**Why do we add water to flush hog buildings?**

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Ever feel the need to explain why you add water to your barns to remove manure?

The short answer is -- it is so darn easy to move swine manure as slurry. To explain why this is so, requires an understanding of manure consistency.

As shown in figure 1, mixtures of solids and liquids exist in four states of consistency.

Pure liquids contain no solid particles. True liquids are rare in waste handling with the exceptions of urine and filtered lagoon effluent.

Slurries act like liquids, but contain suspended particles.

Semi-solids sometimes act like liquids and sometimes act like solids. They can move as a liquid, but stack like a solid. Think of a fresh cow pie. It's a stack, but step on it and the manure squirts like a liquid.

Solid manure never acts like a liquid. Step on a pile of broiler litter and it does not squirt.

Figure 2 shows how consistency varies with solid content for various types of manure.

You'll also notice that there is an "as excreted" line running through this figure. This line shows the solids content and consistency at which manure leaves the animal.

Freshly excreted swine manure is about 10% solids and comes out of the pig as thick slurry. Add water to swine manure, and it acts more like a liquid and less like a solid.

Cattle manure (both beef and dairy) is excreted at slightly higher solids content than swine manure, and it leaves the animal as semi-solid. Dairy manure doesn't become slurry until well below 8% solids.

Why this difference between cattle and hogs?

Think about the type of particles found in swine and cattle manures.

Swine manure particles, coming from diets of ground grains, are small cubes and spheres. Add water to a mixture of these particles and the pieces float away from each other.

Cattle manure particles, coming from forage based diets, are long and stringy. Add water to mass of tangled fibers and you have a wet, tangled mess. It's easier to change dairy manure into a true solid by adding a little bedding.

Because swine manure liquefies so easily, we can flush it, pump it, and send it down pipes. We can let the particles settle, and stir them up again with ease.

Why some folks still think solid manure handling is superior to liquid handling is another mystery to ponder.

