2012 AgriARM Report
Applied Research and Demonstration
Prince Albert AgriARM Site

Final Report

Overall Summary

Conservation Learning Centre

The Saskatchewan Conservation Learning Centre Inc. (CLC) is a producer-driven, non-profit corporation with formal status as a registered charity. The CLC was established in 1993 under the Parkland Agricultural Research Initiative, a component of the Green Plan. The CLC demonstrates, on a farm-scale, soil and water conservation technology. It also serves as a field laboratory for evaluation and applicability of new research and technology. The CLC is located on 457 acres of land 18 km south of Prince Albert in the Parkland Region of Saskatchewan.

Mission: The Saskatchewan Conservation Learning Centre Inc. researches and demonstrates land management techniques which focus on the optimum utilization of the landscape for annual crops, forage, and agroforestry production, employ appropriate soil and water conservation techniques and facilitate wildlife habitat enhancement.

Mandate: To provide information to farmers, public school students, researchers, extension workers, and the urban public in the parkland area of Saskatchewan. The CLC will also facilitate interrelationships with all those interested in the objectives of the CLC including the agriculture and agroforestry industry, policy makers, and the media.

Objectives:

- To increase the awareness of farmers as to the importance of land management systems which include both economic and environmental stewardship. To be a leader in identifying and demonstrating agricultural practices that emphasizes sustainability. To have farmers adopt these practices on their own farms.
- To increase the awareness of the interaction of agriculture and the environment among public school students.
- To have the urban public become more aware of how farmers practice stewardship on their farms. To have the urban public become aware of how agriculture and wildlife can co-exist. To have them understand the role and importance of the agriculture supply industry in food production.
- To provide researchers with a location to expand their plot research to field scale and/or landscape research. This will enable them to learn about and investigate applied research techniques, other research projects, new research needs, and the role of industry in the agri-food sector.
- To encourage the corporate sector and interested organizations to promote sustainable agriculture practices. To provide a site where researchers, industry, farmers, agroforesters, technology transfer personnel and the public can be brought together at one location.

The CLC enjoyed another successful year fulfilling some of its goals while continuing to set new ones for the future. With the recent purchase of a plot combine, it has provided us the ability to complete more trials in a timely manner and attract new partners. With intentions of updating our seeding tools, our equipment list is slowly getting closer to minimal requirements. We are also very pleased to announce that Stu Brandt (research scientist) has joined the team at the CLC and will be consulting on all aspect of this research facility. Recent capacity building has provided an opportunity to increase our summer staff in 2013, allowing us to expand our trials. With future plans to continue this increase, the continued support of AgriARM, ADOPT and the Saskatchewan Research Council, along with industry, makes our goals more achievable. 2011 was the 1st time we saw Ducks Unlimited back at the CLC for years. We are pleased to announce that they were back last growing season, but they will be partnered with the CLC in 2013 as well. The CLC continued to develop its relationship with the Saskatchewan Herb and Spice Association and look forward to working with them in 2013 and beyond. We continue to develop new relationships while rebuilding old ones in the hope of providing support to our local producers.

The recent addition of needed equipment provides the CLC with added opportunities that attract even more participants to the farm. Our extension program is more aggressive so that results can be provided to producers and professionals in a timely manner while developing new opportunities. A state of the art weather station has started to supply us with weather data from an unforgettable 2012.

2012 saw the CLC host its 2nd Performance Combine Clinic. More than 50 producers traveled to listen to Les Hill. Our plans for a 2 day event with a sprayer clinic following our combine clinic were quashed after the latest federal budget cuts. All but 1 dealer was able to attend, with attending dealers extremely happy with the outcome and look forward to attending any future events such as this. This season we are planning a forage field day, an invasive weed diagnostic workshop, along with our annual field day.

One of the most unique features at the CLC is the School Program. Since the beginning, over 27,000 students, along with hundreds of educators and chaperones, have experienced all the farm has to offer. Our program follows the provincial science curriculum and consists of a two hour tour where students from grades 3 to 11 are exposed to conservation techniques specific to each class's objectives. The program is funded from other sources and highlights where and how our food is produced while promoting the conservation of our soils, water and wildlife habitat.

