Appendix 1.
Statistical Sampling Approach to Agricultural BMP Verification in New York State

Purpose

This document outlines an adaptive management approach for selecting sites to inspect for verification that agricultural BMPs are on the ground (or otherwise continue to be implemented) and performing as expected based on performance criteria, NRCS standards, engineering specifications or other applicable criteria. Techniques used to inspect BMPs at selected sites and record and track findings are described in *Upper Susquehanna Coalition (USC) Quality Assurance Project Plan for New York Work Plan for the Chesapeake Bay Program* (2015)**.**

Overview

The expected coverage of BMPs for agricultural verification protocols described in the agricultural verification guidance (Appendix B of *Strengthening Verification of Best Management Practices Implemented in the Chesapeake Bay Watershed: A Basinwide Framework*, October 2014) is summarized in Table 1.

Table 1. Summary of verification coverage requirements.

Program Type	Practice Type	Initial Verification	Follow-Up or Re-Verification
Non-Cost-Shared BMPs (including Resource Improvement Practices)	Annual	100% BUT sub-sampling allowed for single year BMPs (e.g., tillage practices) that are visually assessed.	Annual survey (using performance criteria and performed by qualified personnel) will determine the total number of annual BMPs. Based on the totals, the number of whole farm verification visits will be determined to achieve follow-up verification of at least 10% of those annual BMPs that account for >5% of agricultural sector nutrient and/or sediment load reductions as estimated in the most recent progress scenario (and 5% of those BMPs contributing ≤5% of the load reduction).
	Multi-Year	100%	10% of those multi-year BMPs which account for >5% of agricultural sector nutrient and/or sediment load reductions as estimated in the most recent progress scenario (and 5% of those BMPs contributing ≤5% of the load reduction).
Cost-Shared BMPs	Annual	100% BUT sub-sampling allowed for single year BMPs (e.g., tillage practices) that are visually assessed.	Annual survey (using performance criteria and performed by qualified personnel) will determine the total number of annual BMPs. Based on the totals, the number of whole farm verification visits will be determined to achieve follow-up verification of at least 10% of those annual BMPs that account for >5% of agricultural sector nutrient and/or sediment load reductions as estimated in the most recent progress scenario (and 5% of those BMPs contributing ≤5% of the load reduction).
	Multi-Year	100%	10% of those multi-year BMPs which account for >5% of agricultural sector nutrient and/or sediment load reductions as estimated in the most recent progress scenario (and 5% of those BMPs contributing ≤5% of the load reduction).
Permit-Based BMPs	Annual	100% BUT sub-sampling allowed for single year BMPs (e.g., tillage	At least 20% during annual CAFO inspections.

		practices) that are visually assessed.	
	Multi-Year	100%	At least 20% during annual CAFO inspections.

The overall approach for meeting the targets in Table 1 is summarized in Table 2. New York State performs initial verification of all agricultural BMPs on farms participating in its Agricultural Environmental Management program (AEM), farms with contracts, and CAFO permitted facilities. This document focuses on how the follow-up checks described in Table 2 will be used to meet the re-verification targets in Table 1.

Table 2. Summary of proposed verification approach.

Verification Element	BMP Implementation Mechanism			
	Non Cost Shared BMPs	***Cost Shared BMPs***	***Regulatory Programs[1]***	***Permit Issuing Programs***
Initial Inspection				
Method	Farm Inventory: On Site Visual Assessment	Farm Inventory: On Site Visual Assessment		Farm Inventory: On Site Visual Assessment
Frequency	100% of farms participating in AEM	100% of All farms under contract		100% of all CAFO permitted facilities
Who Inspects	County Conservation Districts, NRCS Staff and Certified AEM Planners	County Conservation Districts, NRCS Staff and Certified AEM Planners		County Conservation Districts, NRCS Staff and Certified AEM Planners, NYSDEC inspectors
Documentation	BMPs meet appropriate government and/or CBP practice standard (PE sign off and/or SWCD evaluation)	BMP certification and/or PE sign off		BMP certification and/or PE Sign off
Follow-Up Check				
Follow-Up Inspection	Annual and Multi-year BMPs: Farm Inventory: On-site Visual Assessment	Annual and Multi-year BMPs: Farm Inventory: On-site Visual Assessment		Annual and Multi-year BMPs: On-site Visual Assessment
Statistical Sub-Sample	Random selection of ≥10% of all farms participating in AEM in order to verify at least 10% of those BMPs that account for >5% of agricultural	Random selection of ≥10% of farms with active contracts in order to verify at least 10% of those BMPs that		50% of all farms w/ active permits.

	sector nutrient and/or sediment load reductions as estimated in the most recent progress scenario (and 5% of those BMPs contributing ≤5% of the load reduction).	account for >5% of agricultural sector nutrient and/or sediment load reductions as estimated in the most recent progress scenario (and 5% of those BMPs contributing ≤5% of the load reduction).		
Response if Problem	Bring into compliance within one year or remove from reported BMPs	Cost Share Program Contract Compliance Policy		NYSDEC CAFO Permit Compliance Policy
Lifespan/Sunset[2]	Re-verification by SWCD personnel and/or AEM planners. If practice sunsets within 2 years of on-site visual inspection a farm inventory will be conducted.			Re-verification by SWCD personnel and/or DEC staff during inspections.

[1]New York State does not employ a Regulatory Program for BMP implementation as defined in the Chesapeake Bay Program Basinwide Framework. All farms under regulation operate within Permit Issuing Programs.

[2]Lifespan to be addressed in accordance with CBP lifespan criteria, including those for Resource Improvement practices.

Selecting Sites to Inspect for Follow-Up Verification

The AEM program is the umbrella agricultural program in New York supporting farmers in their efforts to protect water quality and conserve natural resources, while enhancing farm viability. State and Federal programs are coordinated through AEM to work together to efficiently provide technical and financial assistance to priority farms and priority environmental issues.

New York's Concentrated Animal Feeding Operation (CAFO) and AEM programs cover 95 percent of the dairies in the New York portion of the Chesapeake Bay watershed. This includes permitting of 65 CAFOs (11 large, 54 medium) with over 45 percent of the total dairy animals. New York does not have significant numbers of poultry or swine. There are currently 2,832 farms included in Tier 1 of the AEM database. Tier 1 consists of basic information such as farm contact information, farm inventories, and potential environmental concerns and opportunities. A subset of these farms has BMPs.

