

LIVESTOCK & FORAGE GAZETTE



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2007 Saskatchewan TESA Award Winner:
M&D Cattle Enterprises

EDITOR'S NOTE

Things may be somewhat 'challenging' in the livestock sector right now, but still there is a palpable optimism and many forward-thinking attitudes very present in the industry. More than ever, we are experiencing innovation, industry leadership and 'out of the box' thinking. Partnerships and collaborative approaches are very evident. Forages and livestock truly go hand-in-hand and through this publication, we strive to continue to provide up to date and informative articles.

As always, comments are welcome and we encourage new readers to be added to our mailing list. Contact the Saskatchewan Forage Council at (306) 966-2148 or jbruynooche@saskforage.ca.

Photo credits for this issue go to Saskatchewan Ministry of Agriculture, Ducks Unlimited Canada, Western Beef Development Centre, Agriculture and Agri-Food Canada – PFRA, and Agriculture and Agri-Food Canada – SPARC.

Until next time,

Janice Bruynooche
Livestock & Forage Gazette Editor

IN THIS ISSUE...

Producer Perspective	2
2007 Saskatchewan TESA Winner	3
Winter Feeding Poker Rally	4
Custom Grazing Arrangements	5
To Sell or Not to Sell?	6
Electric Fencing - Problems or Success?....	8
Pipelines for Off-Site Watering	9
Research Roundup	11
Upcoming Events	12

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PRODUCER PERSPECTIVE: *Finding Opportunities in Grassing Calves*

Submitted by Adrienne Hanson, AAg, Saskatchewan Ministry of Agriculture

Dean Martens of Oxbow, Saskatchewan hopes he has a little extra insight into the calf market. Martens travels the southeast talking to producers about their cattle as a market representative for Weyburn Livestock Exchange. The sheer numbers of cattle he sees and the extensive number of producers he visits has led him to one conclusion. When asked what has encouraged him to retain his spring calf crop he said, "Well, they're worth more in August," adding, "as long as you keep your cost of gain down."

Last year Dean kept 70 calves back out of his 400 head and sold them in August, for a handy profit. Martens' cost of production is kept low by implementing a rotational grazing pattern on an older stand of brome/alfalfa. Dean hopes to see the alfalfa density improve and eventually, would like to increase the stocking density in the pasture used for the grassers. Another aspect of keeping his cost of production low is the use of horses to move wires and check the cattle. The horses he uses are typically his own and are in training. The added miles and work proves beneficial to the horses' training. Dean notes, "Having a job (for the horse) to do helps in training, since most horses seem to prefer having a job, compared to just riding around. Basically, I'm getting a couple jobs done at one time - putting miles on the horse and getting a new paddock opened up."

He implemented rotational grazing strategies after being approved under the Canada-Saskatchewan National Farm Stewardship program. Dean was an early adapter and had already installed several remote watering systems in other areas of his operation, prior

to the implementation of the Environmental Farm Plan (EFP). The development of this pasture, however, was partially funded under the South East Upper Souris Agri-Environmental Group Plan (AEGP). When asked why he chose the group plan over the EFP Dean said, "Less

paperwork and assistance from the advisor made the process more appealing and easier to get done."

He grasses the steers on a 320 acre pasture located 12 miles from home. Alfalfa was predominant in the stand until he began grazing it. The paddock was under-stocked and steers grazed the



alfalfa selectively, which reduced its presence in the stand. When the stand was primarily alfalfa, there were no issues with bloat and Martens observed excellent animal gains. The pasture is divided into eight, 40 acre paddocks. The steers are moved once a week which gives the paddocks nearly 60 days of rest and only half are grazed twice in 90 days. The steers are watered by a portable, solar powered trailer/trough from a dugout in the pasture; they are excluded from the dugout.

Dean hopes to see productivity improve on the pasture using rotational grazing and implementing rest periods for portions of the pasture. He feels that rotational grazing will improve the health of his pasture and in the future he hopes to increase the number of animals managed on this land base to 180 head. Dean figures that eventually he will keep all his calves; grass them in the summer and sell them in August. Also, he expects the remote watering system to protect the dugout, thereby improving water quality and dugout longevity.

