



Gateway Research Organization

2015 ANNUAL REPORT

Cropping



Forage &
Livestock



Environment



Contents

Chairperson’s Report	2
Manager’s Report	3
2015 Report from ARECA	4
2015-Board of Directors	5
Acknowledgement to Sponsor	6
Gateway Research Organization	8
2015 Extension Activities	9
Regional Cereal Variety Trials	10
2015 Heifer Pasture Summary.....	19
Regional Silage Trial.....	24
Pest Monitoring & Disease Survey Summary 2015	30

Chairperson's Report

Chelsea Geiger

In the past year, GRO has evolved and is committed to build upon and foster new and existing relationships and partnerships. A passionate board fuels an ambitious manager, who leads a capable, adaptive staff.

With this capacity, we are ever committed to agricultural research and extension. With this capacity, we are ever committed to agricultural research and extension.

On behalf of the board of directors, I would like to extend our thanks to all of our membership, funders, partners, and supportive relationships within the Government of Alberta, our umbrella organization, ARECA, and all other applied research associations throughout the province.



"Coming together is a beginning, staying together is progress, and working together is success"

- Henry Ford

Manager's Report

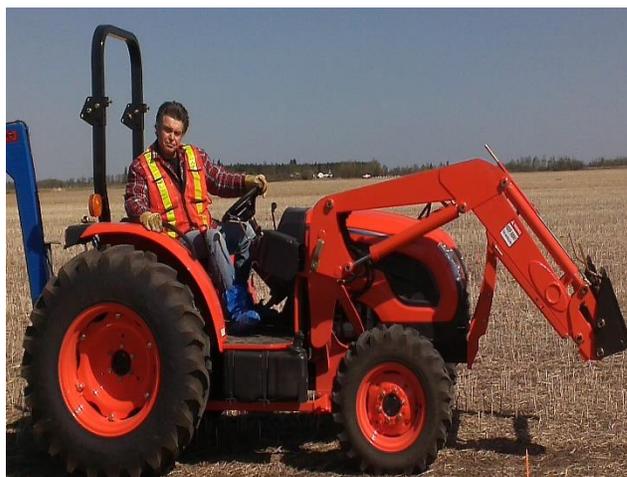
Sandeep Nain

I was on verge of finishing my graduate program at University of Alberta and started to browse for the options; where I can expand my educational experience to the field. I applied to open position at GRO for manger and next day I was called in for an interview. I would always be thankful to JP Pettyjohn and the board of directors at GRO to provide me opportunity that has rejuvenated me. In last 4 months at GRO, I have worked with passion, dedication and 100% commitment to prove myself. I also want to thanks my wife for her continue moral support.



In 2015, GRO actively conducted events to promote the basics of soil health, carbon sequestration, and the workshops on solar energy generation & Verified Beef production. Going forward, I will continue working with guidance from wonderful board of directors and will increase the efficiency and quality of agri- research works for the producers in our region. We are working along other applied agricultural association of Alberta on carrying out province wide projects in forage and livestock. We will continue small plot crop research and organizing extension workshop in 2016. Please visit our website www.gatewayresearchorganization.com for most recent updates and activities from GRO.

I am lucky to have **Rick Tarasiuk**, as my colleague. He is very organized, meticulous, passionate and straightforward in his work. His experience of mixed farming and expertise in farm equipment is a great asset to GRO. He had made my life way easier by sharing the work load.



2015 Report from ARECA

Janette McDonald, Executive Director



ARECA is the provincial arm of GRO. The Board of ARECA is made up of representatives from our 9 member organizations, one of them being GRO. ARECA's goal is to help GRO serve farmers. Your rep is Tom McMillan. Tom serves on ARECA's Audit Committee.

Some highlights in 2015:

ARECA worked with our team (9 associations) to deliver a Soil Health Initiative with the Alberta Crop Industry Development Fund. This initiative enabled our members to deliver over



20 meetings and programs across Alberta. It also funded www.albertasoilhealth.ca. The website contains short articles about soil quality and soil health in Alberta. We also interviewed 13 producers across Alberta and created producer highlights.

- ARECA enabled the delivery of successful Regional Variety Trials across Alberta. Together, we tested 78 new cereal varieties and 76 new pulse varieties.
- ARECA enabled the delivery of the Provincial Pest Monitoring program funded and operated by Alberta Agriculture and Forestry. Together, ARECA associations monitored 9 insect pests.
- ARECA also delivers the provincial Environmental Farm Plan.
- ARECA started a Connections newsletter, designed to “connect” our 9 member organizations. Each month, we develop a highlight sheet of one association and distribute to each Board member of each association. GRO was featured in August.
- ARECA's team hosted the Western Canada Soil Health Conference in Edmonton. This was attended by 425 people and was sold out! Soil health has become a hot topic across North America. GRO, through ARECA, is delivering information to farmers in the field.
- ARECA enabled the inaugural **Verticillium Wilt Survey**, funded and operated by the Canadian Food Inspection Agency, in co-operation with the canola industry. Together, ARECA associations surveyed 83 fields. GRO conducted 14 of these surveys.
- The ARECA Board developed a new process that aims to differentiate provincial programs from local programs. Our goal is to develop over-arching programs that fit for all or most of our 9 member associations; while supporting the independent, local programs of each individual association. So far, the process is working well and will be reviewed in 2016.