A comparison of Tables 1 and 2 shows that follow-up inspections of BMPs at CAFOs will be 2.5 times (50% vs. 20%) that required by the Chesapeake Bay Program. Approximately 50 percent of CAFO-permitted farms are inspected by NYS DEC and/or US EPA annually (or 100 percent every two years; essentially verification by census). During those inspections, follow-up BMP inspections are performed to verify all BMPs submitted for annual progress reporting. Any BMPs not meeting performance criteria will be improved according to permit compliance policy or removed from reported BMPs.

Cost-shared and non-cost-shared BMPs all have 100 percent initial verification before annual progress reporting. Conservation partners working to advance AEM in NYS have long held planning, implementation of high impact BMPs, and on-going operation and maintenance as high priority. Therefore the partnership sought to develop follow-up verification methods that would first be of value to the farmer and for conservation and second collect data for progress reporting according to the new Basinwide Verification Framework. The resulting method proposes a whole farm approach, rather than a per-BMP approach to achieve the required sampling rates for all BMPs reported for annual progress. The method is designed to avoid artificial and confusing aspects of visiting farms to capture data on a single BMP when other BMPs are likely present (as well as repeat visits to verify independent BMPs) and should better match how farmers see their farms: as whole systems. It is anticipated that a whole-farm approach to verification will lead to more meaningful interactions with farmers about performance of current BMPs and potential for further BMP implementation, as has been the case during AEM Tier 5B evaluations and annual CAFO updates in NYS. An adaptive management approach described below will allow adjustments to the sampling method over time to ensure that the expectations summarized in Table 1 are met as the blend of BMPs, on-farm conditions, and conservation goals change.

Steps for Selecting Sites to Inspect for Follow Up Verification

Step 1 – Summarize percent load reduction per BMP from the latest progress scenario

The first step in the site selection process is to identify the BMPs that account for >5 percent of agricultural sector nutrient and/or sediment load reductions as estimated in the most recent progress scenario, as well as those BMPs associated with ≤5 percent of the load reductions. The agricultural verification guidance illustrates this with Attachment A in Appendix B (*Relative Influence of BMPs in Agriculture Sector*). In Appendix B of the agricultural verification guidance document, load reductions were compared between a 2013 progress scenario and a *No-Action* scenario. The results for New York are summarized in Table 3. The data presented in the following steps will be updated for future sampling goals as new progress scenarios and BMP information is generated over time.

Table 3. BMP-specific load reductions for 2013 vs. no-action scenarios for New York.

BMP	Share of Total Agricultural Load Reduction for 2013 vs. No-Action		
	N (%)	P (%)	Sediment (%)
Animal Waste Management Systems	28.6	30.8	-
Land Retirement	15.9	4.9	13.0
Enhanced Nutrient Management	14.1	8.1	-
Trampled Riparian Pasture	14.0	26.1	29.3
Forest Buffers	8.0	2.5	7.9
Conservation Plans	3.6	5.5	14.5
Pasture Fencing	3.1	5.4	8.2
Grass Buffers	2.8	-	2.3
Conservation Tillage	2.6	2.8	12.4
Wetland Restoration	2.4	-	4.1
Precision Rotation Grazing	-	4.4	5.6
Barnyard Runoff Control	-	2.8	-
Dairy Precision Feeding	-	2.1	-

Tree Planting	-	-	1.9

The nine (9) BMPs highlighted in Table 3 would require re-verification at a 10 percent rate and the remaining BMPs with ≤5 percent load reduction contribution could be sampled at a 5 percent rate. Per an adaptive verification approach, these sampling rates may be adjusted to address factors such as the risk of BMPs not being maintained and the relative importance of BMPs in the future.

Step 2 – Determine approaches for re-verification on CAFO and on non-CAFO farms

The next step is to determine how to inspect the BMPs. New York State will perform re-verification on a whole farm basis rather than on a BMP-by-BMP basis, so the protocol is designed to ensure that site selection on a farm basis will yield satisfactory re-verification rates on a BMP basis. This will result in coverage of additional BMPs beyond the minimum requirements in Table 1.

New York inspects 50 percent of CAFO-permitted farms each year. The 50 percent not sampled during a year will be sampled the next year to ensure that 100 percent of CAFO-permitted farms are inspected every two years. This approach to CAFO re-verification will result in easily meeting the target of 20 percent for permit-based BMPs (Table 1).

For re-verification of BMPs on non-CAFO-permitted farms, a random 10 percent sample of these farms would be suitable if each farm implemented these BMPs, but this scenario is unlikely for the complete set of BMPs that need to be re-verified. For this reason, more than 10 percent of the farms would likely be targeted.

The sampling approach described in *Statistical Sampling Approach for Initial and Follow-Up BMP Verification* in the Basinwide Verification Framework provides an equation for determining sample size based on the following variables:

- An initial estimate of both the percent of BMPs still in place and the percent of BMPs still performing as expected. This can be based on previous studies or assumed to be 50% (p=0.5) for a conservative (high) estimate of sample size.
- An allowable error (e.g. ±10% or 0.10). This error (d) can be different for different BMPs based on considerations of BMP importance, risk of BMP abandonment, failure, cost, or other factors.
- A confidence level (e.g., 90% or α=0.10). This is used to determine the 2-sided Z score from the standard normal distribution ($Z_{1-\alpha/2}$), e.g., $Z_{1-\alpha/2}$ is equal to 1.645 for $\alpha = 0.10$. For example, an α=0.10 indicates that the actual proportion of BMPs still in place has a 10 percent chance of being outside the allowable error or calculated confidence interval.
- An estimate of the total population (N) from which the sample is taken (e.g., how many BMPs were installed). This can be based on records of BMP implementation.

Using available data and reasonable assumptions, the sampling size equation for binary distributions (pass/fail) was used to determine the best sampling approach for New York farms within the Chesapeake Bay Watershed. The best approach will satisfy the requirements summarized in Table 1 and address the following additional important factors:

- allow for conservation professionals to perform productive whole farm BMP evaluations with farmers while also collecting verification data for progress reporting;
- work load balance across all counties involved;
- re-verification of sun-setting BMPs;
- time period over which sampling approach is evaluated (e.g., 2 yr, 5 yr, 10 yr);
- BMP lifespans;
- independent verification requirements;
- inspection methods (e.g., visual); and
- other logistics constraints.

