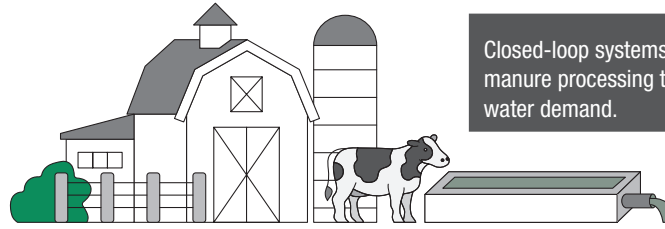


Optimizing Water Management on Dairy Farms



Water is one of a dairy's most critical resources. It plays an essential role in manure handling, sand separation and overall system performance.

Effective water management can reduce costs, improve system performance and support sustainability goals.



Closed-loop systems reuse water from manure processing to reduce fresh water demand.

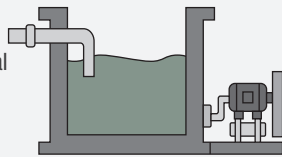


Water Inputs in Manure Management and Sand Separation

In a Closed-Loop Sand-Manure Separation System, recycled water from the manure stream and parlor wastewater dilute incoming sand-laden manure so heavier sand can settle out. Recycled water helps reduce fresh water needed for dilution, which can help manage fresh water input costs. Fresh water is still used to rinse separated sand, clean screens and support clean-in-place systems on Rotary Drums.

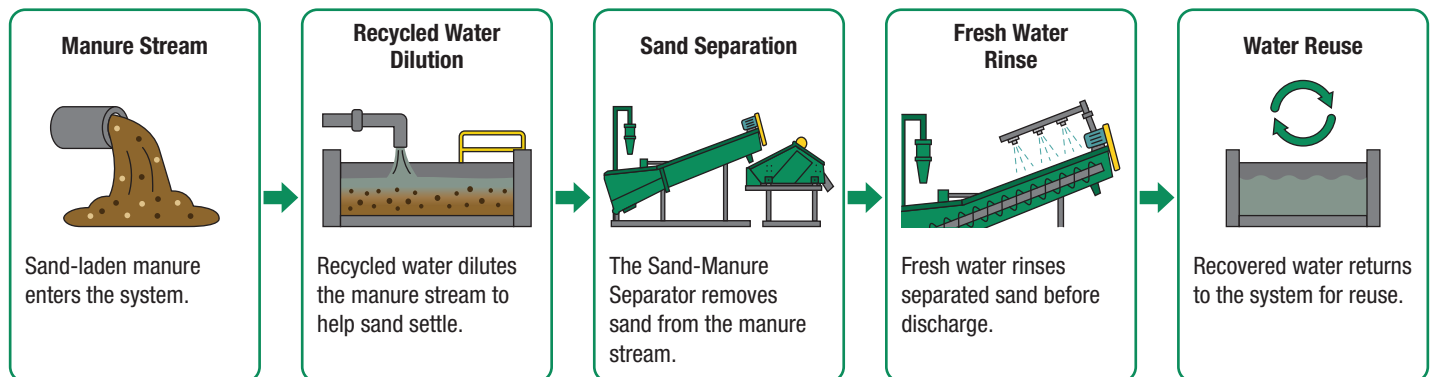
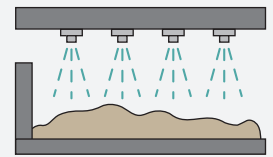
Recycled Water

- Recycled water can come from several wastewater streams, with parlor wastewater being a common source.
- Recycled water is pumped into the Sand-Manure Separator to dilute incoming sand-laden manure.
- Dilution helps heavier sand settle out of the manure stream inside the Sand-Manure Separator.
- Recycled water used for dilution typically ranges from 80 to 500 gallons per minute, depending on herd size and system design.
- Recycled water averages 4% to 5% total solids and works best for sand separation when total solids stay below 5%.



Fresh Water

- Fresh water use ranges from 3 to 5 gallons per minute, depending on system design and operational needs.
- Fresh water is added at the top of the Sand-Manure Separator discharge area to rinse sand before discharge.
- Water usage for Liquid-Solid Separator cleaning varies by equipment and system design.
- For example, a McLanahan Rotary Drum averages 1 gallon of fresh water per minute for cleaning.
- McLanahan Sand-Manure Separation Systems with Rotary Drums use approximately 4 to 5 gallons of fresh water per cow per day.



Best Practices



- Maintain recycled water below 5% total solids
- Use flow meters on key water inputs
- Balance recycled and fresh water for optimal separation
- Regularly inspect and clean screens and drums

Measuring Water Usage

Track fresh water inputs daily and monthly. Installing flow meters can help monitor water use across key areas of the dairy.

Key Areas to Review

Milking Operations

- ☐ Milking parlor

Animal Care

- ☐ Drinking water
- ☐ Sprinkler
- ☐ Calf management

Manure & Sand Systems

- ☐ Sand-Manure Separation system
- ☐ Flush system
- ☐ Rotary Drum

Crop Production

- ☐ Irrigation equipment