# Building a Better Bay Model: A Workshop for Agricultural Partners

## May 22-23, 2013

## Agricultural BMPs Currently Simulated by the Chesapeake Bay Program's Scenario Builder Tool and Watershed Model

| BMP | BMP Description | Interim |
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| Alternative Crops | Alternative crops is a BMP that accounts for those crops that are planted and managed as permanent, such as warm season grasses, to sequester carbon in the soil. Carbon sequestration refers to the conversion of the Watershed Model land uses that are cropland to the hay land use. | N |
| Animal Waste Management System | 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. | N |
| Barnyard Runoff Control | 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. | N |
| Biofilters | Ammonia emission reduction includes housing ventilation systems that pass air through a biofilter media with a layer of organic material, typically a mixture of compost and wood chips or shreds, that supports a microbial population. The ammonia emissions are reduced by oxidizing volatile organic compounds into carbon dioxide, water and inorganic salts. The ammonia conserved in the BMP is no longer considered in the model. | N |
| Commodity Cover Crop Early Arial Rye | A winter rye crop planted at least 2 weeks prior to the average frost date with an aerial seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | N |
| Commodity Cover Crop Early Arial Wheat | A winter wheat crop planted at least 2 weeks prior to the average frost date with an aerial seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | N |
| Commodity Cover Crop Early | A winter barley crop planted at least 2 weeks prior to the average frost date with a drilled | N |

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| Drilled Barley | seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | |
| Commodity Cover Crop Early Drilled Rye | A winter rye crop planted at least 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. | N |
| Commodity Cover Crop Early Drilled Wheat | A winter wheat crop planted at least 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. | N |
| Commodity Cover Crop Early Other Rye | A winter rye crop planted at least 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. | N |
| Commodity Cover Crop Early Other Wheat | A winter wheat crop planted at least 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. | N |
| Commodity Cover Crop Early-Planting Aerial Corn Barley | A winter barley crop planted at least 2 weeks prior to the average frost date with an aerial seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | N |
| Commodity Cover Crop Early-Planting Aerial Soy Barley | A winter barley crop planted at least 2 weeks prior to the average frost date with an aerial seeding method . The cover crop follows soybeans.The crop may be neither fertilized nor harvested. | N |
| Commodity Cover Crop Early-Planting Aerial Soy Rye | A winter rye crop planted at least 2 weeks prior to the average frost date with an aerial seeding method. This cover crop follows soybeans. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | N |
| Commodity Cover Crop Early-Planting Aerial Soy Wheat | A winter wheat crop planted at least 2 weeks prior to the average frost date with an aerial seeding method. This crop follows soybeans. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | N |
| Commodity Cover Crop Early-Planting Other Barley | A winter barley crop planted at least 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. | N |
| Commodity Cover Crop Late Other Wheat | A winter rye crop planted after the average first frost date with a seeding method that is neither drilled nor aerial (e.g. surface broadcast or with stalk chopping or light disking). A | N |

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| | commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | |
| Commodity Cover Crop Late-Planting Drilled Rye | A winter rye crop planted after the average first frost date with a drilled seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | N |
| Commodity Cover Crop Late-Planting Drilled Wheat | A winter wheat crop planted after the average first frost date with a drilled seeding method. A commodity cover crop may receive nutrient applications after March 1 of the following year after establishment. | N |
| Commodity Cover Crop Late-Planting Other Rye | A winter rye crop planted after the average first 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. | N |
| Commodity Cover Crop Standard Drilled Rye | 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. | N |
| Commodity Cover Crop Standard Other Rye | 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. | N |
| Commodity Cover Crop Standard Other Wheat | 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. | N |
| Commodity Cover Crop Standard-Planting Drilled Barley | A winter barley 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. | N |
| Commodity Cover Crop Standard-Planting Drilled Wheat | 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. | N |
| Commodity Cover Crop Standard-Planting Other Barley | A winter barley 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. | N |