Step 3 – Determine the whole-farm follow-up sampling strategy for non-CAFO farms

The data set from the USC AEM Data Management System was analyzed for this the current sampling protocol and included a non-CAFO farm table and a BMP implementation table. The non-CAFO farm table has 2,200 observations. The BMP table contains 3,192 observations. There are more observations in the BMP table because each farm can have multiple occurrences of BMP implementation, including multiple occurrences of the same BMP.

Step 3A – Summarize number of practices, number of non-CAFO farms, and link practices from database to names used for progress reporting through NEIEN

Table 4 presents the distribution of database BMPs implemented by non-CAFOs. For example, the database reported 26 instances of Agricultural Land Retirement. After aggregating by operation, it is found that 22 non-CAFOs have implemented Agricultural Land Retirement. The rightmost column in Table 4 presents the cross walk to the reported BMPs.

Table 4. Distribution of database practices implemented by non-CAFOs and cross walk to reported practice.

Database Practice	Number of Practices Implemented by Non-CAFOs	Number of Non-CAFOs Implementing Practice	Reported Practice
Agricultural Land Retirement	26	22	Land Retirement
Barn Yard Runoff Control	160	146	Barnyard Runoff Control
CNMP	376	250	Enhanced Nutrient
Conservation Till	58	33	Conservation Tillage
Continuous No Till	27	19	NA
Cover Crops No Manure	27	15	NA
Cover Crops With Fall or Winter Manure	100	63	NA
Cover Crops With Spring Manure or	8	8	NA
Crop Land Forest Buffer	34	24	Forest Buffers
Crop Land Grass Buffer	16	14	Grass Buffer
Horse Pasture Management	11	11	Precision Rotation Grazing
Liquid Manure Incorporation	1	1	NA
Liquid Manure Injection	3	2	NA
Manure Processing Technology	1	1	Animal Waste Management
Manure Storage	93	86	Animal Waste Management
Manure Transfer	44	41	Animal Waste Management
Milk House Waste	86	82	Animal Waste Management
Mortality Composting	13	13	Animal Waste Management
Nutrient Management	71	41	Enhanced Nutrient
NYS Precision Feed Management	6	6	Dairy Precision Feeding
Off Stream Water	96	84	NA
Precision Feeding Dairy	80	42	Dairy Precision Feeding
Prescribed Grazing Implementation	762	444	Precision Rotation Grazing
Silage Leachate	31	31	Animal Waste Management
Soil Conservation	634	353	Conservation Plans
Stream Fence	161	148	NA
Stream Forest Buffer	126	106	Forest Buffers
Stream Grass Buffer	141	114	Grass Buffers TRP
TOTAL	**3,192**	**2,200**	

Step 3B – Summarize reported practices for non-CAFO farms and minimum selection targets

Table 5 summarizes the number of non-CAFO farms implementing each of the reported BMPs. For example 146 non-CAFO farms implemented barnyard runoff controls. The total number of non-CAFO farms implementing practices in Table 5 (i.e., 1,711) is the total of unique combinations of practices and operations. In other words, non-CAFO farms can be counted multiple times because they can implement more than one practice. The last two columns on the right present the target percentage of operations to select for each BMP (from Table 3) and the actual minimum number of operations to select for verification. Continuing the barnyard runoff example, 146 x 0.05 = 7.3, rounded up to 8.

Table 5. Distribution of reported practices implemented by non-CAFOs and minimum selection target.

Reported Practice	Number of non-CAFOs Implementing Practice	Minimum Selection Target (%)	Minimum Selection Target
Animal Waste Management Systems	146	10%	15
Barnyard Runoff Control	146	5%	8
Conservation Plans	353	10%	36
Conservation Tillage	33	10%	4
Dairy Precision Feeding	42	5%	3
Enhanced Nutrient Management	267	10%	27
Forest Buffers	123	10%	13
Grass Buffer	14	5%	1
Grass Buffers TRP	114	10%	12
Land Retirement	22	10%	3
Precision Rotation Grazing	451	5%	23
	1,711		**145**

Step 3C – Distribute minimum BMP targets per county

An important refinement to the chosen approach was to address workload balance across counties. Table 6 presents the distribution of reported practices by non-CAFOs. The 1,711 practices from Table 5 are shown in Table 6 to be implemented by 813 non-CAFO operations. In other words, there is an average of about 2 practices per non-CAFO operation (1,711/813 ≈ 2). Steuben, Madison, and Tioga have the largest percentage of non-CAFO operations implementing practices. The rightmost column in Table 6 presents the maximum number of operations per county that may be evaluated to balance workload. For example, in Delaware County, 63 x 0.10 = 6.3, rounded up to 7.

The selection process is constrained to randomly selecting non-CAFO operations by meeting the minimum selection targets identified in Table 5 and not exceeding the maximum number of operations per county identified in Table 6. The selection process is initiated by randomly selecting one operation from each county (excluding Ontario and Schoharie counties which had no practices implemented by non-CAFOs). This "one-county, one operation" approach was employed, because preliminary selection results had shown that multiple counties would not have any operations selected if this step was not taken.

Table 6. County distribution of implemented practices by non-CAFOs and upper thresholds considered to balance workload.

County	Number of Reported Practices Implemented by Non-CAFOs (after aggregation)	Number of Non-CAFOs Implementing Reported Practices	Percentage of Non-CAFOs Implementing Reported Practices	Maximum Number of Non-CAFOs to Verify
Allegany	4	3	0.37	1
Broome	162	57	7.01	6
Chemung	113	45	5.54	5
Chenango	158	75	9.23	8
Cortland	95	56	6.89	6
Delaware	164	63	7.75	7
Herkimer	34	29	3.57	3
Madison	327	124	15.25	13
Oneida	26	7	0.86	1
Onondaga	65	26	3.2	3
Ontario	NA	NA	NA	0
Otsego	26	22	2.71	3
Schoharie	NA	NA	NA	0
Schuyler	12	9	1.11	1
Steuben	272	199	24.48	20
Tioga	243	94	11.56	10
Tompkins	10	4	0.49	1
TOTAL	**1,711**	**813**	**100**	**88**

Step 3D – Iterative sampling rounds to achieve BMP selection targets

After the one-county, one-operation selection is completed, tallies (including all practices at the selected operations) are updated to indicate progress toward achieving the minimum selection targets in Table 5 while not exceeding the maximum number of operations per county in Table 6. After the tallies are updated, the practice that provides the least flexibility (or number of options) is identified. We define flexibility as the difference between the number of non-CAFOs implementing a particular practice (that had not already been selected) and the remaining number of operations that still need to be selected for a given practice. A smaller difference denotes less flexibility. Once the practice with the least flexibility is identified, all non-CAFOs that implement that practice (minus those already selected) are identified. From this list, one operation is chosen at random. The process of updating the tallies, identifying the least flexible practice, and randomly selecting an operation is repeated until all minimum selection targets in Table 5 are met.

