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

CROPS	LIVESTOCK
<input type="checkbox"/> Cereal/Oilseed	<input type="checkbox"/> Pasture Management
<input type="checkbox"/> Pulse Crops	<input type="checkbox"/> Livestock Management
<input type="checkbox"/> Other Specialty Crops	<input type="checkbox"/> 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 (GRO) 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
Acting GRO Chairman

I wish to extend a thank you to all who helped make 2012 a success. It was a year that presented numerous challenges for the agricultural community and GRO was no exception. We were able to establish our research sites throughout the membership area and are grateful for the generosity of our co-operating producers and the venders that support our efforts. It is our desire that you find the data acquired from these plots helpful with your future farming decisions.

Our heifer pasture operated well for the year and we made some minor improvements with an upgraded squeeze and will be continuing with further upgrades in 2013.

On behalf of the board of directors I would like to extend a big thank you to each member for their continued support and also to our staff for all that they do.

Should you have any questions or suggestions we would appreciate it greatly if you contacted any one of the directors or give the office a call and share them with us.

Sincerely,



Keith Taylor
Acting GRO Chairman

MANAGER'S REPORT

Michelle Holden
Interim Manager & Crops Research Agronomist

Thank you to all those who made our 2012 season a success. This past year we had three main sites which were located in Stony Plain, Neerlandia and Dapp. We also had our Western Forage Testing Trial site which was established in 2010 near Barrhead. Weather stations were again put up at three main sites and the real data from those stations can be found on page ten of this report.

This past year was not without its challenges and we saw a dry spring in some areas, followed by much rain, storms and high temperatures in July. The areas which were dry at seeding in May contributed to lower yields in many cases. Severe lodging was noticed in some of the trials, and several of our plots were discontinued. One of our weather stations malfunctioned due to excess moisture, and data was not collectable at Neerlandia for August - October.

I would like to thank Brad Wierenga for the donation of land at Neerlandia, Keith Taylor at Dapp, Kevin & Brian Ratke at Stony Plain, and Ken Anderson at Barrhead.

I am pleased to have joined the GRO team in early October, and look forward to working with our board of directors and membership for a productive and informative 2013 season. Much thanks to Megan Balascak and Chelsea Geiger for spending their time getting me up to speed and answering my endless array of questions. I truly would not have been able to accomplish year end and annual reports without you!! Visitors are a welcome sight at our office, so please do not hesitate to come down for a coffee and a chat.

We are planning three sites again for the coming growing season which will be in Westlock, Barrhead and Parkland counties. GRO would like to thank each of the partnering counties for their continued support and guidance with our trials and demonstrations. We are always looking for new trials and varieties for the crop/silage variety testing so if you have an idea or something you would like to see let us know, we would love to hear from you!

Sincerely,



Michelle Holden

A year in review... Message from the Executive Director



2012 provided significant challenges for timely moisture and weather events such as hail but a long, dry harvest was welcome news. There were many personnel changes with our Associations hiring new Managers at GRO, LARA, MARA and SARDA and staff changes at BRRG, CARA, FS, NPARA, PCBFA and WCFA. This has been a challenge for our Association Boards and ARECA to mentor and support Associations who have been focused on recruiting well qualified personnel and orienting them to the administration and management of an Association. Through this change, we have welcomed very competent Managers and Staff who have stepped in to learn how an Association is managed. Interestingly, we have 70% of Associations managed by women and our thirty-two professional staff includes four PhD, three MSc and twenty five BSc who have a combined agricultural experience of 250 years. Of course, each Association has land and complementary equipment to deliver world class applied research on behalf of Alberta's farmers. Well done!!

For **ARECA**, we reviewed our strategic plan in July with the ARECA Board, Association Managers and ARECA representatives. From this review, a plan of action was developed in November. Three areas were highlighted including securing alternative funding, creating awareness (external communications) and capacity building (training and internal communications). The **ARECA Board** of Directors convened for five Board meetings plus seven conference calls. Discussion has been about policy and governance, advocacy, strategic planning, training, participation in FarmTech and membership fees. Of particular interest is the work being done by our Advocacy Committee under the chair of Dianne Westerlund with CARA. We also respectfully acknowledge the contributions of JP Pettyjohn with SARDA who chaired the Policy Committee and our Team Chairs, Kabal Gill with SARDA, Laura Gibney with FFGA and Torsten Flyng with WCFA (Crops, Forage/Livestock, Environmental). The ARECA Board experienced change with the resignations of Manfred Gross, Richard Fritzier and Vance Yaremko while Herman Wyering was appointed to the Board.

The **ARECA website** continues to about 5000 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 140 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. Regional Variety Trials are under the coordination of Alex Fedko with Alberta Agriculture and Rural Development (ARD) and have continued to be financially supported by industry. This was the final year of the **Regional Silage Variety Trial** with six Associations reporting on the nutritional value of annual crops for feed (silage, greenfeed and swath grazing). The project

has been funded by the Alberta Beef Producers (ABP) and a request for continued funding from ABP was denied.

The **Precision Tools for On Farm Research** project involved six Associations and fourteen farmers working to learn about field scale research. In 2009, there were thirteen fields, seventeen fields in 2010 and ten fields in 2011 committed to the study. What have we learned? The response of canola to increasing rates of nitrogen fertilizer over several years, while significant, was small. Given current fertilizer costs, this limited response would not justify the additional fertilizer expense. For field peas, the TagTeam treatment out-yielded both the inoculant plus phosphorus and inoculant treatments by eight bus/ac. Variation of crop yield occurred between locations in the field as well as from year to year. It is easier to manage spatial compared to temporal variation provided the scale of the variation is sufficiently large to be accommodated by today's equipment since it can be predictable from year to year. Funding for this project was provided by the Alberta Government, Alberta Pulse Growers Commission, Alberta Canola Producers Commission and Novzymes.

ARECA hosted the first "**PRECISION AG 2.0: The Next Generation**" Conference at the Deerfoot Inn & Casino in Calgary, February 2012. This two-day conference attracted 320 attendees, with approximately 30% producers and 52% industry/consultants. Over 55% of the attendees were from Central/Southern Alberta and 23% from Saskatchewan. The majority of attendees have farm operations in dry land (82%) and cereals/pulses (67%) and over 50% farm/consult/influence on areas of 10,000 acres or more. The educational program consisted of consecutive keynote speakers or industry panels each morning, and ten breakout sessions in the afternoon. The tradeshow was sold out, bringing 37 exhibitors and 23 sponsors. Sponsors were provided with coverage on our website, advertisements, and onsite at the event. ARECA and a committee of Association members organized the event.

Just over 300 participants came from across western Canada to attend the **Western Canadian Grazing Conference** and Tradeshow in Red Deer, Alberta in November. Unique to this conference, we started with a field tour of Dr. Vern Baron's swath grazing project site, followed by an excellent presentation by Dr. Baron and a question period that lasted 45 minutes. About 90 people attended the tour and expressed their appreciation for the value they received. The tradeshow opened up on the evening of November 27th with over forty exhibitors showing what they contribute to the forage, livestock and grazing industry. The members of the planning team would like to express a huge thank-you to the agri-businesses and other industry groups who sponsored the event. Co-chairs of the Conference, Vicki Heidt and Albert Kuipers did a great job.

ARECA and Associations are valued leaders in applied agriculture research and extension. Our mission is to collaborate with member associations and partners to support applied agricultural research and extension in Alberta. As we go forward in 2013, I wish to thank everyone for their contributions and efforts in 2012.

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

Alberta Agriculture & Food
Barrhead County
Parkland County
Westlock County
ARD - Alberta Opportunity Fund (AOF)

Project Partners

Alberta Barley Commission
Alberta Beef Producers
Alberta Pulse Growers Commission
SeCan
ARECA Applied Research Associations

In-Kind Contributors

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

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Barrhead Co-op
Don Petryshen
Doug Balascak
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Glen and Cole Seigle
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Growth Agri-Coaching – Geoff Doell
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Jonk Farms – Nick Jonk
Kevin & Brian Ratke
Monsanto
Neerlandia Coop
Pickseed Canada
Pioneer Hybrid Seeds
Brad Wierenga

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Viterra Westlock
Westlock Seed Cleaning Co-op
Westlock County - Jacolyn Tigert
Westlock Terminals
William Punko

Sincere apologies if I have overlooked any of our generous contributors!



GATEWAY RESEARCH ORGANIZATION

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Director	Ken Anderson	(780) 674-5670
Director	Nick Jonk	(780) 349-5458

WEATHER STATION DATA - 2012

Table 1. Precipitation (mm)

Month	Neerlandia	Dapp	Stony Plain
May	.3	0	.5
June	30.7	41.4	39.1
July	69.1	121.2	173.5
August*	x	37.3	56.9
September*	x	15.5	32.5
October*	x	6.6	1.5

Table 2. Average Temperature (°C)

Month	Neerlandia	Dapp	Stony Plain
May	23	x	23
June	20.1	21.3	20.6
July	22.8	24.4	24
August*	x	23.2	24
September*	x	20.2	22.8
October*	x	10.1	22.1

*Some data is not available due to technical difficulties

Effects of Seed Treatment on Yield & Economic Return in Field Pea Demonstration

Background

This trial was first established in 2009. The plots were eventually wiped out by deer at the site and the trial was discontinued. In 2010, it was established again and high winds and hail forced us to discontinue the trial. In 2011, the site was established yet again, and the plots established well and were well-managed, however, staff turnover led to much of the data being lost. 2012 was a successful year and GRO is able to provide information and data for a final report.

Objectives

- To determine the effects of seed treatment on field pea yields
- To determine any economic advantage of using seed treatment on field peas
- To determine the effects of seeding timing in conjunction with use of seed treatment on field pea yield

Project Description

- 1 year, small plot (1.4x6m) RCBD trial with 4 replications
 - Treatments were as follows
1. Early Seeding Date - Control (no seed treatment)
 2. Early Seeding Date - Seed Treatment #1
 3. Early Seeding Date - Seed Treatment #2
 4. Mid-May Seeding Date - Control (no seed treatment)
 5. Mid-May Seeding Date - Seed Treatment #1
 6. Mid May Seeding Date - Seed Treatment #2

PLOT PLAN & RANDOMIZATION

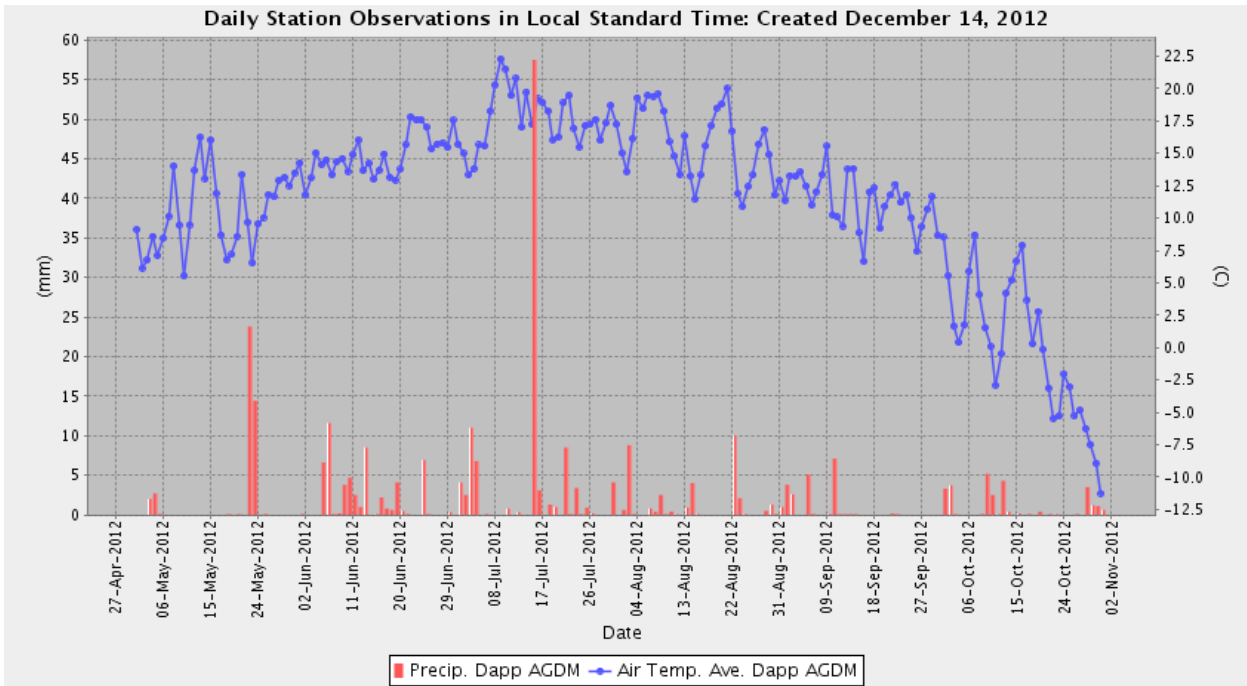
TRT	TRT DESCRIPTION
1	Early Seeding - Control
2	Early Seeding - Apron Max
3	Early Seeding - Vitaflow
4	Late Seeding - Control
5	Late Seeding - Apron Max
6	Late Seeding - Vitaflow

301 - trt 1	302 - trt 3	303 - trt 2	304 - trt 5	305 - trt 6	306 - trt 4
201 - trt 3	202 - trt 1	203 - trt 2	204 - trt 5	205 - trt 6	206 - trt 4
101 - trt 1	102 - trt 2	103 - trt 3	104 - trt 4	105 - trt 5	106 - trt 6

Methodology

The site (Dapp NW-61-26-W4) was staked out and prepared in late April. A preseed burndown was done using recommended rates of Cleanstart. Cooper peas were treated and seeded May 18 (early) and June 1 (late) with a Fabro plot seeder at 6 rows on 9" spacing. In crop herbicide was applied at recommended rates and timing. Weed pressure within plots ranged from low to high, with volunteer canola and horsetail being the two predominant weeds. Plots were harvested using a Wintersteiger combine and yields and bushel weights were taken.

