

# Agricultural Demonstration of Practices and Technologies (ADOPT)

## **FINAL REPORT**

**20170335**

### **DEMONSTRATION OF MONITORS FOR REMOTE WATERING SYSTEMS FOR LIVESTOCK**

**Funded by: The Saskatchewan Ministry of Agriculture under the  
Canada-Saskatchewan Growing Forward bi-lateral agreement**

**October 2018**

**Prepared by: Carrot River Valley Watershed Association**



## Carrot River Valley Watershed Association

202 Main Street or PO Box 40, Melfort SK, S0E 1A0  
306 752 1270 / [crwatershed@gmail.com](mailto:crwatershed@gmail.com)

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**Project Title:** Demonstration of Monitors for Remote Watering Systems for Livestock

**Project Number:** 20170335

**Abstract:**

The objectives of the project were to demonstrate two different types of monitors for remote livestock water systems - 1) 'low tech' beacon system and 2) 'high tech' camera system and test out the reliability and functionality of each system within the local Saskatchewan environment. Each system was tested out by a local cattle producer and their experience was recorded at the end of the term. Burntout Creek Ranch found the high tech camera system to be reliable and functional. Once the initial kinks were tweaked out of the system and the camera was properly synced to the producer's cell phone, the monitor worked consistently and reliably. Lynn Farms reported that although the system was good value for the price, it is not ideal for watering systems placed where the beacon can't be seen throughout the day. In a remote pasture, by the time they could see the beacon, they were already out at the pasture and might as well check the watering system anyway. A field day was held to demonstrate the systems, and several social media posts were made about the project. A video about the project was also posted on YouTube and Facebook.

**Producer Groups Sponsoring the Project:**

The Demonstration of Monitors for Remote Watering Systems for Livestock is a demonstration project sponsored by the Carrot River Valley Watershed Association. This project was also supported by Alicia Sopatyck, Regional Livestock Specialist with the Ministry of Agriculture and made possible by our producer partners - Lynn Farms and Burnt Out Creek Ranch.

**Project Locations:**

One system was a 'low tech' beacon system implemented between June 2018 - August 2018 at Lynn Farms in the RM of Pleasantdale #398. The second system was a 'high tech' camera system implemented between June 2018 - September 2018 at Burnt-out creek ranch in the RM of Bjorkdale no.426.

**Project Contact Person:**

Charlotte Asplind  
Watershed Manager  
Carrot River Valley Watershed Association  
Office: 306-752-1270  
Cell: 306-920-7228  
[crwatershed@gmail.com](mailto:crwatershed@gmail.com)

or

Hillary Luchinski  
Watershed Technician  
Carrot River Valley Watershed Association  
Office: 306-752-1270  
Cell: 306-920-8166  
[crwatershedaegp@gmail.com](mailto:crwatershedaegp@gmail.com)

**Project Objective:**

The objectives of the project were to demonstrate two different types of monitors for remote livestock water systems - 1) 'low tech' beacon system and 2) 'high tech' camera system and test out the reliability and functionality of each system within the local Saskatchewan environment.

**Project Rationale:**

This project allowed producers to learn about the benefits of using monitors for remote watering systems and illustrated two options available to them. Previous research conducted by the Western Beef Development Centre showed that calves with cows that drank from a trough gained an average of 0.09 pounds per day more than calves with cows that only had direct access to a dugout. In addition to this, remote water systems for livestock help to improve water quality, reduce soil erosion, protect shorelines and riparian areas, and increase the lifespan of the water source. Despite all the benefits that remote water systems could bring, we found that many producers were reluctant to use them. The two main reasons for not using remote livestock watering systems reported to us by local producers were: concerns regarding reliability of the system and the increased labour of regularly checking the system. This project sought to explore whether the use of monitors for remote livestock water systems would increase producer faith in the reliability of remote water systems and also reduce labour required to monitor the system.

**Methodology:**

The purpose of this project was to test out two different monitors for remote watering systems for livestock within the local Saskatchewan environment. One system as a 'low tech' beacon system used in conjunction with a homemade self-serve water tank truck remote watering system that waters the producer's herd of cow-calf pairs while out on pasture. The other system was a 'high tech' camera system implemented in conjunction with an all-in-one solar powered remote water system rented from Sundog Solar. The system was placed on a dugout out on pasture and the cattle were restricted from gaining direct access to the dugout.

