



EFFLUENT SOLIDS STORAGE

STANDARD 2 IN THE CODE OF PRACTICE FOR DAIRY FARM EFFLUENT MANAGEMENT WA: SOLIDS MANAGEMENT

Manure solids generated on dairy farms are a valuable source of nutrients and organic matter for soil fertility and plant growth.

All solids collected from the effluent management system, feedpad, or housing facility should be stored on an impermeable surface to prevent nutrients leaching into groundwater. Any drainage or contaminated runoff from the pad should be directed back into the effluent management system.

The solids can be dried or composted to reduce odour emissions and improve options for handling and reuse. Table 1 compares the benefits of a stockpile versus a composting system. Manure stockpiling is best used for short-term or temporary storage of effluent solids, waiting for the right opportunity to spread on pasture. Composting requires careful management to control temperature, moisture, C:N ratio and aeration over an extended period. It involves adding straw, sawdust or hay to manure to balance the carbon requirement, and regular turning of the pile.

Key Considerations for Solids Storage

Construction:

- Use an impermeable clay or concrete liner
- Direct drainage to effluent management system and divert stormwater
- Size appropriately for volume of solids
- Ensure machinery can easily access solids
- Maintain appropriate distances from neighbours, waterways and other sensitive areas (refer to *Code of Practice for Dairy Effluent WA*, page 22)

Management:

- Store manure solids and sludge to promote the drying or composting process
- Ensure the compost or manure stockpile nutrient profile is analysed at least annually and utilised for production purposes
- Strategically apply solids to pasture and crops based on nutrient analysis results and soil fertility status

Table 1: Benefits of manure stockpiles compared to composted storage options for effluent solids

System Type	Benefits
Manure stockpile	<ul style="list-style-type: none"> • Reuse as organic fertiliser, easily spread around the farm • Low maintenance process and options to spread are available
Composted solids	<ul style="list-style-type: none"> • Reuse as bedding material or organic fertiliser, easily spread around farm • Pathogens and common weeds destroyed during composting process



Department of **Water and Environmental Regulation**
Department of **Primary Industries and Regional Development**



This project is a part of Healthy Estuaries WA – a State Government program that aims to improve the health of our South West estuaries.

CASE STUDY: EVANS FAMILY, JINDONG

Herd Size: 800 cows

Farm Size: 485ha

Shed type: 70-stand rotary

System details

The milking platform and pit is hose-washed with fresh water and the main holding yard is flood-washed daily with recycled effluent water. A trafficable solids trap has been installed with a weeping wall to separate the solids. The semi-solid material needs to be removed with a front-end loader monthly. The solids are stored on an adjacent 50 m³ concrete bunker to dry out before spreading with a muck spreader onto grazing or silage paddocks with lower fertility. The liquid effluent is pumped from a sump to the two-pond storage system and is applied to 40ha of dryland pasture with a travelling irrigator.



Concrete solids storage area (left) with bunded walls and drainage diverted back into the trafficable solids trap (right).

"The pad has plenty of capacity and the concrete extension between the trafficable trap and the solids pad in front means the loader doesn't chop up the laneway during winter."

GRANT EVANS

What's working well?

The pad is appropriately sized which allows time for solids to be stored safely when the farm gets busy or during periods of wet weather. The internal wall allows any run-off to be recaptured by the effluent system. The pad is big enough that it can also handle solids from the feed pad during peak use over summer.

"In winter the solids are quite loose, but in summer we hope to be able to dry the solids and spread onto silage paddocks."

GRANT EVANS



Trafficable solids trap next to effluent storage area that allows separation of solids and recollection of liquids for pond storage.



This recommended management practice/technology meets Standard 2 in the Code of Practice for Dairy Farm Effluent WA: Solids Management.

Further information

Solids storage and management is ranked as a viable management practice in WA. This feasibility ranking is based on best available knowledge and considers ease of management, cost, availability, maintenance, integration, and likelihood of success (Price & Tait 2019).

Visit westerndairy.com.au to view a list of all viable management practices and technologies in WA.

Contact: Dan Parnell, DairyCare Project Manager

E: dan.parnell@dairyaustralia.com.au

M: 0467 556 542