	40	101	98	99	99	M	M	55	VG
Taurus ❀	98-	27	103	97	XX	XX	L	M	53	VG

REMARKS: New names: WestLin 70 (FP2325). FP2347 - insufficient information to describe. ❀ - Plant Breeder's Rights.

† - Flagged for removal. XX - Insufficient data to describe.

[1]Yield Test Categories are based on the site means for small plot trials. The defined range for each Yield Test Category is provided in bu/ac. The actual yields for CDC Bethune are reported in the Overall and Low, Medium, High, and Very High Yield Test Categories. [2]Yields are reported relative to CDC Bethune. Varieties that are statistically higher (+) or lower (-) yielding than CDC Bethune are indicated. No symbol after the yield figure indicates that there is no statistical difference. [3]Maturity rating: VE = Very Early; E = Early; M = Medium; L = Late and VL = Very Late. Long term average maturity for CDC Bethune in Alberta is 110 days and rated as Late maturing (L). [4]Resistance to Lodging: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor.

Report Number: C13129 10286
Account Number: 05091

To: GATEWAY RESEARCH ORG.
BOX 5065
WESTLOCK, AB T7P 2P6

Attn: REED RIGNEY
780-349-2012

A & L Canada Laboratories Inc.

2136 Jetstream Rd. London, Ontario N5V 3P5
Telephone: (519) 457-2575 Fax: (519) 457-2664

C13129-1 2210

For:

Field: SE 23-61-26-W4

Heifer Pasture

Reported Date:2013-05-11 Printed Date:2013-05-11

SOIL TEST REPORT

Page:1

Sample Number	Legal Land Descpt:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	pH Buffer	CEC meq/100g	Percent Base Saturations % K	% Mg	% Ca	% H	% Na
Y1		12	19125	9.0	8 L	12 VL	132 M	555 H	4920 H	7.9		29.6	1.1	15.6	83.1		0.3
Y2		12	19126	5.2	12 L	16 L	72 L	470 M	4520 H	7.9		26.7	0.7	14.7	84.6		0.2
Y6		12	19127	9.6	15 M	22 M	104 M	560 M	5670 H	7.8		33.5	0.8	13.9	84.5		0.9

Sample Number	Sulfur S ppm		lbs/ac	Nitrate Nitrogen NO3-N ppm		lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
Y1	26	VL	94	1	VL	4							1 VL	193	0.0 G	0.07	109		23 VL
Y2	23	VL	83	1	VL	4							1 VL	187	0.0 G	0.05	65		14 VL
Y6	124	VH	446	1	VL	4							2 L	101	0.0 G	0.06	109		73 M

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, VT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By: Ian McLachlin, Vice President

Report Number: C13129-10289
Account Number: 03051

A & L Canada Laboratories Inc.

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C13129-10289

To: GATEWAY RESEARCH ORG.
BOX 5865
WESTLOCK, AB T7P 2P6

For: RATKES

Field: PLOT LOCATION
SW 31-1-W5

Attn: REED RIGNEY
780-349 2312

Reported Date:2013-05-11 Printed Date:2013-05-11

SOIL TEST REPORT

Sample Number	Legal Land Descpt	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer	CEC meq/100g	Percent Base Saturations %K	%Mg	%Ca	%H	%Na
1		6	19130	3.9	15 L	30 L	214 H	205 M	2210 H	6.2	6.9	14.6	3.8	11.7	75.9	8.1	0.5

Sample Number	Sulfur S ppm	lbs/ac	Nitrate Nitrogen NO3-N ppm	lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
1	13 VL	23	20 H	36							6 M	615	0.3 G	0.32	51		16 L

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

* Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
* If this report contains soil in excess of 7500 ppm Ca it may or may not effect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.

The results of this report relate to the sample submitted and analyzed.

* Crop yield is influenced by a number of factors in addition to soil fertility.

No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By: Ian McLachlin, Vice President

Report Number: C13137-10078
Account Number: 03591

A & L Canada Laboratories Inc.

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BOX 5065
WESTLOCK, AB T7P 2P6

For:

Field: KRUK SOD

Attn: REED BIGNEY
780-349-2012

Reported Date: 2013-05-17 Printed Date: 2013-05-18

SOIL TEST REPORT

Page: 1

Sample Number	Legal Land Descpt.	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	Buffer pH	CEC meq/100g	% K	% Mg	% Ca	% H	% Na
1 NORTH		6	25892	8.5	9 VL	13 VL	113 M	310 M	3930 VH	7.6		22.5	1.3	11.5	87.2		0.2

Sample Number	Sulfur S ppm		Sulfur S lbs/ac	Nitrate Nitrogen NO3-N ppm		Nitrate Nitrogen NO3-N lbs/ac	Zinc Zn ppm	Manganese Mn ppm	Iron Fe ppm	Copper Cu ppm	Boron B ppm	Soluble Salts mmhos/cm	Saturation %P	Aluminum Al ppm	Saturation %Al	K/Mg Ratio	ENR	Chloride Cl ppm	Sodium Na ppm
1 NORTH	33	L	59	6	L	11							1 VL	126	0.0 G	0.11	96		10 VL

W VL = VERY LOW, L = LOW, M = MEDIUM, H = HIGH, VH = VERY HIGH, G = GOOD, MA = MARGINAL, MT = MODERATE PHYTO-TOXIC, T = PHYTO-TOXIC, ST = SEVERE PHYTO-TOXIC

SOIL FERTILITY GUIDELINES (lbs/ac)

Sample Number	Previous Crop	Intended Crop	Yield Goal	Lime Tons/Acre	N	P2O5	K2O	Mg	Ca	S	Zn	Mn	Fe	Cu	B

[1] Recs are based on building nutrients to a level to maintain soil health. Banding and/or precision placement techniques can be utilized to increase fertilizer efficiency.
[2] If this report contains soil in excess of 7500 ppm Ca it may or may not affect the calculated Cation Exchange Capacity. Excessive seed placed fertilizer can cause injury.
The results of this report relate to the sample submitted and analyzed.
[3] Crop yield is influenced by a number of factors in addition to soil fertility.
No guarantee or warranty concerning crop performance is made by A & L.

Results Authorized By: Ian McLachlin, Vice President

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