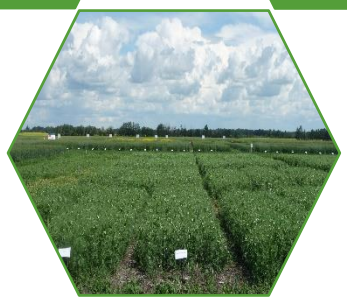
Gateway Research Organization

2017 ANNUAL REPORT

Cropping

Forage & Livestock

Enviroment



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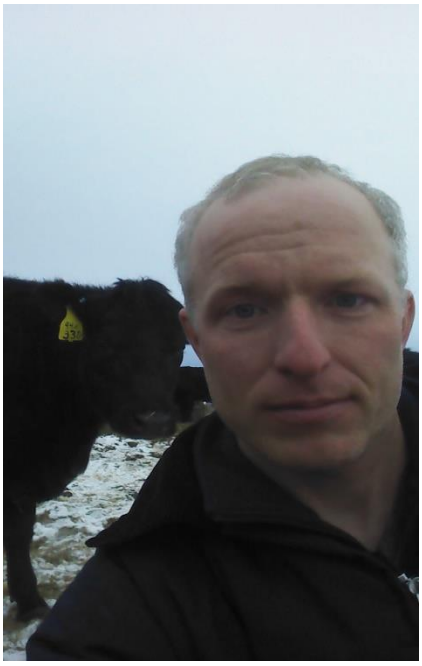
Chairperson's Report

Keith Wiart



I would like to extend greetings on behalf of the Board of Directors at Gateway Research Organization. This last year has been exciting to be a part of this growing organization!

My name is Keith Wiart, we have a mixed farm with grain and cattle at Neerlandia. I have been on the Board of Directors for five years, and have had the honor of being Chair this last year. Our board has a great mix of Directors from every type of farm that GRO works to serve. I look forward to our board meetings, as the discussions are enlightening, and we all have a strong desire to see GRO continue to improve and do meaningful work.

Sandeep has done a great job of managing and has gone above and beyond to make sure the plots were completed, and data compiled. The seeding and harvest issues we all faced this year were also difficulties for GRO's staff. Thanks to Sandeep, Rick, Kale and our summer students Anne and Marie for all the hard work and professionalism.

This year Maurice Kruk will be retiring from the Board of Directors after completing two-three-year terms. Maurice's experience on multiple boards over the years, and his knowledge about farming have been a huge asset. Thank-you Maurice for your time and service.

I would like to thank our members for the support and interest we have had at our events that have been hosted through the last year. Gateway Research Organization is unbiased research in our area, don't hesitate to use this resource. Call the office or talk to one of the directors if you have any questions or research requests.

Manager's Report

Sandeep Nain

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

Weather has been an obstacle for many of the producers in our area. We saw higher and untimed precipitation from last two years, hampering work during whole growing season. In year 2017, GRO had tough time with harvesting and at heifer pasture. Despite all hurdles, second year in row, we had achieved 100% rate of successfully harvesting of all our small plots research trials. **Rick Tarasiuk** is phenomenal for GRO organization, he worked very meticulously despite his injured leg and guided all of us to this path of success.

We had excellent looking RVT plots and a well-received crop walk and many extension events in 2017. This would have not been possible without the help from our experienced summer staff (Anne van loon and Mairi McEwen), and part-time help for Sami and Avery. Many thanks to Manjit Deol for helping on weekends with our harvest. I am fortunate with wonderful GRO board of directors, Ken Anderson and Steve Kenyon, who took extra efforts to help me at heifer pasture.

Among the highlights of year 2017, GRO along with two other groups are working with Alberta government for on-farm energy management (**OFEM**) program initiative. GRO hired an outreach officer, **Kale Scarff**, who will cover vast part of Northern Alberta from Edmonton to up to Fort Vermillion. Kale grew up on a mixed farm outside of Oyen, Alberta. She has a Bachelor's Degree

in Environmental and Conservation Science from the University of Alberta. She is great addition to our team and like to keep things organize. She had travelled extensively over last year and had establish connections throughout her region for efficient delivery of OFEM - program. The program is opened again from February 2018 and any question if you have, please contact GRO office.

Many thanks to Westlock, Barrhead, Woodlands and Parkland Counties for their continued support with our trials and demonstrations. We are grateful to find support from Thorhild County and Woodlands County from year 2017. A special thanks to Jubilee Feedlot and Greg Thompson, who supported us with our trail at Westlock, Barrhead and Fort Assiniboine.

An extra special thanks to **Bill Chapman** for mentoring me and challenging me to take hands-on experience of driving tractor to eventually operating combine.

Please visit our website **www.gatewayresearchorganization.com** for most recent updates and activities from GRO.

2017 Report from ARECA

ARECA and its 9-member associations had an important place in rural Alberta again in 2017.

Raising the Bar on RVTs ARECA was pleased to focus attention on Regional Variety Trials again in 2017. We held two excellent training days, one in April and one in July. Thank you to Alberta Agriculture and Forestry (AAF), Agriculture and Agri-Food Canada and the University of Alberta for their support of this project. A special shout out to Kristine Polziehn who was a resource for our members for 2016 and 2017.
This summer a significant number of **Pest Monitoring** activates were carried out by LARA and other associations. The 171 canola black leg surveys and 287 site visits for insect pest monitoring are important contributions to Alberta's pest surveillance. Pest monitoring expands our impact well beyond our membership. Pest monitoring is a team effort that involves public employees (federal and provincial), municipal agriculture service boards, the scientific community, and not for profit groups like us. Together we create a pest monitoring and surveillance system that is the envy of many provinces.

ARECA and its members were quick to respond to **Operation Pollinator** in 2017. This shows how well we are connected to producers, and can quickly deliver initiatives that have support from the greater community. This project creates the opportunity to connect with those outside of the agriculture community on a common topic. The ability of our associations to mobilize collaborators and get the seed in the ground in such a timely fashion says a lot about our community engagement and the nature of ARECA members.

This year, ARECA and its members launched the **Carbon Pasture Management** project. It is exciting to see ARECA step into the arena and become a conduit for information and engagement on the value of pasture and grazing lands for carbon capture and storage. There is a lot of discussion about the public goods and services (water quality, carbon capture, biodiversity, and habitat) provided by well managed grazing lands. This initiative puts our associations in a place to give valuable input, provide collaborators, and communicate about farming to the general public. I look forward to seeing how this evolves in 2018 and beyond.

Congratulations to former ARECA Chair, Ian Murray for being awarded Alberta Beef Producer's Environmental Stewardship Award in 2017. You can all be proud that Ian was your representative at the provincial level in 2015 and 2016.

Thanks to ARECA staff: Paul Watson, Lisa Nadeau, Val Fadden and Sean Chuan for their support and hard work through 2017.

Janette McDonald
Executive Director, ARECA

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……

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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 2017.

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

Program Funding

Alberta Government

Westlock County growing opportunity

County of Barrhead

Thorhild County

parkland county

Woodlands County

Research & Extension Funding

Alberta Wheat Commission

Prairie Oat Growers Association

Alberta Barley

Alberta Pulse Growers

Alberta Canola Producers

FP Genetics

Canterra Seeds

FBC We make life less taxing

Western Winter Wheat Initiative

In-Kind Contributors

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

Special thanks to "Jubilee Feedlot" Westlock for time and generous support in conducting trial and surveys.

- WESTLOCK SEED CLEANING CO-OP LTD
- Agriculture and Agri-Food Canada
- Anderson Seed Growers
- Neerlandia Co-op
- Westlock CPS
- A & L Labs

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.

Gateway Research Organization

2017 Extension Activities (Crops)

GATEWAY RESEARCH ORGANIZATION

Alberta Government

GRO CROP TOUR
Wednesday, August 2
8.30 am to 1.00 pm

First hand info of what variety works best for our region

- About 82 varieties of Cereals in RVT Trials – **Wheat, Barley, Oat, Flax, Triticale and Winter wheat.**
- **Pea & Fababeans** Variety Trial (**22** varieties).
- Alternate cropping demo trial including **Lentils, Soybeans, Canary seed, Quinoa, Camelina, Durum wheat.**
- Milling Oats trial (POGA & FP Genetics)
- Canterra Seed demo plots.
- Urea/ESN trial (AWC)

Please Register at grohome@telus.net or Call 780-349-4546 or 780-249-1440
Registration: $20/person (Members) and $30/person for Non-Members
Includes, Coffee, Snacks and Lunch)

Sponsored by : ALBERTA CANOLA PRODUCERS

Western Winter Wheat Initiative

- Anderson Seed Growers Ltd.
- Rick Pedigreed seed
- Forward Seed Farms

Alberta Wheat Commission · Alberta Barley · Alberta Pulse Growers · Canterra Seeds

Alberta Government

GATEWAY RESEARCH ORGANIZATION
PO Box 5865, Westlock, Alberta T7P 2P6. 780-349-4546 or 780-249-1440

2017 GRO-AGM & what's Next
Venue: Hazel bluff Hall

Wednesday, February 15, 2017

9.00 am to 9:30 am	*Registration*
	AGENDA
9:30 am to 10:15 am	**Mike Hittinger,** Carbon Levy & Growing Forward Program update *(Extension Specialist)*
10:15 am to 10:30 am	***Coffee and Snacks Break***
10:30 am to 11:15 am	**Rawlin Thangaraj,** AgriProfitS Program *(Production Crops Economist)*
11:15 am to 12:00 am	**Karin Lindquist** Managing Forages from the Ground Up *(Forage/Beef Specialist)*
12:00 pm to 12:45 pm	***Lunch***
12:45 pm to 1:45 pm	***GRO AGM & Manger update*** (Sandeep Nain)
1:45 pm to 2:30 pm	**Clair Langlois** An introduction to the new Alberta Cereal Extension Specialist
2:30 pm to 3.30 pm	**Kevin Elmy** COVER CROPS FOR WESTERN CANADA

Westlock County · County of Barrhead · Parkland County · Woodlands County · Alberta Barley · Alberta Canola · Alberta Pulse Growers · Alberta Wheat Commission

Alberta Government

GATEWAY RESEARCH ORGANIZATION · WESTLOCK SEED CLEANING COOPERATIVE LTD

2017 GRO-Agronomy Update
Venue: Hazel bluff Hall

Wednesday, March 22, 2017

9.00 am to 9:30 am	*Registration* Coffee and Snacks Break
	AGENDA
9:30 am to 10:30 am	***Sheri Strydhorst:*** *Wheat*
10:30 am to 12.00 am	***Bill Chapman:*** *Oat and Barley*
12:00 pm to 12:45 pm	***Lunch***
12:45 pm to 1:45 pm	***Murray Hartman****: Canola & Flax*
1:45 pm to 2:45 pm	***Mark Olson:*** *Pulses*
2:45 pm to 3.30 pm	**Holly Gelech**: *Bio Vision Lab: Seed quality*

BioVision Seed Labs

Westlock County · County of Barrhead · Parkland County · Woodlands County · Alberta Barley · Alberta Canola · Alberta Pulse Growers · Alberta Wheat Commission

GATEWAY RESEARCH ORGANIZATION

Bus ride to CanolaPalloza hosted by Bill Chapman & GRO

Starting time:
Westlock CPS-7.30 AM
Barrhead CPS- 8.00 AM
Stony Plain Seed Cleaning Plant - 8.55 AM

Back by: 6.30 pm

To Register call or text Sandeep Nain 780-249-1440 or
Bill chapman at 780-349-0300
$20 include breakfast & refreshments on return
Please bring Cash for food truck at lunch

Thanks to our sponsor
ALBERTA CANOLA PRODUCERS

PosterMyWall.com

Gateway Research Organization

2017 Extension Activities (Livestock)

Gateway Research Organization

Regional Cereal Variety Trials

Co-operators: Jubilee Feedlot – SW-12-60-27-W5

Objectives

To provide yield and agronomic information of current cereal varieties as well as newer varieties to producers in west central 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.

