



LIVESTOCK WATER RECYCLING

Impact Story

INDUSTRY: Dairy **LOCATION:** United States
SIZE OF HERD: 3,000 Lactating Cows **CROPS FARMED:** Corn, alfalfa, fruit orchards

OBJECTIVES:	Clean flush	Eliminate Odor	Reduce Trucking
	Reduce Storage Lagoons	Directly Apply Nutrients to Growing Crops	Reduce labor
	Improve Fiber Separation	Reduce manure management distractions	Improve herd health

THE RESULTS:



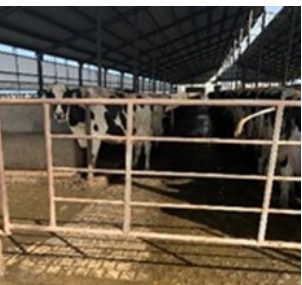
CLEAN ODORLESS FLUSH

- Less than 1% solids
- Free draining liquids
- Eliminated odor and barn gas
- Reduced incidents of mastitis
 - *Reduced by 80% on a customer farm*
- Lowered somatic cell counts
 - *SCC reduced by 70,000*
- Efficient sand lanes w/ removal of 95%



NUTRIENT MANAGEMENT

- Nutrients isolated into two distinct fertilizers
- Enhanced fertilizer exports increases revenues
- Solids eliminated from lagoon
- Suspended solids sent to long-term storage
- Higher value, nutrient-rich compost
- Pivot or drip irrigate manure liquids
- Reduced salts, nitrogen and phosphorus impacts
- Reduced liability
- GHG credits and revenue



CLEAN NON-SLIP FLOORS

- Eliminated floor slip
- Improved feeding behavior
- Downed cow rate reduced by 70% on a customer farm
- Reduced hoof infections
- Increased pregnancy rates



FIBER SEPARATION & COMPOST

- Eliminated fine particles and grease in fiber
- Increased fiber capture and output
- Reduced screen plugging
- Less turns required for composting
- Higher value compost
- Lighter compost reduces transport costs

Research indicates that each 25,000 reduction in SCC increases milk by up to 2 pounds per cow per day.

90% of suspended solids are removed for export and use as phosphorus / organic nitrogen fertilizer.

Manure treatment has shown the potential to increase pregnancy rates while reducing disease and injury in the herd!



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CHANGES IN PRODUCTION EFFICIENCIES WITH THE FIRST WAVE SYSTEM

Advanced nutrient recovery technology has a positive ripple effect throughout the farm. Not only has it be found to increase the value of nutrient rich compost through improved fiber capture, but it assists in achieving balanced nutrient application. Manure nutrients and organics are preserved before being precisely applied directly to crops. This results in healthier soils and easier nutrient uptake which increases crop yields.

By eliminating odors and barn gases, animals are less stressed. Chronic stress, where poor environmental conditions have a longer-term effect, can lead to various metabolic systems such as the immune and reproductive systems being adversely affected by the production of cortisol ([source](#)). Cleaner flush has resulted in cleaner floors which reduces slippage decreases the number of downed cows. Nutrient recovery reduces liability, increases cow comfort, and restores the health of the farming ecosystem.

PRIOR TO THE INSTALLATION OF THE LWR SYSTEM

Description	Unit Cost	Total
Lagoon Maintenance and Manure Spreading	-	\$ (285,000.00)
Centrifuge Operation	-	\$ (200,000.00)
Downed Cows	260 @ \$950	\$ (247,000.00)
Liability	-	\$ (25,000.00)
Odor	-	\$ (25,000.00)
PREVIOUS COSTS		\$ (782,000.00)

AFTER THE INSTALLATION OF THE LWR SYSTEM

Description	Unit Cost	Total
LWR Operating Costs (grō 17)	-	\$ (292,000.00)
Downed cows, liability, odor	78 @ \$400	\$ (31,200.00)
NEW COSTS		\$ (323,200.00)

Description	Unit Price	Total
Increased pregnancy rates by 1% by eliminating barn gases and reducing stress	8,000 cwt @ \$16	\$128,000.00
Enhanced compost with cleaner fiber for better bedding. Improved fiber screen performance to capture more fiber	-	\$10,000.00
Nutrient sales (solid fertilizer)	10,950 tons @ \$15	\$164,250.00
Voluntary greenhouse gas credits	12,000 tons @ \$4	\$48,000.00
Increased milk production through reduction of odor, somatic cell counts, and mastitis	4,234 cwt @ \$16	\$67,744.00
Increased yields as a result of irrigating clean liquids through drip or pivot directly onto growing crops	400 acres of corn @ \$45	\$18,000.00
Risk reduction, improved employee relations, reduced environmental impacts of nutrients and salt, protected groundwater	-	\$15,000.00
NEW REVENUE		\$450,994.00

CHANGE IN EFFICIENCY \$909,794.00