



# Prairie Update

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## The Process and Benefits of Agri-Environmental Group Planning

by Stacey Gulka – Agrologist (Articling), Saskatchewan Watershed Authority

As watershed awareness increases throughout the province, a component of the Canada-Saskatchewan Farm Stewardship Program (CSFSP) is helping to promote sustainable agriculture practices and environmental improvements within the province's watersheds.



Agri-Environmental Group Plans are a complement to the CSFSP that are headed by the Provincial Council of Agriculture Development and Diversification Boards (PCAB) through their Watershed Awareness Initiative. These groups are producer-driven committees that allow producers to access funds available through the CSFSP to address issues identified within their watershed. Watershed issues can vary as widely as the geographic differences between the watersheds themselves. The group is responsible for identifying the issues of concern within their watershed. Funding is then available for the new group to hire administration to assist in implementing Beneficial Management Practices (BMPs) to make improvements to, or eradicate, these chosen issues.

With 10 group plans currently operating in the province, new groups can look to existing groups as well as advisors for methods of implementing their plans. The benefit of implementing these plans can be seen at the ground level, with a direct effect on the protection of water and their riparian areas within the watershed.

The initiation of a group plan can involve help from several sources. Through the Watershed Awareness Initiative, PCAB works with several agencies and organizations such as the

Saskatchewan Watershed Authority and Ducks Unlimited Canada to approach producer groups such as grazing clubs and RM councils. If a producer group expresses an interest in making watershed improvements, a committee of producers is developed to head the group.

As issues within the watershed are determined, an action plan to address these issues can be devised with help from a group plan coordinator. There is financial assistance available for new groups to hire a coordinator to administer their group plan. A proposal outlining the issues identified by the group and the plans to address them is then submitted to the Ministry of Agriculture. Once approved by the Ministry of Agriculture, a detailed action plan is developed, including a target number of projects that will be completed within the watershed. Producers are then able to apply to the CSFSP and complete their approved projects.

The benefits of group planning can be witnessed throughout the watersheds, with environmental and agricultural benefits taking place as a result of the adoption of BMPs. The group plans increase watershed awareness and give producers the leverage of a group to achieve environmental goals within their watershed.

For more information on Agri-Environmental Group Planning or the Canada-Saskatchewan Farm Stewardship Program, please contact your local PCAB Watershed Awareness Initiative representative:

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# Livestock Impacts on Creek Health and Water Quality

by Krista Connick, PAg – Agrologist, Saskatchewan Watershed Authority

Ranching plays an important role in Saskatchewan's economy. With creeks and streams covering more than 80,000 kilometres in Saskatchewan, livestock and riparian areas (the lush vegetation along water ways) are destined to interact. The question becomes, is it necessary to completely exclude livestock grazing from these areas to prevent degradation? The simple answer is "no" – not in most cases.

In rare cases, fencing along the edge of the creek may be the best solution. These include cases where important fish habitat needs to be protected or if the riparian area is in very poor condition and will require a lengthy recovery time. That is because livestock and wildlife do pose potential threats to the health of riparian areas and water quality. The three major threats are:

1. Streambank Degradation – hoof action and grazing can damage riparian vegetation leading to erosion and sedimentation along stream banks, a decrease in filtration potential of existing vegetation, and an increase in water temperature due to reduced shading of the stream.
2. Nutrient Inputs – nitrogen and phosphorus may be added to the water through defecation, which can cause public health concerns, negative impacts to fish habitat, and increased algae growth.
3. Pathogen Inputs – Fecal coliforms, including *E. Coli*, may be added to the water from the digestive tract, causing serious public health concerns.



Livestock tend to congregate in riparian areas due to the available water, shade, and lush vegetation. Healthy riparian vegetation is able to buffer the effects of properly managed grazing. Deep-

rooted vegetation helps to hold soil in place, reducing erosion. Healthy riparian vegetation also provides a filtration system, filtering out sediment and contamination carried in runoff water. Overhanging vegetation helps to keep the water cool. When this important vegetation is removed or altered, problems may arise.

Nutrient inputs are another potential concern. Eighty percent of nitrogen in urine is lost directly to the atmosphere through volatilization. Nitrogen in manure is less volatile and more subject to being washed into creeks with runoff. Phosphorus



tends to be very resistant to leaching and poses less of a problem for contamination, unless it is deposited directly into the water.

The chance that grazing in a riparian area could lead to pathogens getting into the water source is another potential concern. Common pathogens include cryptosporidia, *E. coli*, and salmonella. However, even in pristine watersheds pathogen levels are not zero. Pathogens may enter surface water through the digestive tract of all warm-blooded animals, including deer and other ungulates and livestock. A study near Bozeman, Montana, compared a watershed with normal agricultural use to one that had been set aside solely for public recreation. Pathogen levels in both watersheds were similar. In fact, in some spots pathogen levels were higher in the area that cattle did NOT have access too. The protected watershed was acting as a refuge for wildlife, which were gathering in the area.

Cryptosporidium spores have a fairly short lifespan, and a study through the United States Department of Agriculture states that most cryptosporidium oocysts do not remain infective as they journey from calves to surface water to water treatment plants. Fecal coliforms are not very mobile. With rain runoff they can only travel as far as one meter away from the cow pie that they were originally deposited in. So the main concern is fecal material deposited directly into the water or within one meter of the bank.

