CHINOOK APPLIED RESEARCH ASSOCIATION

FALL 2013

CARA is a proud member of ARECA

Alberta Research and Extension Council of Alberta

Grain, Grass & Growth

CROP TRIAL RESULTS

Harvest and data collection from the following trials is nearing completion. Data will be summarized and available this winter.

CROP TRIALS:

- Winter, Hard red spring and general purpose wheat
- Durum
- Barley
- Triticale
- Oats
- Field peas
- Fababeans
- Soybeans

ANNUAL FORAGES:

- Oats
- Barley
- Triticale
- Pea/Cereal Mixes

YAMILY ZAVALA

Crop Agronomist

CARA is pleased to welcome Yamily Zavala, a Soil Nutrient Management and Plant Nutrition specialist, to our staff. Yamily (Ja mE le) brings us extensive international experience in restoring soil fertility and improving cropping systems.

Yamily introduces herself: There will be many questions about who am I, such as: Where do I come from, my education, family and so on:

I am a Venezuelan Citizen (I might be the first Vzlan to live in Oyen!) with a permanent residence status in Canada. I did my Agricultural Engineering education at a University located in the Venezuelan Andes Mountains. I went to the US to obtain both my MSc in Agronomy with minor in Soil Science (Missouri University) and my Ph.D in Soil and Plant Nutrition (Cornell University). While in Vzla, I was a Soil Scientist for the National Agricultural Research Foundation – Tachira State Research Center.

In the last 3 years, I was based on Ottawa doing international consultancies in Central and South America as well as Africa (West and South) to improve crop production for several cropping systems.

I have two beautiful daughters who have supported me in all my working experiences away from them.

I am very pleased to join CARA's Team. CARA is giving me the opportunity of continuing doing research and extension programs for different cropping systems that I have not been exposed to before. Even though these systems will be new to me their constraints will be similar to those that I have already been working on. There is always something new to learn everyday regardless of the locations and/or the crops. There will be new learning experiences for all of us.

Looking forward to meeting you all as the time passes on.

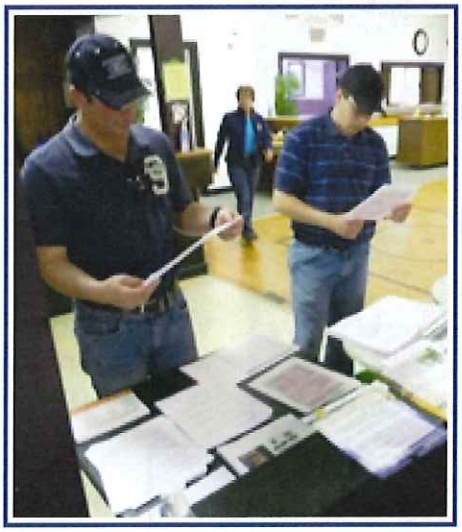
ALL CROPS TOUR

Producers and crop specialists visited a number of CARA's crop trials via chartered bus on the 16th of July. The Tour was supported by a number of commodity groups, including the Alberta Canola Producers Commission, Alberta Barley Commission, Alberta Wheat Commission and the Alberta Pulse Growers as well as Ducks Unlimited Canada.

The group visited CARA's Crop Trial Sites hosted by Dwayne Smigelski (northeast of Oyen) and Vince Grudecki (south of Acadia Valley). Specialists led discussion at the following trials:

- Canola Agronomic Demonstration (Keith Gabert, Canola Council of Canada)
- Soybean and Fababean Trials (Dr. Manjula Bandara, ARD)
- Barley Variety Trials (Sahwn Gorr, Alberta Barley Commission)
- Hard Red Spring Wheat and Durum Trials (Dr. Brian Beres, AAFC)
- Winter Wheat Variety and Fertility Trials (Roger Andreiuk, Ducks Unlimited)

More information was shared during a lunch break the Acadia Valley Community Hall



SEED AND FEED ANALYSIS

It is never too early to start planning next year's crop. Bring in your grain samples if you wish to have disease or quality testing done and we'll send them off to the lab for you.

CARA's bale probe is available for use by our members and we continue to facilitate sending the samples to the lab.

AGE VERIFICATION NOTICE

CARA staff can register your RFID tags as a third party service provider – $40 for members and $50 for non-members. If possible, please bring your numbers in to us a few weeks in advance of when you will be selling your calves to ensure we have time to get them registered before you sell.