Results from of this protocol run based on current data from the USC AEM Data Management System are appended at the end of this document.

This procedure for selecting farms for follow-up verification would ensure that 10 percent or more of each BMP implemented on non-CAFO operations is verified annually (or at least 5% of those BMPs contributing ≤5% of the load reduction from the latest progress scenario). This procedure includes an approach to balance the work load across counties. CAFOs were excluded from the procedure because they are all inspected over a two-year period.

Adaptive Management Approach

Regardless of the initial sampling method used, an adaptive management approach to re-verification will be applied to ensure that sampling rates remain on or within reasonable range of the targets in Table 1. As implementation of BMPs in the watershed progresses, BMP goals may be exceeded in some cases and not achieved in others. This would result in different contributions of individual BMPs to load reductions based on the most recent progress scenario. Therefore, NYS will use the whole-farm follow-up verification steps outlined, above, to update the sampling targets for non-CAFO farms on an annual basis in line with Table 1 and the BMP load reduction data from the most recent progress scenario. Such updates may shift the focus of re-verification to a slightly different set of BMPs. Similarly, an improvement or decline in compliance rates may result in a need to change the sample size. The AEM Data Management System provides opportunities for tracking important information such as the geographic distribution and age of re-verified BMPs. This and other information will be used to help assess the need to alter the sampling approach. Adjustments will be made as necessary to ensure that re-verification goals are met.

Results Appendix

Figure 1 presents the total number operations selected by running the above simulation 500 times. The yearly total workload for all counties ranges from 50-71 operations.

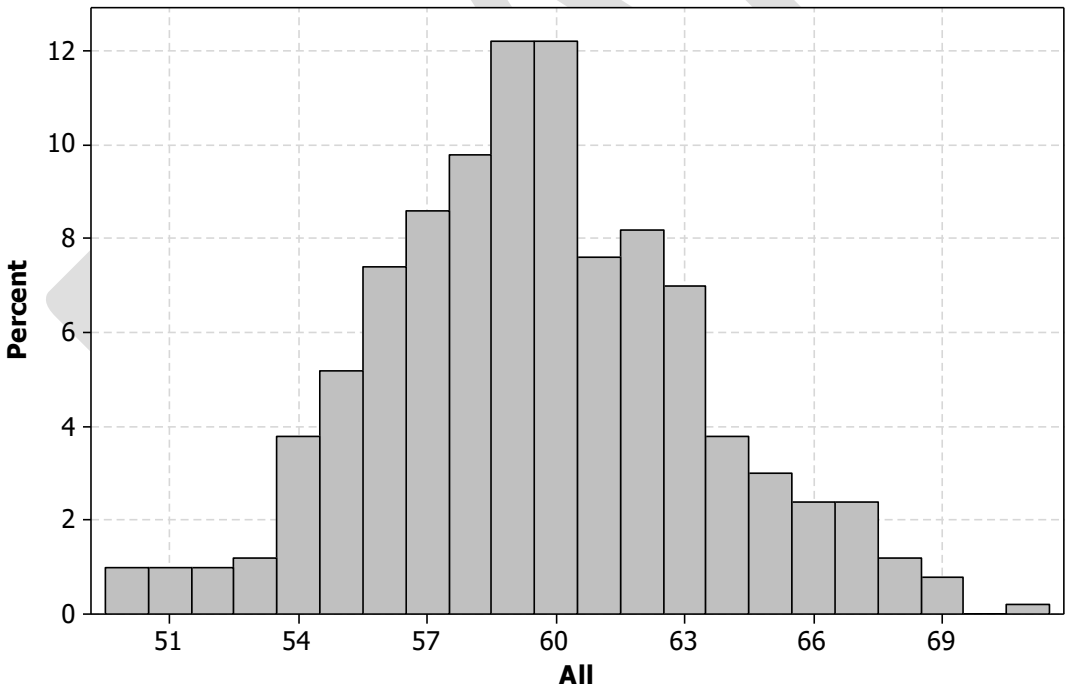

Figure 1. Distribution of overall workload.

Figure 2 presents the number of operations by county selected by running the above simulation 500 times. While the range varies among the simulations, no results exceed the maximum number of operations per county in Table 6.