2015-Board of Directors

Chelsea Geiger – Chairperson^{\$}

Box 35
Tawatinaw, AB T0G 2E0
780-307-6617

Kassidy Geiger - Director

Box 35
Tawatinaw, AB, T0G 2E0
780-349-0941

Livestock and forage committee

Maurice Kruk - Vice Chairman^{\$}

Box 282
Radway, AB T0A 2V0
780-349-0589

Rusty Bellamy - Director

Box 1863
Athabasca, AB, T9S 2B5
780-689-7558

Steve Kenyon - Director

Box 188
Busby, AB, T0G 0H0
780-307-6500

Bill Visscher - Director

25312 TWP rd 554
Sturgeon County, AB, T8R 2G6
780-699-7627

Crop committee

Tom Macmillan - Treasurer^{\$}

NW5-58-26-W4; RR#2
Pickardville, AB, T0G 1W0
780-349-9415

Janine Paly - Director

Box 778
Thorhild, AB, T0A 3J0
780-232-1987

Ken Anderson - Director

RR#1
Barrhead, AB, T7N 1N2
780-674-1941

Equipment committee

Keith Wiart - Director

NW6-62-2-W5
RR1
Barrhead, AB, T7N 1N2
780-307-1564

Bryan Penno - Secretary

NW29-60-2-W5
RR1, Site 4, Box 11
Barrhead, AB, T7N 1N2
780-674-5343

Staff

Sandeep Nain General Manager

Box 5865
Westlock, AB, T7P 2P6
Cell: 780-249-1440
grohome@telus.net

Rick Tarasiuk Crop Research Technician

Box 5865
Westlock, AB, T7P 2P6
Cell: 780-307-7581
grocrops@telus.net

Acknowledgement to Sponsor

Gateway Research Organization gratefully acknowledges the generous support of the following businesses, organizations and individuals for providing valuable support, products and/or services to us in 2015.

The Board of Directors and staff extend their sincere appreciation for the active support for our research programs.

Program Funding



Events Funding



Alberta
Barley



ALMA
Alberta Livestock
and Meat Agency Ltd.



In-Kind Contributors

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

Special thanks to “Jubilee Feedlot” Westlock for time and support in conducting trial and surveys.

- WESTLOCK SEED CLEANING CO-OP LTD
- Flatlander
- Agriculture and Agri-Food Canada
- Sturgeon Valley Fertilizers
- Anderson Seed Growers
- UFA Co-op



Gateway Research Organization

Gateway Research Organization

Our History

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

Our Vision

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

Our Mission

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

The Goals of our Organization

1. To increase the profitability of our members.
2. To encourage active participation by local producers.
3. To provide a valuable resource for information transfer and extension to producers.
4. To produce high quality, unbiased, and scientifically sound research.
5. To produce research based on local growing conditions and soil properties.
6. To collaborate with specialists from the agricultural industry, government, and educational institutions.



2015 Extension Activities

GRO Hosted and Co-Hosted Events

Date	Name of event	No. of attendee	Location
February 24	GRO-AGM & Spring Fling	44	Westlock, AB
March 12	Smart Farming Workshop	65	Calmar, AB
March 24	Crop Production Workshop	28	Smoky Lake, AB
April 28	Solar Workshop	29	Rochester, AB
June 11	Beef Workshop	59	Clyde, AB
June 18	Curt Pate Stockmanship	18	Smoky Lake, AB
June 25	Soil Carbon Challenge	24	Athabasca, AB
July 31	Building Soil -Christine Jones	36	Morinville, AB
August 25	GRO Field Tour	16	Westlock, AB
December 8-10	Western Canada Conference on Soil Health	400	Edmonton, AB



Regional Cereal Variety Trials

Co-operators: Sherry Strydhost – Barrhead – SW-15-59-3 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 our region are presented below.

Westlock SW-15-59-3 W5	
Seeding Date	May 05
Seeding	Fabro zero till drill
Specifics	Seeding Depth: 1 inch Seeding Rates: 22 plants/ft ² - 2-Row & 6-Row Barley 24 plants/ft ² - HRS & Utility Wheat, Oats 30 plants/ft ² - Flax Seed treatment: Raxil



Gateway Research Organization

RVT - Project Description

Fertilizer/ac	83 lbs. N, 40 lbs. P, 20 lbs. K, 15 lbs. S (Flax) 114.5 lbs. N, 30 lbs. P, 15 lbs. K, 15 lbs. S (Wheat, Oat, Barley)
Herbicide	BuctrilM – 10-Jun Reglone – 4-Sep (Flax) Heat+Glyphosate – 07 May; Target – 26 May; Spectrum – 17 Jun; Reglone – 12 Aug (Wheat, Oat, 2-Row & 6-Row Barley)
Harvest Date	Aug 19 (Oat) Sept 10 (Wheat) Aug 11 (2-Row & 6-Row Barley)

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.