AgriARM Research Sites

The CLC is proud to be a member of the AgriARM research site network and to assist AgriARM in achieving its own objectives (see below). The CLC and AgriARM

objectives are often aligned and provide opportunities to producers to experience first-hand new and productive forms of agriculture. The funding received from AgriARM helps the CLC conduct trials for adoption by local producers. Once adopted, these new ventures help strengthen agriculture and rural communities while building a better Saskatchewan.

Agri-ARM's objectives

- Increase the adoption of new agricultural production technologies and practices;
- To provide farmers with more tools for environmental and economic decision-making;
- Develop and maintain an adequate level of infrastructure and expertise for regional applied research and demonstration; and
- Increase public awareness of agriculture's role in environmental stewardship and the overall economy.

Agriculture Demonstration of Practices and Technologies (ADOPT) Program

The purpose of the ADOPT program is to accelerate the transfer of knowledge to Saskatchewan producers and ranchers. The ADOPT program will provide funding to help producer groups evaluate and demonstrate new agricultural practices and technologies at the local level. The results of successful trials can then be adopted by farming operations in the region

2012 ADOPT List of Projects

- Optimum Nitrogen rate for Camelina
- Maximizing benefits from foliar fungicides on wheat and barley
- Demonstration of Faba Beans
- Fall vs Spring Planting of Haskap
- Demo of annual forages
- Demo of perennial forages
- Yellow feed demo
- Demonstration of New Crop Varieties for NE Sask
- Winter wheat weed management
- Winter wheat seeding depth and date
- Midge tolerant wheat demo
- The effect of fungicide choice and varietal selection on the development of sclerotinia in canola
- Proper preharvest glyphosate timing in wheat
- Optimal seeding rate for spring wheat

Project type	AgriARM self-funded	ADOPT funded	Industry funded	Other/notes
Total number of projects undertaken over the past year	3	14	4	Ducks Unlimited is back for its 2nd year in a row
Number of projects completed this year	1	14	1	
Number of new projects started this year.		13	3	Soil & plant sciences from u of S are back for up to 3 years on research projects
Number of on-going projects. Those initiated earlier and still not completed this past year.	3		4	

	ADOPT	Other government programs	Industry	In-kind	Other/notes
Funding for specific demonstration or research projects	88,945		16000		
All other non-project funding		3000			

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General Site Conditions

The CLC is situated 18kms south of Prince Albert. Soils are considered to be silty clay, but are quite variable; the landscape is hummocky with several potholes. Knolls are primarily sandy and hollows are mostly heavy clay. Weed pressure is high and weed control difficult as a result of large adjacent riparian areas which interfere with timely herbicide applications, especially in the recent uncommonly wet years.

Of the 457 acres at the CLC, 55 acres were seeded to wheat, while the SE quarter had 100 acres of canola cropped. The remaining land area was for trials.

In 2012, the CLC was faced with difficult conditions as a result of the weather. Spring seeding was delayed due to excessive moisture. Some plots were impacted as a result of very heavy rains following seeding and others effected by saturated soils.

Figure 1: Yearly Accumulated Precipitation and Temperature for Prince Albert 2012