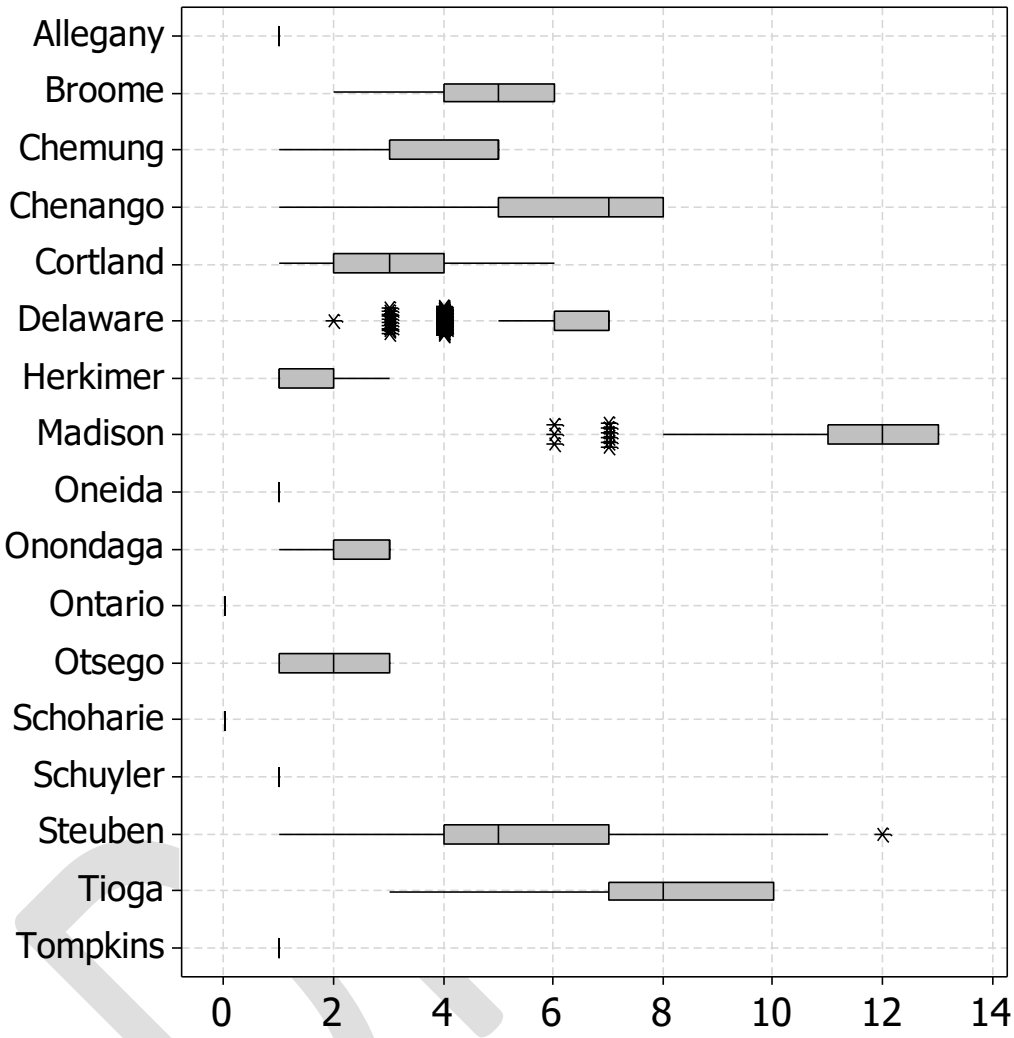

Figure 2. Number of operations selected by county during 500 simulations.

Figure 3 presents the number of operations by practice selected by running the above simulation 500 times. While the range varies among the simulations, no result is less than minimum selection targets in Table 5.

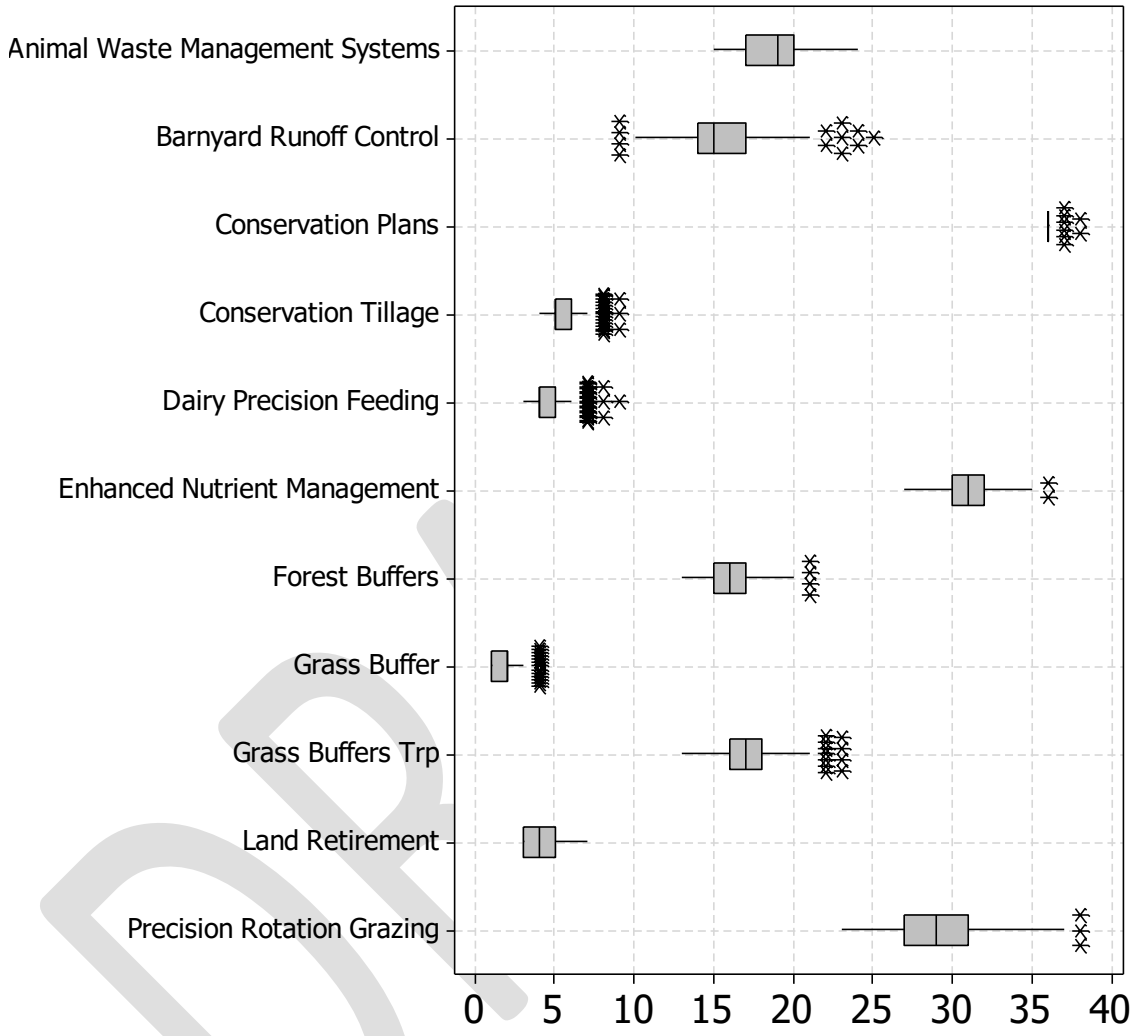

Figure 2. Number of operations selected by practice during 500 simulations.

AEM Tier 2 Worksheet
Nutrient Management: Manure and Fertilizer

Glossary

Animal Unit: One animal unit equals 1,000 lbs. of live animal body weight, and correlates to the amount of manure produced.

Concentrated Flow: Flow of water, greater than ½ inch that carries potential pollutants across a vegetative buffer.