Weather



Raw Data

Cooper Pea Seed Trial 2012		
EARLY: Seeded May 18, 2012 Emergence May 26, 2012 *8 days		
LATE: Seeded June 1, 2012 Emergence June 11, 2012 10 days		
Date	Weed Pressure	Plant Health
Jun-01	low	good
Jun-08	medium	good
Jun-13	medium	good
Jun-25	medium	good
Jul-13	medium	good

Early Apron Maxx			Late Apron Maxx		
Date	Weed Pressure	Plant Health	Date	Weed Pressure	Plant Health
Jun-01	low	good	Jun-11	low	good
Jun-08	medium	good	Jun-13	low	good
Jun-13	medium	good	Jun-25	high	good
Jun-25	medium	good	Jul-13	medium	good
Jul-13	medium	good			

Early Vitaflow			Late Vitaflow		
Date	Weed Pressure	Plant Health	Date	Weed Pressure	Plant Health
Jun-01	low	good	Jun-11	low	good
Jun-08	medium	good	Jun-13	low	good
Jun-13	medium	good	Jun-25	high	good
Jun-25	medium	good	Jul-13	medium	good
Jul-13	medium	good			

Late Control (check)		
Date	Weed Pressure	Plant Health
Jun-11	low	good
Jun-13	low	good
Jun-25	high	good
Jul-13	medium	good

Early Seeded - 1/4 m2 Plant Counts				
Plot Number	Count 1	Count 2	Count 3	Average
101	14	11	13	12.67
102	16	16	18	16.67
103	15	12	13	13.33
201	18	19	15	17.33
202	14	13	10	12.33
203	16	11	12	13
301	14	10	7	10.33
302	18	13	17	16
303	23	15	20	19.33

Late Seeded - 1/4 m2 Plant Counts				
Plot Number	Count 1	Count 2	Count 3	Average
104	10	9	12	10.33
105	12	11	11	11.33
106	7	12	10	9.66
204	13	15	8	12
205	14	9	9	10.66
206	7	9	6	7.33
304	10	9	11	10
305	13	13	6	10.66
306	10	13	15	12.66

YIELD

Plot	Yield (g)	g/.5L bu weight
101	3989	401
102	4160	400
103	4479	395
104	3065	397
105	3725	407
106	3364	398
201	3208	403
202	3810	406
203	4656	403
204	3113	401
205	2943	401
206	3048	402
301	4135	403
302	3743	410
303	4686	402
304	2694	404
305	2729	401
306	3006	401

PLOT PLAN & RANDOMIZATION

TRT	TRT DESCRIPTION
1	Early Seeding - Control
2	Early Seeding - Apron Max
3	Early Seeding - Vitaflow
4	Late Seeding - Control
5	Late Seeding - Apron Max
6	Late Seeding - Vitaflow

1 – 3978g average

2 – 4501g average

3 – 3810g average

4 – 3040g average

5 – 3177g average

6 – 3012 g average

CONCLUSION

GRO's attempt at the 2012 plots was a success after several years of weather, wildlife and staffing issues. Overall, the plots which were treated with Apron Maxx and seeded early had the best yields and all of the late seeded plots showed a significant reduction in yield. The plots were toured at GRO's summer event in August with a total of approximately 25 people attending.

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.

Least Significant Difference (LSD): This value is the boundary between significant and non-significant differences between a pair of means at a given significance level. In this report, the significance level is 95%, or $P=0.05$. Thus, if the difference between two means is greater than the LSD value, we can be 95% confident that the values are significantly different. This indicates whether a given variety will out-yield another consistently.

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.

Regional Cereal Variety Trials

Co-operators:

Keith Taylor – Dapp – NW 61-26-4 W4
 Kevin & Brian Ratke – Stony Plain – SW 36-51-1 W5
 Brad Wierenga - Neerlandia - NW 3-62-3-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.

	Dapp NW 61-26-4 W4	Stony Plain NW 25-51-1 W5	Neerlandia NW 3-62-3 W5
Seeding Date	May 18	May 19	May 14
Seeding Specifics	Fabro zero till drill Seeding Depth: 1 inch Seeding Rates: 24 plants/ft ² - 2-Row & 6-Row Barley 24 plants/ft ² - HRS & Utility Wheat, Oats 24 plants/ft ² - Triticale Seed treatment: Raxil	same same same same where seeded same where seeded same where seeded same	same same same same where seeded same where seeded same where seeded same
Fertilizer	NH3 previous fall - 122 lbs. 50-20-20-10-2 + 50 lbs SuperCal in spring	same	same
Herbicide	Cereals: Frontline/Axial Oats: Frontline	Cereals: Frontline/Axial Oats: Frontline	Wheat: Infinity/Axial
Harvest Date	Sept 28	Sept 25 (6-row Barley) Sept 28 (Utility Wheat) Sept 29 (HRS Wheat) Sept 30 (2-row Barley, Trit) Oct 10 (Oats)	Oct 11

Crop Description

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.

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.

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.

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.

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.

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.

Flax – grown mainly in cool northern climates. High omega-3 fatty acid and fibre in flax are some of the health benefits. Used in livestock feeding, human consumption and many other industrial uses.

No flax data is available for 2012.

Results:

Table 3. - 2 Row Barley Neerlandia

Variety	Yield bu/ac	Yield % Metcalfé	Significance	Test Weight kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
CHAMPION	91.8	127.6	a	64.9	29.7	74.0	1.0
MAJOR	91.7	127.6	a	58.2	29.3	76.3	1.3
BENTLEY	85.5	118.9	a	63.6	31.3	103.0	1.0
GADSBY	81.8	113.8	a	60.7	36.3	75.3	2.7
TR09208	80.8	112.3	a	55.9	31.0	77.7	2.7
XENA	79.8	105.2	a	57.8	36.0	77.0	3.3
CDC KINDERSLEY	75.9	105.6	a	61.1	38.3	78.0	3.0
AC METCALFE	71.9	100.0	a	62.8	28.7	81.3	1.0
TR 07728	69.7	96.9	a	58.2	41.0	76.3	3.0
HB 08304	69.3	96.3	a	68.4	31.7	74.3	3.0
CDC POLARSTAR	68.8	95.6	a	59.6	32.0	74.0	2.7
CDC MAVERICK	66.4	92.4	a	62.6	32.0	77.7	2.7
LSD = 17.97							
CV = 13.69%							

*Check variety is AC Metcalfe

** Lodging scale: 1 is standing and 9 is flat

Table 4. - 2 row Barley Stony Plain

Variety	Yield bu/ac	Yield % Metcalfé	Significance	Test Weight kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
TR09208	71.3	122.3	a	64.8	48.7	63.7	1.0
GADSBY	70.3	120.6	a	72.4	43.3	71.7	1.0
XENA	70.0	120.1	a	62.4	44.3	76.3	1.0
MAJOR	69.3	118.9	ab	62.7	39.7	58.3	1.0
TR 07728	69.3	118.9	ab	64.2	43.7	82.3	1.0
CDC KINDERSLEY	63.7	109.3	ab	60.1	40.0	77.0	1.0
CDC MAVERICK	58.7	100.7	ab	63.5	40.0	66.7	1.0
AC METCALFE	58.3	100.0	ab	59.4	40.3	59.0	1.0
BENTLEY	57.7	99.0	ab	64.7	53.0	66.3	1.0
CHAMPION	57.0	97.8	ab	62.8	38.0	63.0	1.0
HB 08304	57.0	97.8	ab	65.3	47.3	68.3	1.0
CDC POLARSTAR	52.7	90.4	b	63.9	40.3	64.0	1.0
LSD = 10.18							
CV = 9.55%							

*Check variety is AC Metcalfe

** Lodging scale: 1 is standing and 9 is flat

Table 5. 6-Row Barley Dapp

Variety	Yield bu/ac	Yield % Metcalf	Significance	Test Weight kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
Muskwa	83.3	116.4	a	57.6	34.3	85.7	1.0
BT589	82.2	114.8	a	58.3	40.0	77.7	1.0
AC Metcalfe	71.6	100.0	a	55.2	32.7	74.7	1.0
CDC Anderson	67.0	93.6	a	54.1	36.7	72.7	1.0
Vivar	62.4	87.2	a	53.8	39.7	84.3	1.0
LSD = 16.36							
CV = 11.86%							
*Check variety is AC Metcalfe							
** Lodging scale: 1 is standing and 9 is flat							

Table 6. 6-row Barley Stony Plain

Variety	Yield bu/ac	Yield % Metcalf	Significance	Test Weight kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
BT589	59.2	105.2	a	62.4	38.7	71.0	1.0
Vivar	58.5	104.0	a	58.5	37.0	60.7	1.0
CDC Anderson	56.9	101.1	a	55.4	34.7	75.3	1.0
AC Metcalfe	56.3	100.0	a	59.5	37.0	63.7	1.0
Muskwa	55.7	98.9	a	61.1	34.3	65.3	1.0
LSD = 10.43							
CV = 9.67%							
*Check variety is AC Metcalfe							
** Lodging scale: 1 is standing and 9 is flat							

Table 7. HRS Wheat Stony Plain

Variety	Yield bu/ac	Yield % AC Barrie	Significance	Test wt. kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
BW932	71.2	109.9	a	25.3	77.8	78.7	1
BW931	70.7	109.2	a	27.0	78.4	76.7	1
CDC STANLEY	70.2	108.4	a	30.3	78.4	91.3	1
VESPER VB	68.7	106.0	a	32.0	79.2	91	1
PT457	67.6	104.3	a	29.3	78.2	86	1
WR 859 CL	66.9	103.3	a	31.0	80.0	84.7	1
HW021	66.4	102.5	a	25.7	79.1	85.7	1
CDC PLENTIFUL	66.2	102.2	a	29.3	78.6	85.3	1
5604HR CL	66.1	102.0	a	26.7	79.2	85.7	1
BW 433	65.7	101.3	a	25.0	78.1	90.7	1
CDC MORRIS	65.4	100.9	a	24.7	78.8	87	1
AC BARRIE	64.8	100.0	a	25.3	79.4	90.3	1
GLENN	64.0	98.8	a	26.7	80.1	91.3	1
BW 901	63.8	98.4	a	29.7	76.8	87.7	1
KATEPWA	63.7	98.3	a	30.7	77.3	97	1
GOODEVE	63.4	97.8	a	25.7	77.5	92.3	1
5603 HR	63.1	97.3	a	28.7	78.1	86.7	1
CARDALE	62.9	97.0	a	26.7	76.7	78.3	1
CDC KERNEN	60.7	93.6	a	28.7	77.4	88.7	1
HW024	57.8	89.2	a	27.5	75.5	93	1
LSD = 9.314							
CV = 8.62%							

*Check variety is AC Barrie

** Lodging scale: 1 is standing and 9 is flat

Table 7. HRS Wheat Neerlandia

Variety	Yield bu/ac	Yield % AC Barrie	Significance	Test wt. kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
CDC STANLEY	63.8	123.5	a	77.4	25.7	91.7	3.3
GLENN	58.3	112.8	ab	78.4	25.7	89.3	2.3
PT457	57.7	111.5	ab	78.2	26.7	84	2
HW021	57.6	111.4	ab	77.3	24.7	83.3	2.7
CDC MORRIS	57.2	110.6	ab	78.5	27.7	84	3.7
5603 HR	56.4	109.1	ab	76.8	24.0	87	5
CDC KERNEN	55.6	107.6	ab	76.4	28.7	89.3	4
CARDALE	54.8	105.9	ab	75.6	24.7	77	3.7
BW932	54.6	105.6	ab	76.8	29.3	90.3	4.7
VESPER	54.6	105.6	ab	77.3	25.0	77.7	2.3
BW931	53.0	102.4	ab	76.1	24.5	75.7	3
5604HR CL	51.7	100.1	ab	77.4	22.3	89	4
AC BARRIE	51.7	100.0	ab	76.6	26.3	90.3	6
WR 859 CL	50.8	98.3	ab	78.2	26.7	80.3	8
CDC PLENTIFUL	49.9	96.5	ab	75.5	23.0	86	3.3
GOODEVE	49.3	95.4	ab	74.6	25.7	90.7	4
KATEPWA	48.6	94.0	ab	72.2	22.0	94.3	5.7
BW 433	48.3	93.4	ab	76.2	27.0	94.3	5.7
HW024	45.1	87.2	b	72.2	22.7	92.3	5.7
BW 901	42.2	81.7	b	73.0	22.3	95.7	7
LSD = 8.69							
CV = 9.93%							
*Check variety is AC Barrie							
** Lodging scale: 1 is standing and 9 is flat							

Utility Wheat - Neerlandia

This site was discontinued early in the season. The second rep was badly lodged and no other data is available for 2012.