WORK SAFE - STAY SAFE!

Fall on the farm is a very busy season: the crop HAS to come off before the weather changes, repairs were needed 3 hours ago, school activities have begun, cattle have to be moved yesterday, etc., etc. Time pressures bottle-neck, field activities continue after dark, tempers fray and everyone is tempted to take short cuts. All these points considered, it is so very important to BE CAREFUL so you and your family can enjoy Christmas together.

Some tips for working safely:

COMBINES, GRAIN AND GRAIN BINS

- Never enter a bin or truck of flowing grain (a grown man can become totally submerged within 20 seconds of stepping into the cone of flowing grain)
- Make sure everyone knows how to shut off the combine, auger or conveyors
- Remember your help may not be able to hear you above the noise of the machines
- When entering a questionable bin or storage, attach a safety rope to the man in the bin and have two men outside capable of lifting him out without entering the bin.
- Wear a respirator capable of filtering fine dust when working in dusty-moldy grain.
- Keep children away from bins and vehicles with flowing grain.
- Maintain proper and effective shields and guards on hazardous equipment

TRANSPORTATION

- Beware of other traffic – don't assume you are the only one on the road
- Make sure your lights work properly
- Move equipment in transport mode
- Be aware of the length of swing and height of the equipment being moved

EQUIPMENT AND SITE MAINTENANCE

- Shut off equipment before working on it
- Don't rely on hydraulic cylinders to hold equipment such as headers up. Use safety locks or solid blocks to stabilize the header while working beneath it.
- Keep the workspace free of tools, debris, etc.
- Make sure fire extinguishers are on all equipment and in the shop and that they are ready for use

HANDLING LIVESTOCK AND FEED

- Ensure fences, chutes and other equipment are in good condition
- Know the terrain if you have to run after a cow or calf
- Understand that her calf is the most important thing in the mind of your cow and that she may not readily buy into your plan to separate them
- Use appropriate sized loaders for moving large bales – remember they can roll back onto the tractor or roll off of the trailer

HUMAN FACTOR

- Be honest with yourself – if you are tired, turn the job over to someone else or shut down and get some rest!
- Don't rely on stimulants to keep going or depressants to calm nerves
- Allow yourself enough time to do a job properly
- Dress appropriately – wear safety gear if required and throw out that favorite shirt with torn, tattered sleeves
- Don't expect too much from young and/or experienced help – although enthusiastic, they may not understand the safety issues and may tire easily
- Be aware of what is going on around you – visitors, other equipment, etc.

SOURCES

warehouse.ca.uky.edu/agc/exclusives/2004/anr091004.doc • http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/aet14537
http://www.extension.purdue.edu/extmedia/AED/AED-20.html

SENSITIVY ANALYSIS AND COW PROFITABILITY

The fall calf run will soon be starting. During the course of the run many producers will be trying to decide whether their cow herd is profitable. Many factors come into play in calculating profitability including calf prices, feed costs and pasture rent. How these factors play out often means the difference between a profitable year and one that needs an infusion of outside cash. During those deficit years a producer may want to run some numbers to determine if the cows stay or go to town on the next liner.
In order to calculate future profitability a producer has to try to guess where prices are going, both on expense side and the revenue side. Sensitivity analysis can help. Sensitivity analysis involves some educated guess work. One takes the worst case price, best case price and the most likely price to arrive at profitability.

I recently used sensitivity analysis to run some scenarios using Rancher's Return. I used three factors; hay price, calf price and summer pasture rent. This arrangment can result in 27 different scenarios, however I'll choose to highlight just three; the most pessimistic view, the most optimistic and the one in the middle.

In my analysis I used a provincial average sized cow herd of 82 cows weaning 90 percent with an even split between heifers and steers. Steers averaged 600 lbs and heifers 575 lbs. Steer prices were set at $1.60/lb for a high, $1.40/lb for a low and $1.50 for most likely. Heifer prices were discounted 15 cents from those numbers. I used a low hay price of $60/ton, a high of $80/ton with a most likely of $70/ton. Summer pasture rent was set at 67 cents/day for a low, $1/day for a high and 83 cents/day for most likely. In the scenario I pulled the unpaid labour component. This resulted in the unpaid labour number being added to the return to equity and management column giving us a profitability picture.

The optimistic scenario using the lowest input prices coupled with the best calf price resulted in a return to equity and management value of $32,060 or $391/cow. The pessimistic view resulted in profitability being cut more than 50% coming in at $15,204 or $185/cow. The middle of the road comes in at $23,691 or $289/cow.