RVT - Project Description	
Seeding Date	May 18 (Wheat, Oat, Barley); May 25 Flax
Seeding Specifics	Fabro zero till drill Seeding Depth: 1 inch **Seeding Rates:** 22 plants/ft^2 - Barley 24 plants/ft^2 - Wheat, Oats 30 plants/ft^2 - Flax Seed treatment: Raxil
RVT - Project Description	
Fertilizer/ac	(Wheat, Oat, Barley) Seed placed: 11-52-0 58 lbs/ac 30lbs/ac Actual P 6.4 lbs/ac Actual N Side banded: 27-0-22-1.4 367 lbs/ac

	N P K S	100 lbs/ac Actual N 80 lbs/ac Actual K 5 lbs/ac Actual S)
	FLAX	
	Seed placed: 11-52-0	48 lbs/ac 25 lbs/ac Actual P 5.4 lbs/ac Actual N
	Side banded: 29-0-19-2	324 lbs/ac 94 lbs/ac Actual N 62 lbs/ac Actual K 6.5 lbs/ac Actual S
Herbicide	Curtail M – 19-Jun Reglone – 14-Sep (Flax) Clean start 0.5 l/ac + 15 ml/ac of Aim on May 9; Curtial M and Axial on June 19 2017.	
Harvest Date	Aug 29 (Barley) Sept 10 & Sept 11 (Wheat) Oct 1 (Oat) Oct 16 (Flax)	
Rainfall	378 mm	

Results The highlighted varieties were the highest yielding varieties of each crop tested at Westlock in year 2017.

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.

Table 2. Barley vareiteis Westlock- 2017

Treatment Name	Yield % of AC Metcalfe (bu/acre)	Yeild (bu/Acre)	TKW (grams)	Bushel Wt. (lbs/bu)	Height (cm)
AC METCALFE	100	110	51	334	82
AAC AUSTENSON	117	128	54	340	80
AAC CONNECT	104	115	55	330	80
AAC SYNERGY	105	116	53	329	86
ALTORADO	104	114	54	345	85
CDC ASCENT	88	97	44	387	80
CDC FRASER	107	117	55	332	86
CDC GOLDSTAR	109	120	54	339	87
CHAMPION	102	112	57	348	90
CLAYMORE	117	129	56	336	91
LOWE	112	123	56	335	84
OREANA	109	120	58	344	84
TR13606	123	135	56	339	77
TR14928	109	120	53	340	89

*Check variety is AC Metcalfe; ** Lodging scale: No lodging observed

Gateway Research Organization

CWRS & CWHWS

Wheat Class	Characteristic	End use
Canada Western Hard White Spring (CWHWS)	• hard white spring wheat • superior milling quality producing flour with excellent colour • three milling grades	• bread and noodle production
Canada Western Red Spring (CWRS)	• hard red spring wheat • superior milling and baking quality • three milling grades • various guaranteed protein levels	• used for production of high volume pan bread • used alone or in blends with other wheat for hearth bread, steamed bread, noodles, flat bread, common wheat pasta

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) & Canada Western Hard White Spring (CWHWS) class

Treatment Name	Yield % of AC Barrie (bu/acre)	Yeild (bu/acre)	TKW (grams)	Bushel Wt. (lbs/bu)	Height (cm)
AC BARRIE	100	95	60	402	91
AAC CAMERON	114	108	65	400	91
AAC JATHARIA VB	112	106	58	399	88
AAC REDBERRY	107	102	58	408	92

AAC VIEWFIELD	116	110	56	398	89
BW1011	104	98	61	394	88
BW488	117	111	57	403	86
BW5005	118	112	58	400	86
BW5007	104	99	58	396	91
BW980	115	110	61	401	79
CARBERRY	107	102	58	400	88
CDC BRADWELL	111	105	53	402	89
CDC GO	121	115	68	399	92
CDC HUGHES	116	110	65	407	87
CDC LANDMARK VB	116	110	63	409	92
HW388	125	119	54	408	80
PARATA	112	106	57	475	88
PT250	109	104	59	407	88
STETTLER	116	110	62	403	96
SY SLATE	114	109	60	400	91

Canada Prairie Spring Red (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.

Class	Characteristics	End uses
Canada Northern Hard Red (CNHR)	• red spring wheat • medium to hard kernels • very good milling quality • medium gluten strength • three milling grades	• hearth breads, flat breads, steamed breads, noodles
Canada Prairie Spring Red (CPSR)	• red spring wheat • medium hard kernels • medium dough strength • two milling grades	• hearth breads, flat breads, steamed breads, noodles

Table 4: Canada Prairie Spring Red (CPSR) & Canada Northern Hard Red (CNHR) Wheat

Treatment Name	Yield % of AC Barrie (bu/acre)	Yeild (bu/Acre)	TKW (grams)	Bushel Wt. (lbs/bu)	Height (cm)
AC BARRIE	100	88.1	42	409	83
AAC CONCORD	109	95.9	46	403	87
AAC CROSSFIELD	125	109.9	44	407	86
AAC ENTICE	125	109.7	42	397	86
AAC PENHOLD	121	107.0	47	401	84
AC FOREMOST	138	121.5	48	406	89
BW968	129	113.7	42	401	89
CARBERRY	104	92.0	41	405	84
CDC TERRAIN	130	114.1	47	405	89
ELGIN ND	111	98.2	38	398	84
HY2003 VB	131	115.6	43	396	86
SY ROWYN	120	105.9	38	405	89

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Canada Western Soft White Spring (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 General Purpose (CWGP) varieties.

Table 5: Canada Western Soft White Spring (CWSWS) General Purpose Wheat.

Treatment Name	Yield % of AC Barrie (bu/acre)	Yeild (bu/acre)	TKW (grams)	Bushel Wt. (lbs/bu)	Height (cm)
AC BARRIE	100	92	45	397	90
AAC INDUS	146	135	46	384	83
AAC AWESOME	140	129	49	395	95
AAC PARAMOUNT	149	137	46	392	89
AC ANDREW	147	135	45	392	88
CARBERRY	117	108	44	397	86
KWS ALDERON	132	121	47	349	84
KWS CHARING	147	135	48	387	90
KWS SPARROW	138	127	46	379	93
PASTEUR	129	119	45	399	90
AC SADASH	153	141	45	391	83

Gateway Research Organization

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 CDC Dancer (bu/acre)	Yeild (bu/acre)	TKW (grams)	Bushel Wt. (lbs/bu)	Height (cm)
CDC DANCER	100	107	39	255	117
AC MORGAN	211	226	48	264	118
AKINA	227	243	46	254	109
CDC RUFFIAN	224	239	41	264	113
KARA	177	189	45	263	108
KYRON	204	218	45	261	111
ORE 3541 M	191	205	45	268	113
ORE 3542 M	190	203	50	249	115
OT3085	211	226	48	264	120
POMONA	191	205	41	267	122

Gateway Research Organization

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	51.6	45	1
CDC BURYU	45.6	46	1
CDC PLAVA	43.5	49	1
FP2401	52.2	44	1
FP2454	42.8	42	1
FP2513	41.6	47	1
TOPAZ	51.9	40	1
WESTLIN 72	47.8	40	1

Yields are adjusted to 10.0% moisture; ** Lodging scale: 1 is standing and 9 is flat

Triticale is grown mostly for forage or fodder, although some **triticale**-based foods can be purchased at health food stores and can be found in some breakfast cereals. When crossing wheat and rye, wheat is **used** as the female parent and rye as the male parent (pollen donor).

Table 7. Triticale

Variety Name	Yeild Bu/Ac	TKW gram	Bushel Wt. Lb/Bu	Height (cm)
BREVIS	140.0	57	372	101
AAC DELIGHT	132.2	59	363	101

Gateway Research Organization

Regional Winter Wheat Variety Trials

Co-operators: Jubilee Feedlot – SW-12-60-27 W5

Objectives: To provide yield and agronomic information of current winter wheat varieties as well as newer varieties to producers in west central Alberta.

Introduction

Variety testing continues to be important in providing producers with information on the performance of newly registered and established varieties. Winter wheat varieties, when managed well, have the potential to out yield spring wheat by 15-40 per cent.

Agronomic information.

Date Trial Planted	**16-SEPT-2016**
Row Spacing	**9"**
Seeding Planting Depth	**0.5"**
Fertilizer applied to Trial	**209lbs/acre 23-8-23 mixed blend seed placed; 41 lbs/acre side banded 11-52-0**
Herbicides applied to trial	**June 14, 2017; Curtail M & Axial**
Herbicides applied to trial	**pre-burn used Roundup**
Date of Harvest	**09- Sept-2017**

Results

When selecting a variety that is best suited for your farming operation, please make sure to consider other traits data from Alberta seed guide for winter hardiness, disease

resistance, market opportunities, and lodging resistance. To find the variety best suited to our area, especially for yield potential, check the results mentioned below.

Variety	Yield (Bu/Ac)	Height (cm)
AC Radiant	73.3	71.2
CDC Buteo	66.1	66.2
AAC Gateway	77.8	58.0
AAC Elevate	71.3	66.2
AAC Wildfire	96.1	75.3
W526	71.0	70.0
AAC Icefield	50.5	63.2
CDC Chase	47.7	66.5
W520	57.8	59.5
W522	14.7	50.2

The yield results from GRO plot in year 2017 indicates that AAC wildfire was the highest yielding winter wheat.

The lodging and maturity data was also noted down for the trial. There was no significant difference for the lodging and maturity time data for any of the variety. In addition, winter hardiness was also measure W522 did not do well with the winter condition and had about 60% mortality and hence very poor yield as observed in trial.

Acknowledgement: Many thanks to Agriculture and Agri-Food Canada and Western Winter Wheat Initiative for their support.

Gateway Research Organization

Regional Pulse Variety Trials

Co-operators: Jubilee Feedlot – SW-12-60-27-W5

Objectives To provide yield and agronomic information of Green pea, Yellow peas and Fababeans commercial varieties and experimental lines for adaptability and yield potential to producers in west central Alberta.