Table 9. Utility Wheat Stony Plain

Variety	Yield bu/ac	Yield % Check	Significance	Test wt. kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
Pasture	76.3	107.1	a	75.7	31.0	70.7	1
AC Andrew	74.6	104.7	ab	76.4	34.0	70.7	1
NRG010	72.0	101.1	ab	74.8	35.0	77.7	1
AC Crystal	71.2	100.0	ab	78.5	38.7	72.7	1
HY1312	68.2	95.8	ab	77.0	45.0	78.3	1
HY985	67.2	94.4	abc	76.9	40.0	75.7	1
Conquer VB	66.7	93.7	abc	77.6	35.7	80	1
CDC NRG 003	65.1	91.4	bc	76.4	39.7	76.3	1
Enchant VB	58.6	82.3	c	78.7	48.0	81.7	1
LSD = 6.425							
CV = 5.39%							

Check is AC Crystal

** Lodging scale: 1 is standing and 9 is flat

Table 10. Oats Dapp

Variety	Yield bu/ac	Yield % Check	Significance	Test Weight kg / hL	Seed size g/1000	Height cm	Lodging (1-9)**
CDC Nasser	135.6	149.6	a	49.2	36.0	96.7	1.0
CDC Seabiscuit	121.6	134.1	ab	49.8	42.7	89.7	1.0
Souris	120.7	133.2	ab	52.0	33.0	90.7	1.0
OT3056	110.4	121.8	bc	53.7	44.7	95.0	1.0
OT3054	102.2	112.8	cd	51.1	43.0	93.7	1.0
CDC Dancer	90.6	100.0	de	54.4	39.3	93.7	1.0
OT2069	87.1	96.0	de	54.8	36.3	92.0	1.0
CDC Minstrel	82.7	91.2	e	52.3	38.3	82.7	1.0
LSD = 13.79							
CV = 7.4%							

*Check variety is CDC Dancer

** Lodging scale: 1 is standing and 9 is flat

Table 11. Oats Stony Plain

Variety	Yield bu/ac	Yield % Check	Significance	Test Weight kg / hL	Seed size g/1000	Height cm	Lodging (1-9)**
CDC Nasser	146.6	137	a	50	34	106	1
OT3056	132.5	120	ab	51	38	94	1
CDC Seabiscuit	122.5	120	ab	49	34	102	1
CDC Minstrel	110.2	83	bc	47	31	87	1
Souris	108.5	129	bc	50	27	87	1
OT3054	107.0	105	bc	49	37	98	1
OT2069	102.0	95	bc	52	31	96	1
CDC Dancer	84.2	100	c	53	32	100	1
LSD = 20.93							
CV = 10.47%							
*Check variety is CDC Dancer							
** Lodging scale: 1 is standing and 9 is flat							

Table 12. Triticale Dapp

Variety	Yield bu/ac	Yield % Check	Significance	Test wt. kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
Brevis	86.3	100.7	a	72.9	42.7	98	1
AC Ultima	85.7	100.0	a	68.6	44.3	106	2
Taza	85.5	99.8	a	69.2	46.7	108.3	1
Sunray	78.4	91.5	a	66.5	42.7	97.7	1.3
LSD = 10.12							
CV = 6.03%							
Check is AC Ultima							
** Lodging scale: 1 is standing and 9 is flat							

Table 13. Triticale Stony Plain

Variety	Yield bu/ac	Yield % Check	Significance	Test wt. kg/hL	Seed size g/1000	Height cm	Lodging (1-9)**
Brevis	85.9	107.3	a	71.7	38.3	93.7	1
AC Ultima	80.0	100.0	b	68.8	37.0	102.7	1
Taza	77.3	96.6	b	68.5	35.0	106.7	1
Sunray	69.8	87.3	c	66.4	36.0	97.7	1
LSD = 5.71							
CV = 3.65%							
Check is AC Ultima							
** Lodging scale: 1 is standing and 9 is flat							

There was a lot of green regrowth in this trial. Heads were mature but samples had to be dried

2012 Heifer Pasture Summary

Heifer Pasture SE-23-61-26 W4

Manager: Chelsea Geiger, GRO Summer student and Interim Heifer Pasture Manager

Fertilizer: Paddocks R1 & R8 received fertilizer as described in the Heifer Pasture Fertilizer Trial 2012 (refer to table of contents)

Stocking Rate: 76 heifers (6 contributors)
133 total grazing days

Entry Date: June 5, 2011 (Average heifer weight 867 lbs.)

Exit Date: October 17, 2011
(Average heifer weight 1052 lbs., ADG 1.39 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.
3. Conduct fertilizer trials to determine the effects of fertilizing established pasture land.

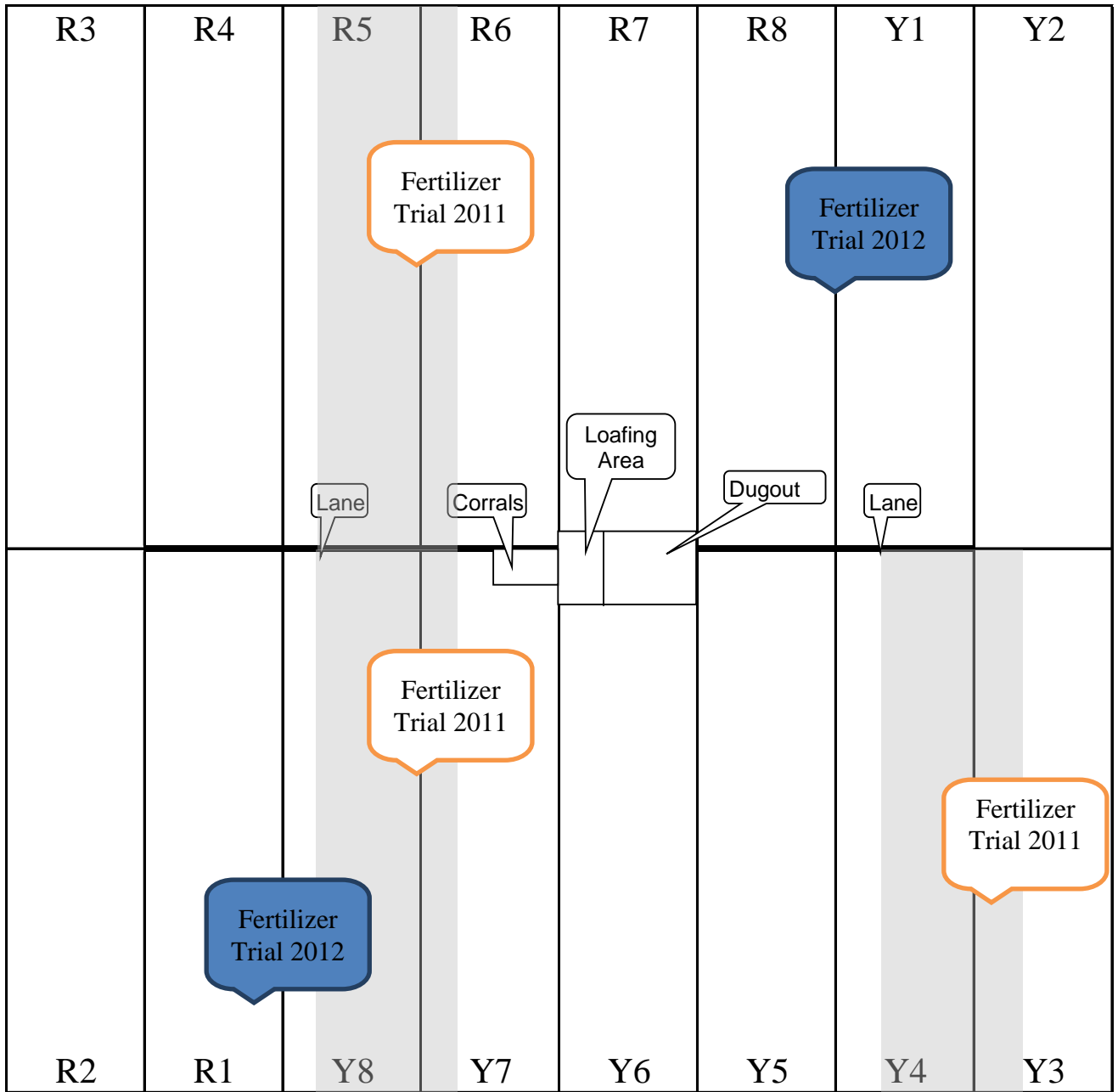
History & Field Design (see next page for map):

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 - 2012



Herd Health:

All heifers were weighed and inspected for overall health and soundness on entry day. 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. Oilers were checked weekly and solution was added as necessary. Herd health was monitored twice weekly with a visual check on physical movement and behaviour. Heifers that experienced any type of ailment were closely monitored. Fortunately, no heifers required treatment during this grazing season.

Breeding:

Two, 2 year old Red Angus bulls owned by Ross and Beau Lyons were used in the pasture, and entered heifer pasture at the same time as the heifers (June 5) and remained in the pasture until October 16th when the heifers were removed. The heifers were palpated for pregnancy upon exit it was determined that the overall open rate was 2.4% which extremely low.

Grazing:

In the 2011 grazing season, the decision was made to have lower stocking rates to account for drier conditions and to alleviate any extra stress on the pasture. The heifers left last year looking great and the pasture was in good condition for the winter. However, with the winter came lower precipitation rates than normal (<http://www.ec.gc.ca/adsc-cmda/default.asp?lang=en&n=8C03D32A-1>), so it was decided to stock the pasture with less heifers for a third year in a row. Even though this meant lower utilization of the pasture, it offered a chance for the pasture to fully replenish itself from lower moisture levels. As the heifers exited this year, it was evident that the decision for lower stocking rates was beneficial. The grass looks great and I look forward to the potential for next summer.

The sequence of grazing the paddocks was determined via visual inspection. Paddocks that were dense in early maturing grasses were grazed first to prolong the active growth phase. There are several paddocks that have some peatland and these were grazed last, as management allowed. The grass in peatland typically enters the growing phase later than other grasses due to the delayed time required for the ground to thaw following winter. Using this logic, paddocks that are located on higher land are typically grazed first to take advantage of the earlier growth. All paddocks were grazed for a period of 3-4 days in most cases. This number is higher than in previous years due to the lower stocking rates. With each rotation management wanted to ensure that all grass within the paddock had been mowed by the heifers, without any new regrowth being grazed. This slightly longer grazing period allowed for this goal to be achieved.

Table 1: 2011 Paddock Rotation Schedule (Days)

Paddock #	1st Rotation	2nd Rotation	3rd Rotation	4th Rotation	Total Days Grazed
R1	4	4			8
R2	4	5			9
R3	3	7			10
R4	4	5			9
R5	3	4			7
R6	3	7			10
R7	3	3			6
R8	4	7			11
Y1	3				3
Y2	3	3			6
Y3	4	4			8
Y4	4	7			11
Y5	4				4
Y6	3	7	7		17
Y7	3		7		10
Y8	4				4
Rotation Length	56	63	14	0	133

Table 2: AUM for Replacement Heifers on Pasture

Year	# of Animals	Grazing Days	# AUM on 150 Acres	# AUM/Acre
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
Average	86.6	124.4	264.6	1.76

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

Table 3: Summary of Production

Year	Entry Weight	Exit Weight	Gain (lbs.)	ADG (lbs.)	Gain/acre (lbs.)
2007	873	1117	244	1.82	179
2008	843	1106	263	1.98	128
2009	869	1073	204	1.73	131
2010	913	1049	136	1.08	107
2011	953	1134	181	1.62	127
2012	867	1052	185	1.39	154
Average	914	1113	204	1.60	137.67

Table 4: Heifer Pasture Precipitation (inches)

Year	May	June	July	August	September	October	Total
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
Average	1.41	2.41	2.74	1.35	0.74	.07	8.71

Table 7: 5-Year Summary of Costs, 2008-2012

	2008	2009	2010	2011	2012
Operating Costs					
Rent	3500	3500	3500	3500	3500
Fertilizer	0	0	0	0	0
Insecticide	0	0	0	0	0
Ear Tags	0	0	0	144	0
Fly Control	0	0	0	0	0
Veterinary	679	431	423	265	619
Breeding/Bull Insurance	500	400	400	0	0
Bull Rental				1400	2000
Salt/Mineral	394	581	758	325	1531
Labour	1065	1155	1120	1020	1050
Travel	1268	1463	1400	840	850
Misc/Other	534	525	350	452	315
<i>Total Operating Costs</i>	7940	8054	7951	7946	9865
Capital Costs					
Establishment	0	0	0	0	0
Capital Investment	0	0	0	0	0
Bulls	0	1500	1500	0	0
<i>Total Capital Costs</i>	0	1500	1500	0	0
Total Costs	\$7,940	\$9,554	\$9,451	\$7,946	\$9,865

NOTES:

* 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 were sold at the end of 2010 for \$2500, the remaining (\$1500 each) will be amortized over the two years they are to be used.

***Veterinary expenses were higher due to one heifer passing away. Autopsy and livestock recycle fees are included in this amount.

Table 8: 2012 Heifer Pasture Gross Margin and Profit/Loss

Gross Revenue	
Monthly Grazing	\$6527.30
Breeding	\$1748.00
Veterinary	\$619.00
Bull Salvage	\$0.00
<i>Total Revenue</i>	<i>8894.30</i>
Direct Costs	
Salt/Mineral	\$1531.00
Vet Charges	\$619.00
Bull/ Bull Insurance	2000.00
Other	\$315.00
<i>Total Direct Costs</i>	<i>\$4465.00</i>
Gross Margin (GR – DC)	\$4429.30
Gross Margin/Acre	\$27.68
Overheads	
Capital	\$0.00
Labour/Travel	\$1900.00
Lease	\$3500.00
<i>Total Overheads</i>	<i>\$5400.00</i>
Profit / Loss (GM – TO)	-\$970.70

Discussion:

Managing a lower number of animals for two years in a row has allowed the heifer pasture to remain productive while still ensuring the quality and health of the pasture for future grazing seasons. However, the management of fewer animals requires a good understanding of plant growth and effects of grazing on regrowth. For example, in order to stimulate regrowth in the plants, it is optimal to keep the plants in vegetative production rather than reproduction. In order to achieve this, grazing periods in each paddock were extended to 3-4 days rather than 2-3 days as in previous years. This decision was made to allow the animals longer to graze each paddock, thereby stimulating growth throughout the entire paddock. This also allowed more rest time for the pasture between rotations, which led to an extended grazing system, as noted in Table 2. 2012 saw a total of 133 grazing days, which is the highest the heifer pasture has seen since 2008. In spite of the longer grazing season, the number of AUMs/acre was still below the average for GRO. **This is expected since the contribution of one individual animal is greater in calculating AUMs than the time period is.**

Overall, precipitation this year was slightly above average. Lower stocking rates as discussed above will benefit the pasture in the long run. This year was a great recovery year for the pasture due to the good moisture and low stocking rates and as previously mentioned, the grass looked great headed into winter. Seasons of recovery are important management decisions but it is also essential that the pasture is used in subsequent years at an optimal level to allow for sustained production and prevent an abundance of litter cover. If stocking rates are kept low for another year, the threat of litter cover will increase and can have major effects on production in future years.
(Written by Chelsea Geiger)

Silage Trails

Table 1: Plot Information

Action	Dapp	Stony Plain	Neerlandia
Seeding	18-May-12	17-May-12	18-May-12
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	Depth: 1 inch Row Spacing: 9 inches Seeding Rates: See Table 2
Plot Activities	<ol style="list-style-type: none"> 1. Pre-seed burn done with HEAT + Cleanstart (1.5L Cleanstart + 60g Heat + 35 Gallons water) 2. Harrowed prior to seeding 3. Nitrogen applied in fall (80lbs/ac) 	<ol style="list-style-type: none"> 1. Pre-seed burn done with HEAT + Cleanstart (1L Cleanstart + 20.8g HEAT + 35 Gallons water) 2. Heavily harrowed prior to seeding 3. Nitrogen applied in the fall 	<ol style="list-style-type: none"> 1. Pre-seed burn done with HEAT + Cleanstart (2L Cleanstart + 40g HEAT + 34 Gallons water) 2. Nitrogen applied in the fall (100 lbs/ac)
Equipment	Fabro Zero-till Drill with Atom Jet Openers	Fabro Zero-till Drill with Atom Jet Openers	Fabro Zero-till drill with Atom Jet Openers
Fertilizer (actual)	50-20-20-10 50 lbs gypsum	50-20-20-10 50 lbs gypsum	50-20-20-10 50 lbs gypsum

Barley Silage

Kevin & Brian Ratke NW-25-51-1 W5 (Stony Plain)
Brad Wierenga NW-3-62-3 W5 (Neerlandia)

Objectives:

Compare silage yield and nutritional value of new and commonly used barley varieties.