M&D Cattle Enterprises **2007 Saskatchewan TESA Winner**

*Submitted by Stu Cairns, PAg, Ducks Unlimited Canada – Yorkton
Jason Puckett, Saskatchewan Watershed Authority- Yorkton
and Richard McBride, PAg, Ducks Unlimited Canada - Saskatoon*

M&D Cattle Enterprises Ltd. is owned and operated by Mark Johanson and Deb Haupstein, winners of the 2007 Saskatchewan TESA. TESA stands for The Environmental Stewardship Award and is presented by the Saskatchewan Stock Growers Association, in conjunction with Ducks Unlimited Canada and RBC Royal Bank. TESA winners showcase the cattle industry's commitment to conservation through innovative and successful approaches to environmentally and economically sustainable cattle production.

M&D Cattle Enterprises Ltd. is located in the Pheasant Hills near Stockholm, Saskatchewan. Mark and Deb began to assemble their ranch in 1996 with the initial purchase of three quarters. The ranch has now grown to thirteen deeded quarters with eleven rented quarters for a total of twenty four quarters.

Soils are predominately black oxbow loam which is medium textured. Precipitation is typically 31.8 cm with 128 cm of snow in the winter months for a yearly precipitation equivalent of 43.5 cm. The land was predominately grain land and most of it was broke from native prairie in the early 1900's. It was common for grain land in the area to be in a 50% crop, 50% worked summerfallow. This has mined the soil of its nutrients and made it susceptible to erosion. By seeding the land back to perennial forage and using rotational grazing, Mark and Deb are rebuilding the soil's organic matter and nutrient levels.

The cattle are rotated through the pastures using a "Planned Rotational Grazing" format. Typically they can graze 47-50 cow-calf pairs per quarter section (160 acres) over a 120 day period. By planning their grazing in advance and using conservative stocking rates they can be flexible as needed due to drought, change in cattle numbers, and other variables which may arise. Planning the rotation beforehand ensures a balance between animal number and forage availability. Grass growth and carryover are monitored and used in key management decisions.

The land is rested for 60 to 90 growing season days or even longer following grazing. This gives ample time to fully recover its root reserves and reduces the ability of weeds and undesirable grass species to take over the pasture land. The goal is to have 30-40% legumes in their pastures so that they don't have to use commercial nitrogen which is expensive and unsustainable.

One of the main ways that they have found to improve the land is by feeding their winter feed supply on the fields as opposed to in a dry lot. This practice provides much needed organic matter and nutrients to the land which was mined out due to annual cropping. The areas affected by "bale grazing" respond vigorously



Mark standing in grass that has benefited by cows bale grazing on the pasture instead of being fed in a dry lot during the winter. This picture was taken in June 2007.

in the next successive growing seasons by producing an abundance of lush forage in vivid contrast to areas devoid of such inputs. By improving the land, Mark and Deb will be able to run more animal units on the same land base over time with no increase in costs.



Mark standing in grass adjacent to Photo 1 that is outside of the area that is affected by the winter feeding. This shows the dramatic difference that can be achieved by environmentally responsible practices.

Continued on next page

Many sources of water have been developed and solar pumping systems have been used to ensure quality water for livestock, reduce dugout and riparian habitat degradation and improve livestock distribution. The cattle are watered from shallow buried pipelines utilizing portable troughs.

Where possible, livestock are used to implement change on the land as opposed to using machinery or chemical inputs. Examples include hoof action to incorporate organic material, control of brush encroachment, weed control and re-seeding of grasses. Minimizing capital costs keeps the ranch economically sustainable.

The long-term goal of M&D Cattle Enterprises is defined by answering three questions:

1. Have we stopped taking today's profit at tomorrow's expense?
2. Are we still enjoying doing what we are doing?
3. Are we profitable at it?

In the long term M&D Cattle Enterprises wishes to continue to make a sustainable and enjoyable profit in the ranching industry.

Mark your calendars for the

Saskatchewan
Pasture School
2008

June 18 - 19, 2008
Saskatoon, SK

For more details contact:
Saskatchewan Forage Council
Phone /306/ 566-2148 or jbrayneogh@saskforage.ca

MARCH 2008

Trivia Questions

Thanks to Ducks Unlimited Canada for providing this edition's Trivia Questions and Answers.

What role do the furry fibres serve on the flower petals of the Prairie Crocus?

How many species of birds are known to breed regularly in Saskatchewan?

How many species of plants can be found on native pasture in excellent range condition in the Dark Brown soil zone of Saskatchewan?

See page 10 for Answers.

Winter Feeding Poker Rally A Success

*Submitted by Richard McBride, PAg
Ducks Unlimited Canada, Saskatoon*



Wayne Obrigewitsch explains his winter feeding system at one of the stops.

