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CATTLE 'PUMPED' OVER WINTER WATERING SYSTEM

The Frostfree Nosepump ™ is proving to be one of the most efficient and effective winter watering systems in Western Canada

In this issue

Cattle are snoopy animals by nature – they're always getting their noses into something. They also like to drink a lot of water. And so it seemed only natural to one Alberta livestock producer to combine these two qualities to market an effective winter watering system.

The Frostfree Nosepump ™ is an energy-free device livestock producers can install on many water sources to ensure their cattle have adequate water all year, particularly during the winter when freezing is a concern. The system is a cost-effective watering alternative that is powered by the cattle themselves.

Canada

Pumps can be placed in nearly any spot on the farm where a culvert can be installed

The initial design, a concept of Walter Diehl of Bowden, AB, has been further engineered and re-designed by Jim Anderson. The Alberta producer has obtained a provisional worldwide patent on his new design.

The system's easy assembly, reliability and low cost make it a hit in an industry where water can determine an operation's success or failure. Conveniently, the pump, which Anderson assembles right on his farm three miles southeast of Rimbey, AB, can be installed by the landowner.

The new design consists of a blue metal hood, pendulum, down-hole cylinder and foot valve mounted on a vertical culvert. The culvert acts as a reservoir, storing water from sources such as underground aquifers or dugouts.

The pump is attached to the top of the culvert, extending to a foot valve in the water. The piston pump is activated by the animal pushing the bottom of the pendulum, drawing water up into the bowl.

"The 30-pound pump is compact with a curved back, sitting 20 inches high and long," described Anderson, who carried on with the idea when Diehl's health prohibited him from continuing his work. Since then, Anderson has modified the system with assistance from Earl Jensen of the Alberta Research Council, making it more user-friendly, environmentally sensitive and efficient.

Anderson, along with his wife Jackie, has been raising livestock and growing grains and forage for the past 28 years. Since 1999, Anderson has installed four nose pumps on his property. Due to the unit's durability, simplicity and ruggedness, he's had no trouble with the virtually maintenance-free system.

During the first year of use, Anderson watered a herd of 170 cows with a single nose pump for three months of winter feeding on one quarter-section of land. Although only one animal can use the pump at a time, the herd learned to space themselves and take turns. At the end of the 2001 calving season, Anderson turned in a nearly 100 per cent crop of healthy calves.

"We took our 135 cows to the quarter with the nose pump in mid-October and they stayed out there until late January," said Anderson. "That creates an ideal opportunity to get them out of my farmyard. We feed them out there in the field, and by January the manure is spread fairly evenly. At calving season we bring them all home to clean yards and sheds. As they calve, we move them back out in smaller groups to fresh ground where we have other nose pumps. This helps with disease prevention and manure distribution."

Training the cows to use the pump is the next step once the system is installed. Though it may seem like a daunting task teaching 170 cows to drink from a foot-sized trough one at a time, Anderson said the process was surprisingly easy. However, he warns that calves, until they reach a certain maturity, are unable to use the pump. Fortunately, over the past three years, he says this has not been a problem: "Babies don't need much water if they have milk."

Marketing the Frostfree Nosepump ™ has been mainly by word of mouth. With initial financial help though the Rural Water Development Program (RWDP) to set up two demonstration sites, and coverage from articles in local agricultural publications, word has spread among area producers. Anderson is encouraged by the response to date, but knows more marketing is required.

Chipping ice off the pump is the only maintenance required
(Photos courtesy Jim Anderson)

Teaching cattle to use the pump is quick and simple – one at a time

Anderson ball-parked the system – fully installed – at $2,500, though this figure can change depending on the depth of the well needed, surrounding pad to protect the well, water source used, length of intake line needed, and number of systems being installed.

Cost per animal can be reduced in larger herds by mounting more than one nose pump on the same culvert.

"There should be a financial benefit to farmers and producers when you look at the other alternatives: electric, solar, wind and gas," said Glen Brandt, PFRA's Red Deer district engineer, who also provided technical assistance on site preparations. "This system runs on cattle power, so whatever Jim can market this at, they'll be less expensive than alternative watering sources.

Pumps should be installed on a slope to ensure runoff or waste cannot enter the well

"The benefits are mainly environmental. Because this system is economical, we hope there'll be positive uptake, getting more cattle out of the creeks, rivers and dugouts, and giving farmers more opportunities to have their cattle out of the yard for longer periods of time. The two biggest benefits are grazing in remote areas and improved water quality."