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.

Barley Varieties Used In The Trial:

- Busby: Similar in silage yield to Seebe. Slightly higher grain yields. Test weight, kernel weight & percent plumps similar to Xena. Excellent resistance to surface-born smuts, scald, stripe rust, but susceptible to common root rot and loose smut.
- CDC Austenson: Excellent straw strength, lodging resistance and yield potential with high test weight. Resistant to surface-born smuts, stem rust and spot form of net blotch. Moderately resistant to spot blotch and FHB with moderately low DON levels. Susceptible to scald and loose smut.
- CDC Coalition: Excellent straw strength and lodging resistance. Good yield potential and high test weight. Resistant to loose and false loose smut, RPG1 stem rust, and moderately resistant to covered smut. Moderately susceptible to net blotch and spot blotch. Susceptible to septoria and scald.
- CDC Cowboy: Known for its high forage dry matter potential in non-scald areas, plump grain with high test weight and kernel weight. Fair lodging resistance. Resistant to stem rust, covered and false loose smuts. Moderate resistance to net blotch. Susceptible to spot blotch, barley yellow dwarf virus, and loose smut.
- 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.

Gadsby: Taller than Xena but similar straw strength. Rough-awned and well adapted to the brown, black and grey soil zones. Lower fibre and higher digestible energy content than Zena. Resistance to covered and loose smuts and scald. Moderate resistance to spot form of net blotch. Moderately resistant and moderately susceptibility to common rot, GHB and stem rust. Susceptible to the net form of net blotch and spot blotch.

Ponoka: Known for its resistance to loose smut, covered smut and false loose smut. Intermediate resistance to field scald, spot form net blotch and common root rot. Silage yields are higher than AC Lacombe and higher grain yields than CDC Dolly.

Seebe: Seebe is adapted to high scald areas of Alberta, with scald resistance superior to all registered 2-row varieties and equal to the best 6-row varieties. Known for its outstanding forage yields.

Sundre: 6-row, smooth awned feed barley with high grain and silage yields in central Alberta. Good seed weight and plumpness. Sundre out yielded Vivar and AC Lacombe. It is a desirable multi-purpose for the livestock industry. Sundre has multiple gene resistance to scald and resistance to covered smut and false loose smut.

Trochu: Smooth-awned feed barley with high percent plump, test weight and kernel weight. Higher yielding than AC Lacombe. Lodging resistance is similar to AC Lacombe. Resistant to surface-born smuts and common root rot. 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. It is resistant to the surface-borne smuts and common root rot. Excellent ability to respond positively under high-yielding conditions.

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: 6-row smooth awned, hulled barley has good yield potential for grain and silage, similar to Vivar. Good lodging resistance, excellent percent plump, and higher digestible energy (swine) and starch content than Vivar and AC Lacombe. Resistant to surface-borne smut

Seeding Rates:

Seeding rates (Table 2) 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.

Table 2: Barley Seeding Rates

Treatment/Variety	Seeding Rate (lbs/ac)
Busby	158
CDC Austenson	119
CDC Coalition	112
Chigwell	109
Cowboy	137
Gadsby	130
Ponoka	115
Seebe	136
Sundre	87
Trochu	106
Vivar	111
Xena	100

Results:

Table 3: Neerlandia* Barley Silage Yields & Nutritional Analysis

Barley Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
Busby	9.9		
CDC Austenson	12.4		
CDC Coalition	9.6		
Chigwell	13.2	11.8	70.5
Cowboy	10.3		
Gadsby	14.6		
Ponoka	11.9		
Seebe	11.7		
Sundre	10.1		
Trochu	11.0		
Vivar	9.9		
Xena	11.0		

*No feed analysis was completed for the Neerlandia varieties except Chigwell.

CV = 8.73%

Table 4: Stony Plain Barley Silage Yields & Nutritional Analysis

Barley Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
Busby	5.2	11.4	72.5
CDC Austenson	7.4	11.1	67.0
CDC Coalition	6.6	11.3	65.9
Chigwell	6.4	11.0	67.2
Cowboy	7.7	11.1	62.2
Gadsby	7.1	10.9	69.5
Ponoka	7.4	11.1	65.7
Seebe	6.8	11.5	67.0
Sundre	6.1	12.2	66.5
Trochu	5.4	13.3	64.1
Vivar	5.8	12.1	67.3
Xena	6.2	10.2	67.3

CV = 7.44%

Discussion:

Yields in 2012 generally followed past trends. The co-efficient of variance (CV) was similar within the trails. Conditions in Neerlandia resulted in a slight higher CV in the barley trails. Organic matter at the Stony Plain location is much higher than in Neerlandia.

Both sites were very dry for the first few weeks of the growing season. Later in the season Stony Plain received a significant amount more moisture than Neerlandia (refer to weather station data on page 3). The crops at Stony Plain were further stressed by hail and there was a significant amount of lodging in many plots.

The plots at Neerlandia produced higher yields when compared to the Stony Plain sites. It is assumed that this is related to the high weather variance in Stony Plain and the resulting stress on the growing crop. Nutritional value and crude protein cannot be compared between the sites due do the limited availability of data.



Oat Silage

Kevin & Brian Ratke NW-25-51-1 W5 (Stony Plain)
Keith Taylor NW-61-26-4 W4 (Dapp)

Objectives:

Compare silage yield and nutritional value of new and commonly used oat varieties.

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 6 metres long. The oats were harvested in the late milk stage. Samples were weighed and sent for wet chemistry analysis to obtain moisture and feed quality.

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.
- Everleaf 126: The broad leaves offer improved leaf to stem ratios over the traditional class of forage oats. They are best suited to the higher rainfall areas in North America where they are capable of matching higher quality with higher tonnage. They were the latest heading, and shortest stemmed of the varieties tested. The seed kernel is different from any other tame oat variety that I have seen. It was dark like a wild oat (but without awns), and plump like a tame oat.
- Foothills: High yielding forage oat with a finer stem than most other varieties, leading to higher nutritional value and more usage by livestock. Highest forage yield occurs in the west-central foothills of Alberta. Susceptible to rust and smut and has poor lodging resistance.
- 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 (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/bushels seeded per acre to keep viable seed counts the same than crops with smaller seed size.

Table 2: Oat Seeding Rates

Oat Variety	Seeding Rate (lbs/ac)
Baler	88
CDC SOI	141
Everleaf	126
Foothills	74
Jordan	124
Morgan	114
Murphy	94
Mustang	103
Waldern	122

Results:

Table 3: Dapp Oat Silage Yields & Nutritional Analysis

Oat Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
Baler	15.6	12.7	61.8
CDC SOI	13.2	12.4	68.8
Everleaf	16.4	13.5	61.6
Foothills	15.5	12.8	62.5
Jordan	12.8	12.9	66.0
Morgan	14.2	11.9	66.1
Murphy	11.3	13.1	61.9
Mustang	15.3	12.2	63.9
Waldern	14.2	11.4	64.0

CV = 8.07%

Table 4: Stony Plain Oat Silage Yields & Nutritional Analysis

Oat Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
Baler	13.9	10.5	63.3
CDC SOI	10.5	10.2	66.2
Everleaf	14.7	11.8	58.7
Foothills	14.1	11.7	61.4
Jordan	13.0	11.9	64.5
Morgan	11.6	12.6	65.9
Murphy	8.8	9.8	65.0
Mustang	11.5	12.8	59.5
Waldern	13.3	11.1	67.2

CV = 7.34%

Discussion:

Dapp had higher yields overall in 2012 than Stony Plain. Top yielding varieties in Dapp were Everleaf, Baler and Foothills. In Stony Plain, the highest yielding varieties were Everleaf, Foothills and Baler. Everleaf at both sites had the lowest TDN of all tested oat varieties.

Triticale Silage

Kevin & Brian Ratke NW-25-51-1 W5 (Stony Plain)
Keith Taylor NW-61-26-4 W4 (Dapp)

Objectives:

Compare silage yield and nutritional value of new and commonly used triticale varieties.

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 6 metres long. 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.

Varieties used In the Trial:

- Bunker:** A reduced awn spring triticale that is earlier maturing than Pronghorn or Ultima, and has good FHB resistance. Good leaf and stem rust resistance and improved test weight. Higher silage yields than AC Ultima or Pronghorn.
- Taza:** New spring variety with reduced awns and standard height. It was intended for use as feed grain conserved forage, swath grazing crop and potential industrial use. It is adapted to the Canadian Prairie Provinces. Good lodging resistance, good test weight, and high kernel weight. Moderately susceptible to moderately resistant to FHB, but resistant to leaf rust and stem rust.
- Pronghorn:** A spring triticale that is susceptible to some races of stem rust. It has equal or higher yields than check varieties. It has resistance to loose smut and bunt and is moderately resistant to common root rot. Good lodging and shattering resistance. Moderately susceptible to certain races of stem rust.
- Tyndal:** A reduced awn spring triticale designed for conserved forage production (silage/greenfeed). Good leaf and stem rust resistance, test weight and lodging resistance. An earlier maturing variety with good lodging resistance and high forage yields.
- AC Ultima:** A spring triticale with good disease resistance. It has improved quality for food end use.

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)
AC Ultima	136
Bunker	136
Pronghorn	103
Taza	105
Tyndal	101

Results:

Table 3: Dapp Triticale Silage Yields & Nutritional Analysis

Triticale Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
AC Ultima	16.2	12.8	61.1
Bunker	14.0	11.4	61.4
Pronghorn	16.2	13.3	63.4
Taza*	15.6		
Tyndal	15.8	11.9	58.7

*no nutritional analysis done

CV = 8.00%

Table 4: Stony Plain Triticale Silage Yields & Nutritional Analysis

Triticale Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
AC Ultima*	10.1		
Bunker	10.2	11.0	62.3
Pronghorn	10.1	13.1	59.7
Taza	9.8	11.0	62.8
Tyndal	9.3	12.2	59.2

*no nutritional analysis done

CV = 11.97%

Discussion:

AC Ultima and Pronghorn triticale has consistently been one of the top yielding varieties on the market; this was reflected this year at the Dapp site with AC Ultima and Pronghorn being the highest yielding varieties. At the Stony Plain site, Bunker was the top yielding with AC Ultima and Pronghorn tied for second.

Bunker was the lowest yielding at Dapp site in 2012 and Tyndal yielded the lowest in Stony Plain.

Triticale 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.

Pulse Silage

Keith Taylor NW-61-26-4 W4 (Dapp)
Kevin & Brian Ratke NW-25-51-1 W5 (Stony Plain)

Objectives:

Compare silage production of pulses and their mixtures.

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 6 metres long. The barley was harvested in the mid/late dough stage, and the oats were harvested in the late milk stage. Triticale was harvested in the late milk stage. Mono-cropped cereals were harvested the same day as their respective mixtures. Samples were weighed and sent for wet chemistry analysis to obtain moisture and feed quality.



Varieties used In the Trial:

- Vivar Barley: A rough-awned six-row semi-dwarf feed barley that has high grain yields. Intermediate reaction in the field to scald and net blotch.
- Murphy Oats: A forage oat bred specifically for use for silage/greenfeed production.
- Pronghorn Triticale: A spring triticale that is susceptible to some races of stem rust.
- Tucker Peas: Semi-leafless forage pea. Shorter and bushier than performance 40-10 peas.
- Performance 40-10 Peas: A forage-type pea with a lot of vine to increase forage yields. Has a tendency to lie down.

Seeding Rates:

Seeding rates for pulse/cereal mixtures were based on recommendations from other trials, forage agronomists and results of our previous trials. The pulses were seeded at 75% their normal rate, while cereals were seeded at 50% to achieve a seeding rate of 7 plants/ft². All mono-species plots were based on 1000-kernel weight and germination in order to achieve 24 plants per square foot.

Table 2: Pulse Mixture Seeding Rates

Variety	Species	Seeding Rates (lbs. per acre)
Vivar	Barley	111
Murphy	Oats	94
Pronghorn	Triticale	103
Perf. 40-10 & Vivar	Peas & Barley	109+55
Perf. 40-10 & Murphy	Peas & Oats	109+47
Perf. 40-10 & Pronghorn	Peas & Triticale	109+51
CDC Horizon & Vivar	Peas & Barley	104+55
CDC Horizon & Murphy	Peas & Oats	104+47
CDC Horizon & Pronghorn	Peas & Triticale	104+51

Results:

Table 3: Dapp Pulse Silage Yields & Nutritional Analysis

Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
Vivar	11.3	11.7	68.8
Murphy	16.0	11.4	61.1
Pronghorn	11.5	12.3	66.1
Perf. 40-10 & Vivar	12.8	15.1	70.4
Perf. 40-10 & Murphy	16.7	15.5	64.3
Perf. 40-10 & Pronghorn	11.4	15.6	70.1
CDC Horizon & Vivar	12.8	13.2	71.1
CDC Horizon & Murphy	16.7	13.3	63.6
CDC Horizon & Pronghorn	14.5	13.9	64.8

CV = 14.92%



Table 4: Stony Plain Pulse Silage Yields & Nutritional Analysis

Variety	Yield @ 65% moisture (tons/ac)	CP (%)	TDN (%)
Vivar	7.9	13.6	72.4
Murphy	13.5	12.9	65.4
Pronghorn	9.2	12.5	60.7
Perf. 40-10 & Vivar	8.1	16.8	67.7
Perf. 40-10 & Murphy	9.8	12.3	64.1
Perf. 40-10 & Pronghorn	9.6	15.4	64.1
CDC Horizon & Vivar	8.7	14.5	72.1
CDC Horizon & Murphy	12.2	13.7	61.7
CDC Horizon & Pronghorn	10.6	16.3	66.0

CV = 11.29%

Discussion:

In 2012, as with all years, there was a nutritional advantage to intercropping pulses with cereals but not always a yield advantage. Crude protein varied within each treatment but generally the mixtures that included peas tended to have higher protein content.