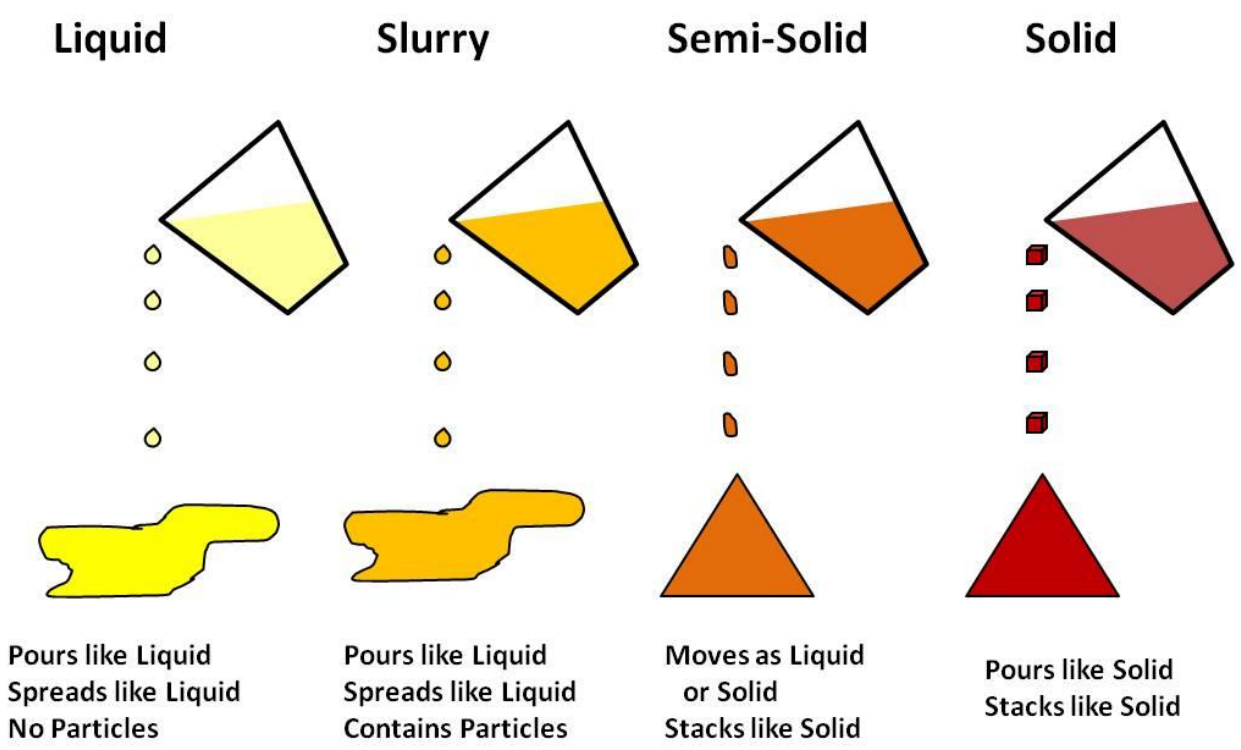


Figure 1. Four States of Manure Consistency (from OSU Factsheet, *Consistency of Manure/Water Mixtures*, in review).

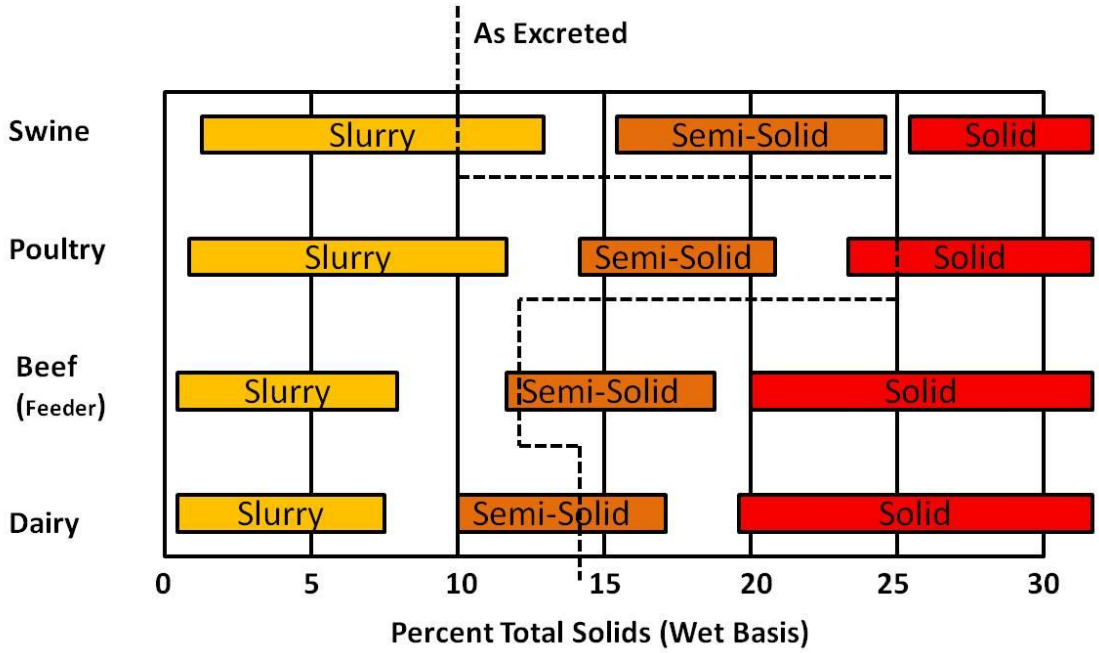


Figure 2. Consistency of Different Types of Manure Based on Solid Content (from USDA-NRCS. 1992. *Agricultural Waste Management Field Handbook*. Washington, D.C.: USDA Natural Resources Conservation Service).