USC BMP Definitions - Agricultural Best Management Practices (including NEIEN Code Id)

Animal Waste Management Systems or Waste Storage Facility (840, 23)
Practices designed for proper handling, storage, and utilization of wastes generated from confined animal operations. Reduced storage and handling loss is conserved in the manure and available for land application. To get credit a system must include manure storage and provide effective treatment of animal waste produced on the farm. Other component data that are collected are manure transfer, silage leachate treatment, milkhouse waste treatment, manure processing technology and if the manure storage facility is covered with a floating or rigid cover, (does not include a natural crust).

No additional credit will be applied as other components are added. The animal waste management system is farm specific, so different farms will have different components.

Animal waste management systems can be recorded as number of systems AND the ANIMAL UNITS treated by the system or as the number of systems. If no animal units are recorded then the animal waste management systems are assigned the default of 145 animal units for each system by the model.

Barnyard Runoff Controls (27, 28)
Includes the installation of practices to control runoff from barnyard areas. This includes practices such as roof runoff control, diversion of clean water from entering the barnyard and control of runoff from barnyard areas. Different efficiencies exist if controls are installed on an operation with manure storage or if the controls are installed on a loafing lot without a manure storage facility.

Barnyard runoff control systems can be either recorded as number of systems AND the NUMBER OF ANIMALS treated by the system, or as the number of systems. If no animal units are recorded then the barnyard runoff control systems are assigned the default of 145 animal units for each system by the model.

If the system includes heavy use area protection practices (e.g., surfacing to stabilize the heavy use area or water control structures surrounding a heavy use area), then credit can also be given for loafing lot management systems.

Loafing Lot Management System (639, 638)
The stabilization of areas frequently and intensively used by people, animals or vehicles by establishing vegetative cover, surfacing with suitable materials, and/or installing needed structures. This BMP can be used in conjunction with barnyard runoff control systems or as stand-alone practices.

Loafing lot management systems can be either recorded as number of systems AND the ANIMAL UNITS treated by the system, or as the number of systems. If no animal units are recorded then the barnyard runoff control systems are assigned the default of 145 animal units for each system by the model.

Precision Feed Management Dairy (552)
Dairy Precision Feeding is focused on nitrogen (N) and phosphorus (P) management for the lactating portion of a dairy herd. Dairy precision feeding reduces the quantity of phosphorus and nitrogen fed to livestock by formulating diets within 110% of Nutritional Research Council recommended level in order to minimize the excretion of nutrients without negatively affecting milk production.

Credit for this BMP is applied for the lactating portion of a dairy herd that is engaged in NYS Precision Feed Management (PFM), including PFM Benchmarking and implementation of a Feed Management Plan. Key benchmark indicators for CBP modeling purposes are MUN concentrations within a recommended range and ration P within 110% of NRC recommendation.

Precision feeding is recorded in ANIMAL UNITS.
Comprehensive Nutrient Management Plans (542)
Comprehensive Nutrient Management Plans (CNMPs) are defined as a plan to manage manure, process wastewater, fertilizer, and soil conservation across the farmstead facilities and fields of a farm. NYS CNMPs qualify as Enhanced Nutrient Management Planning for Bay Model purposes. Based on research, nutrient management rates of nitrogen application are set approximately 35% higher than what a crop needs to ensure nitrogen availability under optimal growing conditions. In a yield reserve program using enhanced nutrient management, the farmer would reduce the nitrogen application rate by 15%. An incentive or crop insurance is used to cover the risk of yield loss. This BMP effectiveness estimate is based on a reduction in nitrogen loss resulting from nutrient application to cropland 15% lower than the nutrient management recommendation. The effectiveness estimate is based on conservativeness and data from a program run by American Farmland Trust.

CNMPs are recorded in acres. The BMP acres are coded as Enhanced Nutrient Management and will be carried over and applied to the Conservation Plan (67) BMP.

Conservation Plans (67)
Farm conservation plans are a combination of agronomic, management and engineered practices that protect and improve soil productivity and water quality, and to 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.

This BMP is recorded in acres and can be entered alone or carried over from CNMPs recorded in acres.

Conservation Tillage (69)
Conservation tillage requires a minimum 30% residue coverage at the time of planting, and a non-inversion tillage method. Each segment in the Bay Model is assigned a default amount of conservation tillage based on historical data from the Conservation Technology Information Center. Specifying acres under this BMP adds the specified acres to the historical amount. The model treats this as conventional tilled acres converted to conservation till acres.

This BMP is recorded in acres.

Pasture Stream Exclusion Practices
The suite of practices used to fence livestock out of riparian pasture areas. In the Bay Model manure deposited within the riparian pasture area will be simulated as a direct depositional load to a nearby simulated stream, much like a point source discharging directly to a simulated stream in the current model. States can submit stream exclusion practices to deal with the simulated manure deposition based upon the dimensions of the practice (length, or length and width, or acres) and the number of animal units excluded from streams as a result of this practice.