The nutritional content of the pulses mixtures is overall very good. There is more protein than in the straight cereals, and they still have more than adequate energy. The calcium and magnesium levels in the pulse silages are also more balanced for ruminant diets than in the straight cereal silage.

Swath Grazing Demonstration - 2012

Greg Thompson – Fort Assiniboine
Richard Geiger - Tawatinaw

Objective:

Compare animal usage, yield, palatability and quality of both non-traditional and traditional varieties to determine suitability in a swath grazing system.

Background:

Swath grazing is a management practice which is becoming increasingly popular in Western Canada as a way to extend the grazing season. Swath grazing is a practice where annual or perennial crops are swathed and left lying to be grazed by cattle in the winter months. Barley and oats are the most popular cereals for swath grazing; however, other crops such as millet, peas, triticale, and rye are becoming increasingly popular.

Swath grazing is an economical winter feeding strategy which reduces the costs of winter feed, labour, machinery, and manure management costs. Electric fencing is used to limit access to the swaths to limit intake and reduce waste.

Cereals are seeded in mid-May to early June and then swathed from late August to mid-September before the killing frost. The time of seeding and harvest can greatly affect both yield and quality of the feed. Early seeding provides more growing days resulting in higher yields, later seeding results in high quality of feed but the risk of frost damage increases. The ideal stage of growth to maximize quality and yield would be at soft to late dough stage for swathing for most varieties.

Method:

The purpose of this demonstration was to observe how the crops grew, matured and yielded while in a producer managed situation to give the local producers insight into how these crops would perform in their own swath grazing systems and not just on a small plot scale. The primary purpose of this demonstration was to observe any preference or refusal trends in the cattle with regards to the cereals as well as other factors such as wastage.

There was a seeding error which resulted in the triticale and wheat being seeded together, so we were not able to gather any results from this. However, there was a comparison done between millet, wheat and mature grass, and the cattle were also put on an oats-wheat-millet swath composition, as well as an oats-wheat composition.

Results:

No samples were collected due to the staffing shortage at GRO, however one of our contributing producers was able to comment on the results as per his visual assessment. In the millet, wheat and mature grass, the cattle preferred to graze the wheat first, millet and grass second with just a slightly higher preference for the millet. In the oats-wheat-millet swaths, the oats were preferred first, then the wheat, and millet last. In the oats-wheat, the cattle preferred the oats over the wheat. The oats were greener than the wheat due to excessive moisture. The wheat was more mature - not heading out yet, but more mature than the oats.

Discussion:

Due to a seeding error, the triticale was seeded with the wheat, thus the triticale crop was not able to be used for the study at Tawatinaw.

Feeding vs. Grazing

I keep including this paragraph somewhere in our reports in the hope that it will eventually encourage someone to try swath grazing. Custom bagged silage rates (AAFRD 2011) for our area are \$15/ton, pit cereal or corn silage \$13/ton. These prices include cutting, chopping, hauling, packing and plastic. When we analyse our cost to produce silage it has been around \$15 per ton. This validates the general rule of thumb; that it costs a producer as much to grow the feed as it does to harvest and store it. This is without mentioning the cost of delivering the silage back to the cows; tractor, silage wagon and bunks. The manure would also be spread in the field by the cows for free, not spread by you at a cost. Stored manure (pens, bedding packs, sheds) has an 80-90% nutrient loss versus manure deposited in the field by the cattle. If you factor all the costs into the equation, a producer could waste 50% of the feed that was left as swath grazing or grazed standing, and it would still cost less than mechanical harvest and storage. Do the math; it makes sense. (as written by Megan Balascak)

Ropin the Web– 2011 Custom Rates

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/inf13387](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/inf13387)

No photos or data are available for the 2012 season. Our apologies

Western Forage Testing Trial

Ken Anderson – NW-33-59-2 W5 (Barrhead)

GRO has partnered with Agriculture and Agri-Food Canada to participate in the Western Forage Testing System (WFTS) which was developed in 1994 to test new forage varieties across western Canada. This is the testing process that all varieties must go through before registration is granted and it also gives background information on performance of the variety before it is released to the public.

The forage plots were seeded in the spring of 2010 and harvested for the first time in 2011. This is a four year trial and we will be harvesting at least one cut per year (two if growing conditions permit) and results will be compiled in the Western Forage Testing System Report at the end of the four year trial. We will also be publishing our own local results in each annual report.

Unfortunately, this site was discontinued in 2012. We hope to find a permanent site to re-establish this trial in 2013.

The following table outlines the results from the first year's harvest. The yields are reported as wet yields and subsequent year's data will be corrected to 65% moisture (like the silage trials).

Table 1: Plot Information

Action	Tawatinaw
Seeding	June 16, 2010
Seeding Specifics	Depth: 0.5 inches Row Spacing: 8 inches Seeding Rates: See Table 2
Year 1	Sprayed Basagran June 9, 2011 Harvested August 3, 2011

Table 2: Results

Species	Variety	Wet Yield (tons/ac)
Red Clover	Starfire	5.2
	Altaswede	6.3
Orchardgrass	Kay	3.8
	NS09-OG-01	3.3
	OG426	3.1
	96 OG-2	2.5
Alfalfa	Beaver	6
	AC Blue J	4
	Rambler	4.3
	Rangelander	4.9
	Radiant II	3.6
	TS-3025	4.8
	TS-4002	4.3
	NS09-ST01	4
	NS09-MF01	4.2
	VT 09001	4.8
	VT 09002	4.2
	VT 09003	4.3
	PF 09010	4.1
	PC 09050	5.3
	PC 09051	6
	PC 09070	4.2
	PC 09080	4
	PC 09081	3.8
	PC 09082	4.8
	VC 09101	4.3
VC 09102	4.6	
L333HD	4.2	
Sanfoin	Nova	7.2
	LRC05-3900	5.6
	LRC05-3901	5.5
	LRC05-3902	5.3

Fertilizer Trial

Heifer Pasture SE-23-61-26 W4

Objectives

Evaluate the yield effects of fertilizing older pasture stands with varying rates of ammonium sulphate

Background

We selected 2 paddocks (R1 and R8) for the trial based on accessibility, uniformity and similar forage composition. In each of the two paddocks we split them into strips that ran in an east/west direction and then fertilized the strips (using an AGCO TerraGator floatation applicator) with ammonium sulphate (21-0-0-24) at a rate of 400 lbs/ac, 200 lbs/ac or a check which received no fertilizer.

We chose to use 21-0-0-24 for this trial as it was the most stable form on N and the most soluble form of S. We wanted something that would not degrade as much through atmospheric losses as 46-0-0 would from sitting on the surface. Also, plants uptake S in the form of sulphate and the 21-0-0-24 is 100% sulphate, making it the most efficient source of S for the plants. An additional benefit to using 21-0-0-24 is that it tends to acidulate a zone surrounding each particle of fertilizer which helps solubilize other nutrients which are otherwise unavailable to the plant, making them more available for uptake.

Results

Table 1: Yield Data

		Jun-15											
		Avg A			Avg B			Avg C					
Treatment	Cage	A1	A2	A3	yield/clip	B1	B2	B3	yield/clip	C1	C2	C3	yield/clip
		(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)
	Y4	0.3	1.0	2.7	1.3	0.8	1.0	1.5	1.1	-	0.7	0.9	0.8
	R8	1.0	0.7	-	0.9	1.9	0.6	0.7	1.1	0.9	2.9	1.2	1.7

		Aug-30											
		Avg A			Avg B			Avg C					
Treatment	Cage	A1	A2	A3	yield/clip	B1	B2	B3	yield/clip	C1	C2	C3	yield/clip
		(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)	(tons/ac)
	R1	2.7	4.0	4.5	3.8	2.4	3.5	1.1	2.4	2.0	1.9	1.8	1.9
	R5	3.1	3.6	1.9	2.9	2.0	2.5	2.2	2.2	3.9	3.8	0.9	2.9
	Y8	1.9	0.5	2.9	1.8	3.1	1.4	-	2.2	1.2	1.5	0.9	1.2

- Treatment Group "A" - 400 lbs/ac 21-0-0-24
- Treatment Group "B" - 200 lbs/ac 21-0-0-24
- Treatment Group "C" - Control (No Fertilizer)

For plots that were part of the fertilizer trail.

Paddocks with the higher rate of fertilization had the highest yields, followed by the lower rate and the control groups with no fertilizer had the lowest yields. This is what we expected to see and in the pasture the line between the different rates was very easy to find. Without measurement the benefits were visually noticeable.

Table 2: Nutritional Data

Treatment	Date Sampled	Moisture	CP	TDN	ADF	Ca	P	K	Mg
R8-A(1)	Jun-15	61.99	13.94	60.22	36.82	0.33	0.23	1.71	0.12
R8-B(1)	Jun-15	79.54	25.53	68.28	26.47	0.31	0.32	3.21	0.15
R8-C(1)	Jun-15	65.96	14.14	62.43	33.98	0.31	0.24	1.83	0.15
Y4-A	Jun-15	76.36	19.15	59.06	38.3	0.42	0.25	1.94	0.24
Y4-B	Jun-15	70.95	16.58	60.75	36.13	0.48	0.23	1.9	0.2
Y4-C	Jun-15	67.08	14.61	59.9	37.23	0.46	0.26	2.18	0.22
R1-A	Aug-30	50.77	12.75	61.03	35.78	0.34	0.06	1.3	0.16
R1-B	Aug-30	60.77	12.84	62.13	34.36	0.47	0.2	1.57	0.17
R1-C	Aug-30	59.47	10.02	62.79	33.52	0.45	0.2	1.46	0.16
R5-A	Aug-30	61.76	13.74	63.79	32.24	0.34	0.18	1.88	0.13
R5-B	Aug-30	56.18	9.38	63.07	33.16	0.36	0.15	1.33	0.16
R5-C	Aug-30	61.89	12.87	62.65	33.7	0.38	0.18	1.64	0.15
R8-A(2)	Aug-30	60.47	11.32	56.53	41.55	0.44	0.24	1.67	0.16
R8-B(2)	Aug-30	57.09	12.51	57.37	40.47	0.41	0.18	1.67	0.18
R8-C(2)	Aug-30	63.39	15.2	58.86	38.56	0.32	0.23	2.26	0.16
Y8-A	Aug-30	56.8	7.97	61.02	35.79	0.39	0.18	1.45	0.17
Y8-B	Aug-30	59.59	9.78	63.7	32.35	0.36	0.22	1.46	0.16
Y8-C	Aug-30	57.54	8.58	63.51	32.59	0.49	0.19	1.11	0.15

	Treatment Group "A" - 400 lbs/ac 21-0-0-24
	Treatment Group "B" - 200 lbs/ac 21-0-0-24
	Treatment Group "C" - Control (No Fertilizer)

For plots that were part of the fertilizer trail.

Discussion

Normally we can see an increase in quality from the July clipping to the August clipping before the drop in the September clipping. This is due to the lower quality regrowth in the fall.

By adding nitrogen to the pasture we hope to also draw several other nutrients – including water into the plant which is reflected in our nutrient tables when you look at the overall trend.

Also there is an increase in protein levels of the stands which partly is due to the increased levels of pure N in the soil. However, since the soils were very deficient in S and S is a major component of amino acid synthesis (the building blocks of protein) it wasn't until the plant could bring in more S that it could begin using the N more efficiently or maintain the crucial N:S ratio.



400 lbs/ac 21-0-0-24 (left), 200 lbs/ac 21-0-0-24 (right)

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.

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	



FEED AND FOOD BARLEY

Variety	2 or 6 row	Awn Type ²	Overall Yield	Overall Station Years of Testing	Yield Category ² (% AC Metcalfe)				Agronomic Characteristics					Disease Tolerance ⁶				
					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 ⁵	Loose Smut	Other Smuts	Root Rot	Scald	Spot Form Blotch

GENERAL PURPOSE

Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to AC Metcalfe)

AC Metcalfe (bu/ac)	100	52	80	106	133															
AC Metcalfe ³ ☼	2	R	100	454	100	100	100	100	M	50	46	80	F	VG	F	F	VP	F	VP	F
CDC Maverick ▲	2	S	96-	30	XX	92-	97	98	M	48	49	89	F	VP	VG	F	P	G	F	F
Champion ☼	2	R	113+	111	122+	114+	112+	109+	M	52	48	77	G	VP	VG	XX	VP	F	VP	F
Gadsby ▲	2	R	112+	45	XX	114+	114+	108+	M	53	51	83	F	VG	VG	F	VG	G	P	F
Muskwa	6	S	105	29	XX	103	106	110+	M	51	45	74	G	P	VG	P	G	G	P	VP
TR07728 ☼	2	R	111+	59	109	110+	114+	111+	M	53	46	74	G	P	VG	G	VP	F	F	F
XENA ☼	2	R	112+	243	107	109+	114+	115+	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	94	96-	102	111+	M	48	40	80	G	P	F	F	F	F	F	P
AC Lacombe ☼ †	6	S	107+	196	98	101	107+	115+	M	48	42	84	G	P	G	P	P	G	P	VP
AC Ranger	6	S	107+	48	100	99	118+	108+	L	49	43	74	F	P	F	G	P	G	F	VP
AC Rosser ☼	6	S	110+	166	100	103	111+	117+	M	48	41	82	G	P	VG	G	VP	G	F	VP
Busby ☼	2	R	104+	45	107	103	106	103	M	51	49	78	G	VP	G	VP	F	G	P	F
CDC Austenson ☼	2	R	112+	65	108	113+	111+	112+	L	53	46	78	G	VP	VG	F	VP	VG	P	F
CDC Coalition ☼	2	R	110+	55	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-	95-	L	52	48	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 Helgason ☼ †	2	R	104+	101	96	99	106+	114+	E	52	46	75	G	VP	G	F	VP	G	G	P
CDC Mindon ☼ †	2	R	99	47	XX	98	103	96-	M	52	48	77	G	VG	VG	XX	VP	G	VP	G
CDC Trey ☼	2	R	104+	106	98	103	103	109+	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	94	92-	93-	95-	VE	52	52	80	G	F	F	G	VP	G	F	G
Ponoka ☼	2	R	110+	120	98	107+	112+	112+	L	51	46	80	G	VG	VG	F	G	G	P	F
Seebe	2	R	100	229	91-	98	103	102	VL	52	50	86	G	VP	VG	F	G	P	VP	G
Sundre ☼	6	S	111+	70	97	111	109+	121+	L	51	43	85	G	P	VG	P	VG	F	P	VP
Trochu ☼	6	S	110+	136	99	106	110+	120+	M	49	41	78	G	P	G	G	F	G	VP	F

SEMI - DWARF

Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to AC Metcalfe)

Vivar ☼	6	R	109+	188	98	105+	111+	117+	M	50	43	74	VG	F	VG	G	F	G	VG	VP
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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
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HULLLESS

Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to AC Metcalfe)

CDC Clear	2	R	94-	30	XX	92-	99	XX	L	47	45	86	F	VG	VG	F	VP	VG	P	G
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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
Falcon ☼ †	6	S	83-	181	72-	83-	91-	89	E	58	35	68	VG	P	G	F	F	F	F	VP
Millhouse ☼ †	2	R	84-	35	85-	86-	90-	XX	M	57	42	87	F	VP	G	F	P	P	P	F
Tyto	6	S	84-	72	76-	80-	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) Hullless - Hullless General Purpose type. In hullless varieties comparable yields are 9-12% lower. Hullless seed is more susceptible to damage than hulled seed, so handling should be minimized. CDC Carter, CDC McGwire and Millhouse are normal starch hullless barleys suitable for food use. CDC Clear is a hullless malting variety. Breton - insufficient information to describe. ☼ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for. † - Flagged for removal. XX - Insufficient data to describe.