To promote crop diversification and increase pulse production acres in area

Introduction

Variety selection plays an important role in production management due to the impact that yield, maturity and other agronomic characteristics, such standability or harvestability for pulses crops that can affect producer profitability. Variety testing continues to be important in providing producers with information on the performance of newly registered and established varieties. Th

Agronomics Details

Seeded May 12;

Seed depth: 2 inch

Fertilizer:	Seed placed: 11-52-0	48 lbs/ac
		25 lbs/ac Actual P
		5.4 lbs/ac Actual N
	Side banded: 6-0-47-7	138 lbs/ac
	N P K S	8.6 lbs/ac Actual N
		60 lbs/ac Actual K
		10 lbs/ac Actual S

Herbicide: CleanStart Clean start 0.5 l/ac + 15 ml/ac of Aim on May 9; Viper (0.4 ml/ac) + BASF 28% UAN (0.81 /ac) on June 19 2017; Reglone ion (1 l/ac) on 25 Aug

Harvest date: Oct 16, 2017

The yield and characteristics of different pulse crop varieties options grown in our region are presented below.

Green Pea

Variety	yield (Bu/ac)	TKW	VINE Length
AAC COMFORT	87.9	244.5	85.4
AAC ROYCE	90.2	239.2	88.9
CDC FOREST	103.3	220.2	87.0
CDC LIMERICK	93.3	250.6	80.0
CDC SPRUCE	100.6	267.2	73.7
LRP 1424	94.5	252.4	85.7

Yellow Pea

Variety	Yield (Bu/ac)	TKW	VINE Length
AAC BARRHEAD	109.0	248.2	89.0
AAC CARVER	105.3	244.4	85.5
AAC LACOMBE	111.1	278.8	87.8
CDC AMARILLO	107.4	242.4	84.8
CDC ATHABASCA	110.8	322.1	85.3
CDC CANARY	106.0	254.2	80.0
CDC MEADOW	93.7	221.1	89.3
CDC SPECTRUM	118.1	271.2	87.3
LGPN 4903	105.3	268.8	88.3
P0520-116	122.7	260.4	77.0

Fababean

Variety	Yield (Bu/Ac)	TKW	VINE Length (cm)
ATHENA	121.9	655.1	89.9
FABELLA	85.2	775.5	95.3
MALIK	100.0	793.6	89.9
RODEO	123.5	652.8	101.3
SNOWBIRD	104.2	618.8	101.0
VERTIGO	135.0	728.6	94.6

Summary:

For 2017, at our site, CDC Spruce was highest yielding variety of green pea. For yellow, pea, the new variety of P0520-116 had shown tremendous potential for yield along with CDC SPECTRUM (very good standability, visible tallest variety at harvest time).

For fababean, Vertigo had very high yield for GRO site in 2017 compared to other varieties.

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Alberta Wheat Commission Fertility Trial

Optimizing nitrogen application rate for Wheat-Canola/Pea-Wheat rotation using urea and polymer coated urea (ESN).

With support from AWC, we had successfully conducted this trial in 2016 and 2017. Our preliminary data analysis showed a visible difference of fertilizer rates and type on yields as well as protein %. In short, form two-year data we can conclude that 60 lbs of Urea-ESN mix had shown higher yield than if used at same rate of 60 lbs of UREA or ESN. However, at higher rate of 80 lbs of UREA or ESN or used in mix had no difference for the yield.

Background:

Nitrogen recommendations for major crops using different rates of Urea and ESN alone as compared to a mix of Urea with ESN are not yet developed for different regions of Alberta. The results from current research will provide optimum knowledge for application of nitrogen fertilizer rates and will provide an economic benefit to growers. Based on literature references, it was speculated that Spring wheat yield, quality, and economics differ significantly by applying different N application rates from urea, and ESN.

The integrated use of slow release nitrogen fertilizers (ex. ESN) along with readily available nitrogen fertilizers (ex. urea) would able to meet the quick initial (urea) and later (ESN) nutrient demand during the growing season to meet the nutrient uptake pattern of crops. This would also reduce environmental nitrogen loss and may increase return on fertilizer investment (Haben et al 2014). Variation of agronomic management practices such as fertilizer application rates has a significant influence on grain yield and grain quality in term of wheat protein percentage (Campbell et al., 1977). The efficiency of using urea, ESN or their mix will facilitate the need for N fertilizer only when a crop response is expected and thereby can increase the profitability (Mullen et al., 2003). Grain protein concentration is an important quality measure which is essential for the nutritional value and end-use rheological characteristics of the bread making process (Johansson et al.,

2001). The amount of nitrogen affects the wheat protein and can account for a variability of up to 35% for the total protein content at a lower temperature condition (Malik et al., 2013).

Objective:

Nitrogen recommendations for major crops using different rates of Urea and ESN alone as compared to a mix of Urea with ESN were formulated. The current research trial aims to provide knowledge base for the application of different sources of nitrogen fertilizer rates.

Methodology and Experimental Approach:

Two-year site history on the crops grown, herbicide and fertilizer rate were collected for site with soil test. Soil sampling & analysis: Two composite soil samples (12-15 cores each) at a depth of 0-6, and 6-12 inch depth were collected from the site before seeding. One sample for ALS lab in Saskatoon by using traditional methods. Soil samples were stored in the freezer until shipped. Soil tests was determined following parameters.

- Routine major and micronutrients, pH, EC, CEC and soil bulk density
- Organic matter percentage and Particle size analysis
- Phosphorus by using modified Kelowna
- Inorganic NH4-N, and NO3-N
- Water-extractable organic C, N, and P

RCBD (Randomized Complete Block Design) arranged as split plot, with 6 to 8 replications during the first year (wheat). Three Nitrogen fertilizer regimes (Urea, ESN and Urea plus ESN) and, five rates of N (20, 40, 60, 80, and 100 pounds N/acre (side band) + C2 (with Seed) were combined factorially and their influence on grain yield and grain quality components was be determined. All plots had guard rows seeded outside treatment plots and a minimum of 30 feet distance was maintained from other crops to prevent herbicide drift. Westlock sites: Direct seeding with minimum tillage Feb seed drill with side band Fertilizer and 9-inch row spacing

Treatments: Fertilizer packets for individual plots was weighed for accurate application rate through the second cone on seeder.

Three controls were used:

- No-Fertilizer (check)
- MAP (Mono-ammonium phosphate) @ 25 lbs P2O5/acre with seed (C2)
- 80 pounds N/acre (After soil test + needed Fertilizer = 80 lbs N/acre)

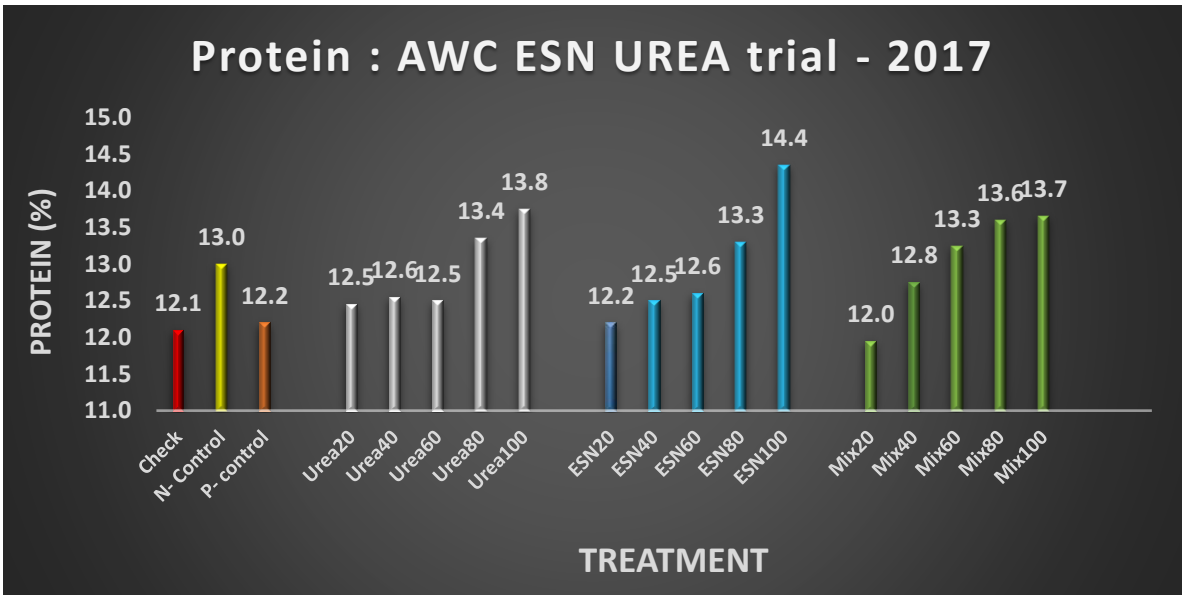
Three Nitrogen fertilizer regimes (Urea, ESN, and Urea plus ESN) and, five rates of N (20, 40, 60, 80, and 100 pounds N/acre (side band) so a total of 15 treatments were randomized with 6 replications. Here is treatment plan chart:

No fertilizer	C 1	P2O5	C 2	80 pounds N/acre (soil test + Fertilizer = 80 lbs N/acre)	C 3
Trt Urea 20lb N/acre	U 1	Trt ESN 20lb N/Acre	E 1	Trt Urea+ESN 20lb N urea	M 1
Trt Urea 40lb N/acre	U 2	Trt ESN 40lb N/Acre	E 2	Trt Urea+ESN 40lb N urea	M 2
Trt Urea 60lb N/acre	U 3	Trt ESN 60lb N/Acre	E 3	Trt Urea+ESN 60lb N urea	M 3
Trt Urea 80lb N/acre	U 4	Trt ESN 80lb N/Acre	E 4	Trt Urea+ESN 80lb N urea	M 4
Trt Urea 100lb N/acre	U 5	Trt ESN 100lb N/Acre	E 5	Trt Urea+ESN 100lb N urea	M 5

Hard Red Spring Wheat (Variety – Plentiful at BRRG and GRO) seeded after Canola. Variety Plentiful is selected because it has very good resistance to lodging, and moderately resistant to stripe rust and fusarium head blight (Alberta Seed Guide). Plot length of individual plots were measured before harvest. The harvested grain were recorded for the moisture at the time of weighing harvested bags to record yield data and to record thousand kernel weight. For Grain Quality (Protein), a composite sample about 500-gram cleaned for protein analysis were sent to the Westlock elevator.

Result for year 2016 and 2017:

The protein % was higher in grain with treatment received a higher rate of fertilizer. The protein % increased in treatment with 80 lbs or urea or ESN or Urea-ESN mix. The best trend for protein tincrement in grain with increased rate of fertilizer was noticed for the Urea-ESN mix. Where 60 lbs ofUrea-ESN mix rate was equivalent to 80 lbs inclusion of Urea or ESN alone.



Similar trends for proetin were oberved for the 2016 data too.

