

NUTRIENT RECYCLING CHALLENGE



LIVESTOCK WATER RECYCLING, INC.

ABSTRACT

Livestock Water Recycling, Inc (LWR) has a passion for manure and waste management. This passion grew out of a desire to clean the world's water and make a difference in how the world manages manure.

This manure treatment technology is used at dairy, hog, and anaerobic digester operations to economically capture and concentrate the valuable nutrients contained in livestock manure, while recycling up to 75% clean, reusable water. The result is reduced transport and handling costs, improved operating profit margins, 100% nutrient accessibility, clean reusable water, reduced greenhouse gas emissions, reduced odor, and a 75% smaller manure footprint.

The process technology can integrate with any liquid manure livestock operation and is compatible with flush, scrape, deep pit, lagoon, anaerobic digester, and solid-liquid separators. By chemically conditioning the manure stream, fine solids are removed from the water. The system creates the following outputs:

- **Water:** A completely nutrient free effluent; Clean, potable water accounts for seventy to eighty percent (70%-80%) of the liquid volume. The water can be reused for crop irrigation, cleaning or watering of livestock.
- **Nutrient Solids:** Dry and rich in phosphorus, solids can be strategically land-applied to crops as fertilizer to increase crop production. The solids also contain trace amounts of potassium and nitrogen.
- **Liquid Nutrient Concentrate** –Containing ammonium sulphate and potash, the liquid concentrate is fifteen to thirty percent (15–30%) of the total liquid volume and can be strategically land applied as crop fertilizer. It is stabilized for easy transport to neighboring farms.

With more than a dozen installations across multiple states including Wisconsin, Michigan, Indiana, and New York, three problems have been discovered with the current manure treatment system. Two concepts have been introduced to address these issues.