Field Runoff Potential: Measurement of risk derived from soil characteristics and topography that estimates the potential for surface loss of nutrients.

Eutrophication: The process of nutrient enrichment and excess algae or plant growth in a waterbody.

Nitrogen Management Tests: Soil and plant tests such as the Pre-Sidedress Nitrate Test (PSNT), Corn Stalk Nitrate Test (CSNT), Illinois Soil Nitrogen Test (ISNT), etc.

Vegetative Buffer: A permanent strip of dense, vigorous perennial vegetation of at least 35 feet in width established and maintained along a watercourse or stream. See NRCS Standards NY 393 (Filter Strip), NY 390 (Riparian Herbaceous Buffer), and NY 391 (Riparian Forest Buffer).

Watercourse: Water flowing over a non-vegetated channel to a waterbody.

Background

Nutrient management using soil tests, crop needs based on realistic yields, and effective application of manure and fertilizer can enhance crop productivity and farm profitability while decreasing farm operating costs. Proper application method, rate, and timing optimize the uptake of nutrients by the crop and minimize nutrient loss to the environment.

If used properly, manure is an excellent crop nutrient source and soil conditioner. Bacterial and protozoan pathogens in manure can pose a human health risk when found in drinking and recreational waters. Nitrate can leach to groundwater, creating potential human and animal health risks. Nitrate, ammonia and phosphorus can also reach surface waters, stimulating undesirable algae and plant growth, and consequently damaging recreational and drinking water uses. Phosphorus is usually the limiting nutrient for plant growth in fresh water and regardless of source can accelerate eutrophication.

Nutrients in fertilizers can also leach to groundwater or be carried by runoff into surface water, degrading water quality. Excessive nitrate concentrations in drinking water can negatively affect human and animal health. In addition to the concerns associated with phosphorus, excess potassium in feed or water can cause animal health problems.

A sound and comprehensive nutrient management plan should account for nutrients from all sources, including prior nutrient applications, soil and crops; incorporate conservation practices that control erosion and manage runoff; and deliver recommendations to minimize losses to the environment through efficient nutrient use by crops.

AEM Principle

Nutrients for crop production used by farms should be applied to land in a manner that optimizes the nutrient value and soil conditioning benefits while protecting surface and ground water resources.

AEM Tier 2 Worksheet: **Manure and Fertilizer Management** **Table 1: General**		**Potential Concern**		
Factors Needing Assessment	**Lower** **1**	**2**	**3**	**Higher** **4**
Do you follow an up to date nutrient management plan based on soil tests, crop needs and nutrient sources?				
How many acres typically receive manure application?				
How many animal units do you have? (Complete calculation on page 4)				
If manure is exported off the farm, what percentage is exported?				
Based on the above information, how many animal units do you have per acre of land to which manure is applied?				
How often do you soil test?	All fields are soil tested at least every 1 or 2 years.	All fields are soil tested at least every 3 years.	Fields are soil tested regularly, but less often than every 3 years.	Soil testing is not done regularly on fields.
Does your farm manage soils for optimum pH levels?	Soils are tested for pH and amended with lime to maintain optimum pH.		Lime is applied, but not based on soil test results.	Soils are not amended with consideration of pH levels.
How often do you test manure for nutrient content?	There is a history of manure testing that characterizes variability throughout the year. **AND** Manure is tested every year.		Manure is tested at least every other year.	

AEM Tier 2 Worksheet: **Manure and Fertilizer Management** **Table 1: General**		**Potential Concern**		
Factors Needing Assessment	**Lower** **1**	**2**	**3**	**Higher** **4**
Does your farm regularly use nitrogen management tests (e.g. PSNT, CSNT, ISNT) to adjust nitrogen rates?				
Do you keep records of nutrient applications to fields?	Records are kept indicating the amount applied, source, yields, rotations, and fertilizer applications for each field.		Records are kept indicating the amount applied, only.	No records of amount applied, yields, and rotations for each field.
Do you calibrate manure and fertilizer application equipment?	All nutrient application equipment is calibrated yearly to determine the amount applied per acre.		Nutrient application equipment is calibrated occasionally to determine the amount applied per acre.	Nutrient application equipment is not calibrated.
How is the rate of manure and fertilizer application determined?	Nutrients are applied based on land grant guidelines. **AND** Commercial fertilizer applications are adjusted in order to meet crop needs.	Manure is applied based on crop needs, with nitrogen as the priority nutrient. **AND** Commercial fertilizer applications are adjusted in order to meet crop needs.	Manure is occasionally applied in rates that exceed the nitrogen needs of the crop. **OR** Commercial fertilizer applications only partially take into account nutrients in manure.	Manure is often applied at rates that exceed the nitrogen needs of the crop. **OR** Commercial fertilizer applications do not take into account nutrients in manure.
How is nitrogen application determined?	Account for past and current manure application rates, soil nitrogen supply potential, and crop history. **AND** Routinely conduct field by field nitrogen management tests.		Some consideration of previous manure application rates, soil nitrogen supply potential, or crop history.	No accounting of previous manure application rates, soil nitrogen supply potential, or crop history.

Formula for Calculating Animal Units

Animal Type	Number (from Tier 1)	×	Average Weight (lbs; from Tier 1)	=	Total Weight (lbs)	÷	1000 lbs/Animal Unit	=	Number of Animal Units
		×		=		÷	1000 lbs/AU	=	
		×		=		÷	1000 lbs/AU	=	
		×		=		÷	1000 lbs/AU	=	
		×		=		÷	1000 lbs/AU	=	
		×		=		÷	1000 lbs/AU	=	
								+	
								Total Animal Units for the Farm	