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| Conservation Till Without Nutrients | This conservation till BMP reflects conservation tillage on land areas that receive only inorganic fertilizer. This BMP is a reduction applied to high till without nutrients and requires: (a) a minimum 30% residue coverage at the time of planting, and (b) a non-inversion tillage method. | Y |
| Conservation Tillage - Additional Acres | Conservation tillage requires: (a) a minimum 30% residue coverage at the time of planting, and (b) a non-inversion tillage method. Each segment is assigned a default amount of conservation tillage based on historical data from the Conservation Technology Information Center (Documentation Appendix 6). Specifying acres under this BMP adds the specified acres to the historical amount. Only one submission unit may be used per scenario. | N |
| Conservation Tillage - Percent of Acres | Conservation tillage requires: (a) a minimum 30% residue coverage at the time of planting, and (b) a non-inversion tillage method. Each segment is assigned a default amount of conservation tillage based on historical data from the Conservation Technology Information Center (Documentation Appendix 6). Applying a percent implementation overwrites the default amount of this BMP. Only one submission unit may be used per scenario. | N |
| Conservation Tillage - Total Acres | Conservation tillage requires: (a) a minimum 30% residue coverage at the time of planting, and (b) a non-inversion tillage method. Each segment is assigned a default amount of conservation tillage based on historical data from the Conservation Technology Information Center (Documentation Appendix 6). Specifying acres under this BMP overwrites the default amount of this BMP. Only one submission unit may be used per scenario. | N |
| Continuous No Till | The Continuous No-Till (CNT) BMP is a crop planting and management practice in which soil disturbance by plows, disk or other tillage equipment is eliminated. CNT involves no-till methods on all crops in a multi-crop, multi-year rotation. When an acre is reported under CNT, it will not be eligible for additional reductions from the implementation of other practices such as cover crops or nutrient management planning. Multi-crop, multi-year rotations on cropland are eligible. Crop residue should remain on the field. Planting of a cover crop might be needed to maintain residue levels. The system must be maintained for a minimum of five years. All crops must be planted using no-till methods. | N |
| Cover Crop Early Arial Barley | A winter barley crop planted at least 2 weeks prior to the average frost date with an aerial seeding method . The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early Arial Rye | A winter rye crop planted at least 2 weeks prior to the average frost date with an aerial seeding method . The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early Arial Wheat | A winter wheat crop planted at least 2 weeks prior to the average frost date with an aerial seeding method . The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early Drilled Rye | A winter rye crop planted at least 2 weeks prior to the average frost date with a drilled | N |

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| | seeding method. The crop may be neither fertilized nor harvested. | |
| Cover Crop Early Drilled Wheat | A winter wheat crop planted at least 2 weeks prior to the average frost date with a drilled seeding method. The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early Other Rye | A winter rye crop planted at least 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. | N |
| Cover Crop Early Other Wheat | A winter wheat crop planted at least 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. | N |
| Cover Crop Early-Planting Aerial Soy Barley | A winter barley crop planted at least 2 weeks prior to the average frost date with an aerial seeding method . The cover crop follows soybeans.The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early-Planting Aerial Soy Rye | A winter rye crop planted at least 2 weeks prior to the average frost date with an aerial seeding method . The cover crop follows soybeans.The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early-Planting Aerial Soy Wheat | A winter wheat crop planted at least 2 weeks prior to the average frost date with an aerial seeding method . The cover crop follows soybeans.The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early-Planting Drilled Barley | A winter barley crop planted at least 2 weeks prior to the average frost date with a drilled seeding method. The crop may be neither fertilized nor harvested. | N |
| Cover Crop Early-Planting Other Barley | A winter barley crop planted at least 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. | N |
| Cover Crop Late Drilled Rye | A winter rye crop planted after the average first frost date with a drilled seeding method. The crop may be neither fertilized nor harvested. | N |
| Cover Crop Late Other Wheat | A winter wheat crop planted after the average first 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. | N |
| Cover Crop Late-Planting Drilled Wheat | A winter wheat crop planted after the average first frost date with a drilled seeding method. The crop may be neither fertilized nor harvested. | N |
| Cover Crop Late-Planting Other Rye | A winter rye crop planted after the average first 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. | N |
| Cover Crop Standard Drilled | A winter barley crop planted no more than 2 weeks prior to the average frost date with a | N |

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| Barley | drilled seeding method. The crop may be neither fertilized nor harvested. | |
| Cover Crop Standard Drilled Rye | 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. | N |
| Cover Crop Standard Drilled Wheat | 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. | N |
| Cover Crop Standard Other Barley | A winter barley 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. | N |
| Cover Crop Standard Other Rye | 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). The crop may be neither fertilized nor harvested. | N |
| Cover Crop Standard Other Wheat | 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. | N |
| Cropland Irrigation Management | Cropland under irrigation management is used to decrease climatic variability and maximize crop yields. The potential nutrient reduction benefit stems not from the increased average yield (20-25%) of irrigated versus non-irrigated cropland, but from the greater consistency of crop yields over time matched to nutrient applications. This increased consistency in crop yields provides a subsequent increased consistency in plant nutrient uptakes over time matched to applications, resulting in a decrease in potential environmental nutrient losses. The current placeholder effectiveness value for this practice has been proposed at 4% TN, 0%TP and 0%TSS, utilizing the range in average yields from the 2002 and 2007 NASS data for irrigated and non-irrigated grain corn as a reference. 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 land uses that receive or do not receive manure. | Y |
| Dairy Manure Injection | The subsurface application of liquid manure from cattle and swine has been demonstrated in research studies to significantly reduce nutrient losses for both surface runoff and ammonia emissions. Recent studies by Pennsylvania State University (PSU) and USDA-ARS indicate that the effectiveness of the practice is dependent on the technology used for injection, and that some systems are not consistent with the USDA-NRCS management requirements for high residue management systems; e.g. Continuous No-Till. This proposed practice is indicative of low disturbance soil injection systems and is not appropriate for tillage incorporation or other post surface application incorporation methods. The current placeholder effectiveness value for this practice has been proposed at 25% TN, 0%TP and | Y |