Please view attached weather data for the CLC

Summary of Activities from 2012

Activity	Type of Activity	Project Title	# at Event	Year Initiated	Ongoing	Demo / Research
1	Horticulture	Living Snow Fence	55	2008	yes	Demo
2	Agriculture	Forage Corn Demo	55	2011		Demo
3	Agroforestry	Alleycropping	55	2011	yes	Research
4	Horticulture	Honeysuckle Varietal Selection	55	2008	yes	research
5	Horticulture	Demonstration Orchard	600	2008	yes	Demo
6	Agriculture	Winter wheat weed management	55	2011		Research
7	Agriculture	Midge Tolerant Wheat	55	2012		Demo
8	Agriculture	Yellowfeed	55	2012		Demo
9	Agroforestry	Minor Use Registration	55	2012		Research
10	Agriculture	Winter wheat seeding depths	55	2011		Demo
11	Agroforestry	Eco buffer along riparian area	55	2010	yes	Demo
12	Agroforestry	Biomass Trial	3	2008	yes	Research
13	Agroforestry	Afforestation = decommissioned		2008		Demo
14	Agroforestry	H. Poplar Clonal Trial		2008	yes	Research
15	Agriculture	Annual forage Trial	55	2012		Demo
16	Agroforestry	Willow Variety Trial		2009	yes	Demo
17	Agriculture	Combine clinic	55	2011	yes	Demo
18	Horticulture	Fall Haskap Planting	62	2010	yes	Research

Research Activities 2012

ADOPT Trials

- Optimal nitrogen rates on Camelina
- Winter wheat weed management
- Winter wheat seeding depths
- Proper Preharvest Glyphosate timing in Wheat
- Demonstration of New Crop Varieties for NE Saskatchewan
- Fall vs Spring Planting of Haskap
- Yellow Trial
- Annual Forage Demo
- Perennial Forage Demo
- Effect of fungicide choice and varietal selection on the development of sclerotinia in canola
- Midge Tolerant Wheat Demo
- Demo of faba beans
- Optimal seeding rate for wheat
- Maximizing benefits from foliar fungicides on wheat and barley

Industry Trials

- SeCan: Midge Tolerant Wheat Demo, CLC
- Ducks Unlimited Winter wheat weed management and seeding dates and depths
- Ducks Unlimited herbicide trial
- PMRA: Minor Use Registration, CLC
- Saskatchewan Research Council (SRC): Balsam Poplar Progeny Trial
- SRC: Eco-buffer
- SRC: Biomass Trial
- SRC: Afforestation
- SRC: Hybrid Poplar Stooling Bed
- SRC: Willow Variety Trial
- Agriculture and Agri-Food Canada/Agri-Environmental Services Branch (AAFC-AESB) and SRC: Hybrid Poplar Clonal Trial
- District 32 ADD Board: Annual forage demo
- Sask Forage Council: Perennial forage trial

Extension Activities 2012

Summary of CLC extension activities

Activity	Estimated attendance
Annual Summer Tour	55
Unstructured tours	2
Combine clinic	55
School Program Tours	1000
Total	**1112**

Other extension activities included:

Crop Production Show
Crop Talk
Soils and Crops
Web site updates

Research Results 2012

AgriArm and ADOPT Projects Initiated in 2011 (2yr trial) and 2012

Agronomics of New Varieties of Midge Resistant Wheat
Conservation Learning Centre

Project Summary

The objective of this trial was to demonstrate to producers any economic advantage of growing midge resistant wheat vs. conventional wheat. With the increase in farm size, producers are looking for every advantage available in terms of being proactive when reducing pest populations. Wheat midge has cost producers significant losses in

the past and these resistant varieties could become a new tool for protecting the producer's bottom line.

Project Methodology

On May 21, 2012, ten demonstration plots were seeded into oat stubble with four new midge tolerant varieties of Utmost, Vespar, Unity and Shaw, with the check of CDC Stanley. Seeding rate was 109lbs/acre with 80 lbs/acre of 60-20-0-15 placed with the seed treated with Vitaflow 280. MCPA was sprayed to control the weeds in the field at a recommended rate on June 15 The crop emerged on May 28th, eight days after seeding and was quite even.. The plots showed excellent response to the increase in soil temperature and created a canopy very early. Our 2012 season was very humid during the development stages of this crop. Leaf diseases were minimal but to ensure some control, 135gram/acre of Proline was applied on July 6th. Field observations concluded that adequate control was achieved with the fungicide application. 21' x 76' test strips were harvested on Sept 21. Shaw showed the best yield with over 32% increase over the check variety CDC Stanley. All four varieties of midge tolerant wheat had significant increases in yield over the check. Our best samples were #2, with no samples reaching a #1 grade.

