



Innovation, education and regenerative agriculture

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Director's Note - Rod Vergouwen

Greetings Foothills Members!



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Happy Canada Day to all. We were able to spend the weekend with friends and family boating, fishing and enjoying time away from the ranch. Calving has just wrapped up here and we are going to put up some hay in the coming weeks to rebuild our slush fund of winter feed and make plans for the coming winter. Last winter proved that we need to have plan A,B and C in your management structure. Our cows swath grazed until the middle of March and then we bought silage to get through till the snow left before we could get to stockpiled grass. This changed our management from 45 minutes every 3 days to 2.5 hours per day which increased feeding cost dramatically. The cows were able to dig through 2.5 feet of snow with no trouble and snowshoes made it easier to move fences. Winter feed costs can be one of the highest expenses of cow herd management so don't abandon low cost strategies because of one bad winter. We try to make winter feeding plans in summer (at the lake) and

summer grazing plans in winter (by the fire).

Keep calm and fish on

Rod Vergouwen



JIM GERRISH GRAZING SCHOOL



Register online before August 8th at: https://www.eventbrite.ca/e/jim-gerrishgrazing-school-tickets-46863026574

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IF YOU ARE LOOKING TO BOOST YOUR SKILLS AND ARE READY FOR THE NEXT LEVEL, SIGN UP FOR THE FULL 3 DAY ADVANCED GRAZING MANAGEMENT SCHOOL (SPACE IS LIMITED).

KEY CONCEPTS INCLUDE:

- STOCKING RATE & STOCK DENSITY
 - ENERGY & NUTRIENT CYCLES
 - RESIDUAL GRASS
 - REST AND RECOVERY
 - RANCHING PROFITABILITY
- FENCING AND WATER DEVELOPMENT
 - HIGH ANIMAL PERFORMANCE
- . CREATING PASTURE FROM THE SOIL UP
- UNDERSTANDING PASTURE INVENTORY

RENOWED GRAZIER JIM GERRISH IS RETURNING TO ALBERTA BRINGING 20+ YEARS
OF BEEF-FORAGE SYSTEMS EXPERTISE; BOTH IN RESEARCH AND COMMERICAL
CATTLE PRODUCTION, TO GRAZIERS ACROSS THE PROVINCE.











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Fencing; Back to Basics



The growth of electric fencing, both as a necessary tool on farm and a way to maximize ROI from newer crop/ forage varieties, has been steep to say the least. Unfortunately, with that increased usage, we see a lot of the basic steps overlooked and these are crucial for a successful experience. I find myself responding to the same scenarios over and over, so I thought an educational article might be helpful!

The conversation often starts with a concern over lower than desired voltage on the fence and can usually be solved by a few simple steps.

We need to start by understanding the need for galvanized ground rods (1 ground rod per 2 output joules is a starting point). A good grounding system is needed to keep the most voltage available for the fence, and to encourage the pulse to travel through

the soil back to the ground rods after animal contact. These must be galvanized—rebar or anything made of mixed metals can rust, which creates an insulated covering on the steel.

Therefore, the pulse cannot be drawn back through the soil to the ground rods. We see only limited or no shock on fence when using rebar. So basically, no ground = no shock. Because the galvanized rods are connected to the negative terminal, the pulse runs back to the fencer where it "completes the cycle." It is at this point that the animal feels the shock. FYI-I'm not talking about a live ground/return system (that's flow when hooking a lead-out cable up for another article!)—I'm assuming all wires on the fence are live to keep it simple.

Next, we have to get our minds around how easy (or hard) it is to move power around your fence structure. Just buying a fencer that has a lot of joule power available doesn't mean you have built a structure to utilize or encourage that power to move around the fence. I hear a lot of ranchers say they have just bought a fencer 2x or 3x more powerful than their old one but don't see any more voltage on the fence. This all comes down to flow and resistance. One single strand of 12.5-gauge high tensile fence carries 56 OHMs/mile of