Keep in mind that these numbers are just examples; they are used for illustrative purposes. A producer should run their own numbers to come up with their own herd profitability figures.

Rancher's Return: **www.agric.gov.ab.ca/app21/ldcalc?calcId=109**

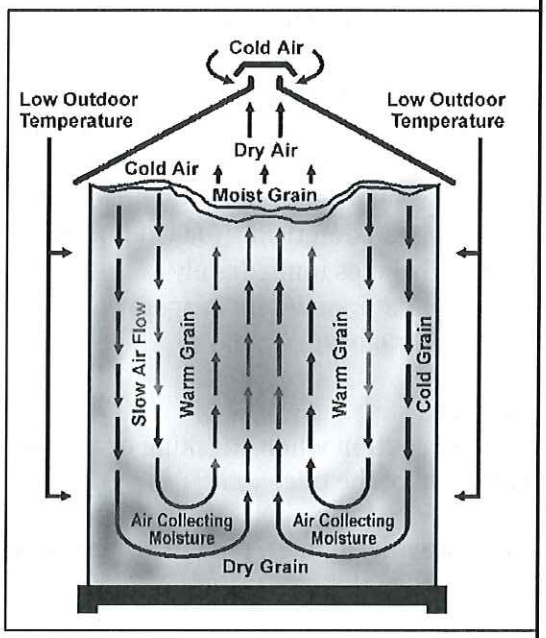
If you have any questions regarding farm management, give us a call at the Ag-Info Centre. Our phone number is **310-FARM (3276)**.

Ted Nibourg, B.Sc.Ag, M.Ed.
Farm Business Management Specialist
Ag-Info Centre

'Whew – It's all in the bin!'

It's great to harvest while the weather is warm and the grain is dry, but don't shut the bins up and forget about them until you decide to sell a few loads months from now. You may be surprised what you find.

Potential Problems Binning Warm Grain



Grain is a very good insulator so it holds temperature well. If warm grain is placed into storage and left undisturbed, convection currents may develop and cause hot spots and condensation. The greater the temperature differential (the difference between the temperature of the grain and the ambient temperature) the stronger the convection current. The stronger the convection, the greater the effect of heating and condensation on the grain. This is particularly evident when stored grain is not leveled and the pile forms a peak. If grain is not aerated, the center of the bin or pile tends to stay near harvest temperature, while grain near the outside cools slowly to outdoor temperatures. The warm center and cool perimeter lead to convection currents and moisture migration even in dry grain. This pocket of moisture can result in spoilage and possible fungal activity. Insects can be a problem in dry, warm grain.
Even minor moisture migration problems can result in severe spoilage. Check grain often for signs of moisture migration such as crusting. If crusting occurs, break up the surface. In extreme cases, remove the spoiled grain and begin aerating. If the top surface is allowed to seal over, severe spoilage is imminent. Also watch for condensation or frost accumulation on the underside of roof surfaces, hatches or vents on cold days before the sun warms the roof. This almost always indicates moisture migration and can be a flag for poor grain condition.

Preventative Measures

Temperature of the bin should be checked every two weeks by using permanently installed temperature sensing cables, by probing the grain with an electronic sensor device or by using a simple metal rod. Insert the metal rod into the grain at the top of the pile near the centre. The rod should reach a couple metres (5 or 6 feet) into the grain. Leave the rod for approximately 30 minutes. Remove it and with the palm of the hand, test it for warmth at various points from the tip. Any section of the rod that feels warm to the touch is an indication of heating and grain spoilage.

Stored grain should be cooled by aeration whenever the grain temperature exceeds the average outdoor temperature by 10 or more degrees. Safe storage time approximately doubles with each 10 degree reduction in temperature.

If your storage doesn't contain an aeration system, turning the grain outside the bin will also work when the ambient air temperature falls below +15°C. This procedure requires removing about one-third of the grain from the bin and then augering it back in. Turn the grain every two to four weeks until the grain temperature reaches +15ºC.