Results

Variety	Rep 1	Rep 2	Average Yield	% Increase over check
Stanley	23.6 bu/ac	27.6 bu/ac	25.6 bu/ac	check
Utmost	28.3 bu/ac	29.4 bu/ac	28.9 bu/ac	11.4 %
Unity	39.9 bu/ac	34.6 bu/ac	37.3 bu/ac	31.4 %
Vespar	31 bu/ac	31.9 bu/ac	31.5 bu/ac	18.73%
Shaw	38 bu/ac	37.8 bu/ac	37.9 bu/ac	32.45%

Conservation Learning Centre
Optimum Nitrogen rate for Camelina

Project Description
Nitrogen rates of 0, 40, 80, 120 and 160 kg/ha were applied to one variety (Blaine Creek). This demo was replicated twice.

Project Results

Treatment	Rep 1	Rep 2	Rep Average	Average crop height	1,000 Seed Weight
0 kg/ha	463 lbs/acre	431 lbs/acre	447 lb/acre	21”	1.1 gram
40 kg/ha	560 lbs/acre	463 lbs/acre	511 lbs/acre	22”	1 gram
80 kg/ha	431 lbs/acre	287 lbs/acre	359 lbs/acre	26”	1.1 gram
120 kg/ha	415 lbs/acre	383 lbs/acre	399 lbs/acre	28”	1.2 gram
160 kg/ha	415 lbs/acre	415 lbs/acre	415 lbs/acre	30”	1.3 gram

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Agronomics of Fall Planted Haskap
Conservation Learning Centre

Project Summary

The objective of this project is to document the agronomic elements of fall planting haskap versus spring planting. Early experience shows some benefits of fall planting. This crop is very early to start growing in the spring. Producers have experienced limited growth in the first year with spring planting due to the tendency of this plant to go dormant if not planted early enough as vegetative growth is compromised and the plant goes into a rooting phase. This new berry crop has exploded onto the marketplace with many commercial orchards established and many more in the planning stages. The agronomics of this crop are not completely understood for Saskatcehwan conditions and the industry lacks enough information to publish a grower's manual. This project will help the producer better understand the growing aspects of this plant.

Figure 3. CLC Field Day, Haskap Trial.

Project Methodology

Three separate cultivars were hand planted in the fall of 2010 with counterparts planted in the spring of 2011. Spring and fall total numbers were divided into three separate planting dates one week apart. One hundred and eighty plants of each cultivar were planted (90 in the fall - 90 in the spring) and these were replicated in three plots.

Project Results

Cultivar	planting date	stem ht	mortality	drowned
1 = Borealis	spring	16 cm	32%	17%
2 = Tundra	spring	22 cm	23%	11%
3 = Indigo Treat	spring	n/a	0.05%	0
4 = Borealis	fall	23.5 cm	37%	0.03%
5 = Tundra	fall	7 cm	68%	0.08%
6 = I.Treat	fall	21 cm	98.90%	0

Fall planting in 2010 went well with all cultivars showing typical signs of fall planting including the initiation of rooting. Spring 2011 planting also went fine. The high mortality with fall planting of Indigo Treat suggests rootstock had predetermined issues (storage, etc.) that caused such poor establishment.

The growing season of 2012 did not provide any noticable changes. Less than desirable growing conditions did not promote any differences in vegetative growth between the fall or spring plant. The saturated soils may have been the cause. We feel this was due to planting active plants too late in the fall. Our reccomendations are to establish a well drained site and plant dormant stock in the spring into prepared soil. Fall planting is best planted in mid to late August. This allows the plant plenty of time to establish a good root system and to naturally enter dormancy. Late fall

planting with young plants may be a consideration but dormant stock is required and adequete snow cover during winter should be promoted to insulate the young roots.

Demonstration of Faba Beans

Project Summary

Producers are always on the look out for a new crop to bring into their rotation. With a local processor needing seed for new markets, a few producers have started to grow faba beans locally.