A unique field tour was held this past February in the Allan Hills area east of Kenaston. It was an 80 mile snowmobile poker rally with stops at four winter feeding sites. Each stop

showcased a different winter feeding technique funded in part by the Canada-Saskatchewan Farm Stewardship Program. The Rally was organized by Duane Hill of Ducks Unlimited Canada and Allen Seib, a landowner from the area east of Hanley. Funding and support for the rally came from several organizations including the Saskatchewan Ministry of Agriculture, Ducks Unlimited Canada, the Lanigan/Manitou Watershed Agri-Environmental Group Plan, the Saskatchewan Watershed Authority, Syngenta and Agriculture and Agri-Food Canada.

Stops included examples of bale feeding with feeding cages at a remote site, bale grazing with sheep, feeding out of corrals and grazing alfalfa hay in the swath.

A similar tour is being planned for the spring or early summer. That tour will be navigated using ATVs. The participants will be able to observe the positive effect of the bale grazing on pasture condition.

The top poker hand was held by Gary Goodsmen with two pair; aces and queens. He won a 24 foot portable windbreak. Prizes were also handed out for the second and third best poker hands.

Custom Grazing Arrangements

Submitted by Al Foster, PAg and Trevor Lennox, PAg, Saskatchewan Ministry of Agriculture

Custom grazing provides a method of making an income from pasture land without the need of owning cattle. Custom grazing is an arrangement in which one person provides the pasture, water and grazing management expertise for another person's livestock. The custom grazier will need to determine the type of cattle they want to manage, the stocking rate that the pasture can sustain, and a fee that is acceptable to the cattle owner while providing a fair return for the pasture and labour the custom grazier is providing.

Grazing grasser/stocker cattle can be a challenge due to the fact that this class of animal requires high quality forage in order to ensure high rates of gain. The custom grazier should work with the owner to ensure that the animals are vaccinated, healthy, and have not just been weaned. This will reduce stress on the animals and make the transition to their new environment much smoother. Condition, type and quality of animals will affect the average daily gain of stocker cattle. Generally steers will gain better than heifers. Younger cattle will gain faster than older cattle and cattle with less body condition will gain at a faster rate than fleshy cattle.

For inexperienced custom graziers of grasser/stocker cattle, it may be beneficial to charge on a daily rate until they gain experience. Charging a fixed per-day-per-animal rate is less risky for custom graziers, especially if they do not know the quality of cattle they are grazing. Once a grazier becomes familiar with grazing grasser/stocker cattle, they may decide to take on more risk and charge by the pound of weight gain.

Some custom graziers may choose to use a daily rate in combination with a payment based upon weight gain. For this system to work, the custom grazier may request a minimum daily charge per animal, plus an additional fee based upon weight gain over a predetermined threshold. Charging a minimal value per day guarantees the custom grazier a portion of his total return, while the per-pound payment provides an incentive to maximize weight gain on each animal grazed.

Grazing replacement heifers can present many of the same challenges as grazing grasser/stocker cattle; however, rapid weight gain isn't as critical for replacement heifers resulting in a daily rate (\$/day) being the preferred method of charging. If breeding is part of the arrangement, the owner will usually supply the bull.

With cow-calf pairs, forage quality is not as critical as with grasser/stocker cattle. A daily rate (\$/day) is the preferred method of charging for cow-calf pairs. When charging for cows, consider the weight of the cows and the size of their calves. The larger the animals, the more grass they will consume.

The long-term success of custom grazing depends on both the owner and the grazier making money. A written contract should clearly define the responsibilities of each party and how they will handle any problems that arise. Payment terms also need to be outlined in the contract. Legal advice should be sought in putting together a custom grazing contract.

For more information contact your nearest Saskatchewan Agriculture Regional Office or the Agriculture Knowledge Centre at 1-866-457 2377.

