



A year-round

nose pump

It worked for Jim Anderson down to 40°C below on remote pastures

Jim and Jackie Anderson run a commercial cow-calf ranch south of Rimbey in central Alberta. Back in 1998, they were faced with a dilemma — they had the forage to extend the grazing season but no power to develop stock watering sites on these remote pastures and haylands. Undeterred, Jim sat down and designed a waterer that allows his cows to use their noses to get water without having to bring power to these distant sites. The concept worked so well this family ranch is now building and marketing their frost-free nose pumps from home.

The Andersons run 135 commercial Hereford/Simmental cross cows on their second-generation ranch. The home place is made up of a section of land; 2 quarters have no power, and one of those was seeded for hay. “It really bugged me that we weren’t able to utilize the regrowth for grazing on

that hayland,” Anderson recalls. “We had no water source out there and to get power laid in, it was going to cost about \$6,000, just for the electricity — not including anything for the pumps, pipes, troughs and such.”

He says his idea came to him when he remembered watering the chickens as a youth. He did this from a hand pump in the yard that worked year-round. He pondered a similar pump for cattle which they could operate themselves.

The Andersons, by some accounts, are blessed with a water table that on the hay quarter sits about 8' below ground. Anderson reckoned that if he drilled a wide bore hole in the ground and set in a 24" culvert, water could be drawn from that wet well using nose pumps. The geothermal heat inside the culvert would keep the water open even during a very cold winter. He set to designing a pump,

The Andersons are now marketing the nose pump Jim built for his own herd

bowl and piping system to fit these conditions.

The first prototype shines

Anderson's nose pump consists of a small, enclosed trough with a lever that, when pushed, operates a piston pump. The 24" culvert is set in the well hole so that about 2' stands above ground level. The nose pump housing is then attached to a galvanized steel lid with sturdy 10" legs so it can handle whatever a cow wants to dish out. The pump attaches to an ABS or galvanized steel pipe with a foot valve at the bottom. When the cows push on the lever with their noses, water is pulled up and into the bowl.

“When the first cow comes up to the empty bowl, she needs to push that lever 3 times to fill the bowl, then, for each push thereafter, the cow gets a single drink,” says Anderson. “For each cow after that first one, it only takes one push for a drink.” He estimates that each full stroke of the lever delivers about half a liter to the bowl.

What makes the nose pump frost-free is a tiny $\frac{3}{32}$ " drainage hole drilled about 5' down the pipe, below the frost zone. “When the cattle stop pumping the lever, the water in the pipe drains back out through that hole down to the level where the hole is drilled,” he explains. “This leaves an empty pipe and nothing to freeze,” says Anderson. You could go deeper with the hole but, as he points out, the further down you go, the more strokes would be needed to refill the pipe.

Anderson has since lessened the number of initial strokes needed to 2 by insulating the inside of the culvert and drilling the drain hole only 3' from the top. Each pump requires about 2 gallons per minute in well capacity.

He has also installed a drainage nipple near the bottom of the bowl to keep feed and water contaminated by the cattle from falling back into the well. “Once the water level in the bowl overflows the rim of that nipple, nothing can flow back down the pipe,” he says. “The cows drink pretty well everything they pump, but there’s maybe a cup or 2 of water left in the bowl below that nipple level. In really cold temperatures that water will

Continued on page 34

Continued from page 32

freeze, but there's no buildup from day to day because of the warmth of the cow's chin, the stroke action they use and the fact warmer water is coming into the bowl when they're stroking."

His first unit, installed in September 1999, was a smash hit. The well had been drilled to about 20' and the static water level came up to 7' or 8' below

ground level. "Not only did we extend the grazing season on that hay regrowth, but we left the cows out there for the winter feeding period," he recalls. "We'd never been able to do that in the past because there wasn't any water. I used portable feedbunks and moved them around the quarter section and the cows spread their manure nicely all over."


That first experience went so well

that the next season he put in 2 more culverts and pumps. One was drilled the same depth as the first, and the other went down to 40' with a static water level of 20'. These new units performed just as well as the first one. Later, Anderson put in a fourth unit in a spot with a much lower water table. "We drilled that one to 72' and the static level came up to 47'," he says. "I had to modify the nose pump to increase the mechanical advantage of the leverage action. It's still a pretty hard push but our cows are trained to these waterers and they know if they push, they'll get water. A 1,500-pound cow can push very hard." Last fall his cows used that deeper well for 3 weeks

Your only choice for blackleg and tetanus protection in one vaccine!

TASVAX[®] and COVEXIN[®] have always been your only choice for blackleg protection that covers you for tetanus too. And, of course, it's approved for subcutaneous (Sub-Q) administration. Be sure to look for **TASVAX[®]/COVEXIN[®]** today.