The low-tech beacon system used a beacon to communicate to the producer whether the water system was functioning or not. The beacon was wired through the float switch so that the beacon would light up if the float switch was not functioning. The high-tech camera system took pictures of the water trough as a way to communicate to the producer whether the system was functioning or not. The pictures were taken on a set schedule (as set by the producer) and texted to the producer's phone through cell service. The pictures could be accessed by multiple users by an online account. The picture would contain a snap-shot of the watering systems showing whether there was water in the system or not.

To try out the systems we partnered with two local producers in the Carrot River Watershed and had each producer try out one of the systems on their farm. Lynn Farms had previously been using the remote water system on their farm out on pasture so simply adapted it to include the beacon monitor system. At Burntout Creek Ranch, the producers were previously allowing their feeder cattle to directly access water from the dugout located out in the pasture. The producers restricted livestock access to the dugout and used an all-in-one solar remote water system from sundog solar fitted with the high-tech camera monitor.

Each producer tried out their system on pasture during the summer and reported on the functionality of the system. At the end of the trial a series of questions were asked to each producer: 1) Did you find the system to be reliable? Did it improve your faith in the remote watering system? 2) Did the monitor save on labour? 3) Do you consider the monitor to be good value for money? 4) Would access to a monitor system like this alter your decision to use a remote water system? 5) Did this system function well in a Saskatchewan summer environment/climate?

To demonstrate the two systems, a field day was held at Burntout Creek Ranch including a tour out to the pasture where the camera system was located. Lynn Farms attended the field day, delivering a presentation on

the beacon system and bringing the beacon to demonstrate how it worked. In addition to this, a newsletter article was sent out along with a press release delivered to local media, a presentation at Ag in Motion, and several social media posts. A video was created illustrating the two systems and was posted to YouTube and Facebook.

## **Results:**

### **Results**

#### *The 'Low Tech' Beacon System*

Lynn Farms reported that the beacon system was reliable provided the wiring and parts were protected from the cattle, however, the beacon monitor didn't improve his faith in the remote livestock water system because he had to travel out to the site anyway to be able to get a good view of the beacon. The system could be improved by including two lights. One for when the trough is empty and one for when the trough is overflowing. This would provide more detail to the producer should a problem arise with the system. One positive feature of the system is that there is a function where if the battery is low, the light won't drain it.

Lynn Farms reported that the beacon system didn't provide any savings on labour time as they had to make the trip out to the pasture to be able to see the beacon. By that time they might as well just look at the system. The camera system was much better for saving labour time.

The beacon monitor provided great value for money, however, Lynn Farms wanted to emphasize that any producer wishing to utilize the beacon shouldn't skimp out on purchasing a really good beacon as the producer will need to see the beacon during daylight hours.

Lynn Farms stated that they had already purchased and set up their remote watering system, the monitor didn't drive their decision to utilize the remote watering system. For them, it was simply a matter of finding the best monitor for the watering system already set up. The beacon system worked perfectly on pasture during the summer with no issues.

#### *The 'High Tech' Beacon System*

Burntout Creek Ranch found the camera system to be reliable and functional. Once the initial kinks were tweaked out of the system and the camera was properly synced to the producer's cell phone, the monitor worked consistently and reliably. The use of the camera monitor improved the producers' faith in the remote watering system especially during the hot days when water consumption is high. Being able to visually see that there is water in the trough helps to keep piece of mind.

Using the camera monitor system with the remote water system enabled Burnt Out Creek Ranch to make fewer trips out to the pasture to check the cattle's water, saving on labour time. Using the camera system gave increased peace of mind especially during periods of hot weather when water consumption was high.

The system is good value for money and there are a few different options available on the market right now with varying price tags. With the increased labour savings it provides and the added security for the livestock, the cost is made back in no time. I would be more inclined to use a remote watering system instead of direct

access, especially when being away from the farm for the day or weekend when using a camera monitor. I can check in from just about anywhere and make sure the cattle have access to water. When using a remote watering system when away for the day it is always in the back of my mind that the system may have malfunctioned and left my cattle without water to drink.