Revegetation of Saline Soils



Copies of the recently released factsheet are available by contacting the Saskatchewan Forage Council (306.966.2148 or jbrunooghe@saskforage.ca) or online at www.saskforage.ca

TO SELL OR NOT TO SELL? - THAT IS THE QUESTION

Submitted by Karen W. Taylor, PhD, Beef Economist, Western Beef Development Centre

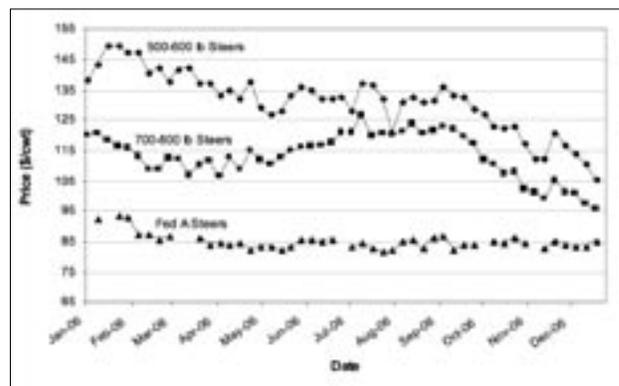
One of the biggest questions that cattle farmers and ranchers have is when to sell their cattle. Do I sell the calves once they're weaned or hold them and add weight so I can sell a heavier calf at a later date? In times of high feed prices and not so high cattle prices, being innovative and creative in cattle feeding and marketing is a must. One idea is to not only hold the calves, but maintain them through the winter, put them on grass in the spring, and sell them in the summer. The premise is to take advantage of inexpensive grass feeding when the calves are heavier.

The objective of this article is to analyze what could be gained, if anything, if cow-calf producers decided to keep their calves, maintain them through the winter, and then add weight on grass prior to marketing. To look at this issue, I've used information from the last cattle season to illustrate what would have occurred during the 2006-2007 cattle cycle as well as what may occur in the present 2007-2008 period using some "What if" marketing scenarios.

We assume that conventional calving is practiced resulting in a March 15 calving date. The calf is then weaned at 7 months of age and one of five things can be done: 1) sell; 2) feed for 60 days, then sell; 3) feed for 120 days, then sell; 4) feed for 210 days, then sell; or 5) feed for 210 days, graze for 60 days, then sell. These different marketing strategies have been shown in Tables 1 and 2. The important figures to note are the prices and the marginal value gained (or lost) between each marketing strategy. The price is of particular interest because it has undergone significant changes in the last year, with the high valued Canadian dollar (i.e., cattle prices have decreased). Cattle prices in 2007 were significantly lower than in 2006, which would result in retaining ownership of the calves being less desirable. Also, it is important to be aware of the price-weight relationship, as it is crucial when determining at what point to sell calves to maximize profits. The

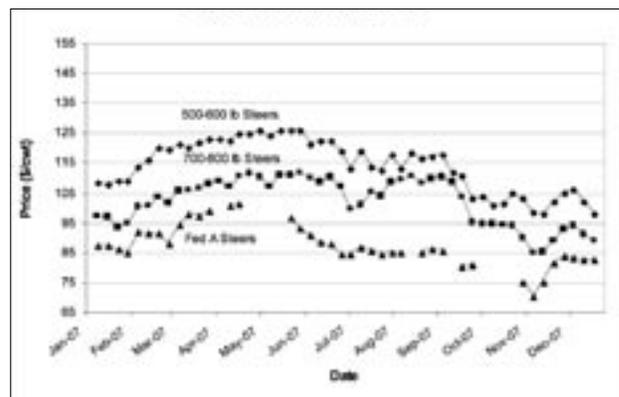
price charts for three weight ranges are provided for 2006 and 2007 (Figures 1 and 2)

Table 1 shows that in the 2006 – 2007 cattle season, if a rancher sold their calves right at weaning, they would have received \$675 per head. If they retained ownership and sold 60 days later, they would have received \$671 per head, a \$3 decrease from the previous two months. If they held the calves for 120 days and sold, they would have received \$705 per head, and if they held the calves for an additional 90 days



Source: Canfax

Figure 1. 2006 Saskatchewan Steer Prices



Source: Canfax

Figure 2. 2007 Saskatchewan Steer Prices

Table 1. 2006 – 2007 Cattle Period

Marketing Strategy	Start Weight (lb/head)	Days on Feeding Program	Gain (lb/head)	End Weight (lb/head)	Price (\$/cwt)	Value of Animal (\$/head)	Marginal Value (\$/head)	Daily Marginal Value (\$/head/day)
Sell Oct. 15'06	80	-	2.2	550	\$122.69	\$675	-	-
Sell Dec. 15'06	550	60	1.25	625	\$107.43	\$671	(\$3)	(\$0.06)
Sell Feb. 15'07	625	60	1.25	700	\$100.78	\$705	\$34	\$0.57
Sell May 15'07	700	90	1.25	812.5	\$110.95	\$901	\$196	\$2.18
Grass & Sell July 15'07	812.5	60	2	932.5	\$86.38	\$805	(\$96)	(\$1.60)

Source: Prices are the Saskatchewan prices as reported by Canfax.