Storing warm grain can cause insect problems

25 – 32 ºC is a prime environment for insect multiplication. When the grain temperature is reduced to below +18°C, feeding and reproduction stops. A further temperature reduction can cause mortality. The odors produced from aeration when the ambient temperature is above +20°C and the temperature of the grain is above +30°C are attractive to insect pests. Ideally, sanitation with insecticide treatments should be made before the grain is binned. Diatomaceous earth is a non-chemical product that can also be effective. Once full, bins can be fumigated, although this can be a dangerous procedure as toxic chemicals are required. Some markets are sensitive about residual chemical so use with caution. Contact insecticides are also available. Once the grain is cold enough to kill the insects, the dead bodies can be blown (by augering).

Moisture Content is Very Important

Moisture further complicates storage concerns, so when checking temperature, check moisture as well. Even at levels low enough to prevent visible spoilage, moisture content impacts long term storage. 13% (wet basis) is the maximum recommended moisture content for wheat that will be stored more than 9 months. Wheat with 14% moisture content should be safe for 9 months. Barley should be 12.5% and 13.5%, respectively, for the same storage periods. Moisture measurement accuracy is dependent on the grain temperature, so it is best to collect a grain sample, let it warm to room temperature in a plastic bag or other sealed container, then check the moisture content. Also, be sure to cover fans and ducts after the grain has been cooled for winter storage to prevent snow from blowing into the bins.

What About Silo Bags?

Many fields are now home to rows of temporary, plastic storage bags. A few keys for safe storage using these bags:

- Place on well drained, level ground free of rocks or other debris
- Be sure ends are rolled or sealed to be airtight (check periodically)
- Install deterrents for wildlife damage (eg. fences and/or netting to keep deer away)
- Fix holes immediately
- Moisture content is again very important in maintaining grain quality (higher moisture content = shorter storage window)

Stay Safe

Exercise caution when checking or moving grain. Don't get pulled in or trapped by the flow or while breaking a crust on the top of the pile.

For more information, please contact CARA or one of Alberta Agriculture's Crop Specialists at 310-FARM.

Sources: http://www.grainscanada.gc.ca/storage-entrepose/ssg-de-eng.htm www.bbe.umn.edu/prod/groups/cfans/.../cfans_content_288487.ppt
http://www.extension.purdue.edu/extmedia/AED/AED-20.html http://www.grainscanada.gc.ca/storage-entrepose/mta-stv-eng.htm
www.ag.ndsu.nodak.edu/abeng/postharvest.htm

LOOKING FOR BLOAT-FREE GRAZING OPTIONS?

Dr. Surya Acharyas, Ag Canada Lethbridge, shared highlights of research he is conducting on sainfoin varieties and management during a visit to the research station by ARECA's Forage and Livestock Team in July. He has found that as little as 1/3 sainfoin in a mixed stand (including alfalfa) can make the incident of bloat nearly non-existent. His findings also indicate that sainfoin can be as productive and provide a similar gain per acre as alfalfa. In addition to seeing the on-site sainfoin variety development and grazing trials, the group also travelled west of Fort Macleod where sainfoin has been a mainstay in Dr. Bill Newton's grazing program. His system includes fields of sainfoin which had been seeded over 50 years ago.

CARA will participate in extending Dr. Acharya's work to the Special Areas, where the establishment of sainfoin into existing pasture stands will be evaluated during the next few years. The following article by ARD Forage Specialist Stephanie Kosinski provides more details on this non-bloat crop.

SAINFOIN – A GREAT PERENNIAL LEGUME

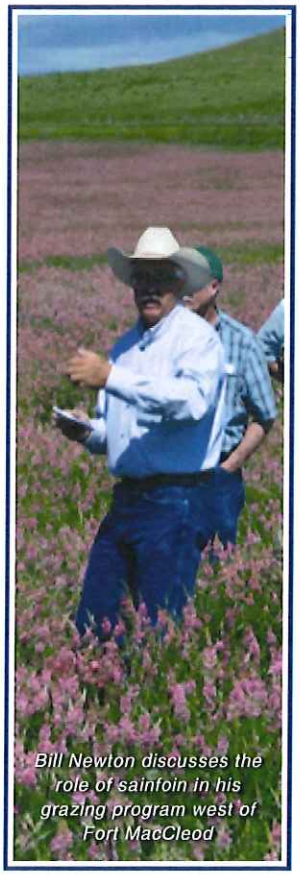
Are you thinking about seeding a new hay or pasture field in the next few years? If so, consider trying something new and adding sainfoin to the mix.

What is sainfoin?