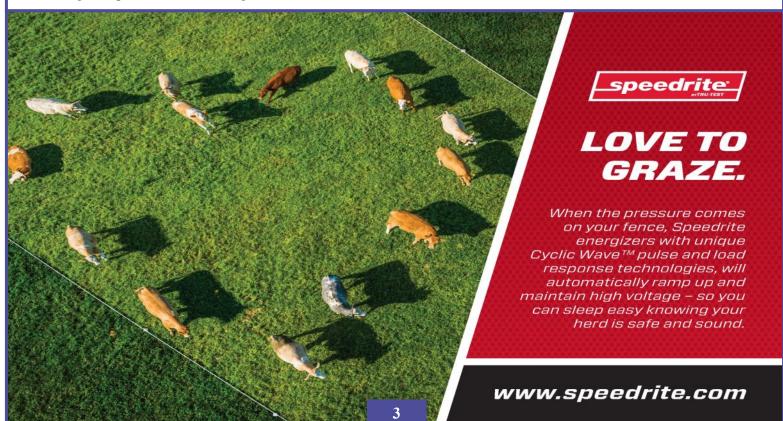
resistance. Two strands of 12.5-gauge wire on the fence structure lowers the resistance by half-28 OHMs/mile and so on. Thus, the more strands on the fence, the easier it is to move power.

You can think of this like water flowing through a pipe. Water will flow much easier through a 2-inch pipe than a ³/₄-inch pipe. Power works the same way—more strands on the fence creates an easier flow for the electricity. Without enough flow even the largest energizer simply cannot release its potential power.

You also need to think about to the red or hot terminal. If you lead out with a single 12.5-gauge wire, you are instantly choking off the flow directly at the fencer, because again, it's restricted to 56 OHMS. I recommend using 10-gauge aluminum undergate cable to go from the fencer to the structure. This is 8x more efficient (think of it like 8 strands of 12.5-gauge wire), so you can utilize all available power. You should also use this aluminum cable to go under gateways etc., to prevent other power choking points.

The majority of the time, addressing these two issues will greatly

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Fencing; Back to Basics

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increase the voltage found on the fence ° itself, and you will sleep a lot sounder this summer!

In closing, as a reminder, if you have seeded crops to be grazed this winter, get those animals trained EARLY—don't try to accomplish this at turnout...in a blizzard...on icy ground!

Electric Fence Vocabulary-

- High-tensile: very strong under tension
- Fencer: Machine that transfer power from source to fence (charger, energizer)
- Joule: Unit of power
- Output Joule: Actual power put on
- Stored Joule: Power capacity (not

actual power)

By Jason Williams, Electric Fence Specialist at Tru-Test Group

Are You Ready for a Drone?

Drones are a relatively inexpensive way to locate cattle in big pastures so you know where to ride and start gathering.



John Church, an associate professor in the natural resource sciences department of Thompson Rivers University at Kamloops, B.C., an area with semiarid grassland, forested range and many large ranches, says some ranchers in this vast range country hire helicopters to find lost cattle. "It's expensive, at \$1,000 to \$1,500 an hour. You could buy a drone for that, and fly the area many times," says Church.

Church is also the B.C. regional innovation chair in cattle industry sustainability. His job is to bring new technology to the table, to try and make ranching more sustainable. He first started working on drones five years ago when he watched children playing with them in a park. "This is a great way to extend your vision — and a huge benefit to cattle ranchers," he

"If you want to look at what's over the ridge or in a group of trees, or some bull is in with your cows. other place you can't access readily or immediately, this is a nice tool. We did

tests, out of curiosity, to see how fast you can get across a pasture to look at water troughs. We had a person on a quad, versus one of my students using a drone. There is no comparison; the drone was so much quicker. It can save time and labour in simple things like checking water troughs, mineral feeders or inspecting fence lines," he says.

Before you turn cattle out on summer pastures you could send a drone around the fences to see if a tree blew down on the fence over winter, or a herd of elk tore down a section of fence — or if gates were left open by hunters.

"In the past it took a lot of time to check fences, and when you find a problem you need to have the right tools and materials to fix it. If you already checked the fence with a drone, you could go right to the problem and have the proper things for repair.

You'd know whether you might need to take a chain saw to get trees off tags. a fence, or some new posts. Twenty minutes of flying time could save hours of travel in rough terrain. Then you'd only have to go to the areas that need repair.

Drones can also come in handy for checking water troughs and gates in remote locations. If a water trough quits working, you could know about it to get some network tags that can talk sooner, and go fix it. You can preprogram drones to run a route, such as checking a fence. With a drone, you can check pastures more often or more closely, to find out if there is something unusual, or if the neighbour's

If you want to use a drone for checking and monitoring cattle, take a

little time to get them used to it, advises Church.

"The first time we fly over they may look up and might move away a little, but if you don't herd them and nothing happens, they quickly accept it. The next day, they realize it won't hurt them. The noise is a continuous hum and doesn't startle them. The larger drones actually disturb cattle less because they don't have the higherpitched noise of a smaller one. Cattle seem to get used to the bigger drones very quickly," explains Church.

