

# REDUCING BACTERIA WITH BEST MANAGEMENT PRACTICES FOR LIVESTOCK: WASTE UTILIZATION

Jennifer L. Peterson<sup>1</sup>, Larry A. Redmon<sup>2</sup>, and Mark L. McFarland<sup>3</sup>

## Description

Using agricultural wastes such as manure and wastewater or other organic residues.

## Benefits to Producer

- ▶ Improves water quality by reducing nutrient, bacterial, and organic loading to the stream.
- ▶ Improves timing of manure applications.
- ▶ Protects air quality.
- ▶ Provides fertility for crop, forage, fiber production, and forest products.
- ▶ Improves and maintains soil structure.
- ▶ Provides feedstock for livestock.
- ▶ Provides a source of energy.

## 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%
- Total coliform: >99%
- Fecal coliform: 44% to >99%
- Fecal *streptococci*: 46% to >99%



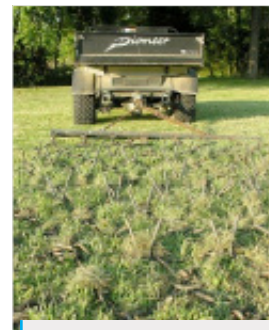
A manure slurry is applied to this field to help manage the animal waste and to add nutrients to the soil. *Photo courtesy of Tim McCabe, NRCS.*

- ▶ 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. Refer to these practice descriptions in this resource manual for more in depth information on bacterial removal efficiencies.

## 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.



A tine harrow will help break up and spread horse manure evenly while also depriving flies of a breeding medium. *Photo courtesy of Ranch Ramblins*

## Estimated Installation Costs

- ▶ \$20.45/acre to \$44.74/acre.
- ▶ 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/swcds>) or the Natural Resources Conservation Service (<https://www.nrcs.usda.gov/>).

## For More Information

- ▶ Read publication AGEN-PU-049, Rainwater Harvesting for Livestock, which can be found at AgriLife Learn: <https://agrilifelearn.tamu.edu/s/product/rainwater-harvesting-livestock/01t4x000004OfXSAA0>.

<sup>1</sup> Extension Program Specialist

<sup>2</sup> Professor and State Forage Specialist

<sup>3</sup> Professor and State Soil Fertility Specialist



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