AEM Tier 2 Worksheet: Manure and Fertilizer Management Table 2: Manure Application		**Potential Concern**		
Factors Needing Assessment	**Lower 1**	**2**	**3**	**Higher 4**
Have there been any concerns about manure contamination of wells on or near the farm?				
Are field runoff potentials considered in scheduling manure applications?	Manure is never spread when fields: -- are saturated or frozen -- are prone to flood; or -- when runoff risk is high **AND** Manure is applied just prior to planting or to a growing crop.	Manure is never spread when fields: -- are saturated or frozen -- are prone to flood; or -- when runoff risk is high **AND** Manure is applied during the growing season to fields with the highest runoff potential and outside the growing season to fields with the lowest runoff potential.	Manure is sometimes spread on fields that: -- are saturated or frozen -- are prone to flood; or -- when runoff risk is high **AND** Manure is applied outside the growing season to fields with the lowest runoff potential.	Manure is sometimes spread on fields that: -- are saturated or frozen -- are prone to flood; or -- when runoff risk is high **AND** Fields are not prioritized based on runoff potential.
How close is manure spread to wellheads or springs?	Manure is not spread within 200 ft. from any wellhead or spring.	Manure is not spread within 100 ft. from any wellhead or spring.	Manure is not spread within 50 ft. from any wellhead or spring.	Manure is spread less than 50 ft. from any wellhead or spring.
Are vegetative buffers maintained along watercourses in fields receiving manure?	A vegetative buffer that meets NRCS Standards is maintained along water courses in fields receiving manure.	A naturally occurring buffer of at least 35ft. exists along watercourses adjacent to fields.	A naturally occurring buffer of at least 10ft. exists along watercourses adjacent to fields.	Little or no vegetation exists along watercourses in fields receiving manure.
How close is manure spread to surface waters?	Manure is not spread within 100ft. of surface water. **OR** Manure is not spread within 35ft. of surface water where a vegetative buffer meeting NRCS Standards exists.	Manure is not spread within 35ft. of surface water where a vegetative buffer meeting NRCS Standards exists.	Manure is spread less than 100ft. from surface water where no vegetative buffer exists.	No manure spreading setbacks are used.

AEM ID: _____ Date: _____

AEM Tier 2 Worksheet: **Manure and Fertilizer Management** **Table 2: Manure Application**		**Potential Concern**		
Factors Needing Assessment	**Lower** **1**	**2**	**3**	**Higher** **4**
How is manure incorporated after spreading?				
If the farm has soils shallow to bedrock or with a high leaching potential, how is manure spread?	Manure is never spread when fields: - are saturated or frozen or, - when runoff risk is high **AND** Manure is applied just prior to planting or to a growing crop.	Manure is never spread when fields: - are saturated or frozen or, - when runoff risk is high **AND** Manure is applied during the growing season to fields with the highest leaching risk and outside the growing season to fields with the lowest leaching risk.	Manure is never spread when fields: - are saturated or frozen or, - when runoff risk is high **AND** Manure is applied outside the growing season to fields with the lowest leaching risk.	Manure is never spread when fields: - are saturated or frozen or, - when runoff risk is high **AND** Fields are not prioritized based on leaching risks.

AEM Tier 2 Worksheet: **Manure and Fertilizer Management** **Table 3: Fertilizer Application**		**Potential Concern**		
Factors Needing Assessment	**Lower** **1**	**2**	**3**	**Higher** **4**
How is the rate of fertilizer application determined?	Fertilizer rate is based on land grant university guidance and, for P and K, by an appropriate soil test lab. **AND** Soil tests are within the past 3 years. All other nutrient sources are accounted for (e.g. crop residues and manure). **AND** Proper soil pH is maintained.			Fertilizer rate is not based on soil tests. **OR** Other nutrient sources are unaccounted for. **OR** Proper pH is not maintained.
What is the timing of application?	Nutrients are applied as close to the period of maximum nutrient uptake as possible.			Fertilizer is applied outside the growing season.
Is fertilizer spread on soils shallow to bedrock or with a high leaching potential?				
Does your farm import other sources of nutrients (e.g. manure, poultry litter, whey, or other food waste, bio solids) and are they accounted for in your applications to fields?				
Benefits to other resources can also be possible while working toward improved water quality. Taking stock of how existing and future management affect **soil, water, air, plants, animals, energy, greenhouse gases, people, and economics** can result in more effective plans and additional benefits to farms and communities both now and into the future. **Additional Comments:**				

Upper Susquehanna Coalition

BMP Data Entry & Verification Guide

May 2019

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The Importance of BMP Data Collection
Chesapeake Bay TMDL Update

Why do we need to collect BMP data from farms for the Chesapeake Bay Program?
New York (NY) is required to develop and maintain a Watershed Implementation Plan (WIP) outlining practices and procedures that will be in place by 2025 to restore the Chesapeake Bay. By submitting data, we document the implementation progress of Best Management Practices (BMP) made by NY for soil and water conservation and we provide the Environmental Protection Agency (EPA) with the reasonable assurance that NY continues to do the work year after year to meet water quality goals.

What is data used for?
Water quality targets are set by the EPA utilizing a complex computer model. These targets aim to achieve reductions in nitrogen, phosphorus, and sediment loads through continued implementation of farmstead and field conservation practices. NY's progress toward their planning targets is evaluated annually by using the model to estimate the nutrient and sediment load reduction based on the type and number of conservation practices implemented and reported to the EPA. Practices are credited by the Chesapeake Bay model toward reduction goals. The annual evaluation is called a "Progress Run". In addition, NY is required to provide 2-year milestone planning targets. The milestones provide short-term objectives and are key check-in points on the way to having all practices in place by 2025 to restore the Bay. If states fall behind on goals in the future, the EPA has suggested they will take actions to ensure progress.

What farmstead and field conservation practices can be reported?
The Upper Susquehanna Coalition (USC) is the designated data manager for agriculture in the NY portion of the Chesapeake Bay Watershed and is responsible for submitting BMP data to the Department of Environmental Conservation (DEC) for both the annual progress and 2-year milestones. Farm BMP data is collected under the NYS Agricultural Environmental Management (AEM) umbrella and is thereby held confidentially by SWCD's. The data submitted to the DEC and eventually the EPA for the Chesapeake Bay Model is aggregated to the county level; so individual farms are not identified. Practices such as stream restoration, cover crops, conservation tillage, nutrient management, manure storages, precision feed management, prescribed grazing, stream exclusion fence, forest and grass buffers, runoff controls from barnyards and heavy use area protection that are implemented by farms can all be credited by the Chesapeake Bay toward the nitrogen, phosphorus, and sediment reduction goals for NY.

USC Ag BMP Data Collection Form and USC AEM Online Tool
The USC has developed a form with a complete list of NY/CBP BMPs and the reportable units. This form can be used during an AEM visit to record all Ag BMPs that the farm has implemented. It is recommended to use the form to record annual data of individual farms that have had implementation since last year's reporting. Please include NRCS and FSA data! Once completed, the form will help to seamlessly transfer BMP data into the USC AEM Online Tool (**http://aem.co.tioga.ny.us/aem/web**). **Annual progress data must be entered into the USC AEM Online Tool by June 30th each and every year.**

For question, please contact the USC Agricultural Coordinator.