The camera monitor system worked great for Saskatchewan summer conditions. There were no issues with its functionality.

The field day was held at Burnt Out Creek Ranch near Mistatim, SK on July 4th 2018. Despite a very rainy day we had a great turn out. Approximately 27 producers were in attendance and we received excellent feedback through attendant surveys at the end of the event. There was also local media coverage of the event and we completed a radio interview with Alice McFarlane. In addition, a presentation was delivered on the project at Ministry of Agriculture's speaker series on July 18 at Ag in Motion. Several Facebook posts were made about the project and a news article was posted on our website. We created a short video highlighting the demonstration and the monitors and posted it to YouTube and Facebook. The video can be watched at the following link:

[https://www.youtube.com/watch?v=E1G\\_NhkD9m4](https://www.youtube.com/watch?v=E1G_NhkD9m4)

#### **Conclusions and Recommendations:**

Over-all the use of monitors for remote water systems improved producer faith in the remote water system. However, the high-tech camera system appeared to be the most effective at improving faith in the remote watering system. While the high-tech camera monitor proved to be a labour saver for the producers, the low tech beacon system was not. The low-tech system meant that the producer had to make the trip out to the pasture to see the beacon thus not saving on labour time. Given the right pasture location and topography it could be possible to locate a strong beacon so that it could be seen from the yard or even house. Both systems were considered by the producer's to be great value for money and to function reliably in the Saskatchewan summer environment.

#### **Acknowledgements:**

In addition to funding from the Agricultural Demonstration of Practices and Technologies (ADOPT) under the Canadian Agricultural Partnership, we'd like to thank the Ministry of Agriculture, Tisdale Regional Office for their support on this project. A big thank-you also goes to our producer partners, Lynn Farms of Pleasantdale, SK and Burntout Creek Ranch from Mistatim, SK. We'd also like to thank Sundog Solar for providing the all-in-one solar system for this project.

**Budget Report:** (attached)

Appendix:



Figure 1: Low-Tech Beacon System mounted on self-serve water tanker remote water system. Lynn Farms, RM of Pleasantdale no. 398.

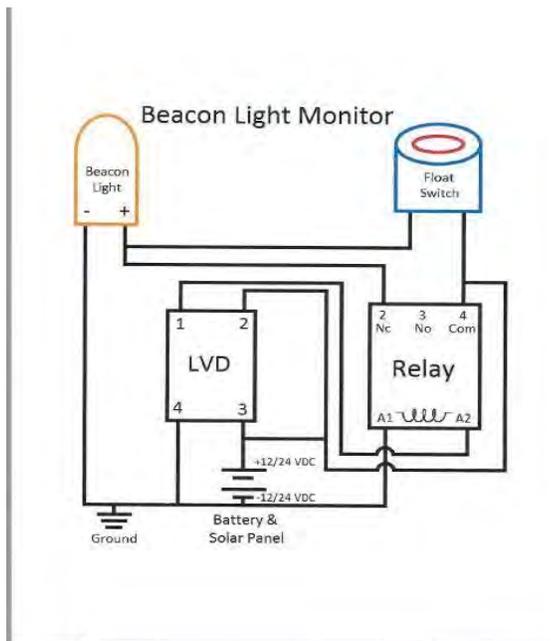


Figure 2: Diagram of the Low-Tech Beacon System



Figure 3: High-Tech Camera System mounted to all-in-one solar powered remote water system from Sundog Solar. Burntout Creek Ranch, RM of Bjorkdale No. 426



Figure 4: Audience listens to Alicia Sopatyk, Regional Livestock Specialist from the Ministry of Agriculture, Tisdale Regional Office at the field day held on July 4<sup>th</sup>, 2018. Burntout Creek Ranch, RM of Bjorkdale 426



Figure 5: Field day attendees listen to Janelle Kowal from Burntout Creek Ranch discuss the high-tech camera system out in the field and see the system firsthand. July 4<sup>th</sup>, 2018 Burntout Creek Ranch, RM of Bjorkdale 426.