Gateway Research Organization

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



Table 2. Barley vareiteis westlock

Treatment Name	2 or 6 row	Yield % of AC Metcalfe	Bushel Wt. (lbs/bu)	TKW (grams)	Height (cm)	Lodging (1-9)
AC METCALFE	2	100	49	51	66	1.3
AMISK	6	104	50	51	62	1.3
CANMORE	2	94	50	55	62	1
CDC PLATINUM STAR	2	97	48	57	73	1
CHAMPION	2	97	49	50	64	1
TR10214	2	97	51	62	73	1
CDC Bow (TR11127)	2	89	46	57	64	1
TR12135	2	92	46	58	63	1
TR12733	2	100	47	56	65	1
TR12735	2	106	50	59	57	1
TR13740	2	97	49	49	64	1
VIVAR	6	95	47	57	61	1

*Check variety is AC Metcalfe; ** Lodging scale: 1 is standing and 9 is flat



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



Table:3 Canadian Western Red Spring (CWRS) class

Treatment Name	Yield % of AC Barrie (bu/acre)	Bushel Wt. (lbs/bu)	TKW (grams)	Height (cm)	Lodging (1-9)
AC BARRIE	100	62	40	87	1
CARBERRY	107	63	42	74	1
5605HR CL	99	63	37	86	1
AAC PREVAIL	92	59	39	92	2
AAC CAMERON	112	62	45	92	1
AAC CONNERY	98	58	43	76	1
CDC Bradwell (BW472)	94	54	39	77	1
BW479	93	61	42	89	1
BW496	100	60	43	82	1
BW963	82	61	40	80	3
BW965	107	63	39	69	1
BW966	100	63	41	76	1



Gateway Research Organization

COLEMAN	98	62	39	91	3
CDC MORRIS	105	62	39	82	2
CDC WHITEWOOD	110	63	38	80	1
PT637	84	62	40	81	1
Go early (PT769)	102	61	42	90	2
THORSBY	86	61	40	81	3
TITANIUM	101	62	44	80	1

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.

Table 4: Utility Wheat (CPSR) - Westlock

Treatment Name	Yield % of AC Barrie (bu/acre)	Bushel Wt. (lbs/bu)	TKW (grams)	Height (cm)	Lodging (1-9)
AC BARRIE*	100	49	51	66	1.3
AAC CRUSADER	104	50	51	62	1.3
AAC FORAY	94	50	55	62	1
AAC PENHOLD	97	48	57	73	1
AAC TENACIOUS	97	49	50	64	1
CARBERRY	97	51	62	73	1
ELGIN ND	89	46	57	64	1



Gateway Research Organization

HY1627	92	46	58	63	1
HY1632	100	47	56	65	1
SY995	106	50	59	57	1

CWSWS is a soft white wheat with low protein. It has three milling grades used for cookies, cakes, and pastry. The trial this year also contains two General Purpose (GP) varieties, a Canadian Prairie Spring White (CPS-W) and a Canadian Western Extra Strong (CWES) variety.



Table 5: Utility Wheat (CPSR) - Westlock

Treatment Name	Class	Yield % of AC Barrie (bu/acre)	Bushel Wt. (lbs/bu)	TKW (grams)	Height (cm)	Lodging (1-9)
AC BARRIE*		100	62	37	81	2
Canadian Wheat Soft White Spring						
AC ANDREW		136	61	41	69	1
AAC CHIFFON		142	62	44	73	2
AAC INDUS		139	63	46	75	1
Canada Western General Purpose						
AAC INNOVA		132	60	41	69	1
AAC NRG097		112	63	47	71	3
BELVOIR		139	60	46	66	1
SY087		120	62	38	70	2



Gateway Research Organization

CARBERRY	111	63	39	70	1
-----------------	-----	----	----	----	---

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



Table 6. Oats

Treatment Name	Yield % of AC Barrie (bu/acre)	Bushel Wt. (lbs/bu)	TKW (grams)	Height (cm)	Lodging (1-9)
CDC Dancer (bu/ac)	67				
Milling					
CDC Dancer ☼	100	48	38	51	1
AAC Justice	102	47	35	69	1
Bia	106	46	36	74	1
CS Camden	112	46	39	70	1
Nice	96	46	31	75	1
CDC Norseman	99	44	42	67	1



Gateway Research Organization

AKINA	108	46	42	63	1
Forage					
CDC HAYMAKER	95	42	35	78	2

Remarks: New registrations: Akina (CFA1112), CDC Norseman (OT3066).

* Yield figures based on direct comparisons with Check variety CDC Dancer.

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

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



Table 7. Flax

Variety Name	Yield % of CDC Bethune	Height (cm)	Lodging (1-9)
CDC BETHUNE	100	46	1
PRAIRIE GRANDE	96	45	1
FP2316	95	46	1
FP2385	118	49	1
CDC NEELA	110	44	1
VT50	98	42	1
WESTLIN 71	111	47	1
WESTLIN 72	94	40	1
FP2388	102	40	1
FP2454	104	45	1
FP2457	104	46	1

Yields are adjusted to 10.0% moisture



Conclusions

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

2-Row Barley - TR12735

6-Row Barley - AMISK

HRS Wheat - AAC CAMERON, CDC WHITEWOOD

Utility Wheat (CPSR) - AAC CRUSADER, SY995

Canada Western General Purpose: BELVOIR, and AAC INNOVA

Canadian Wheat Soft White Spring: AAC CHIFFON and AAC INDUS

Oats - CS Camden and AKINA

Flax - FP2385, WESTLIN-71 & CDC Neela



2015 Heifer Pasture Summary

Coordinator: **Rick Tarasiuk**, Crop Field Technician

Location: Heifer Pasture SE-23-61-26 W4

Stocking Rate: 82 heifers & 3 bulls;

Contributors:

Richard Geiger	Matt Haisen
Don Petryshen	Calvin & Anita Wruk
Maurice Kruk	Bruinella Mitchell
George Kerckhof	

Entry Date: June 15, 2015

Exit Date: September 28, 2015

Objectives:

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

History & Field Design

The pasture was established in 1979 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 wire that is powered with a solar electric fence. 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

**Gateway Research Organization**

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. In 2015, Rick worked on to fix the much-needed repair for fencing as well as solar panels.