When dealing with dimensions and animal units for each practice, a proxy for livestock stocking rates on pasture are needed to accurately estimate the amount of manure to move back to pasture acres for each acre of exclusion fencing. In the future NYS will estimate their own animal units/acre of exclusion conversion rate, but for now, it is recommended that average rates estimated by VA be used. These rates are:

- Beef – 22.2 animal units/acre excluded
- Dairy – 43.6 animal units/acre excluded
- Livestock – 22.9 animal units/acre excluded

Animal units are not required to be submitted for each practice. NEIEN is set up to require dimensions of each practice (length X width). The dimensions will then be converted to animal units based upon the default conversion rates listed above. Submission of animal units for each practice along with dimensions is an option. By submitting both the
dimensions and animal units, Scenario Builder will have the most accurate numbers to simulate each practice. The animal type, will be determined using the AEM farm type that is recorded in the database. If no type is recorded then the default of Livestock will be used.

**Exclusion Fence with Grass Buffer (951, 952, 954)**
This BMP should be submitted for any fencing project along pastured streams that creates grass or herbaceous areas at least 35 feet in width. The BMP will convert pasture to agricultural open space (Phase 6 equivalent of hay without nutrients), and will fence livestock out of streams, moving the streamside depositional load back to pasture acres. The BMP will also receive an upslope, grass buffer efficiency benefit.

This BMP will be recorded in length of the exclusion fencing and width of the buffer. If known, the number of ANIMAL UNITS excluded by the project can also be entered. If animal units are not provided default conversions from acres excluded to animal units will be applied.

**Exclusion Fence with Narrow Grass Buffer (961, 962, 964)**
This BMP should be submitted for any fencing project along pastured streams that creates grass or herbaceous areas less than 35 feet in width. The BMP will convert pasture to agricultural open space, and will fence livestock out of streams, moving the streamside depositional load back to pasture acres, but will NOT receive an upslope, grass buffer efficiency benefit.

This BMP will be recorded in length of the exclusion fencing and width of the buffer. If known, the number of ANIMAL UNITS excluded by the project can also be entered. If animal units are not provided default conversions from acres excluded to animal units will be applied.

**Exclusion Fence with Forest Buffer (956, 957, 959)**
This BMP should be submitted for any fencing project along pastured streams that includes tree plantings to create a forest buffer area at least 35 feet in width. The BMP will convert pasture to forest, and will fence livestock out of streams, moving the streamside depositional load back to pasture acres. The BMP will also receive an upslope, forest buffer efficiency benefit.

This BMP will be recorded in length of the exclusion fencing and width of the buffer. If known, the number of ANIMAL UNITS excluded by the project can also be entered. If animal units are not provided default conversions from acres excluded to animal units will be applied.

**Exclusion Fence with Narrow Forest Buffer (966, 967, 969)**
This BMP should be submitted for any fencing project along pastured streams that includes tree plantings to create a forest buffer area less than 35 feet in width. The BMP will convert pasture to forest, and will fence livestock out of streams, moving the streamside depositional load back to pasture acres, but will NOT receive an upslope, grass buffer efficiency benefit.

This BMP will be recorded in length of the exclusion fencing and width of the buffer. If known, the number of ANIMAL UNITS excluded by the project can also be entered. If animal units are not provided default conversions from acres excluded to animal units will be applied.

**Cropland Buffers**
Agricultural riparian grass and forest buffers are linear strips of grass or other non-woody vegetation or wooded areas maintained between the edge of fields and streams, rivers or tidal waters that help filter nutrients, sediment and other pollutants from runoff. The recommended buffer width for riparian forest and grass buffers (agriculture) is 100 feet, with a 35 feet minimum width required.
The benefit for both grass and forest buffers on cropland is a 4:1 reduction for TN and 2:1 reduction for TP and TSS. That means that for every acre of forest or grass buffer, the land is converted to forest or grass, which represents a lower loading rate since no manure or fertilizer is applied. In addition, four acres of other agricultural land in that modeling segment receive a reduction of 48.31% applied to TN for forest buffers. The forest buffer TP reduction is 39.52% and TSS is 52.69% and are applied to two acres. For grass buffers the TN reduction is 33.76%, TP is 39.52%, and TSS is 52.69%.

Cropland Grass Buffer (994, 995)
Linear strips of grass or other non-woody vegetation maintained between the edge of fields and streams that measure 35 feet in width or greater. Recorded in length of buffer and average width.

Narrow Cropland Grass Buffer (661, 662)
Linear strips of grass or other non-woody vegetation maintained between the edge of fields and streams that measure 10 to 34 feet in width. Recorded in length of buffer and average width.

Cropland Forest Buffer (991, 992)
Linear strips of woody vegetation or wooded areas maintained between the edge of fields and streams that measure 35 feet in width or greater. Recorded in length of buffer and average width.