Potential uses

New technology has potential, including the active RFID tags. Passive RFID tags must be within one or two metres of the reader but active RFID tags could be read from a distance. Instead of having to scan the whole pasture to know where the livestock are, the drone gets high enough to see them, and might be able to read those

"We're thinking of building an antenna to read RF2 ultra-high-frequency cattle tags. We've been able to pick up signals from the new RFID ear tags three to five miles away and have been testing solar-powered ear tags from a company in Utah," says Church.

"For the future, we are also trying to each other. This means that if you find one cow, you can find them all, since those tags are all linked together. We can get that information (GPS positions) into the Cloud. You can know where your cow is, and also get temperature information."

Cameras are now built into the

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drone. "The image transmission of the video is remarkable," says Church. "You can view it on your goggles or your iPad or android phone. You can get that signal from well over a mile, and if you have permission (if it's legal), up to three miles away," he says.

Most drones have automated take off and landing capability, as well as return-to-home features. "These drones are smart enough to land themselves and are also portable.

The Mavic, for example, can fold down and fit in a saddlebag. The newer drones have decent flight times. You can get well over 20 minutes per flight, and a drone can go a long way in 20 minutes. If you have four to six batteries with you, it can fly a long time. If we have a big project, we've taken a portable generator out into the field to keep those batteries going, and kept drones in the air all day long," Church says.

"Drones can also serve as platforms for other sensors. We put thermal cameras on drones to see how much better we can find animals under trees" he says.

"It would be easy to put an accelerometer chip on a drone, to see if the animals are chased by a predator. We are also putting multi-spectral or nearinfrared cameras onto drones — the same drones we are using to find lost cattle. We are now mapping flights, to look at large aerial photos (orthomosaics) to map farmers' fields, like precision agriculture. We can use Normalized Difference Vegetation Index, which enables us to look at the pasture and determine things like proper fertilizer application or water. In the future we are hoping to come up with unique spectral signatures for things like invasive weeds. Maybe we can not only identify noxious weeds (and pinpoint location with GPS co-ordinates) but also send out a second drone, using those co-ordinates, to spray the weeds, he explains.

As the technology keeps improving and drones become more useful for more things, there are many possibilities.

Purchasing and learning to use a drone

A Chinese company called DJI makes most of the high-quality drones

on the market today, with several models. Price for a top-of-the-line drone may be \$1,000 to \$1,400 but by the time you buy a couple of extra batteries (about \$160), a case for it, etc., it will probably be another \$500.

"The drone we purchased was very basic, and cost \$600," says Lewis.
"Some are much more expensive, but this one takes clear pictures and videos. The price of a drone goes up partly by the quality of the camera. Drones the professionals use are bigger and may cost \$10,000 to \$20,000. They can go farther and carry a bigger camera and do many different things," he says.

It takes a little practice to learn how to fly a drone if you are not already used to video games. With the standard drone, the left joystick controls altitude and direction the drone is facing (yaw). The right one controls speed and moving left or right (roll). "When we got our first research funds for drones, we crashed some, learning how to use them," says Church.

"Those first drones were not very reliable. They have improved. Frank Wang, founder of DJI, is an expert on

drones. We have used almost every drone that DJI has come up with. We seldom crash them anymore; most of them now have active collisionavoidance built in. They are smart enough that even if you are a beginner they can keep from flying into a tree or the side of the barn."

"I think this is a great tool that many ranchers will adopt in the future. The younger generation has grown up with iPads, cell phones, Xbox, etc. I am amazed at how well my students fly! They have incredible muscle memory and don't even think about the

controls. They just think about where they want to go and the drone starts going that direction, whereas I have to consciously think about running the controls."

The older generation can learn, however. "My uncle is in his 70s and is now flying a drone. It takes some practice to learn how to use it, but there are many resources available now that didn't exist five years ago."

The biggest actual limitation is battery life. The upper end is about 30 minutes, but if there's wind it may be closer to 20 minutes. The faster you go, the more battery it takes. Even then, you can see a lot in 20 minutes.

"A bigger battery would be more weight," says Lewis. "You'd have to use it a lot to need a bigger battery."

Written by Heather Smith Thomas (Canadian Cattlemen) & John Church (Thompson Rivers University)

Taken from https://www.canadiancattlemen.ca/2017/11/28 https://www.canadiancattlemen.ca/2017/21/28 https://www.canadiancattlemen.ca/2017/21/28







Innovate. Grow. Prosper.

