

# REDUCING BACTERIA WITH BEST MANAGEMENT PRACTICES FOR LIVESTOCK: WASTE STORAGE FACILITY

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## Description

A waste storage impoundment made by constructing an embankment and/or excavating a pit or dugout, or by fabricating a structure. The primary purpose of this practice is to temporarily store wastes such as manure, wastewater, and contaminated runoff as a storage function component of an agricultural waste management system. An optimal use of waste storage is to improve the timing of manure applications so that manure nutrients are distributed to fields based on crop needs and soil fertility tests, instead of repeated applications on the same field based on convenience.

## Benefits to Producer

- ▶ Improves water quality by reducing sediment, nutrient, bacterial, organic, and inorganic loading to the stream.
- ▶ Improves timing of manure applications.
- ▶ Saves wear and tear on farm equipment by reducing the need to spread manure during winter months when soil might be frozen.



Horse manure storage area.  
 Photo courtesy of the Livestock and Poultry Environmental Learning Center.

## Bacterial Removal Efficiency

- ▶ Long-term manure storage (6 to 30 weeks) resulted in the following bacterial reductions based on scientific research:
  - *E. coli*: 97% to >99%
  - Fecal coliform: 44% to >99%
  - Fecal *streptococci*: 46% to >99%
  - Total coliform: >99%
- ▶ Waste storage facilities can be used in conjunction with other practices such as fencing, filter strips, and heavy use area protection. These practices have been shown to reduce concentrations of bacteria.

## Other Benefits

- ▶ Decreased average annual load of total suspended solids (TSS) by 19%.
- ▶ Decreased average annual load of nitrate-nitrogen by 17%, t-soluble nitrogen by 33%, total nitrogen by 35%, particulate nitrogen by 38%, ammonium-nitrogen by 45%, and soluble organic nitrogen by 52%.
- ▶ Decreased average annual load of soluble phosphorus by 23%, total phosphorus by 54%, soluble organic phosphorus by 66%, and particulate phosphorus by 72%.
- ▶ Decreased weed viability (broadleaf and grass species) by 65% to 70%.
- ▶ Enhanced availability of nitrogen and potassium.



Manure storage shed. Photo courtesy of TJ Farms.

## Estimated Installation Costs

- ▶ Small storage tank (limited to 2,000 gallons): \$2.19/gallon.
- ▶ Waste storage pond: \$2.50/yd<sup>3</sup>.
- ▶ Prices are estimates and can vary depending on location and economic conditions.

## For Technical or Possible Financial Assistance

- ▶ Contact your local County Extension Agent, Soil and Water Conservation District (<https://www.tsswcb.texas.gov/swcbs>) or the Natural Resources Conservation Service (<https://www.nrcs.usda.gov>).

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