 Schering-Plough Animal Health
Division of **SCHERING CANADA INC.**
Pointe-Claire, Québec H9R 1B4

* Registered trademarks of Schering Canada Inc.
TAS 001-01E-PA

TASVAX[®] / COVEXIN[®]

Calves are too small and too light to operate these pumps

on stubble with no other water source, and it worked without a glitch.

This winter they worked perfectly in temperatures as low as -40°C. The powder-coated steel bowl will get some ice around the edges from the cow's slobber but a couple of taps with a hammer knocks that away. It's recommended this ice clearing be done occasionally during cold snaps to prevent any of that buildup from interfering with the action of the nose lever. Anderson uses the front-end loader to pop ice buildup from around the base and sides of the culvert from time to time, being careful not to damage the culvert.

The Andersons are manufacturing and marketing these units and are currently seeking a patent.

Cows quick learners

Anderson says if his Simm-cross cows can learn to use a nose pump, any cow can. The best time to train them is during the summer when you can plug that drain hole without concern about freezing. That way, with every lever push, the cows get a drink and there's no need to recharge the pipe inside the culvert. Within 4 days they've usually got the hang of it; younger stock can take longer but they soon catch on.

Anderson doesn't really know what the maximum number of cows per nose pump is. They've watered 170

Continued on page 36

Cumnock Red Angus

Monday, April 1, 2002
at the Ranch

16th Annual Bull Sale

Top 50 Yearling Red Angus Bulls

SELECT GROUP: 50 Red Angus Open Replacement Heifers

85 Angus Bulls Tested for:

- * Birth Weight
- * Weaning Weight
- * Yearling Weight
- * Index
- * EPDs
- * Average Daily Gain
- * Frame
- * Scrotal
- * Fertility



- **Sight Unseen Purchase Plan**
- **Full Satisfaction Guaranteed**
- **Free Delivery up to 200 miles**

Bulls Sired by:

Red SSS Blaze-On 875G
Red Riverdale Monu 111G
Red Towaw Presario 204F
Red BJR Rambler 516Z
Red Crowfoot Innovator 979J
Red Six Mile Justice 374J
Red SSS Good Time 32J
Red Cumnock Blazing 372J



Auctioneer: Brent Carey, Stavely, AB 403-549-2478

Ring Service: Bob Blacklock 306-978-2000 & Mark Stock 306-678-4811

DJH

Sale Consultant:
Douglas J. Henderson
& Associates Ltd.

Doug & Linda Henderson
P.O. Box 5900, Lacombe, AB T4L 1X4
(403) 782-3888 Fax 782-3849
email: angushen@telusplanet.net
Brent Stewart Ph: (204) 773-2356
Brett Wildman Ph: (780) 785-3709

CUMNOCK RED ANGUS

*Ron Drinnan
& Family*



Box 214
Grenfell, SK S0G 2B0
306-697-3139
Fax 306-697-3517

Continued from page 34

cows for 3 months through late fall/winter on one pump without a problem. Once the cows are familiar with it, he says, they figure out their own rotation system. There are always 2 or 3 looking for a drink during the day. If needed, Anderson has designs for a 2-pump setup on one culvert allowing for back-to-back access.

Calves are too small and too light to operate these pumps, but Anderson says they get all they need from their mother's milk. If cows produce enough milk, it should not be an issue. If it is, he agrees some way to fill a trough for calves would have to be devised.

Anderson does not recommend using his pumps on wells with static water levels greater than 30' below ground, which usually means well down to 50'. However, he's working on a new pump that should draw from 60'.

One of his units draws water from a nearby dugout by static pressure to the culvert through a transfer pipe, so the dugout can be fenced off. He can see no reason similar underground diversions could not tap into streams, rivers or creeks, after the proper approvals are received.

Total package

Once a licensed well driller has drilled your 30" hole, Anderson says, you have to perforate the lower portion of the 24" culvert before you drop it into place. Backfill with washed gravel to the top of the perforations. Use clay and then bentonite to seal the top of the backfill to prevent surface contamination.

Anderson recommends leveling the area around the culvert and pouring a concrete pad for the cows to stand on, seeing your nose pump will be used year-round. He also advises an insulation sleeve to line to the top of the culvert, especially if you are locating the drain hole close to the lid.

He estimates this type of setup would cost about \$2,400 for everything but labor. He sells the pump for \$975, galvanized steel lids for \$200 and insulation sleeves for \$150. For more information, contact Frostfree Nosepumps Ltd. at 403-843-6740, e-mail: info@frostfreenosepumps.com, or visit their web site at frostfreenosepumps.com/.

— Larry Thomas