Drilling the well and installing the culvert are the only areas where a producer will need the assistance of a local licensed well driller. Brandt recommends landowners seal the area surrounding the culvert with a thick clay or bentonite. Locating wet wells on ground that slopes away from the source will prevent nutrient-rich water from flowing back into the dugout, creek or river.

A licensed drilling company will ensure that every hole drilled meets all government regulations, including those found in the *Alberta Water Act*.

Nose pumps should be installed in areas with good underground water wells or cisterns, though a dugout or nearby stream can also be used.

By fencing off the surface water source and trenching a pipe from the source's bottom to the nearby culvert, it becomes a reservoir. The water will fill the culvert to the same level as the dugout.

Anderson and Brandt have yet to determine a maximum depth the system can effectively pump at, though Anderson has managed to lift water from 47 feet. The only hitch he's come across is ice forming at the edge of the bowl at temperatures below minus 30 degrees, which, if left to accumulate, could cause the pendulum to jam.

By doing routine checks and tapping ice off as required, Anderson is confident the unit will work trouble-free for years.

For more information on the Frostfree Nosepump ™, contact Glen Brandt at (403) 340-4290, or visit the Anderson website at www.frostfreenosepumps.com

- Desnomie

PFRA bull stations – no 9-to-5 job

By Wayne Wark
Communications Division

For seven months a year, late fall to late spring, Peter Gonnet has to deal with a bunch of bull every morning he shows up for work. Up to his eyeballs in bull six days a week, sometimes seven.

But he's not complaining. After 13 years of seeing the volume of bull increase annually, Gonnet knows just how to handle the situation.

"I came here in '88, and at that time we were keeping a few extra bulls due to our location and the access to hay here. But the number has been steadily growing since '89," said Gonnet, manager of PFRA's Rudy Rosedale Pasture and Spring Creek Bull Station, situated north of Outlook, SK. "This year we have 220 bulls. By spring we'll have 300. Normally we'd already have 300 bulls by now, but we didn't buy as many this year due to the drought."

Spring Creek is one of three bull stations operated by PFRA. The Maple Creek Bull Station is part of the Bitter Lake Pasture, north of Maple Creek, SK; the Ellice-Archie Pasture – just north of Virden, MB – is home to the St. Lazare Bull Station.

> ***"It's six days a week when the bulls are here. Some days are 10 to 12 hours, some days we put in four. It's an average ranch job."***
> ***- Peter Gonnet***

"We have about 2,700 bulls on inventory for the breeding season, June to August. These bulls go into our community pastures to provide a breeding service for our clients," explained Pasture Planning and Allocation Section head Hugh Cook, adding that PFRA purchases about 25 per cent of its herd every year – 600 to 700 bulls – and rents another 800 on an annual basis.

"We buy bulls in the fall, and once we take possession we need a place to stockpile the bulls until the breeding season. That's the role of our bull stations," said Cook, noting that PFRA paid an average of $2,380 for bulls headed to community pastures in 2002. "The concept behind the bulls is that we're providing a breeding service for the cow herd grazing on PFRA pastures in Western Canada and, at the same time, trying to improve the breeding stock."

The new bulls, primarily Charolais, include calves, long yearlings (animals roughly 18 months old) and two year olds. Upon reaching the bull stations, the animals need to be processed – PFRA has maintained detailed records on culling since 1965 – treated if necessary, ear-tagged and put on proper rations.

By the time these animals begin departing the bull stations between mid-April and mid-May, shipped to community pastures across the West, they have to be in good breeding condition. After all, they have work to do. On average, each bull will be expected to breed 30 cows over the summer, and remain part of the PFRA inventory for at least four years – the standard length of time bulls currently last under the range breeding program.

"We feed silage, barley and beef supplements, and ground hay," said Gonnet, who retains one man to help him at the station. "We like to see them gain about two and a half pounds a day. If you have a bull that's gaining too much or not enough, then you have to adjust their feed."