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. In 2015, the whole water supply system was repaired and fixed for any leak issues.

Herd Health

All heifers were weighed and inspected for overall health and soundness on entry day in June. The heifers were weighed again on exit day in September. All animals were vaccinated for Hoof-rot vaccine at the entry day. CyLence® pour-on insecticide was also applied at entry during weigh in for pasture fly control. All livestock were fed granular Panacur as per products indications to treat for internal parasites. A pasture blend of loose mineral was fed as per product indications in each paddock. In 2015 overall, there was no issues with the health for the heifers during their stay at our pasture.

Breeding

One black Angus bull owned by Gary Petryshen and Two red angus bulls, One each owned by Maurice Kruk, and GRO were used in the pasture. Bulls entered heifer pasture at the same time as the heifers (June 15) and remained in the pasture until September 28th when the heifers were removed. The heifers were palpated for pregnancy upon exit, it was determined that the overall open rate was 4.8% i.e., 4 out of 83 heifers.

Grazing

The order that the paddocks were grazed was determined by the quantity of growth and species composition on a visual inspection. Paddock size was also determined and used

**Gateway Research Organization**

as an indicator for grazing days. Those paddocks containing a high proportion of meadow foxtail were grazed earlier in the rotation than those paddocks containing a high proportion of legume species. Grazing periods in 2015 were altered from the 2-3 day rotation to a 7 day rotation on average and when the situation allowed. This strategy was to increase rest period on paddocks and allow for each paddock to experience only one defoliation event through the season. This allowed legume species to set seed and litter accumulation.

Discussion

The GRO Heifer Pasture was established in 1979, making the pasture 35 years old, which is a well-aged pasture. The pasture was originally seeded to a mixture of grasses and legumes, but is now predominantly meadow foxtail. A variety of other grass species including orchard grass, timothy, meadow brome and other brome species can still be found out on pasture. In terms of forbs or legume type species, these are limited on the pasture with some paddocks having no broad leaf species other than Canada thistle. Stem mining weevils were introduced to control Canada thistle and the effect will be monitored for their efficacy in 2016 and 2017 fall. The species that do still exist in some of the paddocks are clovers, alfalfa and cicer milkvetch.

Table 2.1 Heifer Pasture Paddock Size (acres)

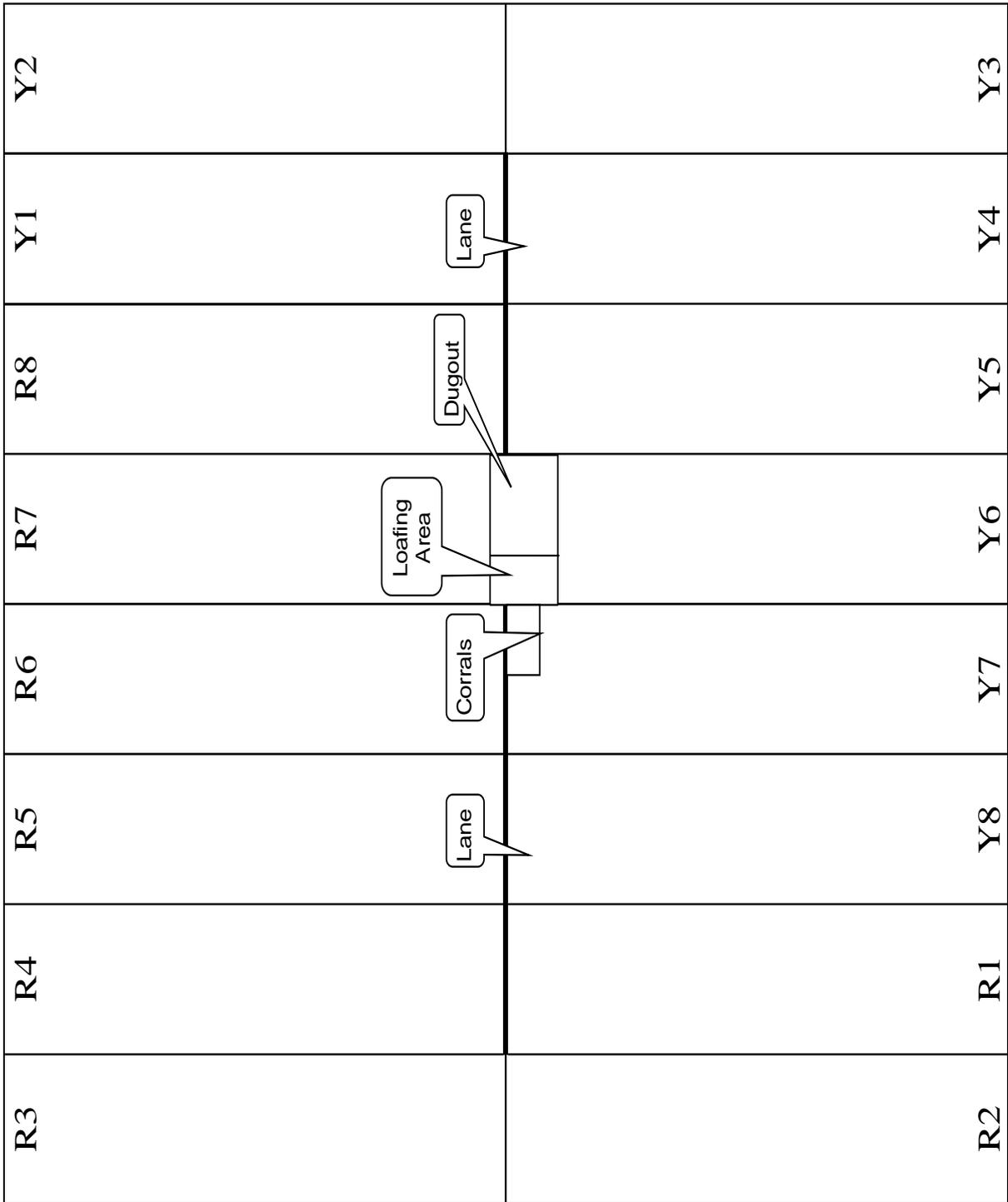
Paddock	Size (ac)	Paddock	Size (ac)
R1	8.90 ac	Y1	9.53 ac
R2	9.53 ac	Y2	10.36 ac
R3	9.50 ac	Y3	9.93 ac
R4	10.49 ac	Y4	9.75 ac
R5	10.25 ac	Y5	10.15 ac
R6	10.35 ac	Y6	9.04 ac
R7	9.14 ac	Y7	9.50 ac
R8	9.82 ac	Y8	9.81 ac