There is a significant difference between cattle defecating directly into a creek, and those defecating close to a creek. Cattle tend to not pollute their own water source. Under normal conditions, studies show that less than 10% of defecations and less than 9% of urinations were deposited directly into stream waters. In B.C. a study looking at the water quality in a stream above, within, and below three large ranches showed no significant difference in water quality parameters at any of the sites.

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## Livestock Impacts on Creek Health and Water Quality (Continued from page 2)

Proper management of livestock in riparian areas is key to ensuring that damage does not occur. Several options are available to landowners to reduce livestock impact, including the amount of time that they spend in the sensitive areas.

Because it is cost and time prohibitive, fencing along the edge of creeks is generally not feasible. Creating a riparian paddock is a better solution. A riparian paddock, which is a pasture that includes the riparian vegetation, allows the area to be grazed in the least-sensitive season and restricts the amount of time livestock spend there.

Another option is creating an alternative water source at a remote site. Studies at the Kamloops Research Station show

that 80 percent of cattle prefer to drink at a trough rather than wade into a stream or dugout. When a stream is the only source of water, cattle spent approximately 65 percent of the day within 100 meters (330 feet) of the stream. When an alternate water site was provided, the cattle spent 50 to 90 percent less time around the stream and more time in the upland areas. Providing shade, shelter, and salt in remote areas of the pasture are other options for coaxing livestock away from the creek area.

Livestock grazing can be beneficial to riparian ecosystems by promoting vegetation growth and nutrient cycling. The key to protecting riparian habitat and water quality is to use beneficial management practices to ensure that the riparian area is able to maintain its important functions.

## Off-Site Watering – Make \$ense?

by Jeremy Brown, PAg – Range Agrologist, Saskatchewan Watershed Authority

If we assume that all producers are in agreement on the animal health and water quality benefits to providing water in a trough, what are some other considerations?

Keep in mind that it is not always necessary to fence the water source off completely. This means that livestock can still go to the source (creek, dugout, slough, lake, etc.) in the event that the trough goes dry. In most cases, they will choose clean water with solid footing (at the trough) over tromping in the mud (at the source).

So, what are the economics of pumping water? Can we recover the costs associated with this practice? How can available funding grants help?



Research has shown that cattle getting clean water in a trough can gain anywhere from three to 20 percent better than those drinking directly from the source. This seems to be due to the fact that the

clean water is more palatable, so the animals drink more (and interestingly, drink faster). The result of higher water intakes is more time spent grazing and higher weight gains.

Let's look at an example and consider the cash costs and benefits of providing water in a trough:

### Example Off-Site Watering Budget

<b>Extra Costs:</b>	
Solar Watering System (including trough)	\$2,000.00
<i>Less: Agri-Environmental Group Plan Funding (50%)</i>	<i>-\$1,000.00</i>
<i>Less: SaskPower Grant (50%)</i>	<i>-\$500.00</i>
<b>Producer Cost:</b>	<b>\$500.00</b>
<b>Extra Income:</b>	
100 head x 0.10 lbs/day x \$1/lb	<b>\$10.00/day</b>
<b>Days to Recover Costs:</b> ( <i>\$500/\$10 per day</i> )	<b>50 days</b>

#### Assumptions:

- A 100 head cow-calf operation, summer grazing five months (150 days) a year.
- When provided water in a trough, calves gain 5% (0.10 lb/day) extra.
- Remote solar watering system (including battery, trough) costing \$2,000.
- Weaned calves selling for \$1.00/lb.

In this example, it takes less than two months to pay for the capital cost of the system. After the first grazing season, the economic benefit from the extra calf gains alone equals \$1500 per year. Now add in the animal health and environmental benefits...does off-site watering make sense in your situation?

## Hello Voluntary Stewards!

Now that it's summer, our field staff are in high gear. Getting the job done requires long days and a lot of driving, but without their hard work, we wouldn't be able to bring you stories like the ones you'll read about in this newsletter. In addition to everything else our field staff are busy with, starting with this issue, they will also be developing the content of this newsletter.

We hope you enjoy this new perspective on stewardship activities in the province, and we look forward to hearing your questions, comments, or suggestions for articles you would like to see in future editions of this newsletter.

*Jennifer Lohmeyer*

## Share Your Ideas!

If you have comments or ideas about this newsletter, or for information about the Prairie Stewardship Program, please contact:

**Jennifer Lohmeyer** at (306) 787-8707 or  
e-mail [jennifer.lohmeyer@swa.ca](mailto:jennifer.lohmeyer@swa.ca)

### Coming Events

For more information on stewardship events near you, please contact the Saskatchewan Watershed Authority office nearest you:

<b>North Battleford</b>	Jeremy Brown	446-7460
<b>Regina</b>	Etienne Soulodre Carman Wilcox	787-0661 526-6433
<b>Swift Current</b>	Krista Connick Bob Springer	778-8280 778-8301
<b>Weyburn</b>	Stacey Gulka	848-2354
<b>Yorkton</b>	Jason Puckett	786-5845

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*Government of Canada Habitat Stewardship Program for Species at Risk*  
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*Native Plant Society of Saskatchewan*  
*Nature Conservancy of Canada*  
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