Project Methodology

This demo consisted of comparing 4 varieties of faba beans. The plot was burnt off prior to seeding with a litre of glyphosate. Harrowing of the plot occurred May 17th. SSNS-1 and Snowbird were seeded on May 29, Florent was drilled on May 31st, with Taboar being seeded on June 11th – all were seeded into summerfallow. Fertilizer requirements were 54lbs of P/acre. All plots were drilled with a 9350 JD hoedrill. Emergence was extremeley quick, resulting in an early canopy requiring no herbacides. July 10th saw the plots receive 160ml/ac of Headline to control any disease pressure. A litre of glyphosate was applied to the plots on Sept 16th, with harvest of samples conducted on Sept 26th.

Project Results

	SS Ns-1	Snowbird	Florent	Taboar
Yield	133.7 bu/ac	145.6 bu/ac	105.3 bu/ac	137.8 bu/ac

Demonstration of New Crop Varieties for NE Saskatchewan

Conservation Learning Centre

Project Summary

Our research indicates that producers feel this is the most important type of project to get them onto the farm to witness the results. Positive results would suggest producers would adopt these new varieties for future crops.

Project Methodology

A JD 9350 hoe drill was used to seed all crops. All oat varieties were seeded into barley stubble at a rate of 102 lbs/ac on May 16th. Nitrogen was applied at a rate of 45 lbs/ac, with 20 lbs of phosphorous, along with 15lbs of sulpher. Initial application of Achieve was ineffeciant controlling weeds so they were controlled June 25th with MCPA a rate of 12 oz/ac. July 6th had 240ml/ac of Headline, with harvest occurring on Sept 27th.

Peas were all treated with TagTeam and seeded on wheat stubble at a rate of 170lbs/ac on May 17th.Phosphorous was applied with the seed at a rate of 25lbs/ac. Pursuit was applied June 20th at 2oz/ac. All peas were harvested Sept 15th.

All lentils were treated with TagTeam and seeded on wheat stubble at a rate of 40lbs/ac, with CDC Cherrie seeded at 50lbs/ac on May 17th. Sencor was applied at a rate of 110grams/acre on June 19th and harvest occurring Sept 15th.

Wheat was treated with VitaFlow 280 and seeded on oat stubble at a rate of 107lbs/ac on May 21. Nitrogen was applied at a rate of 55lbs/ac, with 25lbs/ac of phosphorous was applied with the seed. Our initial rate of 0.40l/ac of Achieve with 0.50l/ac of Turbocharge was ineffective and was followed by an application of MCPA Amine at a rate of 12oz/ac on June 25th. Proline was applied at a rate of 135grams/ac on July 6th and harvest occuring Sept 15th.

Project Results

Green Peas	CDC Patrick (check)	CDC Raezer	CDC Pluto	
	39 bu/ac	43.7 bu/ac	20.7 bu/ac	
Yellow Peas	CDC Golden (check)	CDC Saffron	CDC Hornet	
	47.1 bu/ac	42.9 bu/ac	50.2 bu/ac	
Wheat	CDC Stanley (check)	AC Vespar VB	AC Fieldstar VB	
	27.4 bu/ac	29.3 bu/ac	33.2 bu/ac	
Oats	CDC Minstrel (check)	CDC Dancer	CDC Seabisciut	
	30.8 bu/ac	45.7 bu/ac	56.8 bu/ac	
Red Lentils				
CDC Red Bow (check)	CDC Redberry	CDC Cherrie	CDC Rosebud	
18.8 bu/ac	28.4 bu/ac	22 bu/ac	26.4 bu/ac	

Effect of Weed Management on the Production of Winter Wheat in the Prince Albert Region
Conservation Learning Centre

Project Summary

Interest has increased in winter wheat production for a number of reasons including:

- being a good fit with conservation farming systems;
- increased efficiency of water utilization compared to spring seeded crops;
- avoidance of wheat midge damage due to early heading;
- good weed competitor (reduced herbicide costs);
- reduced risk of fusarium head blight due to early development and maturity;
- avoid seeding problems on late, wet springs;
- lower energy requirements;
- less disturbance to wildlife, especially waterfowl and upland game birds;
- higher yield potential and reduced pesticide costs can mean greater economic returns per acre.

