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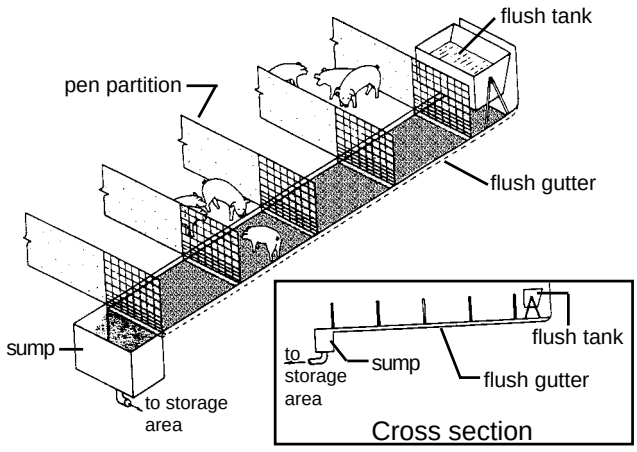
New Construction Ideas for Healthier Pigs—Flushing System

A flushing system is a manure-handling system that transfers solid and liquid wastes from a pig pen to a storage area through a shallow flushing gutter. A flushing system works best where pigs are either housed in groups in a row of pens or individually in a row of pens.

This system incorporates a shallow channel that is flushed periodically. A tipping bucket is designed to collect the water used for flushing the open gutters. The system works in the following manner:

- Solid and liquid waste gutters (10 cm deep x 1 m wide/4 inches x 3–4 ft), located at the rear of the pen, get flushed.
- An automatic tipping tank slowly fills and, when full, dumps flushing water down the gutter.
- All manure flushes to a tub, tank or pond, where the solid wastes settles out.



Swine flush gutter with tipping bucket tank

* Source: Hawaii State Department of Health, Wastewater Branch. *Guidelines for Livestock Waste Management.* 1996.

- The gutter should be sloped 2½ cm drop on a 3 m run (1 inch drop on a 8–10 ft run).

Benefits of a flushing system

Flushing is an effective way to clean wastes from underneath woven wire floors in farrowing and nursery areas. See ADAP fact sheet 2003-6 on *New Construction Ideas for Healthier Pigs–Farrowing and Nursery*. Other advantages of using a flushing system to handle manure include:

- Time and energy saved as daily washing of the pens by hand is not needed.
- Water saved; flushing cuts down water use.
- Rainwater or recycled wastewater can be collected and used for the flushing system.
- Pigs can use the flush water to cool off.

Flushing system considerations

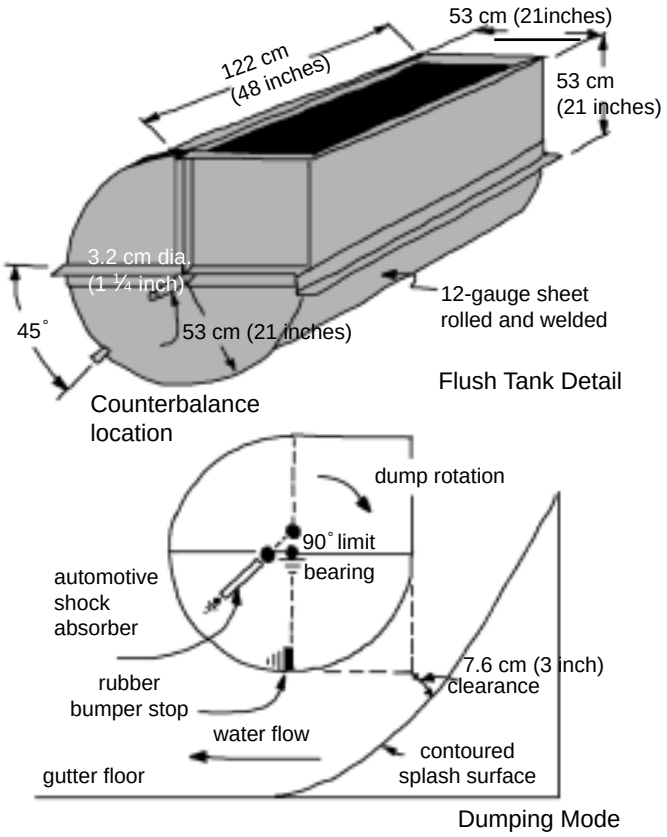
There are some concerns to keep in mind when using a flushing system to handle the solid and liquid wastes in a pig operation.

- Do not use with pigs under 18 kg/40 lb housed on concrete floors because undersized pigs can get hurt with the sudden release of flushing water.
- Pigs can be exposed to disease as the flush water moves manure down the line of pens. At low levels, this exposure can assist in maintaining an effective level of disease resistance without the need for vaccination.
- To avoid exposing pigs to high levels of disease in flush water, sick pigs should be separated or housed in the last pen in the row being flushed out.

The intent of this fact sheet is to provide introductory information on swine waste management methods that have been tested on Pacific island farms. Some may be more applicable than others and may need to be modified to make them more suitable. There may also be other suitable methods not outlined here.

Flush tank

The flush tank is actually a bucket that tips when enough water is collected. The bottom half of the bucket is identical on both the left and right sides, thus keeping it balanced. The top half of the bucket is heavier on the square side so that when the water fills to the top, the tank is no longer balanced and automatically tips over. The bucket can be set to tip two or three times a day by adjusting the rate at which water trickles into it.



Cylindrical self-dumping flush tank

MidWest Plan Service. *Livestock Waste Facilities Handbook.* Iowa State University. MWPS-18. 1985.

For additional resources and publications, refer to ADAP fact sheet 2003-11 on *Additional Information for Swine Waste Management.*

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