²Awn types describe as R = rough, S = smooth and SS = semi-smooth. ³Yield 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. ⁴Yield 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. ⁵Maturities 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). ⁶Thousand Seed Weight. ⁷Resistance/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.

MALTING BARLEY																				
Variety	2 or 6 row	Awn Type ¹	Overall Yield	Overall Station Years of Testing	Yield Category ² (% AC Metcalfe)				Agronomic Characteristics					Disease Tolerance ⁵						
					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 (g)	Height (cm)	Resistance to Lodging ⁵	Loose Smut	Other Smuts	Root Rot	Scald	Spot Form Blotch	Net Form Blotch	Fusarium Head Blight
MALTING ACCEPTANCE: RECOMMENDED																				
Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to AC Metcalfe)																				
AC Metcalfe (bu/ac)			100		52	80	106	133												
AC Metcalfe ³ ☼	2	R	100	454	100	100	100	100	M	50	46	80	F	VG	F	F	VP	F	VP	F
CDC PolarStar	2	R	102	30	XX	108	104	95	M	51	42	80	G	VP	VG	P	VP	G	VP	G
Major ☼	2	R	107+	59	104	108+	108+	106+	M	52	44	73	G	VG	G	F	P	G	F	F
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
CDC Copeland ☼	2	R	104+	137	93	101	108+	109+	M	51	47	81	F	P	F	F	VP	F	F	F
CDC Meredith ☼	2	R	108+	63	102	108+	108+	108+	L	51	46	75	F	VG	G	G	VP	VG	VP	F
LEGACY ☼	6	SS	102	122	91-	99	103	111+	M	49	40	82	G	F	G	G	VP	G	VP	P
Merit 57 ☼	2	R	109+	85	108	108+	109+	109+	VL	51	44	79	F	P	VP	F	P	G	P	G
Newdale ☼	2	R	103+	92	102	102	104	104+	M	52	46	72	F	VP	G	G	P	G	F	F
Stellar-ND ☼+	6	SS	94-	73	XX	88-	94-	103	E	49	41	79	G	G	G	F	P	F	P	F
Tradition ☼	6	SS	101	121	88-	99	102	110+	E	50	40	81	G	VP	G	G	VP	F	VP	VP
MALTING ACCEPTANCE: UNDER TEST																				
Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to AC Metcalfe)																				
Bentley ☼	2	R	105+	75	109	102	105+	105+	M	52	46	80	G	P	G	G	VP	VG	P	P
CDC Anderson	6	R	96	29	XX	99	90	101	M	50	43	82	G	G	VG	F	P	G	P	F
CDC Kindersley ☼	2	R	104+	45	XX	102	104	104	E	51	45	77	G	VP	VG	F	VP	G	P	F
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
CDC Kamsack ☼+	6	R	97	37	XX	90-	99	109	M	48	41	69	G	F	G	F	P	F	VP	VP
CDC Mayfair ☼	6	R	97	54	XX	93-	96	104	E	49	40	75	G	VP	G	F	VP	G	P	P
Cerveza ▲	2	R	109+	47	XX	109+	108+	110+	M	51	46	73	F	VG	VG	F	VP	G	P	F
Norman ☼+	2	R	97-	47	XX	94-	97	98	M	52	43	75	G	VP	VP	P	VP	VG	P	G
MALTING ACCEPTANCE: OTHER																				
Previously tested varieties (Yield and agronomic data only directly comparable to AC Metcalfe)																				
CDC Battleford ☼+	6	S	105+	107	92-	103	105	115+	M	49	41	82	G	P	G	G	P	VG	P	VP
CDC Clyde ☼+	6	SS	103	77	93	104	101	108+	VE	49	40	76	G	F	VG	G	P	G	F	VP
CDC YORKTON +	6	S	106+	96	XX	100	104	114+	M	49	39	84	G	P	G	G	P	G	F	VP
Harrington	2	R	92-	284	97	96-	91-	89-	M	50	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. AAC Synergy - 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. 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 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.																				

SPRING TRITICALE

Variety	Overall Yield	Overall Station Years of Testing	Yield Category ¹ (% AC Ultima)				Agronomic Characteristics							Disease Tolerance ⁵		
			Low < 60 (bu/ac)	Medium 60 - 80 (bu/ac)	High 80-110 (bu/ac)	V. High > 110 (bu/ac)	Maturity Rating ³	Test Weight (lb/bu)	TSW ⁴ (g)	Height (cm)	Resistance to: ⁵			Ergot	Bunt	Fusarium Head Blight
											Lodging	Shattering	Sprouting			
Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to AC Ultima)																
AC Ultima (bu/ac)	86		48	75	102	138										
AC Ultima ²	100	177	100	100	100	100	E	45	45	97	G	G	F	P	VG	F
Brevis	108+	24	XX	108+	112+	XX	M	46	43	94	G	G	F	P	VG	P
Sunray	94-	37	93-	97	94-	XX	E	45	44	92	VG	G	F	G	VG	P
Taza ☼	96-	37	94	100	97	XX	M	44	46	100	G	G	F	F	VG	VP
Previously tested varieties (Yield and agronomic data only directly comparable to AC Ultima)																
Bumper ☼	101	39	109	104	98	93	E	45	45	89	VG	G	F	XX	VG	P
Bunker ☼	91-	49	89-	94	88-	93-	VL	48	48	107	F	G	F	XX	VG	F
Companion †	92-	50	94-	98	87-	89-	M	51	51	116	XX	XX	XX	XX	VG	XX
Pronghorn	100	177	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. New check variety - AC Ultima.

☼ - Plant Breeder's Rights. ▲ - Plant Breeder's Rights applied for.

¹Yield 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. ²Yields 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.

³Maturities 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). ⁴Thousand Seed Weight. ⁵Resistance/Tolerance Ratings: VG = Very Good; G = Good; F = Fair; P = Poor and VP = Very Poor.

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 2012 trials (Yield and agronomic data only directly comparable to CDC Dancer)													
CDC Dancer (bu/ac)	95		52	85	117	146							
CDC Dancer²	100	108	100	100	100	100	E	40	36	96	G	VG	
CDC Minstrel ☼	106+	20	XX	103	XX	107+	M	42	38	88	VG	VG	
CDC Seabiscuit ☼	104+	61	103	103	105	105+	M	42	41	99	G	G	
Stride ▲	113+	20	XX	110	XX	110+	M	42	34	101	G	VG	
Previously tested varieties (Yield and agronomic data only directly comparable to CDC Dancer)													
AC Juniper	103+	80	100	102	105+	103	E	41	38	94	VG	F	
AC Morgan	112+	94	109+	112+	110+	118+	M	42	41	92	VG	F	
Bradley ▲	104+	31	XX	103	108	106	E	39	39	92	VG	VG	
Cascade †	102	159	103	102	102	101	E	39	37	100	G	VP	
CDC Boyer	102	89	103	103	100	105	M	39	42	101	G	P	
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	
Leggett ☼†	95-	40	97	93	93-	XX	M	41	39	88	G	VG	
Ronald ☼†	97-	55	98	92	98	101	M	41	37	83	VG	VG	
SW Betania ☼ †	102	43	106+	104	97	XX	E	40	39	88	G	G	
Triactor ☼	110+	45	109	108+	114+	110+	M	38	38	88	G	VG	
FEED													
Varieties tested in the 2012 trials (Yield and agronomic data only directly comparable to CDC Dancer)													
CDC Nasser	118+	21	127	115	XX	XX	L	47	36	94	G	G	
Previously tested varieties (Yield and agronomic data only directly comparable to CDC Dancer)													
AC Mustang *	114+	106	118+	112+	110+	117+	L	42	37	103	G	F	
Lu*	100	56	99	98	99	110	VE	41	39	84	G	VG	
FORAGE													
CDC Baler *	99	42	97	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. Souris - 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.													

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 2012 trials (Yield and agronomic data only directly comparable to CDC Bethune)										
CDC Bethune (bu/ac)	36		15	29	44	60				
CDC Bethune² ☼	100	107	100	100	100	100	L	M	58	VG
AAC Bravo ▲	104	15	XX	XX	XX	103	VL	L	63	VG
CDC Sanctuary	105	20	XX	100	XX	XX	VL	M	63	G
Prairie Grande ☼	99	51	103	100	94-	99	M	M	55	VG
Prairie Sapphire ☼	97	15	XX	XX	XX	99	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	47	93	101	101	98	VL	S	57	G
Hanley ☼	97-	37	99	97	95	97	L	M	53	VG
NorLin †	95-	94	98	96-	95-	91-	M	M	57	G
Prairie Thunder ☼	99	38	101	98	99	XX	M	M	55	VG
Taurus ☼	98-	27	103	97	XX	XX	L	M	53	VG
REMARKS: CDC Glas, CDC Sanctuary - 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.										

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 2012 trials (Yield and agronomic data only directly comparable to CDC Bethune)										
CDC Bethune (bu/ac)	36		15	29	44	60				
CDC Bethune² ☼	100	107	100	100	100	100	L	M	58	VG
AAC Bravo ▲	104	15	XX	XX	XX	103	VL	L	63	VG
CDC Sanctuary	105	20	XX	100	XX	XX	VL	M	63	G
Prairie Grande ☼	99	51	103	100	94-	99	M	M	55	VG
Prairie Sapphire ☼	97	15	XX	XX	XX	99	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	47	93	101	101	98	VL	S	57	G
Hanley ☼	97-	37	99	97	95	97	L	M	53	VG
NorLin †	95-	94	98	96-	95-	91-	M	M	57	G
Prairie Thunder ☼	99	38	101	98	99	XX	M	M	55	VG
Taurus ☼	98-	27	103	97	XX	XX	L	M	53	VG
REMARKS: CDC Glas, CDC Sanctuary - 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.										

FABABEAN						
	Site Years 2000 - 2008 ¹	Relative Yield (% of EARLIBIRD) 2000 - 2008	Relative Maturity ²	Plant Height (cm)	Thousand Seed Weight (g)	Flower Color ³
EARLIBIRD (KG/HA)		5462				
EARLIBIRD ☼	27	100	E	86	540	C
CDC Blitz R	37	98	ML	96	460	C
CDC Fatima R	31	94	M	92	530	C
Snowbird ☼	24	105	E	93	530	W
FULLY TESTED VARIETIES						
Aladin R	Fully Tested	82	L	100	430	C
Ben ☼	Fully Tested	110	E	101	580	C
Cresta	Fully Tested	98	M	86	590	W
Hertz Freya	Fully Tested	80	L	111	400	C
Orion R	Fully Tested	84	M	77	350	C
Outlook	Fully Tested	92	L	100	370	C
Pegasus	Fully Tested	88	L	99	390	C
Scirocco	Fully Tested	104	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. Fully Tested varieties not tested in 2008. ☼ = Indicates varieties with Plant Breeders Rights; R = Registered with CFIA.						
¹ No trials in 2011. Trials failed in 2010. ² Maturity: E = early, M = medium, ML = medium late, L = late; ³ Flower Colour: W = white flower, zero tannin, C = colored flower, tannin.						

DRY BEANS - NARROW ROW									
Variety	Type	Site Years 1997 - 2012 ¹	Yield (% of check)	Days to Bloom ²	Days to Maturity	TSW ³ (g)	Plant Height (cm)	Lodging ⁴ (1 - 5)	Growth Habit ⁵
AC BLACK DIAMOND (kg/ha)			2724						
AC BLACK DIAMOND	Black Shiny	16	100	56	101	254	38	2.4	II
CDC Blackcomb (A)	Black Matte	1	104	63	-2	178	39	1.8	II
ISLAND (kg/ha)			2838						
ISLAND	Pinto	6	100	60	102	345	43	2.9	II
CDC WM-2	Pinto	3	69	60	2	364	45	2.5	II
Medicine Hat	Pinto	2	111	63	5	359	48	2	II
Winchester	Pinto	3	82	58	1	336	47	2.6	II
AC Resolute (kg/ha)			2602						
AC Resolute	Great Northern	14	100	54	102	323	40	2.4	II
AAC Tundra (A)		1	101	64	-4	342	43	2	II
AC Polaris	Great Northern	14	117	58	4	293	41	3.5	II
AC REDBOND (kg/ha)			2569						
AC REDBOND	Small Red	17	100	51	100	303	39	2.3	II
CDC Sol (kg/ha)			1002						
CDCC Sol	Yellow	3	100	51	114	317	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 Trials failed in 2010; ² Days to bloom from seeding; ³ Thousand Seed Weight; ⁴ Lodging: 1 = erect, 5 = flat. ⁵ Growth Habit: I = determinate bush, II = indeterminate bush, III = indeterminate prostrate.									