Table 2. 2007 – 2008 Cattle Period

Marketing Strategy	Start Weight (lb/head)	Days on Feeding Program	Gain (lb/head)	End Weight (lb/head)	Price (\$/cwt)	Value of Animal (\$/head)	Marginal Value (\$/head)	Daily Marginal Value (\$/head/day)
Sell Oct. 15'07	80	-	2.2	550	\$101.45	\$558	-	-
Sell Dec. 15'07	550	60	1.25	625	\$95.15	\$595	\$37	\$0.61
Sell Feb. 15'08	625	60	1.25	700	\$93.16	\$652	\$57	\$0.96
Sell May 15'08	700	90	1.25	812.5	\$90.84	\$738	\$86	\$0.95
Grass & Sell July 15'08	812.5	60	2	932.5	\$86.37	\$805	\$67	\$1.12

Source: Historical prices are the Saskatchewan prices as reported by Canfax. Future prices are from the Feb. 8, 2008 CanFax report and adjusted for Saskatchewan basis.

they would have received \$901 per head, which is \$196 more per head than three months prior. This means that if a rancher held his calves for an additional 90 days from February to May, it would have provided an extra \$2.18 per head per day. However, if he grazed the cattle through the summer and sold in July, \$1.60 per head per day would have been lost versus selling earlier in May. This loss is mainly due to the price falling in 2007 as shown on the graph.

Using the same forecasting and budgeting model, the question of whether to sell calves or retain ownership can be analyzed for this current cattle period. We again assume that calving is on March 15. If the rancher decided to sell at weaning time, he would have received \$558 per head. By holding the calves 60 days and then selling, he would have gained \$37 per head. If the rancher decided to sell in February, he would have received \$652 per head and if he decides to hold the calves another 90 days until May, he may receive \$738 per head, which is \$86 per head more than three months ago. If he decides to keep the animal through spring and sell in the summer, another \$1.12 per head per day can be earned from May to July.

So, to answer the question, “Do I sell now or later?” the economic answer is, “It depends.” There are three main things to consider. Firstly, what is the future

price going to be? Secondly, am I willing to take the risk in an uncertain market? Thirdly, how much will it cost to hold the cattle? If the returns outweigh the costs and you’re willing to take on the risk, then hold the calves and sell them later. If costs are higher than the expected future returns, you’re better off to sell now before incurring further losses. Every operation is different and costs to retain ownership of cattle will vary from farm to farm.

What does all of this mean? Basically, it means that producers need to know their costs. How much does it cost you per pound of gain? Also, it is important to have a plan and this can be achieved through budgeting and forecasting. Watch the market, and be aware of the price-weight relationship. Then you can answer the question for yourself; to sell or not to sell. Remember, to survive in the beef industry, producers need to figure out the most economical way to manage their resource base and operate their cow herd. Grassing calves may be a way to minimize costs. However, as the saying goes, “Good management is not about doing any one thing 1000% better; it’s about doing 1000 little things 1% better” (*Canadian Farming*, Fall 2001).

For more information, contact Karen Taylor at (306) 682-3139 ext. 273 or ktaylor.wbdc@pami.ca.

Introducing.....



Dr. Karen Taylor has joined the staff at the Western Beef Development Centre as the new Beef Economist. Dr. Taylor comes to the WBDC from Langley, British Columbia, where she was employed as an agricultural policy analyst. Originally from Wetaskiwin AB, Karen has been extensively involved in the livestock industry which began on the family farm and expanded to her involvement with

local 4H Beef and Horse clubs. She has been involved in cattle research, completing papers in the areas of grazing, crop and livestock production, and economics. After completing her PhD at Oklahoma State University, Karen is looking forward to the change of scenery that Saskatchewan brings. Karen didn’t find the notion of moving to Saskatchewan to be daunting, but more of a return to her prairie roots. “I’m excited to be here in Saskatchewan and looking forward to being actively involved with farmers and ranchers.”

Electric Fencing – Problems or Success?

Submitted by Wil Rex, Gallagher Power Fencing, Holland, Manitoba

One bright sunny Monday morning I was having a cup of coffee in a small restaurant on the prairies. The only other person in the restaurant was the owner, waitress, and cook who called herself Pat. When I told her I worked for an electric fence company, Gallagher Power Fencing, she started scowling and told me her weekend electric fence story.