Narrow Cropland Forest Buffer (659, 660)
Linear strips of woody vegetation or wooded areas maintained between the edge of fields and streams that measure 10 to 34 feet in width. Recorded in length of buffer and average width.

Prescribed Grazing (684)
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. Prescribed grazing 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.

Prescribed grazing is measured in acres.

Horse Pasture Management (609)
Horse Pasture Management is defined as maintaining a 50% pasture cover with managed species (desirable, inherent) and managing high traffic areas.

Horse pasture management is measured in acres.

Ag Land Retirement (694)
Agricultural land retirement takes marginal and highly erosive cropland (HEL) out of production by planting permanent vegetative cover such as shrubs, grasses, and/or trees. Agricultural agencies have a program to assist farmers in land retirement procedures. Converts land area to hay without nutrients.

Ag land retirement is measured in acres.

Cover Crops
This BMP refers to (non-harvested) cereal cover crops specifically designed for nutrient removal. A standard date of planting for cover crops is from 2 weeks prior to average frost date up to average frost date. If any manure or fertilizer is applied to the field then the designation of Commodity Cover Crops is used.

All data recorded in acres.

**Cover Crops Standard Drilled Wheat With No Manure (257)**
A winter wheat crop planted no more than 2 weeks prior to the average frost date with a drilled seeding method. The crop may be neither fertilized nor harvested.
There is no Scenario Builder BMP called CoverCropSDW so at this time NYS will use a placeholder of CoverCropSOW. NYS needs to ask the Bay Program to create this BMP.

**Cover Crops Standard Drilled Rye With No Manure (253)**
A winter rye crop planted no more than 2 weeks prior to the average frost date with a drilled seeding method. The crop may be neither fertilized nor harvested.

**Cover Crops Standard Other Wheat With No Manure (257)**
A winter wheat crop planted no more than 2 weeks prior to the average frost date with a seeding method that is neither drilled nor aerial (e.g. surface broadcast or with stalk chopping or light disking). The crop may be neither fertilized nor harvested.

**Cover Crops Standard Other Rye With No Manure (256)**
A winter rye crop planted no more than 2 weeks prior to the average frost date with a seeding method that is neither drilled nor aerial (e.g. surface broadcast or with stalk chopping or light disking). A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment.

**Cover Crops Standard Drilled Wheat With Manure (220)**
A winter wheat crop planted no more than 2 weeks prior to the average frost date with a drilled seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment.

**Cover Crops Standard Drilled Rye With Manure (291)**
A winter rye crop planted no more than 2 weeks prior to the average frost date with a drilled seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. There is no Scenario Builder BMP called ComCovCropSDR so at this time NYS will use a placeholder of ComCovCropSOR. NYS needs to ask the Bay Program to create this BMP.

**Cover Crops Standard Other Wheat With Manure (223)**
A winter wheat crop planted no more than 2 weeks prior to the average frost date with a seeding method that is neither drilled nor aerial (e.g. surface broadcast or with stalk chopping or light disking). A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment.

**Cover Crops Standard Other Rye With Manure (222)**
A winter rye crop planted no more than 2 weeks prior to the average frost date with a seeding method that is neither drilled nor aerial (e.g. surface broadcast or with stalk chopping or light disking). A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment.

**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 or in a place where no wetland exists currently. Projects may include restoration, creation and enhancement acreage. Restored wetlands may be any wetland classification including forested, scrub-shrub or emergent marsh.

Wetland work can be accomplished on most existing landuses, but is predominantly targeted to Agricultural – Cropland, Hay/Alfalfa, Pastureland and Non-production Cropland, Forest, Old Field and Other landuse categories. Because many
partners are involved in wetland work, broad categories are needed to encompass all ongoing efforts. The duration of BMP effectiveness is another source of variability, but most programs have a minimum easement length of 15 years, with 30 years or permanently eased also common options. We do not track wetland work by accomplished cover type (i.e. emergent, forested, scrub shrub or other), as the different cover types do not appear to produce different model results, and simplifying data categories makes sense where possible. The two categories of wetland work we will divide projects into are:

**Wetland Functional Gains – Enhancement (“enhance”) (912)**
Manipulation of the physical, chemical, or biological characteristics of an existing wetland (undisturbed or degraded) site to heighten, intensify, or improve specific function(s) or for a purpose such as water quality improvement, flood water retention, or wildlife habitat. Results in gain in functional wetland acres.

Recorded in acres on various SB landuse type (CROP, PASTUREHAY, PASTURE, Grasslands/Herbaceous, FOREST)

**Wetland Gains – Re-establishment and Establishment (“restore”) (922)**
Manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former wetland, and/or developing a wetland that did not previously exist on an upland or deepwater site.

Recorded in acres on various SB landuse type (CROP, PASTUREHAY, PASTURE, Grasslands/Herbaceous, FOREST)

**Stream Restoration (DRAFT)**
Yellow highlighted rows are BMPs that the USC needs to request a new Scenario Builder BMP for.