However, many new winter wheat producers still struggle with some of the agronomics associated with this crop. Due to the different growth habit of winter wheat compared to it's spring counterparts, alternative weed control options need to be considered. Since fall tillage is not an option, fields infested with perennial grass weeds, such as quackgrass, should be avoided. Control of winter annual weeds, such as stinkweed, shepherd's purse, flixweed and narrow-leaved hawk's beard, is particularly important in winter wheat. Best control of winter annual weeds with herbicides is achieved in the fall after the weeds have germinated and right before freeze-up. They may also be treated the following spring, but must be sprayed before the weeds bolt, which occurs in late April or early May (Manitoba Agriculture)

Project Methodology

This project demonstrated the effects of weed management on the establishment and success of winter wheat in the Prince Albert Region. The 9 treatments selected were:

a) Check (no weed control)
b) Preseed glyphosate
c) Preseed Express Pro (8 g/ac) and Glyphosate (0.5)L/ac g.e.)
d) Preseed glyphosate + fall in crop, Bromoxynil & MCPA ester
e) Preseed glyphosate + early spring Infinity herbicide
f) Preseed glyphosate + late spring Infinity herbicide
g) Preseed Glyphostae + early spring Achieve herbicide
h) Preseed glyphostae + late spring Achieve herbicide
i) Preseed glyphosate + early spring Refine SG herbicide

Prior to seeding, either glyphosate alone or glyphosate plus Express Pro were apllied to all treaments as prescribed, except for the untreated check. The winter wheat (cv. Buteo) crop was seeded August 26, 2011 at a rate of 146 lb/ac. It was sown on canola stubble which is considered one of the best stubble types as it traps snow effectively and provides a good broadleaf-grass crop rotation.The winter wheat was seeded with a plot seeder with plots approximately 40 feet in length and 7 feet wide (which is one pass with the plot seeder). The 9 treatments were replicated 3 times for a total of 27 plots. The fall bromoxynil plus MCPA ester was applied Sep[t 13, 2011.

Project Results

Soil moisture conditions at seeding were marginal for crop establishment, and emergence was somewhat spotty. Variable emergence allowed weeds to invade the crop. The main weed species were barnyard grass, with some sow thistle present as well.

After application of fall bromoxynil plus MCPA, some crop yellowing was noted that persisted through the middle of October. The sprayer used to apply the herbicides was designed to apply very low water volumes and was quite difficult to calibrate. It is probable that either higher than planned rates of herbicide were applied, or that water volumes were so low as to cause crop damage.

While no visual symptoms of herbicide damage from the spring applied herbicide treatments were noted, is quite possible that the same problems arose with calibration and low water volumes since the same sprayer was used.

Grain yield was highest for the untreated check treatments which was unexpected. The only explanation that we can provide for this result is that there may have been much more damage from all herbicide treatments that were noted in observations during the growing season. It would also appear that if this were the case, damage was greater from early spring Infinity than from other herbicides.

In light of uncertainty about possible herbicide damage, these results should be viewed very cautiously. It should also be noted that turnover of staff associated with the site resulted in loss of some data. This data was collected to assist in understanding treatment responses.

Overall, yield of winter wheat exceeding 70 bu/ac in the absence of herbicides for weed control suggests that this crop can be highly competitive with other crops grown in the region.

Table 1. Winter wheat yield (bu/ac) with varying weed control treatments at the Conservation Learning Centre in 2012.