She and her husband were invited to a Saturday afternoon wedding, but before they could leave they got a call that their cows had gone through the fence again. The pasture was 20 miles from home and the cows were in their unhappy neighbour's wheat field. They took an extra battery and on the way to the wedding put the cows in, replaced the battery on the electric fencer and proceeded to the wedding. Right after the ceremony they checked their cell phone for messages and sure enough the cows were out again!

This is not an unfamiliar story to us.

Electric fences are less expensive than barbwire fences so some farmers build an inexpensive fence cheap and that is when the problems start. Poorly constructed electric fences only keep some of the cattle in some of the time. A properly constructed electric fence will control all of them all of the time.

We teach electric fencing to farmers and provincial Ag people and I know that an electric fence can work as well or better than the best four wire barb wire fence ever built, if it is built correctly.

I was there on Monday and they had been fighting with these cows all weekend. If cows had been worth much I'm sure they would have been hauled directly to the auction mart. They were frustrated.

I was sure that I could help. I needed to ask Pat about the fence.

- What kind of wire did they use to connect to the energizer? Barb or Hi tensile?
- The fence was a half-mile long and had two strands of 12.5 gauge high tensile wire. Was the energizer working?
- They had a tester with one light and when they used it next to the energizer the light came on so it should be working.
- Did they use insulators on all of the posts? No, of course not. The energizer said right on it 'No insulators required'.
- What did they have for a ground system? Her husband knew that grounding was

important so he took a three foot piece of angle iron, ground the rust off of it and pounded it into the ground, at least two feet, when they built the fence two years ago. To make sure the cows would get a good shock he connected one fence wire to the ground on the energizer and the other wire to the power side.

An energizer puts current on the fence wire from the terminal designated for the fence and wants to get back to the ground post the easiest, shortest way possible. By making one ground wire and one live wire, without insulators, the current would travel on the wood on every post from the live wire to the ground wire and there would be nothing left to go through the cow. Pat and her husband needed to put insulators on both wires at each post and make them both live by connecting them to the fence terminal on the energizer. They also needed to drive in a galvanized ground rod at the energizer and hook it to the ground post. Now the cows standing firmly on the ground would be always connected to the ground side of the energizer through the minerals in the soil. All of the current the energizer could put out would be on the wire waiting for the cows to complete the circuit between live and ground.



On every trip into this area of the Prairies I was told that it was dry and therefore farmers needed a ground wire on the fence. Consider this. When I stand in the pastures and look down at my feet I see green plants, I know that it is not too dry for a ground system to work. In order to be green the roots need to have moisture, and the cows were always standing on the green plants. This may not be so on gravel or sandy soil, but on clay and loam soils there are enough minerals to conduct the electric shock back to the energizer. Having ground wires on the fence that is used in the summer can create more problems than it solves.

The 'no insulators needed' is also a huge problem on electric fences on the Prairies. You always lose some current through the wood post into the ground so use insulators and keep all the energy the energizer has to put out on the wire and let

the cow feel the maximum shock available. When selecting an energizer for very short fences 100 yards or less, make sure you have sized it properly and don't forget that you will probably add more fence to it as time goes on and you may need something a little larger.

I was back into the same restaurant about the end of August for another cup of coffee. The proprietor was very happy to see me. Her husband grumbled when she told him how to fix the problem, but cows were worth too little on the market so he put insulators on one wire, disconnected the other from the ground and put in a proper ground rod. Electric fencing worked for this couple and can work for you too if you build the fence right.

The author can be contacted at 1-800-265-3150 (mailbox 44) or wilr@gallagher.ca.

Pipelines for Off-Site Watering

Submitted by Dustin Ostrander, Agriculture and Agri-Food Canada - PFRA

Water is a precious resource on the Prairies. The availability of good quality water, in sufficient amounts, can be limited by drought, increased demand, and access to main water sources. Main water sources for livestock, such as dams, lakes, streams, etc. are sometimes in locations that do not coincide with where the water is needed. Pipelines are a viable option to transport water, potentially over long distances, from the source to the point of consumption.

Pipelines provide flexibility for improved grazing management and preserve water quality and quantity by reducing livestock impacts at the water source. Pipelines also have the opportunity to improve livestock production and herd health. Cattle that linger in water can develop foot-rot; excrement in the water can expose animals to pathogens; toxic algae species can form in standing water, particularly along the edge, which can be fatal to livestock. Good quality water is a key factor in a healthy livestock production system.

How do you move water in the pipeline?