GRO Heifer Pasture Map



North





Gateway Research Organization

Table 2.2 Summary of Production (1988-2015)

Year	Entry Weight	Exit Weight	Gain (lbs.)	ADG (lbs.)
1988-2004	922	1124	208	1.74
2005	891	1059	168	1.44
2006	907	1083	176	1.38
2007	873	1117	244	1.82
2008	843	1106	263	1.98
2009	869	1073	204	1.73
2010	913	1049	136	1.08
2011	953	1134	181	1.62
2012	867	1052	185	1.39
2013	928	1146	218	1.70
2014	919	1098	179	1.50
2015	959	1126	167	1.59
Average	904	1097	194	2.00

Table 2.3 Heifer Pasture Precipitation in Inches

Year	May	June	July	August	September	October	Total
1988-2004	1.11	2.67	3.21	2.24	0.78	0.36	9.17
2005	1.44	4.08	1.64	1.20	0.56	0.80	9.72
2006	4.50	3.12	1.36	2.28	1.76	0.12	13.14
2007	3.10	5.36	2.52	1.10	0.72	0.04	12.84
2008	3.60	2.04	3.60	1.40	0.96	0.00	11.60
2009	0.18	0.39	3.43	1.06	0.74	--	5.80
2010	1.54	1.69	1.64	2.06	1.00	0.10	8.01
2011	0.03	3.32	0.48	0.98	0.41	0.02	5.24
2012	--	1.63	4.77	1.47	0.61	0.26	8.74
2013	1.16	2.68	3.26	2.98	0.98	0.89	11.95
2014	1.57	2.16	4.33	2.08	0.86	0.47	11.49
2015	1.64	3.26	3.67	2.50	1.39	0.71	1.64
Average	1.65	2.64	2.74	1.71	0.85	0.30	9.79



Regional Silage Trial

Cooperator: jubilee feedlot

Location: SW 14-60-27 W4

Objectives

1. Compare silage yield and nutritional value of new and commonly used barley, oat and triticale silage varieties.
2. To provide yield and agronomic data for use in the Alberta Agriculture publication "Silage Varieties for Alberta."

Background

A randomized complete block with 4 replicates of each treatment was used. Plot size was 1.37 metres wide (6 rows with 9 inch spacing) by 6 meters long. Silage was harvested, samples were weighed and sent for wet chemistry analysis to obtain moisture and feed quality.

Seeding Rates

Seeding rates were based on 1000 kernel weight and germination in order to achieve 22, 24 and 30 plants per square foot for barley, oat and triticale respectively. 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 small seed size.



Gateway Research Organization

Table:3.1 : Project description

Action	Barley Silage	Oat Silage	Triticale Silage	
Seeding	May 21	May 21	May 21	
Seeding Specifics	Depth: 1 inch Row Spacing: 9 inches			
Plot Activities	1. Cultivated and harrowed prior to seeding 2. In crop herbicide			
Equipment	Fabro zero- till drill with atom jet openers			
Fertilizer applied	58 lbs/ac (32-14-0-4)			
Herbicides applied	(Prestige A+B) on 2015-06-25			
Precipitation (mm)	123.44			
Harvest Stage	soft dough stage	late milk stage	Early stage	dough stage
Harvest date	July 30	August 07	August 12	

Barley Varieties Used in the Trial

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

CDC Maverick Two-row, spring forage-type general purpose barley. Fair to good resistance to lodging, good resistance to shattering, good tolerance to straw breakage, fair to good tolerance to drought. Susceptible to true loose smut.