Sainfoin is a cool-season, perennial forage legume. It was introduced to North America from Europe and parts of Russia and Asia. It develops a deep, branched tap-root and numerous fine lateral roots. It is a non-bloat legume that is suitable for mixtures with alfalfa or cool-season grasses, such as Crested Wheatgrass, Russian Wildrye and Western Wheatgrass. Sainfoin has good longevity under optimal growing and management conditions.

Where should it be seeded?

Sainfoin is best adapted to the Brown and Dark Brown soil zones, and the irrigated areas of southern Alberta. It favours well-drained, light and medium textured soils with good water-holding capacity. It has poor tolerance of acidity and salinity, but handles those soil conditions better than alfalfa. It has good tolerance of alkalinity and drought. Sainfoin grows well in areas that receive 300 mm or more of precipitation in a year. However, it is sensitive to flooding, wet soils and high water tables.



Bill Newton discusses the role of sainfoin in his grazing program west of Fort MacCleod

Are there any special seeding requirements for sainfoin?

Sainfoin is quite large-seeded compared to the other forage legumes. Even with its large seed size, it still needs to be seeded shallow, no more than ¾ inches (2 cm) deep. Be sure to inoculate sainfoin with the correct rhizobia species before seeding to facilitate nodulation. It germinates well, but can establish slowly. In general, spring-seeded sainfoin stands are well established by the fall. There may be some hard seed, but you generally don't need to scarify seed before seeding. It has been suggested that sainfoin is seeded separately and at a right angle to other forages if in a mixture. If seeding sainfoin alone, it is not recommended to use a companion or cover crop.

What seeding rate should I use?

The seeding rate of sainfoin should be based on the pure live seed (PLS). Suggested seeding

densities are 40-60 seeds/metre of row (12-18 seeds/foot of row) and 175-250 seeds/m2 (16-23 seeds/ft2). Your final bulk seeding rate will vary with row spacing, seed quality and seed amendments. You can calculate your seeding rate using the 'Forage Seed Mix Calculator" found on Alberta Agriculture and Rural Development's website (www.agriculture.alberta.ca).

Can sainfoin be used for hay?

Sainfoin grows upright, making it easy to harvest as hay. It also has excellent leaf retention. If cut at 50-100% flowering, you will maximize yields. It can work in either a two-cut system under irrigation or a one cut system in drier areas. Sainfoin has a higher moisture content than alfalfa, but still cures well for hay. It yields about 80-90% of alfalfa hay.

How about in a pasture system?

Sainfoin is best suited to a rotational grazing system. It can be grazed mid-summer or stockpiled and grazed in the fall. You will have maximum yield when sainfoin is grazed at 50-100% bloom, but you will get better regrowth when it is grazed in the vegetative stage. Sainfoin relies on its residual leaf material and stem buds to support new growth more than alfalfa does. This means it is important to leave residual sainfoin after each grazing period. Newer varieties, like Mountainview, have improved regrowth compared to older varieties.

Sainfoin has good leaf retention and frost tolerance, making it ideal for fall grazing. Be sure to rest it four to six weeks before a killing frost in order to allow the plants enough time to build up their carbohydrate reserves to survive the winter. It is a good management practice to allow sainfoin plants to reseed themselves every few years. This helps maintain its presence in the stand.

Recent studies conducted in Alberta and Saskatchewan have looked at the potential of including new sainfoin varieties in alfalfa pastures for grazing. They have found that these new varieties are more competitive and have improved regrowth rates compared to some older varieties. These studies have also shown that including 20-30% sainfoin in an alfalfa pasture significantly lowers, and in certain cases eliminates, the risk of bloat.

What is the forage quality of sainfoin?

Sainfoin is highly palatable, with cattle often selecting it over alfalfa when grazing. Research has shown it has lower acid detergent fibre and neutral detergent fibre levels than alfalfa, along with increased digestibility of its stems.

Sainfoin is a non-bloating legume due to the presence of condensed tannins. These tannins bind to protein in feed, allowing it to be digested as bypass protein. This avoids the problem of large amounts of protein being quickly digested in the rumen, which can lead to bloat.

For more information, contact the Ag-Info Centre at **310-FARM (3276).**

Check out CARA's Website:

www.chinookappliedresearch.ca

and on Facebook and Twitter

SHELTERBELT MULCH DEMONSTRATION UPDATE!

Mulch Score Board

1st place: Gravel with Landscape Fabric
2nd place: Large Rock with Landscape Fabric
3rd place: Grass Hay
4th place: Straw
5th place: Grass Clippings
6th place: Wood Chips
7th place: Rototilled

This scoreboard reflects the ranking of the mulches based on weed control. Monitored daily, we observe weed growth and document the average weed production.