If the elevation of the source is higher than the point of consumption, it may be possible to adapt a gravitational flow system. Most pipeline systems

require a power source and a pump to move the water. The water source is usually remote and electricity is not available. An alternative power source is needed, for example: a fossil fuelled generator, solar power, wind power, or animal powered nose pumps. The selection of pump and power source will depend on flow requirements, distance and elevation change from source to trough.

What types of pipe are commonly used?

Pasture pipelines usually consist primarily of plastic piping material, with steel sometimes being used for fittings or in locations that are susceptible to damage. Plastic piping material can be either polyvinyl chloride (PVC) or polyethylene (PE).

PVC is a rigid plastic usually available in 20-foot (6.1 m) lengths. Lengths of pipe can be joined with a variety of joining methods, but solvent-welded joints are the most common for pasture pipeline applications. PVC pipe typically is more expensive than PE pipe and requires more labour for installation.

PE pipe is available as high, medium or low density. High-density PE (HDPE) has the strength necessary for burial and is less permeable to

Continued on next page

contaminants like hydrocarbons (oil and gas). PE pipe is available on long rolls and can be joined by thermal fusion method. Beneficial results are fewer mechanical fittings that can fail.

Water flowing through a pipeline loses energy due to frictional resistance. The amount of energy or pressure lost is dependent on the pipe diameter and length, and the rate of flow. These factors determine the specific pipe diameter and pressure rating that is required. Proper design pressures and flow requirements need to be calculated.

How should a pasture pipeline be installed?

Installation of pasture pipelines is governed by the intended use. If the system is intended



A shallow burial plow at work

to be temporary or portable, then pipe can be laid on the ground. Because PVC deteriorates in ultraviolet radiation, only PE pipe should be used for surface installation. One should also beware that water

inside the pipe could potentially get hot enough to discourage livestock from drinking.

If the installation is to be permanent or long-term, the pipe should be buried. Seasonal water systems can utilize shallow burial to depths of between 0.3 and 0.5 m (1 and 1.5 feet). Shallow burial of pipe can be accomplished through ripping or plowing which can reduce installation costs.

If the pipeline is intended for year-round use, it will have to be buried below frost penetration depths. It is possible to plow pipe to such depths, however it can be very expensive. Therefore, most deep installations are trenched and backfilled.

How to select water troughs?

Water troughs are the storage container of the watering system. When selecting a water trough the following should be considered: the size and capacity, the materials the trough is made from, can livestock access easily or escape if they fall in, and is the trough easy to clean and maintain.

Livestock tend to come to water in groups causing peak demands throughout the day. For this



Plastic trough with rails to protect the float

reason a water trough should have enough size and capacity for livestock to drink without crowding. In order to meet peak flow requirements, water must be

supplied at a sufficient rate. If the pipeline system can not supply water fast enough, additional storage will be needed.

Troughs come in many shapes and sizes and constructed from many different materials. Troughs can be made of any material that will hold water, as long as water quality is not affected. Galvanized metal, steel, concrete, wood, fibreglass, polyethylene, concrete, and used tractor or mining tires have been used. Careful consideration should be given to trough location. The area should have good footing for livestock and drainage away from the water source.

Pipelines are one option available to producers for improving land and water management within their operation. This article is intended to give prospective pipeline developers some general ideas about what is involved in designing a system. Producers intending to develop a pasture pipeline should seek technical advice for their specific project.

For additional information on pasture pipelines and livestock watering systems, contact your local PFRA office.

MARCH 2008

Trivia Question Answers

The furry fibres protect the Prairie Crocus flowers from early spring frost.

248 bird species are known to breed regularly in Saskatchewan.

More than 100 native plant species can be found on excellent condition range in the Dark Brown soil zone.

Research Roundup

Comparing forage and grazing performance and stand longevity of alfalfa+grass versus sainfoin pastures: What did we find?

Submitted by Researcher: Dr. Alan D. Iwaasa, Agriculture and Agri-Food Canada
Semiarid Prairie Agricultural Research Centre, Swift Current, SK

Editor's Note: This article provides research findings on a study which was first reported on in the November 2004 edition of the Gazette.

