Alternative Watering Facility

Alternative watering facilities typically involve the use of permanent or portable livestock water troughs placed away from the stream corridor. The source of water supplied to the facilities can be from any source including pipelines, spring developments, water wells, and ponds. In-stream watering facilities such as stream crossings or access points are not considered in this definition. The modeled benefits of alternative watering facilities can be applied to pasture acres in association with or without improved pasture management systems such as prescribed grazing or PIRG. They can also be applied in conjunction with or without stream access control.

Efficiencies:
TN: 5%
TP: 8%

Conservation Plans

Farm conservation plans are a combination of agronomic, management and engineered practices that protect and improve soil productivity and water quality, and prevent deterioration of natural resources on all or part of a farm. Plans may be prepared by staff working in conservation districts, natural resource conservation field offices or a certified private consultant. In all cases the plan must meet technical standards.

Efficiencies:
TN efficiency for conventional tillage: 8%
TP efficiency for conventional tillage: 15%
TN efficiency for conservation tillage or hay: 3%
TP efficiency for conservation tillage or hay: 5%
TN efficiency for pasture: 5%
TP efficiency for pasture: 10%

Decision Agriculture

Decision Agriculture is a management system that is information and technology based, is site specific and uses one or more of the following sources of data: soils, crops, nutrients, pests, moisture, or yield for optimum profitability, sustainability, and protection of the environment. This BMP is modeled as a land use change to a nutrient management land use with an effectiveness value applied to create an additional reduction.

Efficiencies:
TN: 3.5%

Horse Pasture Management

Horse pasture management involves stabilizing overused small pasture containment areas (animal concentration area) adjacent to animal shelters or farmstead. Horse Pasture Management is mutually exclusive with Prescribed Grazing.

Efficiencies:
TP: 20%
TSS: 40%

Prescribed Grazing/Precision Intensive Rotational Grazing

This practice utilizes a range of pasture management and grazing techniques to improve the quality and quantity of the forages grown on pastures and reduce the impact of animal travel lanes, animal concentration areas or other degraded areas. PG can be applied to pastures intersected by streams or upland pastures outside of the degraded stream corridor (35 feet width from top of bank). The modeled benefits of prescribed grazing practices can be applied to pasture acres in association with or without alternative watering facilities. They can also be applied in conjunction with or without stream access control. Pastures under the PG systems are defined as having a vegetative cover of 60% or greater.

Efficiencies:
TN: 9-11%
TP: 24%
TSS: 30%

Water Control Structures
Water Control Structures involve installing and managing boarded gate systems in agricultural land that contains surface drainage ditches. The structure is placed in a drainage ditch receiving runoff from the production area to regulate and manage drainage water and to improve water quality by trapping sediment and nutrients. The benefits include total volume reduction, nutrient concentration reduction, and the reduction of inorganic nitrogen concentration through denitrification or recycled for plant growth

Efficiencies:
TN: 33%

Phosphorus Sorbing Materials in Ditches

Use of phosphorus sorbing materials to absorb available dissolved phosphorus in cropland drainage systems for removal and reuse as an agricultural fertilizer. These in-channel engineered systems can capture significant amounts of dissolved phosphorus in agricultural drainage water by passing them through phosphorus-sorbing materials, such as gypsum, drinking water treatment residuals, or acid mine drainage residuals. The proposed practice is applied on a per acre basis, and can be implemented and reported for cropland on both lo-till and hi-till uses that receive or do not receive manure.

Efficiencies:
TP: 40%

Stream Access Control with Fencing

This BMP involves excluding a strip of land with fencing along the stream corridor to provide protection from livestock. The fenced areas may be planted with tree or grass, or left to natural plant succession, and can be of various widths. To provide modeled benefits of a functional riparian buffer, the width must be a minimum of 35 feet from top-of-bank to fence line. The implementation of stream fencing provides stream access control for livestock but does not necessarily exclude animals from entering the stream by incorporating limited and stabilized in-stream crossing or watering facilities. The modeled benefits of stream access control can be applied to degraded stream corridors in association with or without alternative watering facilities. The source of water supplied to the facilities can be from any source including pipelines, spring developments, water wells, and ponds.

Riparian/Conservation Buffers

- Riparian/Conservation Forest Buffer: They are linear wooded areas with well-developed root systems, an organic surface layer, and understory vegetation adjacent to open water. Conservation buffers are linear wooded areas along field edges, down-slope of agricultural fields. Forest buffers help filter nutrients, sediments and other pollutants from runoff as well as remove nutrients from groundwater. The recommended buffer width for riparian forest and grass buffers (agriculture) is 100 feet, with a minimum width of 35 feet required. The wider the buffer is, the greater the variety and the higher the quality of benefits.

  Efficiencies:
  TN: 19-65%; varies geographically
  TP: 30-45%; varies geographically
  TSS: 40-60%; varies geographically

- Riparian/Conservation Grass Buffer: Linear strips of grass or other non-woody vegetation maintained between the edge of fields and streams, rivers or tidal waters. Conservation grass buffers are located down-slope of an agricultural field but do not need to be on the edge of streams or rivers. The recommended buffer width for riparian grass buffers (agriculture) is 100 feet, with a 35 feet minimum width required. Grass buffers treat nitrogen from an upland area four times the acreage of the buffer and treat phosphorus from an upland area two times the acreage of the buffer. New buffer area is treated as a land use conversion from cropland to grass.

  Efficiencies:
  TN: 13-46%; varies geographically
  TP: 30-45%; varies geographically
  TSS: 40-60%; varies geographically

Fertilizer Application Setback

The Chesapeake Bay states either require or recommend using a certain setback standard for fertilizer application. For example in Maryland, no fertilizer applications are permitted within 15 feet of waterways. This setback is reduced to 10 feet if a drop spreader, rotary spreader with deflector or targeted spray liquid is used to apply the fertilizer. Fertilizer setback is credited as a landuse conversion to "hay without nutrients" for the area of the setback.

Other Land use Conversion

Intensively used agricultural land can be converted into grass or forest cover. Upland tree plantings, for example, convert crop or pasture land into forest. Hedgerow plantings or grassed swales are examples of land use conversions to grass.

Wetland Restoration

Agricultural wetland restoration activities re-establish the natural hydraulic condition in a field that existed prior to the installation of subsurface or surface drainage. Project may include restoration, creation and enhancement acreage. Restored wetlands may be any wetland classification including forested, scrub-shrub or emergent marsh.

Efficiencies:
TN: 7-25%; varies geographically
TP: 12-50%; varies geographically
TSS: 4-15%, varies geographically