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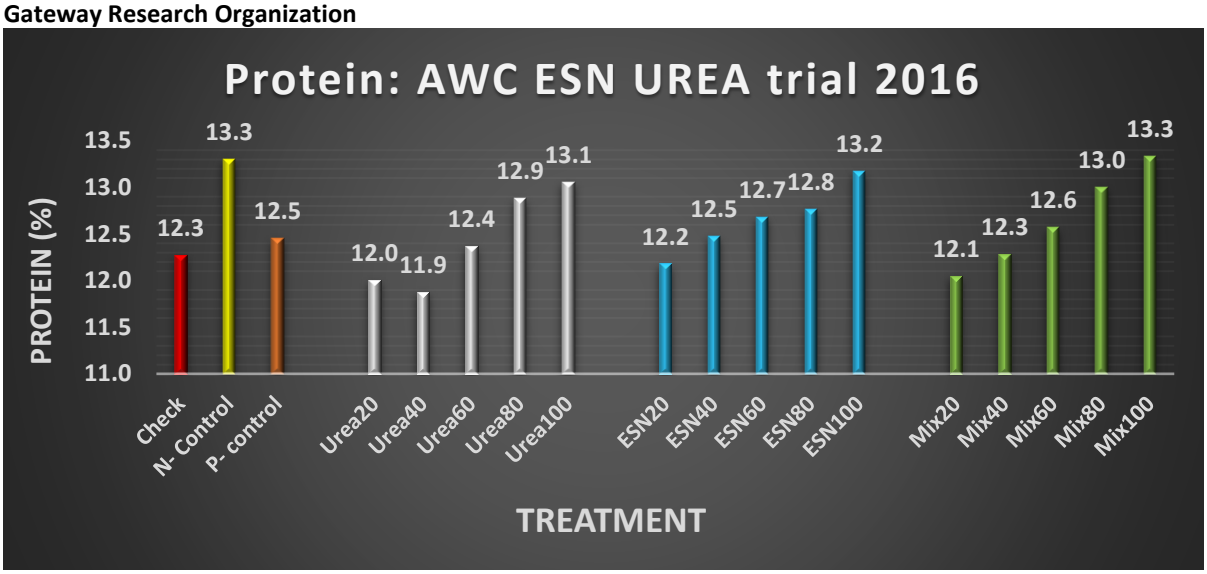
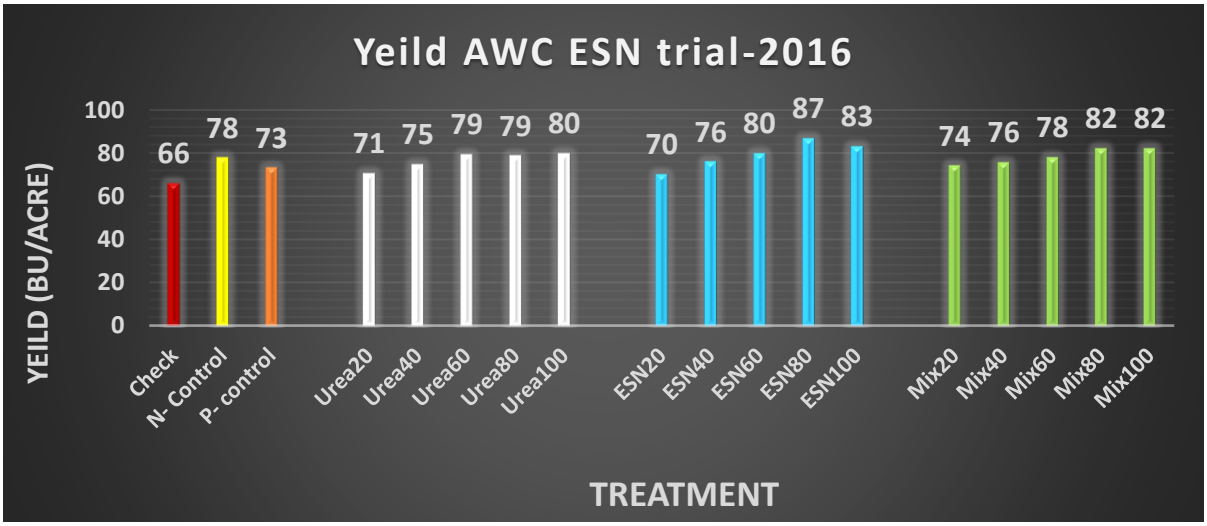


Yields reported are on a 60 lb/bushel basis with moisture adjustments at 14.5%. The trend of increasing the rate of fertilizer lead to increase in yield was clearly noticeable in urea as well as ESN. In 2016, yield were maximum with 80 lbs of ESN treatment. However, no statistical increase in yield compared to control was observed after 60 lbs of UREA or ESN alone or 60 lbs of UREA-ESN mix at 60 lbs.



The yields were marginally lower for 2017 compared to 2016 for respective treatment. However, the trend for increased yield with increment in fertilizer was observed again in

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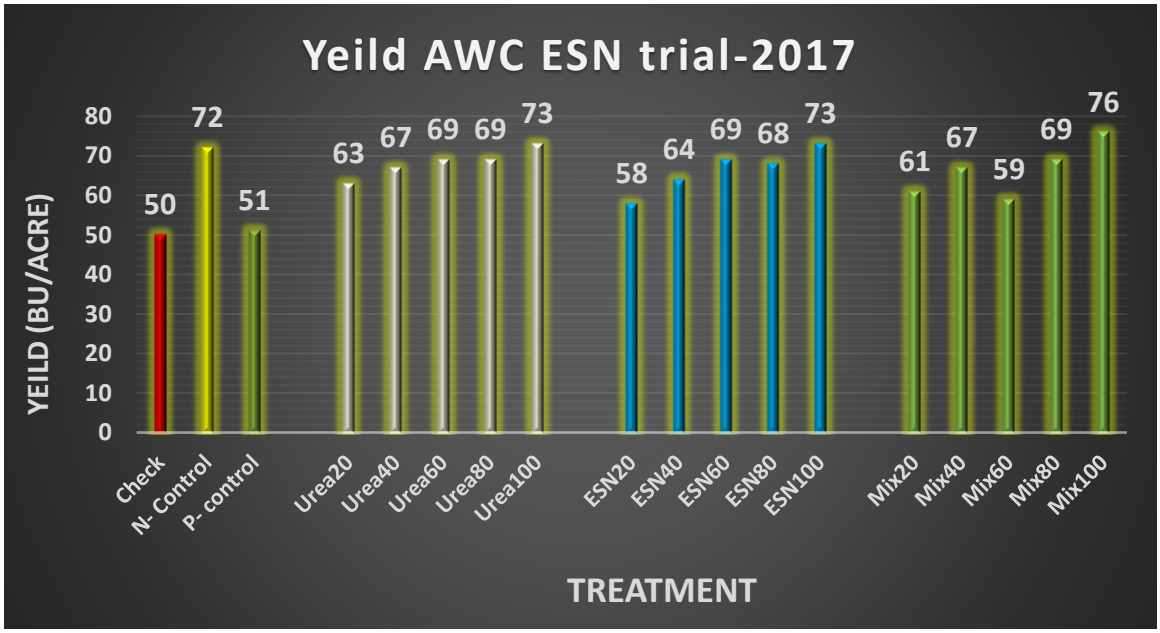
2017 in UREA, ESN or Urea-ESN mix treatments. Unlike 2016, the 100 lbs rate treatment in UREA, ESN or Mix was higher compared to lower rates as well as N-Control. One factor that may be important to note here is that we had very high precipitation rate during the consecutive two growing seasons 2016 and 2017. The soil nitrogen due to higher moisture might be readily available to uptake for plant but because the growing season temperature was lower for 2017 compared to 2016, we speculate a marginally lower yield in 2017.



ACKNOWLEDGEMENTS: We would like to thank **Alberta wheat Commission (AWC)** for their financial assistance for this trial.

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Prairie Oat Growers Association Variety Trial

Increase the Oat Acres in Alberta by Finding a High Yielding Oat Variety that maximizes Producer Income and Meets the Demands of the Millers.

Summary: This study is a continuous effort to collect data on 11 milling variety oats and 4 feed oat varieties in Central and Northern Alberta. The goal was to determine how variety and growing location will influence the yield and functional property attributes linked to beta-glucan levels of the oats. There was noticeable difference of the location on the varietal yields as well as beta-glucan content.

Background

Oat production in Alberta has been on a relatively steady decline since 2011. Oats has earned the status of major Canadian export crop from a domestic crop status. According to Prairie Oat Grower's Association (POGA), an estimate of 3.1 million acres of oat were seeded in year 2015-16 but there is a decline in Alberta due to lack of markets and non-competitive pricing with other crops. Many major millers will not accept oats from Alberta, or look to Alberta only after Manitoba and Saskatchewan's supply is gone, because the main two oat varieties grown in Alberta, Morgan and Derby contain low amounts of Beta Glucan (β-glucan). A minimum of 4% β-glucan is required for companies to be able to label their products with the Heart Healthy Claim and both Morgan and Derby are consistently below that amount. Therefore, oat producers in Alberta need an oat variety that can consistently beat the yields of Morgan and Derby but has the higher β-glucan amounts that the oat miller desire. To emphasize this fact, 2015 two millers are helping to fund this variety trial to get it started before outside funding can be located to make oats in Alberta more competitive.

Oats are a valuable part of crop rotation and are therefore beneficial to producers. 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 (Campbell et al., 1991). A well-planned management and appropriate selection of variety makes oats a profitable crop due to their low input requirements and favorable effects on succeeding crops in a rotation.

Test weight is the most commonly used indicator of grain quality. High test-weight varieties should be chosen by growers who intend to market oat grain. However, the functional attribute such as β-glucan solubility and viscosity are main criteria for the processing industry. Many studies have shown that oat β-glucan can lower blood cholesterol levels, glucose and insulin response and therefore decrease the risk of cardiovascular diseases and prevention of diabetes (Wang and Ellis, 2014).

Oats are regularly affected by crown rust in other parts of Western Canada but this issue is moving west, towards Alberta. Neither Morgan or Derby varieties have crown rust resistance but selecting new disease resistance varieties can overcome the problem. The information for producer to choose the newer and higher yielding varieties specific to their region is therefore very important step to stay profitable in the oat production. The β-glucan content in oat may varies with change in growing conditions (Perez Herrera et al., 2016). The current trial will provide the valuable agronomic information for the producers in Alberta to grow oat varieties with higher yield and increased functional properties (β-glucan) attribute.

Objective: To investigate the impact of genotype and growing condition on the yield and β-glucan content of milling oat varieties in Alberta.

Methodology

Eleven milling oat varieties and four forage oat varieties were tested in 2016 (Table 1). Based on the soil fertility recommendations, fertilizers were added to maintain the optimal levels growing condition. Seeding rates were calculated based on 1000 kernel weight of each variety with a Seed Counter, desired plant density and germination percentage. A 9-inch spaced 6 row Fabro small plot seeder was used for the seeding. Each plot of a variety occupied 10.96 sq. m. (1.37 m width and 8 m long) and there were three replications. The trial site was maintained weed-free with use of herbicides or hand weeding method (Table

1). The trial was harvested with a Wintersteiger Nursery Mate Elite combine (5 foot header) and grain yield from each plot were measured using Electronic Scales at the site.