Canadian Agricultural Partnership

The Canadian Agricultural Partnership is a five-year, \$3 billion investment by federal, provincial and territorial governments to strengthen the agriculture and agri-food sector.

The *Partnership* features:

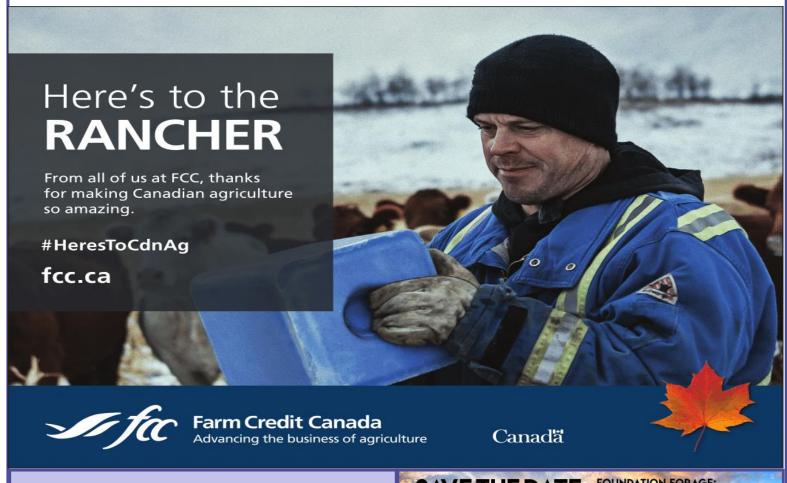
- simplified and streamlined programs and services that are easier to access
- key enhancements to programs that help farmers manage significant risks that threaten the viability of their farm and are beyond their capacity to manage

Federal Programs and Activities

Agriculture and Agri-Food Canada delivers federal programs under the Canadian Agricultural Partnership aimed at generating economic growth in the agricultural sector.

Cost-Shared programs by federal, provincial and territorial governments

Federal, provincial and territorial governments are also continuing to work towards bilateral agreements. This investment will be cost-shared on a 60:40 basis and delivered by provinces and territories to ensure programs are tailored to meet regional needs. To be eligible for















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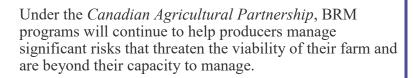
funding producers must have a current (within 10 years) Environmental Farm Plan.

Programs that are currently accepting applications from producers in Alberta are;

- 1) Environmental Stewardship and Climate Change Producer
- Grazing Management (follow the link to see what grazing entails)
- Manure and Livestock Facilities Management
- Agricultural Input and Waste Management
- 2) Farm Water Supply
- Projects identified, by an Agriculture and Forestry Water Specialist (prior to starting project and incurring any expenses), as a Long-Term Water Management Plan (LTWMP)
- 3) Irrigation Efficiency
- New low-pressure centre pivot (replaces gravity, sidewheel or high-pressure centre pivot)
- Retrofit high-pressure centre pivot to low-pressure centre pivot; including booster pumps, nozzle packages and pump modifications
- High-efficiency sprinkler nozzles & related equipment to upgrade an existing low-pressure centre pivot
- Variable-rate irrigation equipment
- Control panel upgrades
- Surface or subsurface drip irrigation to replace gravity, side-wheel or high-pressure centre pivots

For more information on these programs or to see if your project qualifies contact 310-FARM (3276)

Improvements to business risk management programs



For more information please visit; https://cap.alberta.ca/ CAP/Programs/role/Primary%20Producer-Farmer-Rancher



For more information on CAP and the Alberta Environmental Farm Plan (including Renewal) please contact Sonja Bloom—Environmental & Communications Coordinator with FFGA at 403.995.9466

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With Dylan Biggs

Featuring

- Farm & family safety
- · Herd Movement for success
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- · Getting control of direction and speed
- What to expect at home
- Going through gates

...and Much MORE

September 7 & 8 Millarville, AB

"Once people are aware of and in control of their counterproductive, instinctive human behaviours then they are ready to learn a new set of cattle handling skills that will enable them to get the job done in a calm, controlled, safe and efficient manner" - Dylan Biggs





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FFGA MISSION & VISION STATEMENTS

<u>Mission:</u> Assisting producers in profitably improving their forages and regenerating their soils through innovation and education.

<u>Vision:</u> We envision a global community that respects and values profitable forage production and healthy soils as our legacy for future generations.

This Publication is made possible by our two major funders - the Agriculture Opportunity Fund and Alberta Agriculture and Forestry.





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