DRY BEANS - WIDE ROW									
Variety	Type	Site Years 1997 - 2012 ¹	Yield (% of check)	Days to Bloom ²	Days to Maturity	TSW ³ (g)	Plant Height (cm)	Lodging ⁴ (1 - 5)	Growth Habit ⁵
AC BLACK DIAMOND (kg/ha)			2912						
AC BLACK DIAMOND	Black Shiny	39	100	57	104	262	39	2.1	II
CDC Blackcomb (A)	Black Matte	3	86	63	-3	167	39	1.8	II
ISLAND (kg/ha)			3457						
ISLAND	Pinto	13	100	57	102	361	41	2.8	II
CDC WM-2	Pinto	8	75	59	-1	357	43	1.5	II
Medicine Hat	Pinto	6	82	68	3	331	42	1.3	II
Othello	Pinto	8	90	58	0	353	36	3.5	III
Winchester	Pinto	13	86	55	-1	336	40	2.3	II
AC Resolute (kg/ha)			2764						
AC Resolute	Great Northern	22	100	53	101	338	42	2.3	II
AAC Tundra (A)	Great Northern	3	100	61	-3	340	39	2.3	II
AC Polaris	Great Northern	22	111	57	4	316	40	3.5	II
AC REDBOND (kg/ha)			3134						
AC REDBOND	Small Red	39	100	53	101	316	41	2.4	II
CDC Sol (kg/ha)			1513						
CDC Sol	Yellow	6	100	66	108	386	33	1.0	I
Myasi	Yellow	3	119	67	6	325	32	1.0	I
VIVA (kg/ha)			3013						
VIVA	Pink	39	100	55	104	255	36	3.6	III
Remarks: A = First year entries; ¹ Trials failed in 2010; ² Days to bloom from seeding; ³ Thousand Seed Weight; ⁴ Lodging: 1 = erect, 5 = flat. ⁵ Growth Habit = flat; ⁵ I = determinate bush, II = indeterminate bush, III = indeterminate vine.									

DRY BEANS - NARROW ROW									
Variety	Type	Site Years 1997 - 2012 ¹	Yield (% of check)	Days to Bloom ²	Days to Maturity	TSW ³ (g)	Plant Height (cm)	Lodging ⁴ (1 - 5)	Growth Habit ⁵
AC BLACK DIAMOND (kg/ha)			2724						
AC BLACK DIAMOND	Black Shiny	16	100	56	101	254	38	2.4	II
CDC Blackcomb (A)	Black Matte	1	104	63	-2	178	39	1.8	II
ISLAND (kg/ha)			2838						
ISLAND	Pinto	6	100	60	102	345	43	2.9	II
CDC WM-2	Pinto	3	69	60	2	364	45	2.5	II
Medicine Hat	Pinto	2	111	63	5	359	48	2	II
Winchester	Pinto	3	82	58	1	336	47	2.6	II
AC Resolute (kg/ha)			2602						
AC Resolute	Great Northern	14	100	54	102	323	40	2.4	II
AAC Tundra (A)		1	101	64	-4	342	43	2	II
AC Polaris	Great Northern	14	117	58	4	293	41	3.5	II
AC REDBOND (kg/ha)			2569						
AC REDBOND	Small Red	17	100	51	100	303	39	2.3	II
CDC Sol (kg/ha)			1002						
CDCC Sol	Yellow	3	100	51	114	317	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 Trials failed in 2010; ² Days to bloom from seeding; ³ Thousand Seed Weight; ⁴ Lodging: 1 = erect, 5 = flat. ⁵ Growth Habit: I = determinate bush, II = indeterminate bush, III = indeterminate prostrate.									

DRY BEANS - WIDE ROW									
Variety	Type	Site Years 1997 - 2012 ¹	Yield (% of check)	Days to Bloom ²	Days to Maturity	TSW ³ (g)	Plant Height (cm)	Lodging ⁴ (1 - 5)	Growth Habit ⁵
AC BLACK DIAMOND (kg/ha)			2912						
AC BLACK DIAMOND	Black Shiny	39	100	57	104	262	39	2.1	II
CDC Blackcomb (A)	Black Matte	3	86	63	-3	167	39	1.8	II
ISLAND (kg/ha)			3457						
ISLAND	Pinto	13	100	57	102	361	41	2.8	II
CDC WM-2	Pinto	8	75	59	-1	357	43	1.5	II
Medicine Hat	Pinto	6	82	68	3	331	42	1.3	II
Othello	Pinto	8	90	58	0	353	36	3.5	III
Winchester	Pinto	13	86	55	-1	336	40	2.3	II
AC Resolute (kg/ha)			2764						
AC Resolute	Great Northern	22	100	53	101	338	42	2.3	II
AAC Tundra (A)	Great Northern	3	100	61	-3	340	39	2.3	II
AC Polaris	Great Northern	22	111	57	4	316	40	3.5	II
AC REDBOND (kg/ha)			3134						
AC REDBOND	Small Red	39	100	53	101	316	41	2.4	II
CDC Sol (kg/ha)			1513						
CDC Sol	Yellow	6	100	66	108	386	33	1.0	I
Myasi	Yellow	3	119	67	6	325	32	1.0	I
VIVA (kg/ha)			3013						
VIVA	Pink	39	100	55	104	255	36	3.6	III
Remarks: A = First year entries; ¹ Trials failed in 2010; ² Days to bloom from seeding; ³ Thousand Seed Weight; ⁴ Lodging: 1 = erect, 5 = flat. ⁵ Growth Habit = flat; ⁵ I = determinate bush, II = indeterminate bush, III = indeterminate vine.									

CHICKPEA							
	Type	Overall Yield	Station Years of Testing	Agronomic Characteristics			Tolerance to Ascochyta ⁴
				TSW ² (g)	Maturity Rating ³	Plant Height (cm)	
Varieties tested in the 2012 trials							
CDC FRONTIER (kg/ha)		5150					
CDC FRONTIER¹	Kabuli	100	22	360	L	43	F
Amit (R)	Kabuli	90-	22	270	L	44	F
CDC Alma	Kabuli	88-	7	390	ML	39	VP
CDC Cabri	Desi	92-	18	330	E	42	F
CDC Corinne	Desi	100	3	260	M	34	F
CDC Cory	Desi	87-	3	300	M	39	F
CDC Leader	Kabuli	95	3	390	ML	40	F
CDC Luna	Kabuli	91-	7	380	ML	41	P
CDC Orion	Kabuli	91	7	450	ML	39	P
CDC Vanguard	Desi	93	6	230	ML	39	F
Previously tested varieties (2003 - 2011)							
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: CDC Leader (493-24) - a new variety added to the table. XX - No data.							
¹ Yields are reported relative to CDC Frontier. Varieties that are statistically higher (+) or lower (-) yielding than CDC Frontier are indicated. No symbol after the yield figure indicates that there is no statistical difference. 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.							

FABABEAN

	Site Years 2000 - 2008 ¹	Relative Yield (% of EARLIBIRD) 2000 - 2008	Relative Maturity ²	Plant Height (cm)	Thousand Seed Weight (g)	Flower Color ³
EARLIBIRD (KG/HA)		5462				
EARLIBIRD ☼	27	100	E	86	540	C
CDC Blitz R	37	98	ML	96	460	C
CDC Fatima R	31	94	M	92	530	C
Snowbird ☼	24	105	E	93	530	W
FULLY TESTED VARIETIES						
Aladin R	Fully Tested	82	L	100	430	C
Ben ☼	Fully Tested	110	E	101	580	C
Cresta	Fully Tested	98	M	86	590	W
Hertz Freya	Fully Tested	80	L	111	400	C
Orion R	Fully Tested	84	M	77	350	C
Outlook	Fully Tested	92	L	100	370	C
Pegasus	Fully Tested	88	L	99	390	C
Scirocco	Fully Tested	104	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. Fully Tested varieties not tested in 2008. ☼ = Indicates varieties with Plant Breeders Rights; R = Registered with CFIA.						
¹ No trials in 2011. Trials failed in 2010. ² Maturity: E = early, M = medium, ML = medium late, L = late; ³ Flower Colour: W = white flower, zero tannin, C = colored flower, tannin.						

LENTILS											
	Overall Yield	Station Years of Testing	Agronomic Characteristics						Disease Tolerance ⁷		
			TSW ² (g)	Plant Height (cm)	Maturity Rating ³	Cotyledon Colour ⁴	Seed Coat Colour ⁵	Market Class ⁶	Ascochyta	Anthracnose	
Varieties tested in the 2012 trials											
CDC REDBERRY (kg/ha)	3340										
CDC REDBERRY¹	100	19	43	36	E	R	GR	SR	G	G	
CDC Dazil	93	7	35	37	E-M	R	GR	SR	G	F	
CDC Greenland (R)	78-	4	67	36	M-L	Y	G	LG	G	VP	
CDC Imax (CL)	96	8	46	40	E-M	R	GR	SR	G	F	
CDC Imigreen (CL)	77	4	61	39	M	Y	G	MG	G	VP	
CDC Impala (CL)	90	9	30	37	E	R	GR	ESR	G	G	
CDC Imperial (R; CL)	83-	12	29	38	E	R	GR/BR	ESR	G	G	
CDC Impower (CL)	74	4	70	38	ML	Y	G	LG	G	VP	
CDC Impress (R; CL)	81	4	50	34	M	Y	G	MG	G	P	
CDC Improve (R; CL)	86	4	74	37	M	Y	G	LG	F	VP	
CDC Invincible (CL)	98	8	33	37	E	Y	G	SG	G	G	
CDC KR-1	100	4	55	37	M	R	GR	LR	G	G	
CDC Maxim (R; CL)	105	9	42	34	E-M	R	GR	SR	G	G	
CDC Redbow	100	9	31	39	E	R	GR	ESR	G	G	
CDC Redcliff	107	7	39	38	E-M	R	GR	SR	G	F	
CDC Redcoat	99	9	42	35	E	R	GR	SR	G	G	
CDC Rosebud	99	9	29	37	E	R	T	ESR	G	G	
CDC Rosetown	99	12	30	40	E	R	GR	ESR	G	G	
CDC Ruby	93-	7	28	33	E	R	GR	ESR	G	G	
Previously tested varieties (2004 - 2011)											
CDC Blaze (R)	86-	13	38	30	E-M	R	GR	SR	G	P	
CDC Cherie	108	3	41	35	E-M	R	G	SR	G	F	
CDC Impact (R; CL)	84-	8	36	37	E	R	GR	SR	G	P	
CDC Milestone (R)	100	18	39	32	E	Y	G	SG	G	VP	
CDC Peridot (CL)	116	1	37	XX	E	Y	MRB	FG	F	P	
CDC Robin (R)	87-	15	28	34	E	R	BR	ESR	G	G	
CDC Rouleau (R)	106	5	37	37	M	R	GR	SR	G	G	
CDC Viceroy (R)	108	13	35	33	E	Y	G	SG	G	G	
Crimson (R)	82	10	39	27	E	Y	BR	SR	VP	VP	
Eston (R)	89	5	34	35	E	Y	G	SG	VP	VP	
Pardina	106	1	40	XX	X	Y	GR/DT	SB	VP	VP	
Remarks: Weight, diameter and thickness of lentil seeds will vary depending on environmental conditions and agronomic factors. R = Registered with CFIA; CL= Clearfield variety; XX = No data.											
¹ Yields are reported relative to CDC Redberry. Varieties that are statistically higher (+) or lower (-) yielding than CDC Redberry are indicated. 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 Market Class: SG = Small Green, MG = Medium Green, LG = Large Green, FG = French Green, ESR = Extra Small Red, SR = Small Red, LR = Large Red, GC = Green Cotyledon, SB = Spanish Brown; ⁷ Disease resistance: VP = Very Poor, P = Poor, F = Fair and G = Good.											