Table 1a: Agronomic details for the POGA Trail 2016

Location:	**Peace region (Dion East)**	**Westlock**
Seeding Date:	May 17th, 2016	May 13th, 2016
Seeding Date:	Sept 16th, 2016	Sept 27th, 2016
Soil Temp:	not indicated	10.4 Celsius
Soil Moisture:	adequate	very poor
Seeding Depth:	1.5 inch	1.5 inch
Tank A (Seed placed)	phos (51.4g/plot)	phos (86 g/plot)
Tank B (Side Banded)	general blend (525.4g/plot)	general blend (285g/plot)
Fert. Nutrients	**130N-30P2O5-25K2O-25S**	**20.4N- 42P2O5- 48K20- 00S**
Cone 1	seed package	seed package
Herbicides applied to trial	Pre-burn Transorb 0.5L/Acre on May 2; 2016 and Express pro 7 gm/Acre on May 2; 2016	Pre-burn Roundup 1L/Acre on May 6; 2016
Herbicides applied to trial	In crop Broad leaf: stellar A (400 ml/ Acre) + stellar B (240 ml/ Acre) on 05 June, 2016	In crop Broad leaf: Buctril M (400 ml/ Acre) on 13 June and Curtail M (600 ml/ Acre) on 22 June
Fungicides applied to trial	Proline (140 ml/Acre) on July 4, 2016	Headline (160 ml/Acre) on July 8, 2016
Rainfall (mm)	406	424
Comment:	Fertilizer applied with a cereal blend that was used in their all cereal trails.	Target yield was 120 bu/acre of Oat and fertilizer applied on based of soil test. High residual N in soil test.

The moisture content was immediately measured using Grain moisture tester. The geographical and climate information throughout the trial were recorded using Davis Instrument weather stations at the trial site. After harvesting, a clean composite sample

(500 g) was collected and sent to laboratory analysis for the β-glucan estimation. The growing season of 2017 was little drier compared to 2016 for Peace region location. During the growing season, May to August-2017, sites received 207.6 vs 406 mm precipitation in same time frame in 2016 (Table 1b). For the Westlock Site, we had similar but very high levels of precipitation for both years.

Table 1b: Agronomic details for the POGA Trail 2017

Location	**Peace (Falher)**	**Westlock**
Previous Crop	Canola	Canola
Seeding Date	May 29th-2017	May-17th-2017
Row Spacing	11 inch	9 inch
Soil Temp	14.9 Centigrade	11 Centigrade
Soil Moisture	Moderate	Very high
Seeding Depth	1 1/8"	1"
Fertilizer	107N-30P2O5-25K2O-25S (lb/ac)	58 lbs/ac of 11-52-0 seed placed 422 lbs/ac 29-0-19-2 side banded
Precipitation (mm)	**207.9**	**378**
Harvesting Date	Oct 02-2017	Oct 1-2017
Chemical application		
Pre-seed	Glyphosate 0.60L/ac on 17-May	Glyphosate 0.60L/ac on 09-May
Herbicide		Curtial M and Axial on june 19
Desiccant	Reglone Ion 0.7 L/acre on 14-Sept	Reglone Ion 0.7 L/acre on 12-Sept

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Oat grain dehulling and stabilization

The oat seeds were dehulled with an impact huller (Warner Control Techniques), aspirated to remove most of hulls, and further hand-picked to obtain hull-free groat samples. Heat treatment was applied to dehulled oat groats to inactivate the native enzymes. Oat groats (100 g) were steamed in a kitchen vegetable steamer with a lid by placing the groats on the metal shelf (layered with a cheese cloth) over boiling water for 20 min. After steaming, the samples were dried in a forced air oven at 78 °C for 1h, 63 °C for 30 min and 50 °C for overnight. The oat groats were then ground using the Retsch ZM 200 sample mill (Retsch GmbH, Rheinische Straβe 36, 42781 Haan, Germany) equipped with a 0.5 mm screen into flours.

Analytical methods:

Quantitative estimation of moisture was performed by standard AACC (2000) procedures. Beta-glucan content was determined using the mixed-linkage beta-glucan assay kit (Megazyme International Ireland Ltd., Wicklow, Ireland). Thousand-grain and thousand-groat weights were determined by manually counting and weighing 200 grains and 200 groats (before heat treatment), respectively, and multiplying each number by 5. All the determination was done in duplicate and beta-glucan content was reported on dry matter basis.

Results and Discussion

Using data from an onsite Davis Instruments Vantage Pro2 weather station at our research site, weather data was summarized for the 2016 growing season (Table 1a and 1b). Variety trial results for 2016 and 2017, from Westlock and peace region sites are presented in Table 2a and 2b and Table 3a and 3b respectively. Yields reported are on a 34 lb/bushel basis with moisture adjustments at 13.5%.

At Westlock site, yield was higher in 2017 compared to 2016 for most oat varieties. The reason for increased yield might be due to a higher target yields for fertilizer application in 2016 (table 2a) as compared to 2017 (Table 2b).

Table.2a: POGA OAT trial 2016 (Westlock Site Yield Data).

No.	Variety	Yield (bu/ac)		1000 Kernel Weight		Bushel Wt. lb/bushel		Test weight kg/HL	
1	Morgan	153.81	Ab	48.83	Ab	42.40	Ab	52.32	ab
2	Camden	144.60	B	46.84	a-d	42.10	Ab	51.95	ab
3	Seabiscuit	**174.86**	**ab**	49.12	A	41.18	abc	50.82	abc
4	Triactor	155.93	ab	43.00	Def	42.01	Ab	51.85	ab
5	Ruffian	168.73	ab	46.38	a-e	40.46	abc	49.93	abc
6	Orrin	168.60	ab	48.38	Ab	40.05	Bc	49.42	bc
7	Summit	160.19	ab	40.73	F	40.62	abc	50.12	abc
8	Souris	142.33	B	40.88	F	40.45	abc	49.92	abc
9	Akina	162.21	ab	45.12	b-e	38.82	Cd	47.91	cd
10	Kara	160.32	ab	44.23	c-f	42.72	A	**52.72**	a
11	Minstrel	156.41	ab	45.19	b-e	39.16	cd	48.33	cd
12	CDC SO-1	164.33	ab	47.40	Abc	37.31	D	46.04	d
13	CDC Nasser	177.07	ab	42.70	Ef	37.87	D	46.73	d
14	Mustang	**181.43**	**A**	44.89	b-e	41.16	abc	50.79	abc
15	Baler	168.27	ab	43.98	c-f	41.06	abc	50.68	abc
Standard Deviation		11.874		1.133		0.914		1.127	
CV		7.3		2.51		2.26		2.26	
Treatment Prob(F)		0.0143		0.0001		0.0001		0.0001	

*Varieties that share a letter did not differ significantly from one another (p>0.05).

Table.2b: POGA OAT trial 2017 (Westlock Region Site: Yield Data)

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	Plant Height cm	Yield (bu/ac)	1000 Kernel Weight	Bushel Wt. lb/bushal	Test weight kg/HL
Morgan	111.8 a	**203.0 Bcd**	52.6 A	44.2 a	54.5 a
Camden	111.1 a	**225.6 Abc**	49.5 B	41.9 abc	51.7 abc
Seabiscuit	118.8 a	**192.3 D**	54.2 a	40.6 c	50.1 c
Ruffian	112.4 a	**240.5 a**	48.4 b	42.1 abc	52.0 abc
Triactor	114.0 a	**174.2 e**	47.4 b	42.2 abc	52.1 abc
Orrin	109.9 a	**214.0 abcd**	47.6 b	43.8 ab	54.0 ab
Summit	115.0 a	**224.2 abc**	45.8 b	43.5 ab	53.7 abc
Souris	115.3 a	**196.4 cd**	40.7 c	42.3 abc	52.2 abc
Akina	115.9 a	**230.3 abc**	47.9 b	41.9 abc	51.7 ab
Kara	116.5 a	**218.5 bcd**	49.9 b	43.3 ab	53.5 ab
Minstrel	109.6 a	**208.5 bcd**	48.2 b	41.2 bc	50.9 ab
Standard Deviation	8.32	13.4	2.56	1.10	1.36
CV	7.32	6.99	5.26	2.59	2.59
Treatment Prob(F)	0.0691	0.0001	0.0001	0.2487	0.253

*Varieties that share a letter did not differ significantly from one another (p>0.05).

Table.3a: POGA OAT trial 2016 (Peace Region Site: Yield Data)

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No.	Variety	Yield (bu/ac)		1000 Kernel Weight		Bushel Wt. lb/bushal		Test weight kg/HL	
1	**Morgan**	**202.5**	**ab**	43.8	abc	41.1	-	50.7	-
2	Camden	190.3	bc	45.0	ab	41.2	-	50.8	-
3	Seabiscuit	202.8	ab	45.0	ab	39.6	-	48.8	-
4	Triactor	188.5	bc	42.2	a-d	39.9	-	49.2	-
5	**Ruffian**	**217.5**	**A**	43.6	abc	42.0	-	51.8	-
6	Orrin	168.0	C	46.6	a	41.6	-	51.3	-
7	Summit	173.1	C	41.4	bcd	42.3	-	52.2	-
8	Souris	168.6	C	34.4	e	41.5	-	51.2	-
9	Akina	190.4	bc	42.2	a-d	40.1	-	49.4	-
10	Kara	190.2	bc	39.6	cd	41.3	-	51.0	-
11	Minstrel	192.3	bc	42.4	a-d	47.7	-	58.8	-
12	CDC SO-1	192.3	bc	38.5	d	38.3	-	47.2	-
13	CDC Nasser	173.7	C	38.7	d	43.0	-	53.0	-
14	Mustang	194.1	Bc	45.1	ab	40.9	-	50.5	-
15	Baler	183.2	Bc	46.1	ab	38.3	-	47.3	-
Standard Deviation		9.83		1.75		3.35		4.14	
CV		5.22		4.13		8.12		8.14	
Treatment Prob(F)		0.0001		0.0001		0.2487		0.253	

*Varieties that share a letter did not differ significantly from one another (p>0.05).

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Table.3b: POGA OAT trial 2017 (Peace Region Site: Yield Data)

	Plant Height cm		Yield (bu/ac)		1000 Kernel Weight		Bushel Wt. lb/bushal		Test weight kg/HL	
Morgan	94.9	a	**220.1**	bc	44.5	a	41.4	a	44.5	a
Camden	92.6	ab	**226.1**	bc	37.6	a	38.8	ab	37.6	a
Seabiscuit	97.0	a	**224.0**	bc	42.7	a	37.5	b	42.6	a
Ruffian	98.2	a	**248.5**	a	41.6	a	40.8	a	41.5	a
Orrin	98.7	a	**227.3**	bc	40.9	a	40.8	a	40.8	a
Summit	88.3	b	**209.7**	cd	37.5	a	40.5	a	37.4	a
Souris	93.4	ab	**190.8**	e	36.4	a	40.8	a	36.4	a
Akina	92.2	ab	**214.2**	cd	42.4	a	38.8	ab	42.3	a
Kara	88.2	b	**225.9**	bc	43.0	a	40.9	a	43.0	a
Minstrel	93.1	ab	**196.4**	de	40.3	a	39.2	ab	40.3	a
Triactor	**97.7**	**a**	**240.3**	**ab**	39.0	a	38.9	ab	39.0	a
Standard Deviation	2.90		9.83		1.75		3.35		4.14	
CV	3.08		5.22		4.13		8.12		8.14	
Treatment Prob(F)	0.0001		0.0001		0.0001		0.2487		0.253	

*Varieties that share a letter did not differ significantly from one another (p>0.05).