Other interesting observations!

Wood Chip Mulch: Fungal growth was observed on some trees in which the wood chips had blown close to the tree trunk. We assume this moisture held by these chips caused large fungal growth. It was cleaned away from the tree and we are now monitoring it closely to prevent the wood chips from being closer than 4 inches from the tree trunks.

Moisture: The moisture under the wood chips is amazing – we have not had to water these trees for a while and they are growing very well. There is also lots of buckwheat growth, however, which appears to have originated with the chips so watch where you get your chips from!

Hay and Straw Mulch: The hay and straw have settled since they were first spread, requiring application of another layer to maintain a thickness of about 4 inches. This seems to be the minimum necessary to reduce weed production.

Large Rock and Landscape Fabric Mulch: Weeds began to appear through the gaps left between the large rocks. The area was split in half with the following modifications to reduce weed potential:

- Small gravel was added to cover gaps
- More large rock was added to cover all gaps

Gravel added to large rock

More large rock added to cover gaps

RIPARIAN PLANT OF THE MONTH

Yellow Willow

The Yellow willow is a tall shrub reaching up to 4m high. It has alternate leaves that have a green-yellow top and a paler bottom with a pointed tip at the end. Younger leaves show a more reddish colour and when fully grown reach to about 5-10 cm long. Flowers appear with the leave or just before the leaves appear. The bark of yellow willow will appear greyish yellow and shiny. The yellow willow is excellent wildlife habitat as it forms thickets along slough margins, riverbanks and sandbars. Their root system, like all willows play a key role in the uptake of nutrients which would otherwise degrade water quality. A good indicator of ecological stability of a riparian site is the presence of woody plants including willows. They will decrease in response to overgrazing and can be eliminated from the site if not managed properly.

THINGS TO WATCH FOR:

We are currently working on plans for the following events. Details will be our next newsletter and local papers. If you have other topic areas you would like CARA to facilitate sessions on, please call the office.

Producer Survey
- Information to determine what future programming for CARA will look like
- Input from all producers will be appreciated

Fall and Winter Grazing Options
- Discussion of fall & winter grazing strategies
- Energy efficient watering options

Shelterbelt Workshops
- Tips for looking after all the trees that were planted this year
- Selecting trees for future plantings

Cattlemen Clinic
- Wintering site considerations
- Supplements
- Herd health
- Buy or raise replacements?

Soil Analysis Interpretation Workshop
- Understanding what the analysis results mean

Grain Market Outlooks and Marketing Strategies
- Tips for getting the most return from selling your grain

Retirement/Succession Planning Seminars
- What happens next?

EFP and Growing Forward Workshops
- Completing an EFP
- Taking advantage of Growing Forward 2

GROWING FORWARD 2

Highlighted Program of the Month On-Farm Energy Management

This program shares the cost of investments that improve energy efficiency on Alberta farms. This enables producers to conserve energy and reduce carbon emissions, ultimately reducing the environmental footprint of Alberta's agriculture industry. The Growing Forward 2 On-Farm Energy Management Program addresses three important industry priorities: increase industry competitiveness, improve environmental stewardship and improve energy management.

Eligible projects include (but are not limited to):
- Construction projects that install high-efficiency equipment.
- Retrofit projects that improve the operation's energy usage per unit of production
- Installation of sub meters to monitor on-farm electricity and/or natural gas usage

Examples of projects completed by producers in the area include:
- Installation of Energy-free outdoor livestock watering fountains
- New shop overhead doors and windows
- Sub meter installation on shops and barns
- Variable Speed Drive for Irrigation Pivots
- Heating, lighting and ventilation in swine operations

More sector-specific examples can be found on the ARD website. For most items the program covers 50% of eligible costs, to a maximum of $50,000. Some items are funded on a square-footage or formula basis. The program also covers 100% of the cost for each applicant's first three submeters.

For more information, visit **www.growingforward.alberta.ca** We would also love to help you with the application process here at CARA!

Re-Produced from Growing Forward 2 – Alberta Website - **www.growingforward.alberta.ca/**

Thanks!

The end of the growing season is also the end of summer positions at CARA. Many thanks to Rochelle Abt for doing such a great job over the past four months!

Best of luck at your new position in Consort!

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