

CUT BACK ON WATER WASTAGE AND MANURE VOLUME



Energy is used when slurry is pumped from the barn to the outdoor storage facility (left), when slurry is agitated in the storage facility (middle), and when slurry is loaded and transported for field application (right).

Manure pits in barns not only collect manure, but water wasted by pigs from drinkers and water used for cleaning. While we require some liquids to move the manure from the barn to an outdoor storage facility, slurry can include approximately 40% clean water wasted from drinkers. This is more water than required for easy flow, rather increasing wastage and manure produced.

Energy is used when slurry is pumped from the barn to the outdoor storage facility, when slurry is agitated in the storage facility, and when slurry is loaded and transported for field application. The more slurry there is, the more energy is needed for these processes, resulting in higher energy costs. When pigs waste a lot of water, it increases slurry volume. In other words, you're basically paying to get clean water moved out of your barn to the field. Reducing water wastage from drinkers is, therefore, a good way to reduce both the water bill and the energy bill.



Bowl drinkers can reduce the amount of water wasted by 10-15%

Pigs water consumption is roughly 2-3 times feed intake. Water consumption is dependent on many factors, including body weight, physiological status and feed intake of the pigs, location, type, angle and water flow/pressure of the drinkers, and climate in the barn. For example, a rise of 1°C above 20°C results in a sow drinking 0.2L more water per day. Pig feed intake is determined by the amount of water they drink, not the other way around, meaning that restricting water consumption will result in lower feed intake and weight gain, and may lead to urinary tract infections. The implication is that limiting water consumption cannot be used to reduce energy costs but decreasing water wastage can.

Grower-finisher pigs may waste up to 60% of the water from a nipple drinker. Cup or bowl drinkers can reduce the amount of water wasted by 10-15%. However, well-managed nipple drinkers can effectively reduce water wastage. Some general guidelines on how to manage nipple drinkers can be found in the factsheet "In-barn management to reduce feed costs", which is part of the "Managing feed costs" brochure. You can also visit the PSC website for a water checklist.

Wet/dry feeders address the water wastage concern by incorporating a nipple drinker in the feed bowl, reducing water use by 30% and slurry volume by 20-40%. However, it is recommended to also provide a separate drinker elsewhere in the pen to increase water consumption and feed intake. In other words, there is a balance between encouraging pigs to drink as much as they need to maximize feed intake and efforts to reduce water wastage to reduce manure volume.

"Reducing water wastage from drinkers is a good way to reduce your water and energy cost"



Another way to reduce the amount of slurry is by reducing the amount of manure produced by pigs. Pigs produce roughly 7.5L of manure per day. The best way to reduce this amount is by feeding diets that improve feed efficiency. A 7% improvement in feed utilization efficiency will translate into a 5% reduction in the weight or volume of manure excreted. One way of improving feed efficiency is by feeding pellets instead of mash, although this process uses energy and increases feed cost. For more information about feed processing, read our factsheet “Reducing feed costs through diet processing”, which is part of the “Managing feed costs” brochure. Certain feed enzymes can also improve feed efficiency, and formulating diets based on the standardized ileal digestible amino acid content rather than total amino acid content ensures that diets better meet the nutritional needs of the pig. However, feed costs are higher than energy costs related to manure management and as such, diets should be formulated to minimize feed costs and maximize income over feed cost, which sometimes goes against efforts to reduce manure volume. For example, feeding alternative ingredients with a higher fibre content will often lead to better income over feed cost but will increase the amount of manure produced. More information on diet formulation is available in the factsheet “Diet formulation in a high feed cost environment”, which is part of the “Managing feed costs” brochure. Due to these opposing priorities, the best way to reduce manure volume is by reducing water wastage by pigs from drinkers.



Well-managed nipple drinkers can effectively reduce water wastage



Wet/dry feeders effectively reduce water use by 30% and slurry volume by 20-40%

What's the cost?

As part of an on-farm demonstration project, we measured flow rate of nipple drinkers on 24 farms across Canada. A large percentage of nipple drinkers (40.7% in gestation, 45.9% in farrowing, 27.9% in nursery and 65.2% in grower-finisher) had flow rates considered high or very high, exceeding the target rate of 0.5-1.5 L/min for nursery and grower-finisher. This resulted in approximately a 60% increase in water wastage.

An average daily water disappearance on a 600-sow farrow-to-finish operation should be around 44,482 L/day based on the water requirements of pigs at different ages. Based on survey data, daily water disappearance would be 72,512 L, resulting in an additional 28,030 L of water wastage every day, or 2,250,539 L per year. If we assume a disposal cost of \$0.068/L (\$0.015/gallon) of manure, water wastage results in an additional cost of **\$33,758/year** or **\$2.25/hog** marketed for manure application. Additional costs associated with water pumping, manure transfer and water utilities should be included if applicable to your production.