At Westlock site, there was no statistical difference between the yields obtained for 11 milling varieties. However, Seabiscuit was numerically highest yielding variety for 2016. In 2017, Seabiscuit didn't do well for yields. As evident from data for plant height (Table

3a), Seabiscuit was tallest oat variety and we noticed issues of lodging that might have resulted in lower yields in 2017 for Seabiscuit at Westlock site.

At Peace region, in year 2016, Ruffian was significantly higher milling oat type than most of the other varieties except Morgan and Sea biscuit. The almost similar trend was noticed for 2017 again with Ruffian top yielding milling oat variety followed by Triactor.

Test weight is the most important indicator of grain milling quality. At Westlock site, the test weight result for Kara and Morgan was higher in both year 2016 and 2017 compared to other milling oat at intermediate levels. However, no statistical difference in either years 2016 or 2017 was observed among the varieties at Peace region.

Beta Glucan results: According to Andersson and Börjesdotter (2011 the effect of variety was about 23% on β-glucan content in oats. In our trial the beta-glucan content of the 11 different milling varieties ranged between 3.8% and 5.0%, with the lowest reported for Ruffian (3.8%) at both sites. Akina at Westlock and Kara at Peace region (5.0%) had the highest beta glucan levels for both the sites in 2016 (Table 4). In 2017, the beta-glucan content of the 11 different milling varieties ranged lower as compared to those levels in 2016. However, the lowest beta glucan levels were still reported for Ruffian at both sites again in 2017. Akina and Morgan at Westlock and Souris and Morgan at Peace region (were among with higher beta glucan levels compared to other milling oats varieties tested in 2016 (Table 4 and 5).

Conclusion:

The yield results from a two years suggests that there is potential for the varieties to out compete Morgan. In both, we observed a visible difference of location on yields that changes among the varieties at that location too. Ruffian was continuously highest yielding variety at Peace region from last two year and Westlock in 2017 too. However, the Ruffian has lowest levels of beta-glucan at both location in year 2016 as well as 2017. Based on year 2016 data, Seabiscuit performed very well at both locations in 2016 with staying in top 3 varieties for yield and average above 4.5% of beta-glucan content. However, in 2017, Ruffian was the top yielding variety at both locations and Seabiscuit had issues with

lodging at Westlock site. So it is harder to choose one variety out these two who had shown potential to give strong competition to most popular and with highest acres variety of Alberta, Morgan. Furthermore, Grain companies of millers should be able to come forward to contract grain production with a premium price for those products specifically targeted to meet the labelling requirements for including a health claim on the package regarding the "High in Beta-glucan".

ACKNOWLEDGEMENTS: We would like to thank Prairie Oat Grower Association (POGA) for their financial assistance for this trial.

Gateway Research Organization

2017 Heifer Pasture Summary

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

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

Stocking Rate: 89 heifers & 2 bulls;

Contributors:

Richard Geiger	**Matt Haisen**
Greg Piere	**Calvin & Anita Wruk**
Maurice Kruk	**Charlotte Neggers**
George Kerckhof	**Beau Lyons**

Entry Date: June 07, 2017

Exit Date: October 2, 2017

Objectives:

1. To demonstrate a rotational grazing system and its effect on carrying capacity.
2. To compare product efficacy LongRange; an extended release ecto and endo parasitic control with Normal injectable ivermectin

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 (See MAP). 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 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.

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. A pasture blend of loose mineral was fed as per product indications in each paddock. In 2017 overall, there was no issues with the health for the heifers during their stay at our pasture.

Breeding

One black Angus bull owned by Maurice Kruk and red angus bulls, other bull owned by Beau Lyon were used in the pasture. Bulls entered heifer pasture at the same time as the heifers and remained in the pasture until exit day.

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 as an indicator for grazing days. Those paddocks containing a high proportion of meadow foxtail were grazed earlier in the rotation then those paddocks containing a high proportion of legume species. Grazing periods in 2017 were kept with moving animals at every 2 or 3-day rotation. This strategy was to keep the pace of grass growth in high moisture and allow for grazing faster before they mature.

Gateway Research Organization

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 efforts of increasing legume contents direct seeding of some cocktail cover crops were done in 2016 and we can see track of mostly clover species establishing. Other legume species that do still exist in some of the paddocks are clovers, alfalfa and cicer milkvetch. For 2017, there was average daily gain of 1.25 lb/day during the stay of 117 days at pasture.

LongRange Vs Ivermectin Trail: In 2017, half of heifers from each contributor were given LongRange and other half were injected with ivermectin. We were not able to monitor two herds separately, so we just monitored the average daily gain after 117 days on pasture. The average daily gain in heifers with LongRange treatment had average daily gain of 1.27 lb/day compared to 1.23 lb/day.

Table 2.1 Heifer Pasture Paddock Size (acres)

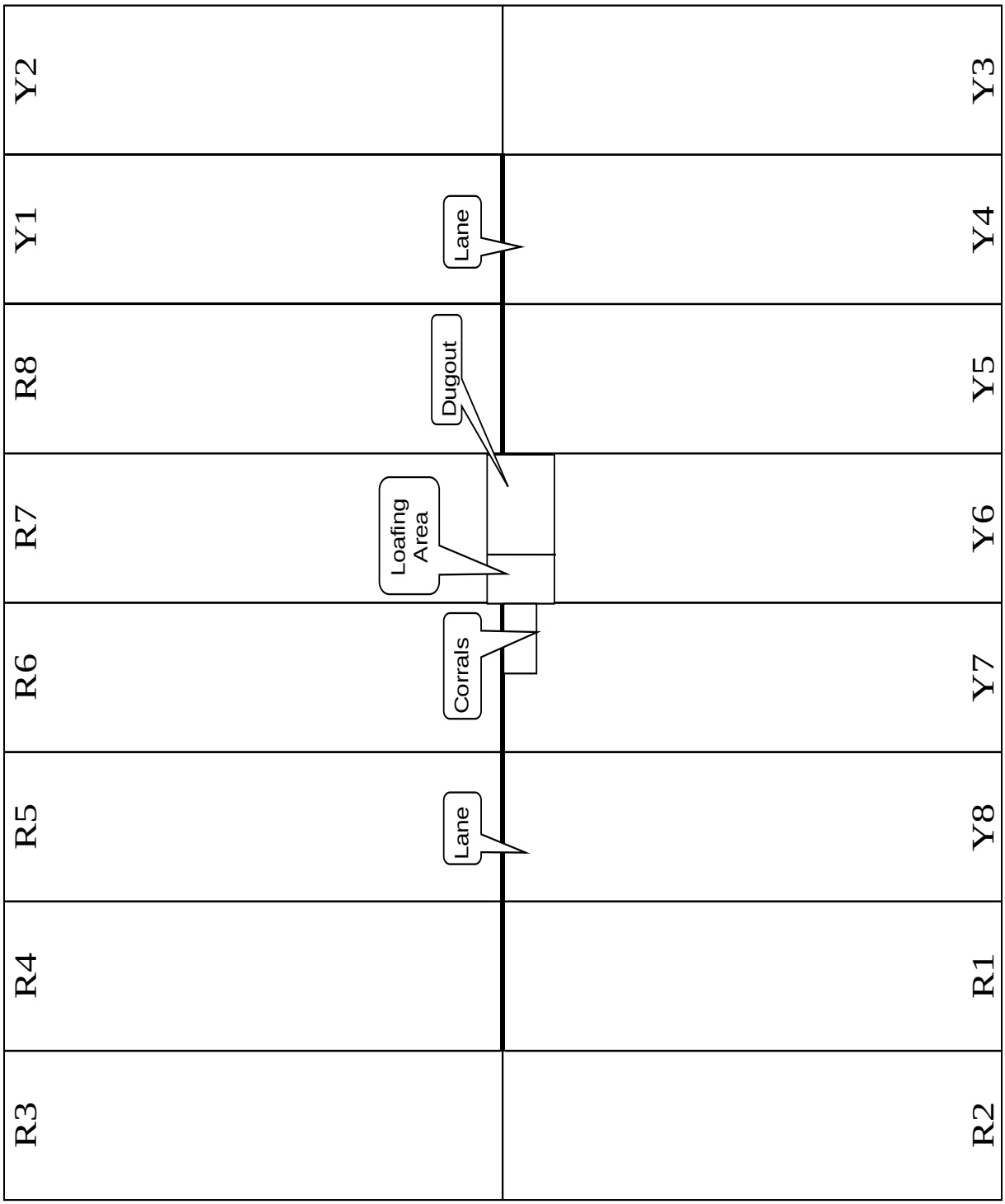
Paddock	Size (ac)	Paddock	Size (ac)
R1	8.90 ac	Y1	9.53 ac
R2	9.53 ac	Y2	10.36 ac
R3	9.50 ac	Y3	9.93 ac
R4	10.49 ac	Y4	9.75 ac
R5	10.25 ac	Y5	10.15 ac
R6	10.35 ac	Y6	9.04 ac
R7	9.14 ac	Y7	9.50 ac
R8	9.82 ac	Y8	9.81 ac