FIELD PEA - YELLOW																							
Variety	Region (see map)											Agronomic Characteristics				Tolerance to ⁴							
	South				East Central		West Central		Peace		Total Site Years	Overall Yield (%)	Maturity Rating ¹	Vine Length (cm)	TSW ² (g)	Standability ³ (1-9)	Powdery Mildew	Mycosphaerella Blight	Fusarium Wilt	Seed Coat Breakage	Seed Coat Dimpling ⁵	Green Seed Coat ⁶	
	Irrigation		Dry Land		Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)													
	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)			
RELATIVE YIELD AS % OF CDC MEADOW: 2003 - 2012																							
CDC MEADOW (kg/ha)	XX	XX		3727		3946		5963		5436		4752											
CDC MEADOW	XX	XX		100		100		100		100		85		E	83	211	3.5	VG	F	F	G	G	G
Abarth (A)	XX	XX	4	108+	5	108	2	111	5	95	16	104	M	80	237	4	VG	F	F	F	G	G	G
CDC Amarillo (A)	XX	XX	4	96	5	93	2	125	5	111	16	103	M	87	221	3.2	VG	F	G	F	F	G	G
CDC Saffron	XX	XX	9	104	9	99	3	100	10	99	31	100	M	88	232	3.9	VG	F	F	G	F	G	G
Hugo	XX	XX	11	102	14	83-	5	90	17	96	47	93-	M	73	210	5.2	VG	F	F	G	F	F	F
Stella	XX	XX	11	76-	14	80-	5	83-	15	81-	45	80-	M	95	213	3.9	VG	F	F	G	G	G	F
FULLY TESTED VARIETIES																							
CUTLASS (kg/ha)	XX	XX		3934		3188		3436		5568		4600											
CUTLASS	XX	XX	26	100	38	100	25	100	59	100	149	100	M	64	240	4.2	VG	F	F	F	F	F	G
Agassiz	XX	XX	6	100	11	102	9	102	18	103	44	102	M	76	237	2.9	VG	F	F	G	G	VG	G
Argus	XX	XX	7	100	9	114+	3	103	12	100	31	104	M	88	227	4.1	VG	F	F	F	F	F	G
Canstar	XX	XX	15	98	24	106	15	103	28	102	82	103	M	79	245	3.4	VG	P	G	G	G	G	G
CDC Centennial	XX	XX	5	101	12	99	9	104	14	100	40	101	E	61	259	4.8	VG	F	G	G	G	G	F
CDC Homet	XX	XX	10	101	12	116+	6	110	15	103	43	107+	M	89	215	3.7	VG	F	F	F	F	F	G
CDC Prosper NR	XX	XX	6	93	12	97	8	97	17	98	43	97	E	72	151	4	VG	F	G	G	G	F	G
CDC Treasure NR	XX	XX	6	96	12	105	8	98	17	99	43	100	E	79	218	3.5	VG	F	F	G	F	F	F
DS-Admiral	1	91	13	98	18	107	13	98	24	103	69	102	M	69	247	3.1	VG	P	F	F	F	G	F
Eclipse	1	113	17	106	27	104	20	97	33	101	97	102	M	69	252	3.2	VG	F	F	G	F	F	G
Polstead	XX	XX	5	97	12	99	9	99	16	104	42	101	E	62	262	3.7	VG	P	P	F	F	VG	F
Reward	XX	XX	5	86	12	106	9	102	13	101	39	101	M	76	248	2.5	VG	F	F	G	G	VG	F
SW Midas	XX	XX	10	103	17	106	11	91-	21	99	59	100	E	65	213	3.1	VG	P	F	G	G	G	G
Thunderbird	XX	XX	6	89	11	96	9	99	14	99	40	97	M	76	229	2.1	VG	F	F	G	G	VG	XX
FULLY TESTED VARIETIES (RELATIVE YIELD AS % OF CARRERA): 2000 - 2005																							
CARRERA (kg/ha)				4459		2593		2926		5098		3986											
CARRERA	6	100	14	100	28	100	15	100	33	100	96	100	E	53	257	4.6	P	P	F	F	F	G	XX
CDC Bronco	1	93	11	91	14	102	8	94	15	117	49	102	M	63	218	4.1	VG	F	F	G	G	G	G
CDC Golden	1	109	11	101	14	105	8	102	15	109	49	105	M	68	224	3.4	VG	F	F	G	G	G	G
CDC Handel	2	116	8	95	17	94	7	87-	14	102	48	96-	L	67	201	6.2	VG	F	P	G	G	G	F
CDC Minuet	5	115	12	97	26	100	11	92	22	111	76	102	M	64	192	4.9	VG	F	F	F	F	G	F
CDC Mozart	2	110	8	108	17	100	7	97	14	105	48	103	M	62	241	5.9	VG	F	F	G	G	G	F
Remarks: Stella is a silage type pea. * Indicates variety with Plant Breeder's Rights; A = First year entries (2011); NR = Variety not registered with CFIA; F = Forage type. XX = No data available. † - Flagged for removal.																							
Maturity: E = Early, M = Medium, L = Late; †Thousand Seed Weight: g; Standability: 1 = erect, 9 = flat; Tolerance to: P = Poor, F = Fair, G = Good, VG = Very Good; Seed Coat Dimpling: VG = very good (0 - 5%), G = good (6 - 20%), F = fair (21 - 50%); Green Seed Coat: G = good (0 - 10%), F = fair (11 - 25%).																							
FIELD PEA - GREEN																							
Variety	Region (see map)											Agronomic Characteristics				Tolerance to ⁴							
	South				East Central		West Central		Peace		Total Site Years	Overall Yield (%)	Maturity Rating ¹	Vine Length (cm)	TSW ² (g)	Standability ³ (1-9)	Powdery Mildew	Mycosphaerella Blight	Fusarium Wilt	Bleaching	Seed Coat Breakage	Seed Coat Dimpling ⁵	
	Irrigation		Dry Land		Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)													
	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)	Site Years	Yield (%)			
RELATIVE YIELD AS % OF COOPER: 2004 - 2012																							
COOPER (kg/ha)	XX	XX		4110		3843		5976		4759		4588											
COOPER	XX	XX	23	100	38	100	23	100	45	100	129	100	L	75	270	3.5	VG	F	F	G	F	G	G
CDC Limerick (A)	XX	XX	5	93	5	92	2	102	5	95	17	94-	L	81	201	3.6	VG	F	F	G	G	VG	G
CDC Patrick	XX	XX	15	100	22	97	12	99	27	96	76	98-	M	82	187	4.3	VG	F	G	G	G	G	G
CDC Pluto	XX	XX	10	93	9	86-	4	91	12	91-	35	90-	M	86	168	5.7	VG	F	F	G	G	G	G
CDC Raezer	XX	XX	10	87	9	115	4	102	12	95	35	99	M	94	224	4.1	VG	F	G	G	G	G	G
CDC Tetris	XX	XX	10	90-	9	107	4	95	12	97	35	97-	L	96	210	4.4	VG	F	G	G	G	G	G
Mendel	XX	XX	6	85-	11	95	4	92	17	90-	38	91-	M	78	205	3.9	VG	F	F	G	G	F	G
FULLY TESTED VARIETIES: RELATIVE YIELD AS % OF NITOUCHE: 2000 - 2009																							
NITOUCHE (kg/ha)				4586		2568		2955		5047		3914											
NITOUCHE	6	100	18	100	45	100	27	100	53	100	149	100	M	69	270	3.4	P	P	P	G	F	F	F
CDC Sage	XX	XX	5	80	8	88	8	97	13	91	34	90	M	71	220	3.1	VG	F	G	G	G	VG	G
CDC Striker	1	71	8	90	19	95	8	95	21	95	59	94	M	66	240	2.9	P	F	G	G	G	G	F
Remarks: CDC Tetris is an Espace type with blocky seed shape. * Indicates variety with Plant Breeder's Rights; A = First year entries (2011); XX = No data available. † - Flagged for removal.																							
Maturity: E = Early, M = Medium, L = Late; †Thousand Seed Weight: g; Standability: 1 = Erect, 9 = Flat; Tolerance to: P = Poor, F = Fair, G = Good, VG = Very Good; Seed Coat Dimpling: VG = Very Good (0 - 5%), G = Good (6 - 20%), F = Fair (21 - 50%).																							

LENTILS										
	Overall Yield	Station Years of Testing	Agronomic Characteristics						Disease Tolerance ⁷	
			TSW ² (g)	Plant Height (cm)	Maturity Rating ³	Cotyledon Colour ⁴	Seed Coat Colour ⁵	Market Class ⁶	Ascochyta	Anthraxnose
Varieties tested in the 2012 trials										
CDC REDBERRY (kg/ha)	3340									
CDC REDBERRY¹	100	19	43	36	E	R	GR	SR	G	G
CDC Dazil	93	7	35	37	E-M	R	GR	SR	G	F
CDC Greenland (R)	78-	4	67	36	M-L	Y	G	LG	G	VP
CDC Imax (CL)	96	8	46	40	E-M	R	GR	SR	G	F
CDC Imigreen (CL)	77	4	61	39	M	Y	G	MG	G	VP
CDC Impala (CL)	90	9	30	37	E	R	GR	ESR	G	G
CDC Imperial (R; CL)	83-	12	29	38	E	R	GR/BR	ESR	G	G
CDC Impower (CL)	74	4	70	38	ML	Y	G	LG	G	VP
CDC Impress (R; CL)	81	4	50	34	M	Y	G	MG	G	P
CDC Improve (R; CL)	86	4	74	37	M	Y	G	LG	F	VP
CDC Invincible (CL)	98	8	33	37	E	Y	G	SG	G	G
CDC KR-1	100	4	55	37	M	R	GR	LR	G	G
CDC Maxim (R; CL)	105	9	42	34	E-M	R	GR	SR	G	G
CDC Redbow	100	9	31	39	E	R	GR	ESR	G	G
CDC Redcliff	107	7	39	38	E-M	R	GR	SR	G	F
CDC Redcoat	99	9	42	35	E	R	GR	SR	G	G
CDC Rosebud	99	9	29	37	E	R	T	ESR	G	G
CDC Rosetown	99	12	30	40	E	R	GR	ESR	G	G
CDC Ruby	93-	7	28	33	E	R	GR	ESR	G	G
Previously tested varieties (2004 - 2011)										
CDC Blaze (R)	86-	13	38	30	E-M	R	GR	SR	G	P
CDC Cherie	108	3	41	35	E-M	R	G	SR	G	F
CDC Impact (R; CL)	84-	8	36	37	E	R	GR	SR	G	P
CDC Milestone (R)	100	18	39	32	E	Y	G	SG	G	VP
CDC Peridot (CL)	116	1	37	XX	E	Y	MRB	FG	F	P
CDC Robin (R)	87-	15	28	34	E	R	BR	ESR	G	G
CDC Rouleau (R)	106	5	37	37	M	R	GR	SR	G	G
CDC Viceroy (R)	108	13	35	33	E	Y	G	SG	G	G
Crimson (R)	82	10	39	27	E	Y	BR	SR	VP	VP
Eston (R)	89	5	34	35	E	Y	G	SG	VP	VP
Pardina	106	1	40	XX	X	Y	GR/DT	SB	VP	VP
Remarks: Weight, diameter and thickness of lentil seeds will vary depending on environmental conditions and agronomic factors. R = Registered with CFIA; CL = Clearfield variety; XX = No data.										
¹ Yields are reported relative to CDC Redberry. Varieties that are statistically higher (+) or lower (-) yielding than CDC Redberry are indicated. 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 Market Class: SG = Small Green, MG = Medium Green, LG = Large Green, FG = French Green, ESR = Extra Small Red, SR = Small Red, LR = Large Red, GC = Green Cotyledon, SB = Spanish Brown; ⁷ Disease resistance: VP = Very Poor, P = Poor, F = Fair and G = Good.										

2012 Regional Silage Testing Results

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 (%)
Vivar (t/ac)	2.7		1.6	2.4	3.8	XX	2	1.5	3.6	10.4	65.1	0.4	0.2	1.4	0.2
Vivar	100	9	100	100	100	XX	100	100	100	100	100	100	100	100	100
Murphy	126	9	156	118	118	XX	133	157	116	91	94	86	99	118	94
Pronghorn	108	9	111	97	120	XX	100	109	111	104	101	67	111	100	76
40-10 Vivar	93	9	92	96	89	XX	78	108	88	130	97	198	109	107	132
40-10 Murphy	106	9	114	109	98	XX	89	132	104	107	97	161	101	127	123
40-10 Pronghorn	100	9	103	97	101	XX	76	113	104	119	95	150	108	107	110
Horizon/Vivar	98	9	107	93	97	XX	94	112	92	120	96	165	99	104	118
Horizon/Murphy	109	9	133	111	90	XX	108	144	98	107	95	132	102	129	115
Horizon/Pronghorn	105	9	116	107	95	XX	95	132+	99	111	95	150	97	116	94

TRITICALE

Variety	Overall Yield	Overall Station Years of Testing	Yield Category (% Pronghorn)			Yield by Area (see map)				Nutritional Data					
			Low < 2.25 (t/ac)	Medium 2.25 - 4.50 (t/ac)	High > 4.50 (t/ac)	2	3	4	5	CP (%)	TDN (%)	Ca (%)	P (%)	K (%)	Mg (%)
Pronghorn (t/ac)	3.6		2.1	3.3	4.9	5.5	2.2	2.2	4.5	9.4	61.5	0.2	0.2	1.5	0.1
Pronghorn	100	9	100	100	100	100	100	100	100	100	100	100	100	100	100
AC Ultima	97	9	94	95	100	88	85	101	103	99	103	83	86	87	111
Bunker	104	9	101	117	99	86	113	96	107	96	98	102	91	96	106
Taza	100	9	103	100	98	90	108	91	103	90	102	115	93	98	93

Tyndal 95 9 94 100 93 86 101 90 97 96 99 97 94 96 93

BARLEY

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 (%)
Vivar (t/ac)	3.6		1.7	2.9	5.1	5.6	2.4	1.9	4.7	9.3	66.1	0.3	0.2	1.4	0.2
Vivar	100	10	100	100	100	100	100	100	100	100	100	100	100	100	100
Busby	102	10	102	99	105	101	106	96	108	102	99	107	111	100	89
CDC Austensen	114+	10	114	115	114	100	113	127	117+	111	101	94	107	106	99
CDC Coalition	102	10	96	102	106+	109	97	106	104	107	101	87	111	100	90
CDC Cowboy	118+	10	127	117+	114	102	118	134	116	98	98	111	108	121	105
Chigwell	99	10	95	103	97	92	93	108	100	105	98	115	101	110	100
Gadsby	118+	10	122	120+	113	96	112	135	118+	100	101	106	105	93	95
Ponoka	113+	10	113	114	111	107	110	124	112	101	98	130	112	102	97
Seebe	109+	10	113	110+	106	96	110	118	109	112	97	104	120	110	95
Sundre	100	10	99	100	101	91	94	104	105	105	98	107	106	116	103
Trochu	97	10	100	94-	99	102	92	103	97	107	102	113	118	107	106
Xena	107	10	111	112	99	88	119	110	103	106	102	88	120	99	89

Report Number: C12130-028
Account Number: 03091

A & L Canada Laboratories Inc.

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C 12130 028



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

For:

Attn: CATHERINE PAL
780-349-2012
Reported Date: 2012-05-11
Printed Date: 2012-05-11

SOIL TEST REPORT

Page: 1

Sample Number	Legal Land Descript:	Depth	Lab Number	Organic Matter	Phosphorus - P ppm Bicarb	Phosphorus - P ppm Bray-P1	Potassium K ppm	Magnesium Mg ppm	Calcium Ca ppm	pH	CEC meq/100g	Percent Base Saturations					
										Buffer		% K	% Mg	% Ca	% H	% Na	
NEER1	NW-3-62-3-W5	7	17930	4.5	26 G	39 M	98 M	200 M	1790 M	5.8	6.8	13.4	1.9	12.5	67.0	18.0	0.7
DAPP1	NW-61-26-4	7	17931	4.1	28 G	43 M	101 M	235 M	1680 M	5.8	6.7	14.4	1.8	13.6	58.4	25.0	1.2
STONP1	NW-25-51-1-W5	7	17932	7.7	36 H	65 H	165 M	180 L	1960 VL	5.3	6.1	22.6	1.9	6.6	43.4	47.8	0.3

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
NEER1	13	VL 27	83	VH 174						9 G	527	0.5 G	0.15	57	15	22 M	
DAPP1	18	VL 38	31	H 65						9 G	618	0.5 G	0.13	53	20	40 H	
STONP1	17	L 36	40	VH 84						11 H	764	0.9 G	0.29	90	13	17 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

* 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.

Results Authorized By:  Ian McLachlin, Vice President

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

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