CDC Meredith CDC Meredith is an outstanding two-row malting barley with top grain yield and reduced grain protein. CDC Meredith provides a moderate level of disease resistance along with improved agronomic traits and



desirable malting quality. It is widely adapted to the Canadian prairies and is experiencing increasing demand with domestic maltsters, brewers and international customers.

Canmore

Barley is a 2 row, medium height, general purpose barley. This variety fits in the feed market with the added food grade opportunities in the pearling and Shochu markets. (Shochu is an alcoholic beverage that is replacing Sake in Japan.) Canmore Barley has excellent pearling qualities, starch content and alcohol yields. Other features include: High yielding - equal to Xena; Improved disease resistance; Increased percentage of plump seed and improved lodging resistance

Amisk

Plump seeds, with 16% more than AC Ranger and 14% more than Vivar. Seeds were plumper than the two checks AC Metcalfe and Xena, by 5% and 7%, respectively. The higher percent plump kernels facilitate even processing for cattle feed resulting in increased feed efficiency. Amisk has a better than average combination of disease resistance: resistant to stem rust and septoria. Amisk has a strong straw with good lodging resistance, better than Vivar and AC Ranger. Forage yields are similar Vivar. Grain yields are similar to checks Vivar and AC Ranger. The heading, maturity days, 1000 kernel weight and test weight of Amisk are similar to the checks.

Champion

Two row, medium height, hulled spring feed barley. It has suited for Western Canada and has High Relative Feed Value (RVF). Fair to good resistance to lodging and shattering, fair to good tolerance to straw breaking, neck breaking, and drought.

Claymore (TR12733) Two row, spring feed barley, semi-erect growth habit at tillering. good resistance to lodging and shattering, good tolerance to straw breakage, fair to good tolerance to drought.

TR13740

Two- rowed general purpose barley line, newer varieirty



Gateway Research Organization

Oat Varieties Used in the Trial

- CDC Baler** A forage oat with very long wide leaves, slightly taller than the standard forage variety, excellent lodging resistance and exceptional forage yield. It generally has higher energy and protein values than other forage oats.
- AC Morgan** A milling oat. Susceptible to crown and stem rust, moderately susceptible to smuts. Adapted to black and grey wooded soil zones of Alberta.
- 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.
- CDC SO-1** Designed for ruminant feeding programs. Low lignin hull with high oil groat (better digestibility).
- CDC Haymaker** A spring oat with high forage yield potential and forage quality, good grain quality and improved grain yield over CDC Baler. Plump grain with high seed weight, grain yield better than CDC Baler. Crown rust resistance similar to CDC Dancer, susceptible to smut.

Triticale Varieties Used in the Trial

- Tyndal** A reduced awn spring triticale designed for conserved forage production (silage/greenfeed). Good leaf and stem rust resistance. An earlier maturing variety with good lodging resistance and high forage yields.
- Sunray** Adapted to the Canadian prairies and represents an improvement in ergot resistance for Canadian triticale. It is resistant to the prevalent races of leaf rust, stem rust, common bunt, root rot and is moderately



Gateway Research Organization

resistant to grain sprouting. Short statured with excellent lodging resistance and grain yield. Matures 2 days earlier than Pronghorn and AC Certa, and similar to AC Ultima.

Taza

Awnletted (reduced awn expression) standard height spring triticale line intended for use as a feed grain conserved forage, swath grazing crop and potentially for industrial use. Adapted to the Canadian Prairie Provinces. It yields similar to Pronghorn but is equal to or higher than AC Ultima and AC Certa. This line has good lodging resistance, good test weight, and high kernel weight. Taza is moderately susceptible to moderately resistant to FHB; it is resistant to leaf rust and stem rust.

Table 4.1: Barley Silage varieties at Westlock.

Variety	Yield Tonne/acre @65% moisture	Plant Height	Crude Protein	Total Digestible Nutrients
CDC AUSTENSON	9.56	65.7	8.9	70.0
AMISK	10.01	62.3	9.0	70.3
CANMORE	9.29	65.9	8.5	71.1
CDC MAVERICK	9.54	88.1	8.4	71.1
CDC MEREDITH	9.03	61.2	9.5	71.9
CHAMPION	9.32	65.3	9.0	73.2
TR12733	8.71	63.9	8.3	71.0
TR13740	10.52	62.7	7.6	71.9



Gateway Research Organization

Table 4.2: Oat Silage varieties at Westlock.

Variety	Yield Tonne/acre @65% moisture	Plant Height	Crude Protein	Total Digestible Nutrients
CDC BALER	11.5	97.9	9.9	67.2
CDC HAYMAKER	11.3	93.7	9.7	65.7
CDC SO-I	9.8	70.9	10.4	69.9
AC MUSTANG	12.1	97.5	10.2	66.1
AC MORGAN	10.9	82.0	9.9	69.1

Table 4.3: Barley Silage varieties at Westlock.