Gateway Research Organization

GRO Heifer Pasture Map

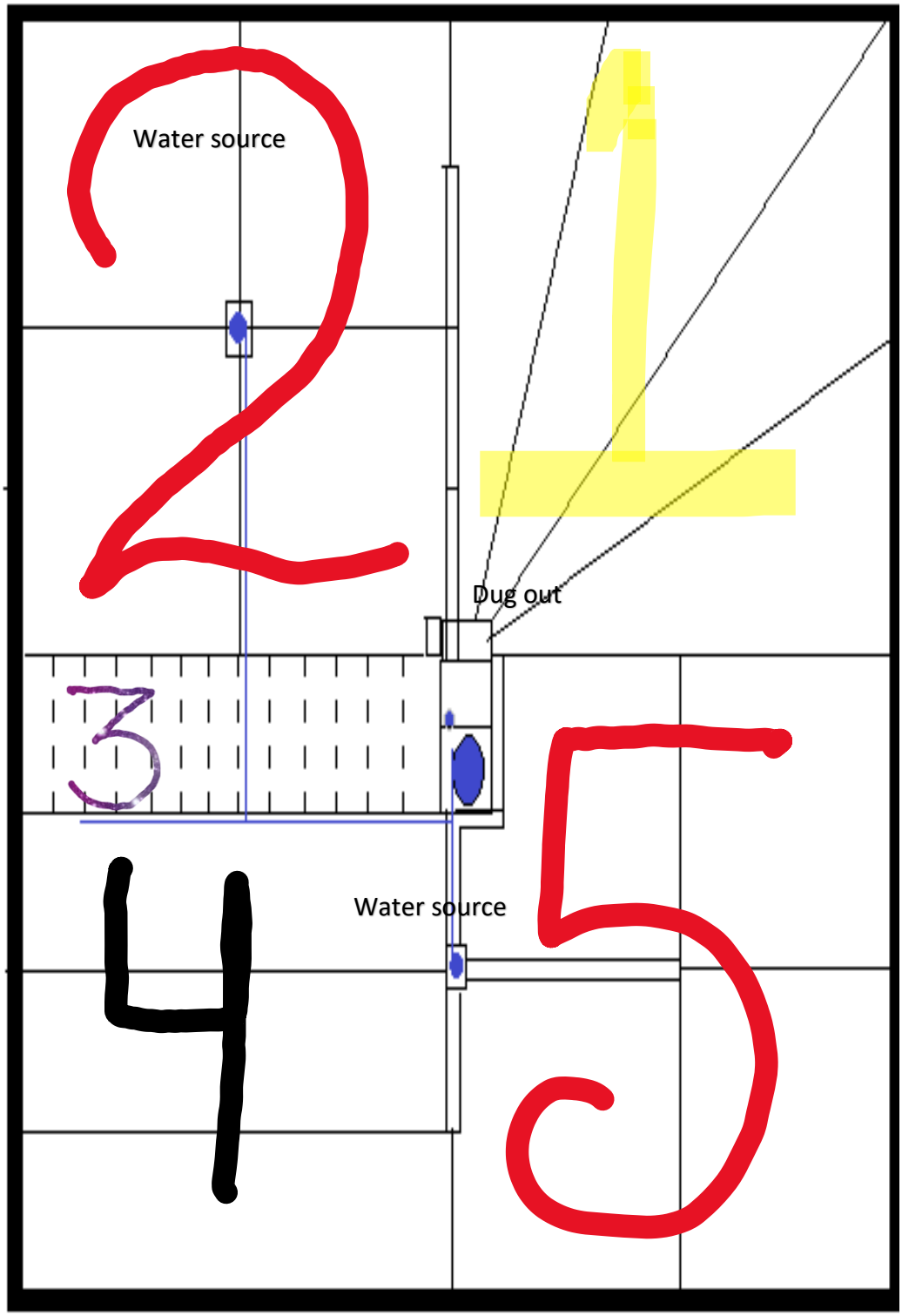
Current : Single Alley System

North



Gateway Research Organization

Proposed Cell design for demonstration at GRO for 2018 Five different Cell Design Demonstartion



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 were based on 1000 kernel weight and germination 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.

Table:3.1 : Project description

Action	Barley Silage	Oat Silage	Triticale Silage
Seeding	May 25	May 25	May 25
Seeding Specifics	Depth: 1 inch Row Spacing: 9 inches		
Equipment	Fabro zero- till drill with atom jet openers		
Fertilizer applied	Seed placed: 11-52-0	58 lbs/ac 30lbs/ac Actual P 6.4 lbs/ac Actual N	

	Side banded: 26-0-23-1.4	349 lbs/ac 90 lbs/ac Actual N 80 lbs/ac Actual K 5 lbs/ac Actual S	
Herbicides applied	CleanStart Pre-burn May 10, 2017 Herbicide: Curtail M. June 19, 2017 Axial on Barley for Wild Oats		
Precipitation (mm)	424 mm		
Harvest Stage	soft dough stage	late milk stage	Early dough stage
Harvest date	August 13	August 14	August 22

Table 4.1: Barley Silage varieties at Westlock.

Variety	Yield Tonne/acre @65% moisture
AAC AUSTENSON	9.11
RANGER	9.71
ALTORADO	9.14
AMISK	10.39
CANMORE	7.60
CDC COALITION	10.96
CDC COWBOY	9.54
CDC MAVERICK	11.01
CDC MEREDITH	10.49
CHAMPION	10.32
CLAYMORE	7.69
CONLON	11.63

GADSBY	7.13
SUNDRE	9.74

Table 4.2: Oat Silage varieties at Westlock.

Variety	Yield Tonne/acre @65% moisture
CDC BALER	27.36
AC MORGAN	29.10
AC MUSTANG	28.29
CDC HAYMAKER	30.16
CDC SEABISCUIT	28.51
CDC SO-I	24.53
AC JUNIPER	25.54
MURPHY	25.36
WALDERN	26.94

Table 4.3: Triticale Silage varieties at Westlock.

Variety	Yield Tonne/acre @65% moisture
TAZA	11.9
AAC CHIFFON	13.8
BUNKER	11.3
SUNRAY	13.1
TYNDAL	12.6

Gateway Research Organization

GRO-Operation Pollination -2017

GRO along with other members of ARECA umbrella collaborated together for a provincial wide project "Operation Pollinator". GRO sent request for participation invitation to members. We hoped for enrolling 1 producer from each county. But in the end we able to get two producer partner to participate in this trial one each from Westlock and Thorhild County. The Soil Conservation Council of Canada reviewed the site and coordinated seed delivery.

Operation Pollinator projected aims to create a valued opportunity to promote positive environmental food production. Other benefits from project:

- Significantly increase pollinating insect numbers
- Hugely benefit butterflies and other insects
- Improve crop yields from better pollination
- Simultaneously create habitats for small mammals and farmland birds
- Simplify field management
- Deliver soil and water protection measures
- Qualify for additional environmental payments
- Create a premium brand market for produce
- Develop strong links with retailers
- Establish more sustainable economic farming systems

Picture Courtesy of our producer partner:

Kenleigh Pasay (Thorhild County)

Gateway Research Organization

Pest Monitoring & Disease Survey Summary 2017

The Gateway Research Organization (GRO) participated in the Prairie Pest Monitoring Program in 2017. 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 and 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 May 7 to June 17. 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.

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 18 to July 29. 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 both location indicated a low risk for a larval outbreak and therefore no larval surveying was completed.

BARRHEAD

BERTHA ARMYWORM (BAW)

LLD	Trap total
NE-36-59-3-W5	33.5
SW-19-60-3-W5	26.5

Reporting period: June 18-July 29, 2017

DIAMONDBACK MOTH (DBM)

LLD	Trap total
NE-36-59-3-W5	238
SW-19-60-3-W5	105

Reporting period: May 7-June 17, 2017

BARRHEAD

Of the nine bertha armyworm sites in Barrhead County none were above the first warning level of 300 moths. Trapping will continue to be very important to watch for a possible build-up in the population.

There were 2 diamondback moth traps in your area which had moderate to high levels of moths caught during the trapping period. There was an outbreak in southern Alberta but not in central Alberta. This is likely due to the extremely warm and dry conditions we experienced in 2017 in the south. As we have seen in the past the population in your area collapsed before any serious damage happened later in the season.

Pea leaf weevil damage was moderate in the survey we conducted in late May – early June. It is borderline if producers should be using insecticide seed treatment in 2018. It will depend on the individual producer and their approach to risk management.

Wheat midge numbers remain relatively low in your area but we did find some. We did discover some parasitoids in the samples that were taken and they appear to be keeping wheat midge populations below warning levels. It would be a good idea for producers and agronomists to monitor fields in 2018 as the wheat heads out. This is especially true if seeding is delayed and/or wet conditions prevail.

No cabbage seedpod weevil were found in your area. The population in central Alberta seems to have reduced and the range expansion has contracted, at least for this year.

We did one field in our survey for the new midge in canola. We did not find any midge or any signs of damage from the midge

WOODLAND

There was one six bertha armyworm site in Woodlands and it was very low and well below the first warning level of 300 moths. Trapping will continue to be very important to watch for a possible build-up in the population.

Wheat midge numbers remain low in your area as we found 1 larva in the 2 fields we surveyed. Certainly no risk for 2018.

No cabbage seedpod weevil were found in your area. The population in central Alberta seems to have reduced and the range expansion has contracted, at least for this year.

THORHILD

There were 2 bertha armyworm sites in Thorhild in 2017 and both had low moth catches and were well below the first warning level of 300 moths. Trapping will continue to be very important to watch for a possible build-up in the population.

Pea leaf weevil damage was low but present in two of three fields in the survey we conducted in late May – early June. The third field is a cause for concern, it is high enough to consider the use of insecticide seed treatment in 2018. Overall I don't think producers need to be using insecticide seed treatment in 2018. It will be important to watch this insect over the next few years to determine if it will become a problem in your area.

Wheat midge numbers were low to moderate in your area but the field with 3 viable midge have the potential to be a problem if conditions are favorable to the midge. Experience has shown that the wheat midge population increases in wet years and in years when seeding is delayed.

No cabbage seedpod weevil were found in your area. The population in central Alberta seems to have reduced and the range expansion has contracted, at least for this year.

We looked at a field in your area in our survey for the new midge in canola. We did not find midge larvae or damaged flower buds. At this point this insect does not pose any economic concern.

WESTLOCK

Of the nine bertha armyworm sites in Westlock none were above the first warning level of 300 moths. Trapping will continue to be very important to watch for a possible build-up in the population.

There was 1 diamondback moth trap site in your area which had moderate levels of moths caught during the trapping period. There was an outbreak in southern Alberta but not in central Alberta. This is likely due to the extremely warm and dry conditions we experienced in 2017 in the south. As we have seen in the past the population in your area collapsed before any serious damage happened later in the season.

Pea leaf weevil damage was moderate to high in the survey we conducted in late May – early June. This would indicate that producers should be seriously considering the use of insecticide seed treatments for managing this insect. It will depend on the individual producer and their approach to risk management.

Wheat midge numbers remain relatively low in your area but we did find some. This indicates a baseline population that could increase if wet conditions and or late seeding occur. The one field with 4 midge is high enough to cause problems if conditions favoring the midge prevail. It would be a good idea for producers and agronomists to monitor fields in 2018 as the wheat heads out.

No cabbage seedpod weevil were found in your area. The population in central Alberta seems to have reduced and the range expansion has contracted, at least for this year.

We did two fields in our survey for the new midge in canola. We did not find any midge or any signs of damage from the midge.

