Drinker Systems Reduce Manure Production

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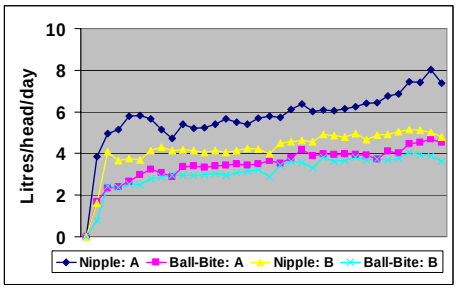

Low flow-rate drinker systems maintain pig performance and reduce barn water usage and manure volume production

As the snow piles up against the barn, your drinking water system may not be the greatest of your worries right now, unless it is to make sure that piping doesn't freeze. In fact, water flow rates in the barn may not be of great concern most times of the year, unless you are worried about your water supply during the hot and dry summer months.

The benefits of water supply management have been well documented at the Prairie Swine Center where the use of wet/dry feeders was found to reduce finisher barn water use by 29 per cent compared to dry feeders and nipple drinkers. You may recall reading about these results in previous greenhouse gas (GHG) management articles by the Canadian Pork Council. Since that time, a new demonstration project has been initiated at a commercial nursery site in southern Alberta. Through the project, barn water management and grower pig performance is being tracked on an ongoing basis.

One-half of the four-room nursery barn was outfitted with ball-bite drinkers and new nipple drinkers were installed in the other half of the barn. Ball-bite drinkers require a hog to place its mouth around and gently bite the drinker. This reduces the chance of water spilling from the animal's mouth and the opportunity for animals to play with drinkers, which are both water wasters. Two water-flow monitors were also installed, one to handle the ball-bite rooms and one for the nipple drinkers. The monitors track the amount of water consumed on each system.

The following chart shows the results of two batches of grower pigs through the barn in southern Alberta. *Group A* represents the first batch of animals housed from August to October 2004, *Group B* animals entered the barn in October and were moved to finisher spaces in late December.

Notice the substantial difference in *Group A* animal water use between the nipple and ball-bite drinker systems, represented by the dark-blue and pink lines. Animal water use on the ball-bite system was 35 per cent lower than the nipple drinker system, with no detrimental effect on animal performance. Animals in *Group B*, are represented by the light-blue and yellow lines. Again, animals in the ball-bite drinker rooms consumed significantly less water than those on the nipple drinker system. Note that the relative difference in water consumption between the ball-bite and nipple systems was greater in the summer compared to the cooler fall months. This difference is due to animals showering themselves with the nipple drinkers during the summer months, whereas animals in the ball-bite rooms were not able to manipulate the drinkers in the same way.

For costing out the system and its benefits, assume a nursery barn produces a million gallons of manure each year which costs $10,000 to apply ($0.01 per gallon custom rate). The ball-bite drinkers reduced water use and therefore, manure volume reduction, by 35 per cent. Thus, the cost of manure application could be reduced by as much as $3,500 annually. Retrofitting a small nursery barn will cost less than $10,000, providing a return on investment in one-and-a-half to two years.

So what are the GHG benefits of implementing a barn water management system? Diesel and electrical energy are required to move water to the barn and transport manure to the field for application. Reducing manure volumes reduces the need for both forms of energy and the GHGs associated with the production and use of this energy.

The manure nutrient composition will be the same with both drinker systems, however a less dilute manure reduces the manure application rate and cost per acre to apply these nutrients. Also, a less dilute manure should reduce nitrous oxide production by lowering the level of soil saturation following application. And finally, a more concentrated manure allows it to be moved further down the road to fields where it may not have been profitable to haul a more dilute manure product before. This should reduce the need to apply nutrients closer to the barn site and provide an opportunity to spread manure nitrogen over a larger land base, thus reducing the risk of over-applying nitrogen, resulting in greater GHG (nitrous oxide) production.

As always, GHG management is tied to resource management and is interwoven with numerous other farm management practices. To keep it simple, low-flow rate drinker systems can provide upwards of 30 per cent manure volume reduction. If GHGs aren't your concern, focus on saving money managing a less dilute, more valuable manure product.