

Where to find information

Contact your local University of Nebraska Extension office or local Natural Resources Conservation Service office at:



Additional information is also available on the following web sites.

Livestock and Poultry Stewardship Curriculum, Small Farm Factsheet Series:
"Got Barnyard Runoff?"
"Need a Vegetative Treatment System for your Barnyard or Lot?"
www.lpes.org

Heartland Regional Water Coordination Initiative:
www.heartlandwq.iastate.edu/ManureManagement/AlternativeTech/vtsguidance/

Livestock Producer Environmental Assistance Project:
afo.unl.edu



Partners:

- University of Nebraska Extension
- Nebraska Farm Bureau Federation
- Nebraska Cattlemen
- Nebraska Pork Producers Association
- Central Platte Natural Resources District
- Nebraska Department of Agriculture
- Nebraska Department of Environmental Quality
- USDA Natural Resources Conservation Service



"Helping people help the land"

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Vegetative Treatment Systems

Alternative treatment options for livestock feeding operations
Future Solutions Now



Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln
and
USDA Natural Resources Conservation Service

The components of a Vegetative Treatment System

A Vegetative Treatment System (VTS) is a system that can be applied on small to medium sized, open lot, livestock feeding operations. The main components of a Vegetative Treatment System are:

Sediment Basin

A sediment basin is required to capture the 25-yr., 24-hr., runoff; and settle solids from the feedlot. This is necessary to minimize nutrients to; and prevent excessive sedimentation in the Vegetative Treatment Area.

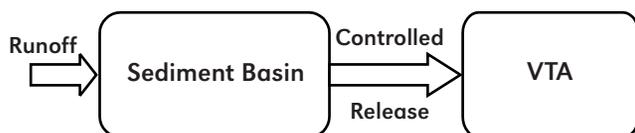
Vegetative Treatment Area (VTA)

A vegetated area composed of perennial vegetation, used for the treatment of runoff from an open lot.

Water Distribution System

Uniform application of runoff into the VTA is critical. Uniform flow is achieved by applying feedlot runoff from the sediment basin at a controlled flow rate and spreading the flow across the entire area. This can be accomplished by using gated pipe, level berms or mechanical systems.

Typical VTS System Layout



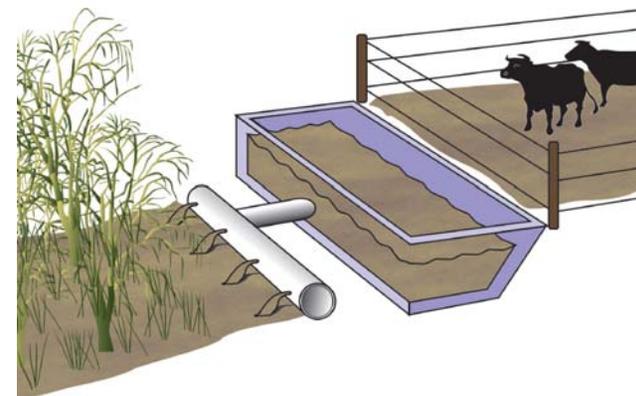
How a Vegetative Treatment System functions

A VTA is commonly confused with vegetative buffer (or filter) strips. A buffer strip is a narrow strip of vegetation (usually 30-60 feet wide), between cropland and a stream or other surface water, while a VTS is a system to completely control runoff.

A VTS should consume the water and utilize the nutrients in the liquid runoff. The operation of the sediment basin is the same as is required in traditional waste storage systems, as a VTS takes the place of a holding pond and irrigation system. The solids from the sediment basin must be removed periodically and land-applied according to a nutrient management plan.

Because the VTA is designed to utilize nutrients from the production area, no additional nutrients can be introduced. This means that the vegetation must be harvested and removed. Livestock cannot be allowed to graze the VTA. The hay can be used as supplemental feed or bedding for the operation.

A VTA uses the water holding capacity of the soil to store runoff water until the nutrients and water can be used by the vegetation. The application of the runoff to the VTA must be at a rate that is high enough to prevent deep percolation past the root zone, yet low enough that flow does not extend past the end of the treatment area during the design runoff event.



Factors influencing the design and layout of a VTA

Generally, the space required for a vegetative treatment area is about 1.0 to 1.5 acres for each acre of contributing feedlot area.

Runoff from non-lot contributing areas must be eliminated to the greatest extent possible.

Runoff from the contributing lot areas are collected and transferred to the VTA via gravity. If gravity transfer is not possible, a pumping system can be installed to distribute nutrients to the VTA.

Soil characteristics in the VTA, including, soil type, permeability, and water holding capacity will affect the design of the VTA.

An adequate area of land is required that can be economically shaped to the proper grades to facilitate uniform application of runoff to the VTA.

The depth to static ground water at the location of the VTA must be considered.