CABBAGE SEEDPOD WEEVIL (CSPW)/CANOLA INSECTS - 2017

BARRHEAD

Quarter	Section	Township	Range	Meridian	#Sweeps	CSPW	Lygus Nymph	Lygus Adult	Leafhopper	Flea beetle	Red turnip beetle	DBM larva	DBM adult
nw	3	59	3	5	25	0	0	1	0	0	0	12	3
se	11	60	6	5	25	0	0	1	0	0	0	0	2
ne	34	59	3	5	25	0	0	0	0	0	0	0	2
ne	35	60	4	5	25	0	0	0	0	0	0	0	0
nw	12	62	3	5	25	0	0	0	0	0	0	1	1

THORHILD

Quarter	Section	Township	Range	Meridian	#Sweeps	CSPW	Lygus Nymph	Lygus Adult	Leafhopper	Flea beetle	Red turnip beetle	DBM larva	DBM adult
se	3	62	20	4	25	0	0	0	0	0	0	2	0
se	5	60	22	4	25	0	0	0	0	0	0	0	0
nw	4	60	20	4	25	0	2	0	0	0	0	2	0

WESTLOCK

Quarter	Section	Township	Range	Meridian	#Sweeps	CSPW	Lygus Nymph	Lygus Adult	Leafhopper	Flea beetle	Red turnip beetle	DBM larva	DBM adult
nw	11	62	2	5	25	0	0	1	0	0	0	0	0
nw	33	59	25	4	25	0	0	0	0	0	0	0	0
sw	28	60	27	4	25	0	0	1	0	0	0	1	0
se	2	59	27	4	25	0	1	2	0	0	0	4	1
nw	25	61	25	4	25	0	0	0	0	0	0	0	0

WOODLAND

Quarter	Section	Township	Range	Meridian	#Sweeps	CSPW	Lygus Nymph	Lygus Adult	Leafhopper	Flea beetle	Red turnip beetle	DBM larva	DBM adult
sw	33	62	6	5	25	0	0	1	0	0	0	19	0
nw	34	61	7	5	25	0	0	0	0	0	0	4	0

Alberta Insect Pest Monitoring Network

GRO - 2017

2

Canola Disease Survey – BLACKLEG AND SCLEROTINIA SURVEY IN 2017

Blackleg is a fungal canker of the actively growing crop that causes stem girdling and lodging. Blackleg causes dead patches that appear as pepper-like spots on canola leaves, pods and stems. Blackleg is spread by infected seed or by spores splashed about by rain or carried by the wind in the growing crop. In western Canada, yield losses up to 50% have been reported in individual fields.

Sclerotinia stem rot, is one of the most destructive diseases of canola. The severity of stem rot is extremely variable from year to year, region-to-region and even from field to field. Sclerotinia has become more serious as canola production has increased, likely due to a combination of more acres of canola in rotations and management practices that contribute to high yields, but also produce dense canopies, which are a better microclimate for disease development.

Monitoring the severity and distribution of these diseases will help producers manage risk. In 2017, ARECA member associations and municipalities sampled canola fields across Alberta for these diseases. In total, 421 canola fields were surveyed for blackleg. 346 showed symptoms. 311 fields were sampled for Sclerotinia, 252 of those fields showed symptoms.

Blackleg

Sclerotinia

Municipality	affected/ sampled	
	Blackleg	Sclerotinia
Barrhead	6/6	NA
Lac Ste Anne	1/2	NA
Parkland	2/2	NA
Sturgeon	9/10	NA
Thorhild	3/4	NA
Athabasca	4/4	0/4
Westlock	8/9	NA

Gateway Research Organization

Perennial Forage Variety Evaluation

The current trial was seeded in collaboration with 8 other applied research association. Seed was accessed from several companies, including SeCan, Pickseed, Northstar, Brett Young and Miller Seeds as well as small amounts from Agriculture and Agri-food Canada.

Purpose & Objectives:

- To provide unbiased, current and comprehensive regional data regarding the establishment, winter survival, yield and economics of specific species and varieties of perennial forage crops.
- To identify perennial crop species/varieties that demonstrate superior establishment, hardiness, forage yield and nutritional quality characteristics in different eco-regions of Alberta.
- To assess any benefits from growing mixtures of selected species.

Background

The majority of the annual feed requirement of Alberta's cow herd comes from perennial forages, including both grass and legume. Two thirds of the total cost of maintaining the cow herd is comprised of pasture, stored feed and bedding (Alberta Agriculture's Agriprofits Benchmarks). Therefore, managing the supply of perennial forage is very important. Identification of high yielding varieties for different areas of the province will contribute to a positive economic return. Forage producers in Alberta have had limited access to information on new perennial crops in recent years. This project is intended to bridge the information gap by evaluating a number of species and varieties at several locations in Alberta. It includes test cultivars which have been developed in recent years but have had limited regional evaluation beside varieties which are commonly grown in the province. This trail has 11 type of perennial grasses, 14 types of Legume plus 9 grass/legume mixes were selected for evaluation.

All trials were seeded as planned in late May or early June in 2016. Yield samples were not collected during the establishment year.

Seeding rate

Type		Variety	Seeding Rate (lb/A)
Grasses		Fleet Meadow Brome	14
		AC Admiral Hybrid Brome	8
		Success Hybrid Brome	9
		Knowles Hybrid Brome	12
		Greenleaf Pubescent Wheatgrass	10
		Kirk Crested Wheatgrass	6
		AC Saltlander Green Wheatgrass	9
		Fojtan Festulolium	20
		Killarney Ochard Grass	10
		Courtney Tall Fescue	8
		Grinstad Timothy	4
Legumes	Alfalfa	AC Grazeland	8
		Dalton	8
		20--10	8
		Halo	8
		Rangelander	8
		Rugged	8
		Spreder 4	8
		Spredor 5	8
		Yellowhead	8
		PV Ultima	8
		44-44,	8
	Sainfoin	AC Mountainview	30
		Nova	30
	Cicer Milk Vetch	Veldt	13
		Oxley 2	13
Mixes	Mix 1	Fleet Meadow Brome	7
		Yellowhead Alfalfa	4
	Mix 2	Success Hybrid Brome	7
		Yellowhead Alfalfa	4

Mix 3	AC Armada Meadow Br	7
	Yellowhead Alfalfa	4
Mix 4	Fleet Meadow Brome	7
	Spredor 5 Alfalfa	4
Mix 5	Success Hybrid Brome	7
	Spredor 5 Alfalfa	4
Mix 6	AC Armada Meadow Brome	7
	Spredor 5 Alfalfa	4
Mix 7	Fleet Meadow Brome	7
	AC Mountainview Sainfoin	15
Mix 8	Success Hybrid Brome	7
	AC Mountainview Sainfoin	15
Mix 9	AC Armada Meadow Brome	8
	AC Mountainview Sainfoin	15

Please find tables below for the yield data in 2017 after seeding and establishment in 2016. For other agronomic details or having a visit at site please contact GRO office at 780.349.4546.

CODE	**NAME (Grasses)**	**Yield (tonne/Acre)**
1	Fleet Meadow Brome	22.01
2	AC Admiral Hybrid Brome	28.34
3	Success Hybrid Brome	23.57
4	Knowles Hybrid Brome	23.23
5	Greenleaf Pubescent Wheatgrass	24.67
6	Kirk Crested Wheatgrass	21.39
7	AC Saltlander Green Wheatgrass	23.20
8	Fojtan Festulolium	29.27
9	Killarney Ochard Grass	25.54
10	Courtney Tall Fescue	23.01
11	Grinstad Timothy	8.68

CODE	NAME (legumes)	Yield (tonne/Acre)
1	Assalt ST Alfalfa	18.55
2	Dalton	15.14
3	20--10	23.24
4	Halo	16.19
5	Rugged	26.98
6	Spreder 4	8.43
7	Spredor 5	16.37
8	Yellowhead	10.65
9	PV Ultima	15.39
10	44--44	22.86
11	AC Mountainview Sainfoin	18.28
12	Nova Sanfoin	3.21
13	Veldt Cicer Milk Vetch	10.19
14	Oxley 2 Cicer Milk Vetch	12.91

CODE	NAME (Grass-legume mix)	Yeild (tonne/Acre)
1	Fleet MB / Yellowhead	18.92
2	Success HB/Yellowhead	21.63
3	AC Knowles/Yellowhead	20.08
4	Fleet MB / Spredor 5	20.79
5	Success HB/Spredor 5	19.96
6	AC Knowles MB/Spredor 5	20.11
7	Fleet MB/AC Mountainview	20.14
8	Success HB/AC Mountainview	19.41
9	AC Knowles MB/AC Mountainview	25.96

Gateway Research Organization

On-Farm Energy Management Program

Coordinator: Kale Scarff

The Government of Alberta, through *Growing Forward 2 (GF2)* a federal, provincial, territorial initiative, offered two incentive-based programs aimed at helping Alberta farmers and ranchers reduce energy consumption and associated costs. These programs have recently been switched over to be purely provincial programs and are now open and accepting applications.

The Farm Energy and Agri-Processing (FEAP) Program and the On-Farm Solar Photovoltaic (OFSPV) Program offer farmers and ranchers the opportunity to become energy efficient by sharing the cost to purchase energy efficient or renewable technologies. These initiatives are intended to make energy efficient technology as affordable as current technology, making the environmentally friendly choice also the economically sensible choice.

Gateway Research Organization, along with 2 other organizations in the province, has been contracted by Alberta Agriculture and Forestry to promote these energy programs. In April 2017, GRO hired Kale Scarff as the On-farm Energy Management Coordinator to promote the programs in the North-Western portion of the province, from Wetaskiwin County up to Mackenzie County. See the MAP for the area covered by GRO.

The On-farm Energy Management Program was closed for all of 2017, so most promotional work was aimed at making people aware of the program to prepare for its reopening. This involved meeting with the Ag fieldmen in the counties and MDs in the region, giving presentations at workshops, and attending various tradeshows throughout the province.

Presentations given

- Olds, Future Farm Expo, July 7
- Sangudo, August 30
- Flatbush, September 21
- Westlock, SESA presentation, October 17
- Calgary, SESA workshop, October 25

- High Prairie, Energy Efficiency, November 27
- Wanham, Energy Efficiency, November 28
- Telford, Energy Management Info Session, November 29
- Athabasca, On-farm Savings, November 30
- Redwater, On-farm Savings, December 13
- Red Deer, Organic Alberta Conference, February 19, 2018

Tradeshows

- Olds Future Farm Expo, July 6-8
- Fort Vermilion Fair, August 11-12
- Westlock Fair, August 18-19
- Barrhead Prairie North Farm Forum, October 31
- Red Deer Agri-trade, November 10
- Calgary Green Industry Show, November 16-17
- Westlock Next Level Farming, November 22
- Edmonton Western Canada Conference on Soil and Grazing, December 5-7
- Grande Prairie 2018 ASB Conference, January 16-18, 2018
- Edmonton Farm Tech, January 30-February 1, 2018
- Red Deer, Organic Alberta Conference, February 9-10, 2018

As the program progresses, these extension activities will increase, as will the number of one-on-one visits with farmers and suppliers to spread awareness and accessibility of the funding options for on-farm energy efficiency.

Eligible projects of OFEMP include:

- Construction projects that install high-efficiency equipment from the program's Funding List;
- Retrofit projects that improve operation energy usage per unit of production; and
- Installation of sub-metres to monitor on-farm electricity and/or natural gas usage.

Eligible OFSPV systems must be:

- Grid-tied, not off-grid;
- Approved under Alberta's Micro-Generation Legislation;

- Positioned to optimize sunshine and minimize shading;
- Have manufacturer-warranties on: Solar modules, Racking, Inverters and/or Micro-inverters; and
- Producing power that is used in the production of a primary commodity.

Any questions about eligibility or the application process can be directed to Kale Scarff at groextension@telus.net or 780-307-7849.

More information about the programs can be found at www.agriculture.alberta.ca/feap.

GRO Region for OFEM