Workers check every bull that goes through the station, ensuring that each animal is healthy

(Con't p.6)

Agribition 2001

Agriculture and Agri-Food Canada and PFRA had a strong presence at this year's Agribition with staff working the Government of Canada display, the corporate display featuring the Shelterbelt Centre and Water Quality Unit, and the Agri-Ed display. **(Right row)** Children learned about best management practices, while producers had a chance to meet with PFRA staff to discuss their water quality needs. **(Below)** A group photo of this year's volunteers of the Fashion Show. **(Lower left to right)** Connie Sulymka shows off a new fall coat; Simmone Wilk charms the cowboys with her country dancin' outfit; editor-turned-GQ model Rod Desnomie shows off 'da goods' while asking: "Hey ladies, do you like my... toque?" *(Photos by Janet Weber)*

Open house at Craven

On Nov. 14, PFRA hosted an open house for area residents and producers affected by the replacement of the Craven Control Structure. In total, more than 40 visitors attended the session. **(Bottom left and middle)** PFRA staff were on hand to answer any questions, while **(lower right)** visitors had a chance to view a series of helpful exhibits and displays. *(Photos courtesy Carl Lazurko)*

(Con't from p.4)

The Spring Creek bulls are kept in large, high-fenced pens equipped with wind breaks. Much of the work, says Gonnet, is carried out on horseback – that's the good part of the job. But while the bulls are held in waiting through the winter, being prepped for the summer breeding season, the days can be long and the weeks even longer – that's the tough part of the job.

It's easy to see how you could get trampled by a charging bull in such a tight spot; better stay awake

"It's at least six days a week when the bulls are here," explained Gonnet, whose mornings commonly consist of chores, followed by early-afternoon treatments, equipment and / or fencing repairs, followed by another round of chores in the late afternoon. "Some days are 10 to 12 hours, some days we put in four. It's an average ranch job. Saturdays are always a big day – 12 to 14 hours. We always do extra work Saturdays so we don't have so much to do on Sunday."

And while the task of tending to bulls has its routines, it also has its perils. Bulls have acquired a legendary reputation of being somewhat ornery – not all of them, mind you, but when the nasty ones do come down the shoot, they can be really nasty.

"We had some bad ones this fall," admitted Gonnet, who has vivid memories of being kicked, chased, rammed and run over by his bovine boarders. "We were on horseback and bringing this one bull up to treat him for bloat, and he turned and charged the guy bringing him in. This bull just 'freight-trained' them – knocked the horse right over."

Last year Gonnet found himself trapped in an alleyway when 30 bulls decided to charge. The result was a sore back, a sore head and a bruised ego, but just the same, Gonnet realizes he was fortunate. Working with bulls is an unequivocally dangerous business.

"You can predict their behavior to a certain degree, but then there's always the times when they'll do something different," he noted. "You have to be careful, because it's unbelievable what kind of power they have."

The perils of the job aside, Gonnet enjoys the hands-on aspect of bull station work. And on a professional level, he enjoys the fact that the work is appreciated.

"What we do is highly respected in the community. People respect what PFRA does for the pastures," revealed Gonnet. "I think PFRA can be proud of the contribution we're making."

Did you know...

The job of buying bulls goes to livestock acquisitions officer Jim Nugent, who spends the fall making farmyard offers for good animals, then follows up by attending 75-80 bull sales across Western Canada between January and June. Nugent registers anywhere from 60,000 to 80,000 kilometres a year in his quest for the best bulls possible.

There-snow fence like it

By Tania Viegas
Communications Division

For a producer, nothing is more stressful than the thought of facing another growing season with an empty or near-empty dugout.

The dry weather of recent years has forced many producers across the Prairies to make due with little to no water in their dugouts for their cattle or themselves. And farmers may well be confronted by this issue once again this year.

While no one has figured how to control the weather, there is something that can be done to help prevent another empty dugout.

The answer might be as simple as building a fence.

"Snow fences have always been around; we see snow fences mostly used to trap snow so that it doesn't blow onto the road or into farmyards," explained Jim Yarotski, hydrologic engineer with PFRA's Regina office. "Using them to trap snow to increase the water supply in dugouts or small water storage projects is something that hasn't been widely applied on the Prairies."

Although the idea of using fences as snow trappers is relatively new, it is beginning to catch on. With the unusually dry conditions of the past couple of summers, landowners know they need to make an extra effort to ensure they have an adequate water supply.