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| | 0%TSS, utilizing a conservative estimate in combined nutrient and sediment loss reductions by current university and ARS research as a reference. 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 land uses that receive manure, pasture and hay with manure. | |
| Dairy Precision Feeding and/or Forage Management | 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. | N |
| Decision Agriculture | 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. | N |
| Dirt & Gravel Road Erosion & Sediment Control - Driving Surface Aggregate + Raising the Roadbed | Reduce the amount of sediment runoff from dirt and gravel roads through the use of driving surface aggregates (DSA) such as durable and erosion resistant road surface and raising road elevation to restore natural drainage patterns. | N |
| Dirt & Gravel Road Erosion & Sediment Control - Outlets only | Reduce the amount of sediment runoff from dirt and gravel roads through the use of additional Drainage Outlets (creating new outlets in ditchline to reduce channelized flow). | N |
| Dirt & Gravel Road Erosion & Sediment Control - with Outlets | Reduce the amount of sediment runoff from dirt and gravel roads through the use of driving surface aggregates (DSA) such as durable and erosion resistant road surface and through the use of additional Drainage Outlets (creating new outlets in ditchline to reduce channelized flow). | N |
| Enhanced Nutrient Management | Based on research, the 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. 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. | N |
| Forest Buffers | Agricultural riparian forest buffers are linear wooded areas along rivers, stream and shorelines. Forest buffers help filter nutrients, sediments and other pollutants from runoff | N |

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| | as well as remove nutrients from groundwater. The recommended buffer width for riparian forest buffers (agriculture) is 100 feet, with a 35 feet minimum width required. | |
| Grass Buffers; Vegetated Open Channel - Agriculture | Agricultural riparian grass buffers are linear strips of grass or other non-woody vegetation 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 forests buffers (agriculture) is 100 feet, with a 35 feet minimum width required. Vegetated open channels are modeled identically to grass buffers. | N |
| Horse Pasture Management | Horse Pasture Management is defined as maintaining a 50% pasture cover with managed species (desirable, inherent) and managing high traffic areas. | N |
| Irrigation Water Capture Reuse | This practice involves the collection of runoff water from container nursery operations where runoff of irrigation water and leachate from plant containers grown on plastic or in greenhouses is routed to lined return ditches or piped to lined holding ponds. Ponds would be designed to retaining all excess irrigation water runoff or leachate and capturing the first one-half to one-inch of stormwater runoff. Water would be recirculated for irrigation in nursery and greenhouse operations or irrigated at the proper times of year on other vegetation capable of trapping nutrients at agronomic rates, such as cool season grasses. | Y |
| Lagoon Covers | Permeable and impermeable covers of lagoons to prevent volatilization of ammonia. A cover can be, and is applied, to various species including swine and dairy. | N |
| Land Retirement to hay without nutrients (HEL) | Converts land area to hay without nutrients. Agricultural land retirement takes marginal and highly erosive cropland 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. | N |
| Land Retirement to pasture (HEL) | Converts land area to pasture. Agricultural land retirement takes marginal and highly erosive cropland 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. | N |
| Loafing Lot Management | 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 does not include poultry pad installation. | N |
| Mortality Composters | A physical structure and process for disposing of any type of dead animals. Composted material land applied using nutrient management plan recommendations. | N |
| No Till allowing combinations with other practices | The No till BMP is a crop planting and management practice in which soil disturbance by plows, disk or other tillage equipment is eliminated for all crops for a minimum of five years. Planting of a cover crop might be needed to maintain residue levels. When an acre is | Y |