Alfalfa+grass (A+G) mixtures have been the most practical bloat prevention measure for beef cattle production in Western Canada but may not always be effective. Other bloat prevention strategies have been to graze a non-bloating legume, such as sainfoin (S) (*Onobrychis viciaefolia* Scop.). Sainfoin is highly palatable and preferred by cattle over alfalfa due to its high sugar and carbohydrates concentrations, thus, cattle gains on S can be similar to alfalfa but S carrying capacity is much lower and can be short lived. Maximum productivity and quality can be obtained from S grown as a monoculture and with proper grazing management, S stands may be maintained due to natural reseeding. A four year study was started at AAFC-SPARC with the objective to determine cattle and forage performances and persistence under grazing of A+G and S pastures grown in southern Saskatchewan. The A+G (*cv.* Spredor IV + AC-Knowles) and S (*cv.* Nova) pastures were seeded at the beginning of May in 2003 using a disc drill seeder. Seeding rate and row spacing for the A+G and S pastures were 2+8 and 35 kg ha⁻¹ and 30.5 cm, respectively. A total of twelve pastures, each 0.8 ha in size, were used and the treatments were two pasture types (A+G and S) and forage utilization levels (50 and 70%) replicated three times. Grazing and forage production data were collected each year from 2004 to 2006. Red Angus yearling steers were used to graze the pastures and the stocking rate for the first two years for A+G and S were 5.6 and 3.7 AU ha⁻¹, respectively. In 2006 the stocking rate was cut in half due to poor forage production. The grazing period lasted from the end of June to the end of July.

Results (Table 1) observed overall found higher available forage yields and total livestock productions associated with A+G versus S pastures. Average daily gains (ADGs) were similar between pasture types and ADGs ranged from 0.53 to 1.27 kg d⁻¹. Animal and forage performance were not affected by pasture utilization levels during the first three years of this study. Stand longevity for S and A+G pastures for the legume component declined by almost 50% in plant numbers per m² within four

years which is a concern. However, stand longevity conclusions based on only three production years may be too early and additional plant evaluations are needed in the future to determine if the different pasture stands have stabilized.

Take home message: Although great cattle gains can be achieved through grazing S, the higher forage and livestock production associated with an A+G pasture makes it hard to beat even with the potential bloat concern. However, the future development of better S varieties with forage and re-growth potential similar to some alfalfas will greatly improve S use under grazing. New research studies with AAFC-SPARC and Lethbridge are planning to start in 2008 to select the best S germplasm that have the best re-growth potential and grazing tolerance. Stand longevity for both the A and S pastures under different grazing intensities still needs to be further evaluated. More detail on this study can be obtained through a copy of the final report that will become available in April 2008; a copy of the final report can be requested from the researcher.

Table 1. Alfalfa+grass (A+G) and sainfoin (S) available pasture yield (kg of DM ha⁻¹) and total live production (kg ha⁻¹) over three production years (2004 to 2006) at Swift Current, Saskatchewan.

Item measured	Pasture type	Year			Average
		2004	2005	2006	
Pasture yield	A+G	4705	7100	2120	4642
	S	2680	6192	2119	3664
Total live production ¹	A+G	162	151	96	137
	S	55	102	60	72

¹ total live weight production = average daily gain x grazing days.

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Upcoming Events

Low Stress Handling Workshops

March 18, 2008 – North Battleford, SK
March 20, 2008 – Yorkton, SK
Farm Animal Council of Saskatchewan
306.249.3227 facs@sasktel.net

StockPerson's School

May 1, 2008
Saskatoon, SK – Western College
of Veterinary Medicine
Farm Animal Council of Saskatchewan
306.249.3227 facs@sasktel.net

Saskatchewan Stock Growers Association 2008 Annual General Meeting and Convention

June 15-17, 2008
Saskatoon, SK – Radisson Hotel
306.933.4404
www.skstockgrowers.com

2008 Saskatchewan Pasture School

June 18-19, 2008
Saskatoon, SK
Best Western Inn & Suites
Saskatchewan Forage Council
306.966.2148
jbruynooghe@saskforage.ca
www.saskforage.ca

Western Beef Development Centre Annual Field Day

June 24, 2008
Lanigan, SK
Termuende Research Ranch
306.682.2555 Ext. 246
bfreistadt@pami.ca
www.wbdc.sk.ca

Native Prairie Appreciation Week Discovering the Eastern Qu'appelle

June 25-26, 2008
Esterhazy, SK
Prairie Conservation Action Plan
306.352.0472
www.pcap-sk.org

Great Plains Riparian Forest Summit

September 9-11, 2008
Sioux Falls, South Dakota
www.unl.edu/nac/Riparian_Summit.htm
Bill Bristol - 306.780.8155
bristolb@agr.gc.ca

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