Variety	Yield Tonne/acre @65% moisture	Plant Height	Crude Protein	Total Digestible Nutrients
AAC CHIFFON	13.8	87.7	6.6	67.7
AAC INNOVA	14.2	77.8	7.0	67.6
AAC RYLEY	9.3	79.3	7.5	67.2
PASTEUR	13.8	87.7	7.7	68.8
AC SADASH	13.1	78.8	7.1	67.6
TAZA	12.6	93.5	8.0	68.1
SUNRAY	12.2	90.3	7.5	69.4



Pest Monitoring & Disease Survey

Summary 2015

The Gateway Research Organization (GRO) participated in the Prairie Pest Monitoring Program in 2015. The objective of the Prairie Pest Monitoring Program is to develop an early warning system for crop pests, with emphasis on insects and disease. Being forewarned means that scouting, information workshops and control operations can be carried out in the affected areas before crop losses occur. Last year, GRO surveyed for diamondback moth, bertha armyworm.

Diamondback Moth

Two pheromone traps on the edge of a canola field in Westlock County were used to monitor adult diamondback moth populations from April 26 to June 06. Traps were checked weekly and moth counts, along with counts from other locations, were used to generate forecast maps and assess the risk of a larval outbreak. These maps were updated daily and can be accessed on Alberta Agriculture, Food and Rural Development’s website.

Table 1. Diamondback Moth Trap Counts

Location:	Westlock, NE-9-61-26-W4		
Coordinates:	<u>54.268658, -113.845685</u>		
Set up date: Apr 26			
Week of	Date Collected	Trap 1 Count	Trap 2 Count
Apr 26 - 02 May	Friday, May 1	0	0
May 03 - 09 May	Friday, May 8	0	0
May 10 - 16 May	Friday, May 15	2	2
May 17 - 23 May	Friday, May 22	2	2
May 24 - 30 May	Friday, May 29	0	0
May 31 - 06 June	Friday, June 5	1	1
Cumulative Moth Counts		3	5



Bertha Armyworm

Two pheromone traps on the edge of a canola field in Westlock County were used to monitor bertha armyworm moth populations from June 14 to July 18. Traps were checked weekly and the counts, along with counts from other locations, were used to generate forecast maps and assess the risk of a larval outbreak. These maps were updated daily and can be accessed on Alberta Agriculture, Food and Rural Development’s website. Cumulative moth counts in Westlock County 32 and 26 per trap. These counts indicate a low risk for a larval outbreak and therefore no larval surveying was completed.

Table. Berth army Worm Trap Counts

Location: Westlock, NE-9-61-26-W4
Coordinates: 54.268658, -113.845685

Set up date: June 14

Week of	Date Collected	Trap 1 Count	Trap 2 Count
June 14 - 20	Friday, June 19	1	1
June 21 - 27	Friday, June 20	1	5
June 28 - July 04	Friday, July 03	13	5
July 05 - 11	Friday, July 10	14	6
July 12 - 18	Friday, July 17	3	9
Cumulative Moth Counts		32	26

Special thanks to Anne Van Loon, Environmental Science major Summer Student at the Gateway Research Organization, for assistance with pest surveying.

Canola Disease Survey – Verticillium Wilt

In November 2014, the Canadian Food Inspection Agency (CFIA) confirmed the presence of Verticillium Wilt (*Verticillium longisporum*) on canola at a single location in Manitoba. This pest has not been previously reported in Canada and is regulated as a



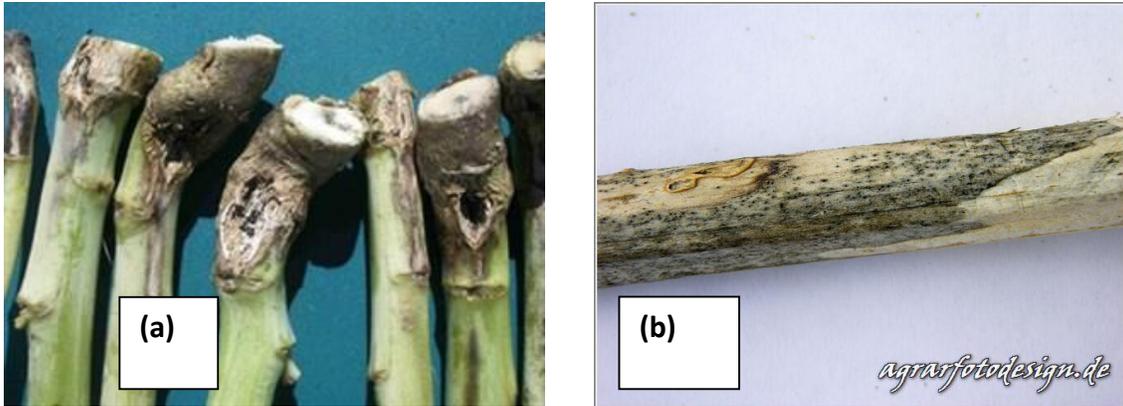
quarantinable pest under the Plant Protection Act (PPA). Under authority of the PPA, the Canadian Food Inspection Agency (CFIA) has requested that stem samples be collected from canola producing provinces as part of a survey to determine the incidence of this soil-borne fungus across Canada. GRO participated in this survey to assist CFIA in profiling the current distribution of this disease across Canada. This disease has the potential to devastate the canola industry of Alberta (refer to the CFIA Risk Assessment). The survey took place in late August, before swathing, when disease symptoms are most apparent. Diseased and healthy plant samples, as well as soil samples, were collected in each field and were sent to the project coordinator for analysis.

