

Interim BMP: Agricultural Stormwater Management Chesapeake Bay Program Phase 6.0 Modeling Tools

Agriculture Workgroup
September 20, 2017

BMP Name: Agricultural Stormwater Management

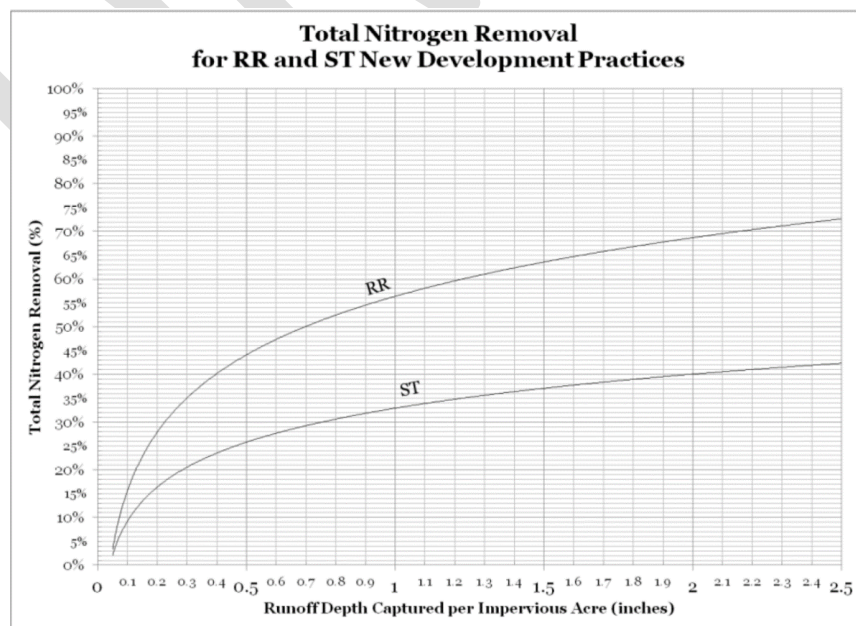
BMP Definition: This BMP represents the management of agricultural stormwater associated with confined agricultural livestock production landuse areas through practices that reduce nutrient and sediment pollutant loads through mechanisms such as settling or filtering. Stormwater management can be accomplished by several engineered practices.

BMP Treatment Categories:

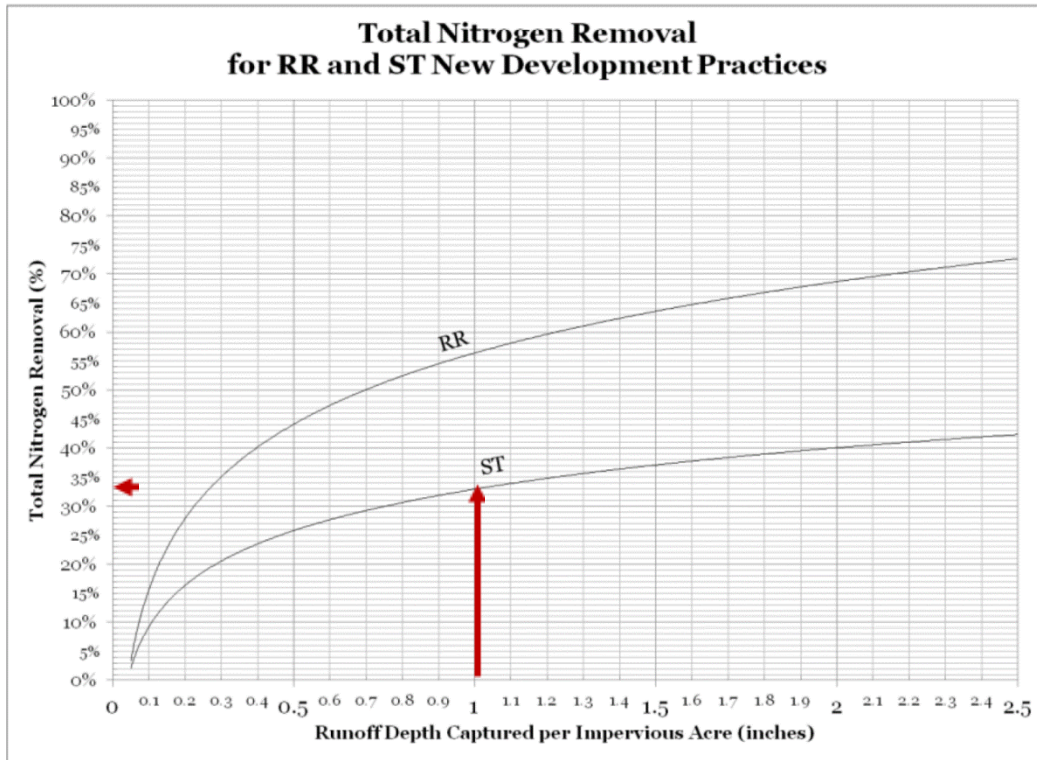
- Constructed Wetlands
- Filtering Practices
- Wet Swale
- Wet Ponds

Measurement Names to be submitted: acres; impervious acres; acres-feet; county of treatment acres, predominant type of livestock treated

Model Simulation: In recent years, the Urban Stormwater Workgroup developed performance curves for urban stormwater control basins. The ST, or stormwater treatment, curve displayed in the figure below was calculated based upon a relationship between volume of water treated and nutrient influent and effluent concentrations monitored in dozens of control basins across the watershed. Similar figures are available for phosphorus and sediment. While agricultural stormwater basins may differ in technical specifications, it may be possible to assume that they trap and attenuate nutrient and sediment influent in a similar manner as urban stormwater basins.



Contingent upon approval by the Agriculture Workgroup of this interim BMP recommendation, States will need to define the average performance standard for their state. These performance standards would then be used to combine then represent default credit for agricultural stormwater management systems in each state. An example of the default credit calculation for a performance standard of 1 inch is shown in the figure below. This level of treatment would reduce nitrogen runoff from confined livestock production by approximately 33%.



It will also be possible for jurisdictions with detailed engineering data to receive variable credit based upon the treatment specifications for each stormwater management system. To receive this credit, states would have to provide: acres of site treated, impervious acres of site treated, total acre-feet (volume) of water treated, county of treated acres, and predominant type of livestock treated.

States will submit acres of agricultural livestock production areas treated in a way consistent with the interim BMP definition. Acres reported on an annual basis will be associated with default pounds of N and P in the Phase 6.0 Model for representative livestock types. The Agricultural Modeling Subcommittee (AMS) has defined the pounds of N and P per acre of agricultural livestock production area based on available literature values. The AMS recommendations have been reviewed and approved by the Agriculture Workgroup (AgWG) for use in the Phase 6.0 modeling tools.

The Chesapeake Bay Program Office will create an interim BMP for Phase 6.0 that will be listed as "DRAFT" in the NEIEN Appendix. This will allow states to use the interim BMP for planning purposes, and to report subsequent implementation information to NEIEN. However, the interim BMP will not receive credit through annual progress reporting until the availability of a partnership approved BMP Expert Panel recommendation report.

References Cited:

Comstock, S., S. Crafton, R. Greer, P. Hill, D. Hirschman, S. Karimpour, K. Murin, J. Orr, F. Rose, S. Wilkins, 2012. Recommendations of the Expert Panel to Define Removal Rates for New State Stormwater Performance Standards. Prepared by T. Schueler and C. Lane for EPA Chesapeake Bay Program. Urban Stormwater Workgroup.

DRAFT