Treatment	Rep 1	Rep 2	Rep 3	Average
Check, no weed control	78.0	72.1	70.8	73.6
Pre-seed glyphosate (Glyphosate)	61.2	41.8	54.9	52.6

Glyphosate + Express Pro tank mix pre-seed	51.9	58.2	53.8	54.6
Glyphosate pre-seed + fall in-crop Bromoxynil + MCPA ester	51.6	55.9	57.5	55.0
Glyphosate pre-seed + early spring Infinity in-crop	36.5	48.8	51.2	45.5
Glyphosate pre-seed + late spring Infinity in-crop	53.7	70.3	52.5	58.8
Glyphosate pre-seed + early spring Achieve in-crop	56.7	60.2	62.0	59.6
Glyphosate pre-seed + late spring Achieve in-crop	54.9	55.8	49.5	53.4
Glyphosate pre-seed + early spring Refine SG in-crop	56.8	56.2	56.5	56.5
LSD (P=0.05)				**10.7**

***Effect of Seeding Date and Seeding Depth on the Production of Winter Wheat in the Prince Albert Region*.**

Conservation Learning Centre

Project Summary

Winter wheat can have a number of benefits in a crop production system such as: Being a good fit with conservation farming systems; increased efficiency of water utilization compared to spring seeded crops; avoidance of wheat midge damage due to early heading; good weed competitor (reduced herbicide costs); reduced risk of fusarium head blight due to early development and maturity; avoid seeding problems on late, wet springs; lower energy requirements; less disturbance to wildlife, especially waterfowl and upland game birds; higher yield potential and reduced pesticide costs can mean greater economic returns per acre.

Seeding date is an important factor in winter wheat establishment as plants that enter the winter with well established crowns are more durable. To enter winter with an established crown, optimal seeding dates should be earlier as one moves north and east on the prairies. The range of dates is typically August 20th to September 15th. Seeding too early can result in excessive growth in the fall and plants that are less resistant to winter injury (this is rarely a problem as removal of the previous crop usually does not occur early enough). Late dates of seeding are a greater threat to the crop, usually resulting in poor establishment and lower winter-survival potential. Plants that enter the winter with well-developed crowns are normally most desirable.

Seeding depth is an important agronomic factor in terms of the establishement and subsequent success of a winter wheat crop. Fall seeding generally means seeding into dry soil, therefore growers are recommended to seed as shallow as possible (no deeper than one inch). Winter wheat seeds need only a small amount of moisture to initiate germination therefore shallow seeding when the soil is dry allows the seed to require less precipiation to begin germination. As seeding depth increases more precipitation is needed to initiate germination and emergence time is delayed. There is an exception to this if the top inch of soil is dry but moisture is available at 1.5-2.0 inches.

Project Methodology

This project helped to demonstrate the effects of seeding date and seeding depth on the establishment and success of winter wheat in the Prince Albert Region. There was

four seeding dates evaluated: August 26st, September 2, September 9th and September 15st. On each of the seeding dates, four seeding depths were examined: 0.5, 1.0, 1.5 and 2.5 inches. Buteo winter wheat at 146/lbs/ac was drilled into canola stubble which is considered one of the best stubble types, as it traps snow effectively and provides a good broadleaf-grass crop rotation. 80 lbs of N along with 27 lbs ofphosphourous was applied.The winter wheat was seeded with a plot seeder with plots approximately 40 feet in length and 7 feet wide (one pass with the plot seeder). There was a total of 16 plots for this demonstration project.

Project Results

Seeding Date	0.5"	1.0"	1.5"	2.0"
Aug 26	50,8 bu/ac	37 bu/ac	45,4 bu/ac	65.34 bu/ac
Sept 2	75.2 bu/ac	72.6 bu/ac	75.4 bu/ac	75.8 bu/ac
Sept 9	68.3 bu/ac	59.11 bu/ac	64 bu/ac	57.7 bu/ac
Sept 15	N/A	N/A	N/A	N/A

The Effect of Fungicide Choice and Varietal Selection on the Development of Scerotinia in Canola

Conservation Learning Centre

Project Summary

Local producers are interested in this project as canola is a crop of economic importance in the Prince Albert region and sclerontinia is a disease of concern in the area, especially in wet years. Producers are interested in gaining more information regarding sclerotinia control and in particular they are interested in seeing if varietal choice and fungicide application can contribute to healthier canola crops with decreased disease and increased yields.. The demonstration project at the CLC used 4 varieties of canola (Invigor L130 and Pioneer Hybrid 45S54, both with resistance. 45H31, along with Invigor L120, both being more susceptible. Varieties will differ in their levels of resistance (to the pathogen responsible for sclerotinia). Two different foliar fungicides were applied at the following recommended rates = Lance at 142grams/acre and Proline at 135 grams/acre to these varieties at the appropriate growth stage (between the 20 to 50 per cent flower stages).