Things to consider, if you want to survey for verticillium wilt in Canola.

- Timing of survey: Microsclerotia production is highest when the plant is senescing. Survey the field just prior to, or immediately after, swathing when full plant wilt symptoms will be most evident.
- Symptoms: The symptoms of Verticillium wilt includes: premature leaf fall; necrosis; a reduction in stem diameter and stunting; discolouration in the leaves; chlorosis; abnormal leaf fall; wilting; internal discolouration; and blackening as microsclerotia appear. Some symptoms may be similar to other diseases.
- Common identification mistakes: Verticillium wilt may be difficult to distinguish from blackleg (*Leptosphaeria maculans*) due to similar blackening of the stem. To distinguish between the two, cut a cross section of the stem at ground level. Blackening in the middle of the stem signifies blackleg, while no blackening in the middle of the stem signifies Verticillium wilt (Canola Council, 2014). Verticillium wilt may also be mistaken for sclerotinia stem rot. Verticillium wilt presents only tiny microsclerotia while sclerotinia stem rot presents large, sclerocia inside of the stem (Canola Council, 2014). Please refer to the appendix for images of Verticillium wilt.

Gateway Research Organization

- Conditions: Verticillium wilt is more pervasive under dry soil conditions (19°C-23°C). When the xylem and phloem tissues are under stress the fungus may more



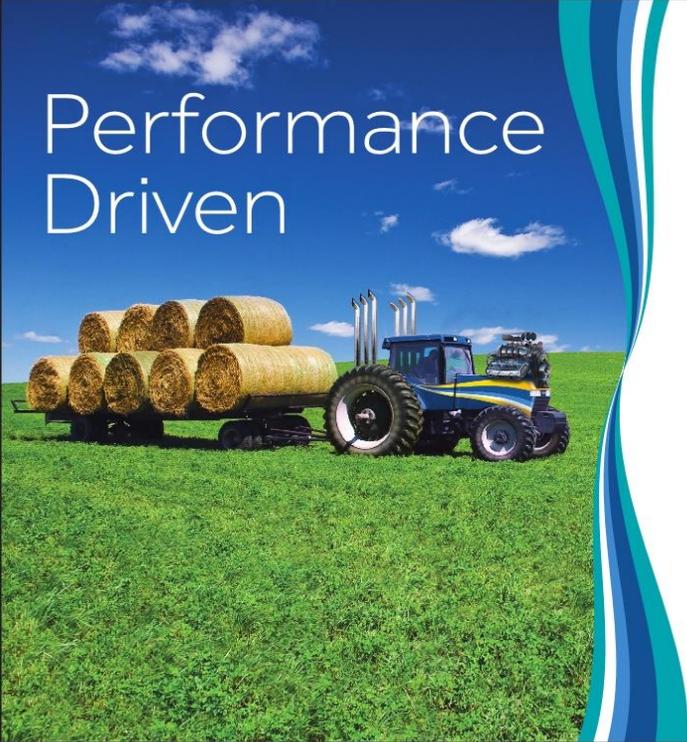
easily penetrate the vascular system. Damaged roots are also more vulnerable to penetration of the disease (Canola Council, 2014).

Figure 1: Blackleg infected stalk. (a) Stem interior. (b) Stem exterior. (Note: Verticillium wilt does not have a blackened stem interior).



Figure 2: Verticillium Wilt. (a) Stem discoloration. (b) Microsclerotia on stem exterior

Gold Sponsor for AGM & Spring Fling 2016



Performance Driven

Supercharge your herd's production with quality forage products and custom blends from BrettYoung. The BrettYoung Team has a track record of over 80 years of delivering high-performance forage solutions tailored to match the soil and environmental conditions of individual operations just like yours.

Delivering performance ... it's what we do!



BrettYoung™

Home Grown, World Class.

Visit brettyoung.ca 1-800-665-5015

BrettYoung is a trademark of BrettYoung Seeds Limited. 5032 02/16

Bronze Sponsor for AGM & Spring Fling-2016

FORAGE SEED FROM CHAMPION FEEDS

WE CAN BLEND TO SUIT



The grass is greener with
PICKSEED®

good things growing...
AUTHORIZED DEALER

**GIVE YOUR SEEDS A
HEALTHY START WITH
PROTINUS**

- PROTINUS is a safe, registered seed applied fertilizer.
- PROTINUS delivers nutrition directly to the seed.
- PROTINUS results in quicker, more even emergence.
- PROTINUS produces larger seedlings with longer roots.
- PROTINUS seedlings are better able to withstand stress.
- PROTINUS is backed by scientific research.




PROTINUS TREATED SEED vs. NON-TREATED SEED.
Field Trial by Wolf Trax - Fort Saskatchewan, July 2011.

PROTINUS **CHECK**



CHAMPION

Food Services

BARRHEAD
4901-54 Street
780-674-2910

WESTLOCK
0405-100 Street
780 349 5886

www.championfeeds.com



Western Winter Wheat Initiative



Western Winter Wheat Initiative



Western Winter Wheat Initiative