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| | reported under No till, it is eligible for additional reductions from the implementation of other practices such as cover crops or nutrient management planning, unlike continuous no-till. Submission of No Till precludes submission of continuous no-till in the same scenario, and vice-a-versa. | |
| Non Urban Stream Restoration | Stream restoration in urban areas is used to restore the urban stream ecosystem by restoring the natural hydrology and landscape of a stream, help improve habitat and water quality conditions in degraded streams. The reduction is 0.02 lb nitrogen per foot, 0.0025 phosphorus per foot, and 2 lbs sediment per foot . | N |
| Non Urban Stream Restoration (interim) | This is an interim BMP and the units may change depending on the outcome of the expert panel, anticipated in Fall 2012. This BMP maintains the integrity of streambanks by preventing or controlling erosion. The reduction is 0.2 lb nitrogen per foot, 0.068 phosphorus per foot, and 310 lbs sediment per foot. | Y |
| Nutrient Management | Nutrient management plan (NMP) implementation (crop) is a comprehensive plan that describes the optimum use of nutrients to minimize nutrient loss while maintaining yield. A NMP details the type, rate, timing, and placement of nutrients for each crop. Soil, plant tissue, manure and/or sludge tests are used to assure optimal application rates. Plans should be revised every 2 to 3 years. | N |
| Off Stream Watering Without Fencing | This BMP requires the use of alternative drinking water sources away from streams. The BMP may also include options to provide off-stream shade for livestock, and implementing a shade component is encouraged where applicable. The hypothesis on which this practice is based is that, given a choice between a clean and convenient off-stream water source and a stream, cattle will preferentially drink from off-stream water source and reduce the time they spend near and in streams and streambanks. Alternative watering facilities typically involves 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. | N |
| Poultry Litter Injection | The subsurface injection of poultry manure has been demonstrated in university and USDA-ARS research studies to significantly reduce nutrient losses for both surface runoff and ammonia emissions. Recent studies by universities and USDA-ARS indicate that dry manure injection is feasible and effective by utilizing current research technology. These systems | Y |

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| | are also consistent with the USDA-NRCS management requirements for high residue management systems; e.g. Continuous No-Till. This proposed practice is indicative of low disturbance soil injection systems and is not appropriate for tillage incorporation or other post surface application incorporation methods. The current placeholder effectiveness value for this practice has been proposed at 25% TN, 0%TP and 0%TSS, utilizing a conservative estimate in combined nutrient and sediment loss reductions by current university and ARS research as a reference. 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 land uses that receive manure, pasture and hay with manure. | |
| Poultry Litter Treatment (alum, for example) | Surface application of alum, an acidifier, to poultry litter to acidify poultry litter and maintain ammonia in the non-volatile ionized form (ammonium). | N |
| Poultry Phytase | Phytase is an enzyme added to poultry-feed that helps poultry absorb phosphorus. The addition of phytase to poultry feed allows more efficient nutrient uptake by poultry, which in turn allows decreased phosphorus levels in feed and less overall phosphorus in poultry waste. The use of phytase is a best management practice (BMP). No poultry automatically have the phytase feed additive. | N |
| Precision Intensive Rotational Grazing | This practice utilizes more intensive forms 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 of the upland pastures. PIRG 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 the PIRG practice 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. This practice requires intensive management of livestock rotation, also known as Managed Intensive Grazing systems (MIG), that have very short rotation schedules. Pastures are defined as having a vegetative cover of 60% or greater. | N |
| Prescribed 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. | N |

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| Shoreline Erosion Control | Protection of shoreline from excessive wave action by creating a marsh or an offshore structure such as a sill, breakwater or sand containment structure. | N |
| Soil Conservation and Water Quality Plans | 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. | N |
| Sorbing Materials in Ag Ditches | The University of Maryland and the USDA Agricultural Research Service (ARS) have demonstrated through an existing research project at the University of Maryland-Eastern Shore the application 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 land uses that receive or do not receive manure. | Y |
| Stream Access Control with Fencing | Stream access control with fencing involves excluding a strip of land with fencing along the stream corridor to provide protection from livestock. The fenced areas may be planted with trees or grass, or left to natural plant succession, and can be of various widths. To provide the 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. They can also be applied in conjunction with or without pasture management systems such as prescribed grazing or PIRG. Alternative watering facilities typically involves 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. | N |
| Streamside Forest Buffers | Converts streamside areas to forest. In the model, converts degraded riparian pasture to hay without nutrients. Should be used with Stream Access Control with Fencing to convert | N |

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| | from hay without nutrients to forest. | |
| Streamside Grass Buffers | Converts degraded riparian pasture to hay without nutrients | N |
| Streamside Wetland Restoration | Converts degraded riparian pasture to forest. | N |
| Swine Phytase | This BMP reduces the concentration of phosphorus in manure. Less phosphorus is necessary in the feed because an enzyme feed supplement increases the amount of phosphorus absorbed by the hog. | N |
| Tree Planting; Vegetative Environmental Buffers - Poultry | Tree planting includes any tree planting, except those used to establish riparian forest buffers, targeting lands that are highly erodible or identified as critical resource areas. | N |
| Water Control Structures | Installing and managing boarded gate systems in agricultural land that contains surface drainage ditches. | N |
| 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. Projects may include restoration, creation and enhancement acreage. Restored wetlands may be any wetland classification including forested, scrub-shrub or emergent marsh. | N |