Project Methodology

All plots were seeded in summerfallow May 25th. Soil Conditions were excellent with the crop of to a very vogourous start. The plots canopied within days of emergence resulting in no herbacides applied. Aster yellows and the heavy winds we experience in 2012 effected our yields along with didease.

Project Results

We feel the largest effect causing reduced yields was the severe winds we experienced. These winds caused excessive shelling in all varieties, with the "stand up" varieties being affected the most. Disaease was an issue but we are pleased with

the results of the fungicidesw applied. Yields ranged from over 57 bu/ac in the treated plots to as low as 18 bu/ac in the check.

Maximizing Benefits from Foliar Fungicides on Wheat and Barley
Conservation Learning Centre

Project Desciption
This project compared 2 varieties of spring wheat (Lillian & Harvest) and 2 varieties of barley (Copeland & Legacy). Four foliar fungicides were applied to these varieties using the recommended rates and water volumes at the appropriate growth stage (flag leaf).

1. untreated
2. Tilt (Demethylation inibitor type fungicide - propiconazole from Syngenta)
3. Headline (strobilurin fungicide - pyraclostrobin from BASF)
4. Proline (Demethylation inibitor type fungicide - prothioconazole from Bayer)
5. Stratego (Demethylation inibitor type & strobilurin fungicide - propiconazole & trifloxystrobin from Bayer)

The second part of the project will investigate fungicide applications at 2 timings with one product on wheat (CDEC Utmost). Treatments:

1. no fungicide
2. fungicide at herbicide time
3. fungicide at flag leaf
4. fungicide at herbicide and flag leaf

Project Results
As the reults have not yet been fullied analized, early indication show all fungicides provided a 2-3% increase in plumpness. Most plots had an increase in yield with the fungicide applied but saturated soils delayed the crop and gave weeds the opportunity to reduce yields.

Proper Preharvest Timing in Wheat
Conservation Learning Centre

Project Description
The project was done at the CLC Research Farm using small plots arranged in a randomized complete block design. Four replications were used. The wheat was grown using recommended agronomic practices until the preharvest application timing (hard dough stage). Several different treatments were used. They all had 1 L/ac of glyphosate applied at different preharvest timings on the wheat. The different timings were:

1. early milk stage
2. early milk stage + 5 days
3. early milk stage + 10 days
4. early milk stage + 15 days
5. early milk stage + 20 days
6. early milk stage + 25 days
7. early milk stage + 30 days

Project Results
A complete interpretation of the results is uncomplete but the data does show significant yield losses with all plots sprayed on or before the early milk stage + 10 days.

Optimal Seeding Rate For Spring Wheat
Conservation Learning Centre
Project Description
Wheat was planted at eight different seeding rates. Seeding rates ranged from lower than the recommended rate to higher than the recommended rate in order to create a response curve. Treatments included wheat seeded at:

1) 60 seeds/m2
2) 120 seeds/m2
3) 180 seeds/m2
4) 240 seeds/m2
5) 300 seeds/m2
6) 360 seeds/m2
7) 420 seeds/m2
8) 480 seeds/m2

Project Results
All plots were severley affected from heavy rains early on. This allowed barnyard grass to compete and reduce yields with the plots seeded at 360 seeds/m2 giving the highest yields.

Annual Work Plan
To follow, due Feb.15, 2013
Contact Information
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AgriArm Financial Statement January 31,2013

Categories	$
Salaries and Benefits	20,000
Staff (other than summer students)	17,500
Students	2,000
Consultant Fees	
Rental Costs	1500
Materials/Supplies	4,000
Travel	3,000
Other	1,000

Audit Fees	1,000