There are a few different types of snow fences: the commonly seen vertical slat snow fence, the plastic snow fence, and the Wyoming-style fence, called such as it originated in Wyoming. The Wyoming fence is the most effective, yet it is also the most costly and time consuming fence to build. The plastic snow fence works well and is less expensive, but it must be protected to stand up to grazing herds.

Snow fences are very effective at catching and storing wind-blown snow in dugouts

Looking at snow through a scientific lens

What makes the fence work is its "porosity". Yarotski described porosity as the spaces found between the slats and boards of a fence. Both the Wyoming fence and plastic snow fence have 50 per cent porosity, while the vertical slat fence has 60 per cent porosity.

"You have to start looking at the physics of blowing snow," Yarotski said. "When the wind blows through the spaces of these fences, it slows down and the snow just drops out of the wind." According to Yarotski, 50 per cent porosity has proven to be the most efficient for catching snow.

Snow fences are best located on the upwind side of the dugout to reduce the chances of losing moisture to soil seepage. A fence height of two to two-and-a-half metres is considered reasonable for the Canadian Prairies. A gap at the bottom of the snow fence will also reduce the chances of the fence being buried by snowdrifts.

Bill Millar of PFRA's Oakdale Community Pasture west of Rosetown has experience with plastic snow fences and portable Wyoming snow fences. Because cattle made it difficult to keep the first two types standing, a permanent Wyoming-style snow fence is now in place.

"Here on our pasture, we used to have plastic snow fences," Millar explained. "Then we used portable Wyoming fences for a

Snow fences and berms ensure maximum snow build-up

number of years. But being portable, it was working out to be about every three years or so that the wind or the cattle would bring them down. So it cuts down on the maintenance by making them permanent."

The community pasture now has steel post fences with two-by-six planks built at about a 30-degree angle to the ground. "They're attached to pipes about four feet in the ground," Millar said. "The big work was drilling post holes and putting in the posts."

But does it really work?

Of course, Mother Nature still has to co-operate for a snow fence to have any benefit. "You need a base snowfall," Yarotski said. "The ground surface of grass has to fill, and then the snow that falls on top of that is what is going to blow and be collected by the snow fence."

He went on to say that one good snowfall is all you need to make a snow fence beneficial. But does it work? According to Millar, snow fences not only work, they work well.

"Once they are erected, there is very little maintenance involved with the permanent ones," he said. "During good years with lots of snow fall and wind, fences fill a dugout right up with snow drifts.

"One year, we had a fence that had its top slab about 10 feet off the ground – it made a snow drift that was probably about 12 feet high, eight feet to the lee of the fence, tapering to ground level 100 feet away at the far side of the dugout. As it melted, it all ran right into the dugout."

With all that melting snow, a dry spring is not nearly as difficult to deal with. As long as the fence is put in the right place and there is at least one snowstorm, the fence will be worth the price and the labour.

For Yarotski, it's important to get the word out to producers and landowners that snow fences can make a real difference in their operation. To that end, a PFRA model for use at trade shows demonstrates the effectiveness of snow fences. In addition, articles have been developed and information has been posted on the PFRA website (www.agr.gc.ca/pfra/pfintroe.htm).

"I think if we can get producers interested in this, maybe they'll try it," he said. "It's like anything else where you try to get the consumer, in this case the producer, interested in something. Once they see the benefits, they will sit at the local shop and say, 'you know, I put up that snow fence, and I've got seven and eight-foot drifts on my dugout'. All of the sudden the guy next to him is going to think, 'well, maybe I should do that too'."

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Platform Shoes? Plaid pants? Disco? Grease?

If you can relate to any or all of the above, then chances are you'll fit right in at this year's

PFRA Annual Bonspiel.

2002's edition is being hosted in Melville, SK, Feb. 8 and 9.

This year's theme:

The Hits of the '70s.

For more information, please contact Larry Kreklewich at (306) 728-6556.

Comings and Goings

For six months starting in January/02, the following staff will assume new roles:

George Picray - special assignment; Gerry Wetterstrand - Ethiopia special assignment; Ken Thompson - A/Director, Management Services; Jill Vaisey - A/Regional Director, South SK Region, Regional Operations; Mark Geremia - A/Manager Operational Planning Division, Regional Operations; Dean Smith - A/Manager, Strategic Planning, Analytical & Communications; Brant Kirychuk - A/Manager, Analytical Division; Elin Viberg - A/Executive Assistant, Director General's Office.