Chesapeake Bay TMDL
Progress and AEM Confidentiality

How is Progress data collected and reported to the EPA?
The Upper Susquehanna Coalition (USC) is the designated data manager for agricultural Best Management Practices (BMP's) in the New York State (NYS) portion of the Chesapeake Bay Watershed, and is responsible for submitting the BMP implementation data to the Department of Environmental Conservation (DEC) for both the annual progress and 2 year milestones. The data is entered by each counties Soil and Water Conservation District (SWCD) into the USC Online Tool. Data is then aggregated by county, submitted to the DEC, and eventually transferred to the Environmental Protection Agency (EPA) for the Chesapeake Bay Model. Individual farms are not identified. All farm BMP data is collected, recorded and reported under the NYS Agricultural Environmental Management (AEM) umbrella and is thereby held confidentially by the SWCD.

How can I assure my clients that their data is confidential?
The AEM Law has a subpart addressing confidentiality, which exempts AEM on-farm surveys, assessments, and plans from the Freedom of Information Law (FOIL) disclosure. The subpart serves as a useful tool for encouraging farmers to voluntarily participate in conservation work with SWCD's. As a note, information directly linked to NYS Agricultural Nonpoint Source Abatement & Control Program (AgNPS) contracts are technically a part of District's own programs.

So, if AEM Law maintains confidentiality of inventories, assessments, plans, and evaluations (that includes that data captured in the AEM Online Tool) in New York State, what about when its sent to the EPA? For starters, data that is entered into the USC AEM Online Tool is being stored on a server in an office located in the NY portion of the Chesapeake Bay Watershed and overseen by a USC staff member. USC staff has exclusive access to this data. Once the Tier 1 and BMP implementation data is in the system, it is only used by the USC for the annual progress runs and individual SWCD planning. In most cases, only the most recent year's implementation data will be pulled from the server. Data from the USC AEM Online Tool is cleansed of farm specific details (name, location, contact info, AEM ID number, etc.) and aggregated to the county level, so the report communicates all the collective work in a county and not per individual farm. Then, those anonymous county-aggregated data are sent to DEC for packaging into a standard nationwide database format required by EPA (the NEIEN node), and transmission to EPA for TMDL progress. Any FOIL request to DEC or FOIA request to EPA for the Chesapeake Bay data would result in a county-wide, aggregated dataset being released (not farm specific). The USC data is demonstrating good stewardship by farmers and only provides specified number of acres, or animal units that were treated by a specified number of practices in a given year by a county. It does not point out what still needs to be done within the NY portion of the watershed.

What about CAFO farms? Is their data confidential too?
The BMP data collected on Concentrated Animal Feeding Operations (CAFO) permitted farms for Chesapeake Bay TMDL progress runs and 2 year milestones is handled as described above. Beyond these efforts to collect BMP data for the TMDL, though confidentiality of data is different for CAFO-permitted farms; All information sent to DEC for CAFO permit purposes (NOIs, Annual Compliance Reports, Spill Reports, etc.) as well as inspection reports and documents associated with enforcement actions can be obtained via FOIL requests to DEC. DEC is also obligated to send Clean Water Act (CWA) permit info to EPA per their delegated authority to run the CAFO CWA permit on EPA's behalf in NYS.

In short, the work that the USC SWCD's are doing to collect, record, and report Agricultural BMP data is protected under AEM Law. Data is aggregated at the county level so that no individual farm is identified when reporting to DEC and EPA. CAFO farm data may fall into a different category because inspection reports and documents associated with enforcement actions can be obtained via FOIL requests. However, these requests would go through the DEC and not the SWCD's.

USC AEM Online Tool Users Guide
http://aem.co.tioga.ny.us/aem/web

Login:
Enter username and password, and then click Login. If you do not have a username or password, please contact the USC Ag Coordinator.

To Select Farm Record:
Select an existing records using complete or partial farm information details, such as: farm name, owner name, etc. then click Search Farms. You can also search by using the select tool  , located on the top left side of the map. The farm information will show under your search criteria. Clicking on the zoom button  will zoom in on the selected farm within the map. Clicking on the continue button  will open the Farm Details page for that farm location.

To Add Farm Record:
Add a new farm record by clicking the "Add Farm" tab at the top right of the screen. Enter the farm address in the search bar located on the top right of the map screen. Click on the pin drop button  , then click the location on the map where you want the farm location pin set. Enter ALL farm information on the right side of the screen and click Save and Continue.

NOTE – The information entered here, is the information that will be used for the search criteria on the "Select Farm" page.

Farm Details:
Enter the Farm Details then click Save. Clicking the Delete button at the bottom of the page will delete the entire farm record.

NOTE – If the farm is a CAFO, you must designate on the Farm Details page under Farm Information.

Tier 1:
To enter Tier 1 information click on the Tier 1 tab on the left of the screen. Answer all questions appropriately. When finished with entire page click SAVE.

NOTE: Checked = YES / Unchecked = NO

Additional Tier 1 Instructions:
To add animal counts and weights, click on the "Add New Farm Animal" button.
NOTE: Animal Units are auto calculated using Chesapeake Bay Program calculations.

1. Choose animal type from the "Name" dropdown list.
2. Enter animal weight (per animal).
3. Enter number of animals in that group.
4. Click Save.
5. Repeat steps 1-4 for additional animal groups.

BMP:
To enter BMP data click on the BMP tab on the left side of the screen. To open an individual BMP data entry screen, click on the View/Edit button. For instructions on entering BMP data, please see "General Instructions for BMP Data Entry (p. 8-9), and the individual BMP Definitions/Instructions pages.

General Instructions for BMP Data Entry

Instructions for entering <u>NEW multi-year practice</u> data:

1. Choose the practice you would like to work with, by clicking on the "View/Edit" button for that BMP.
2. Click the "Add New" button at the bottom right of the screen.
3. Enter an implementation date – this is the original date that the BMP was installed or implemented.
4. Enter an inspection date – this is either the same as the implementation date, or it is the date the practice was inspected or verified.
5. Click "PASS", "FAIL" or "Re-Inspect"
    - PASS = The practice is functioning as intended
    - FAIL = The practice is not functioning as intended, and has already used it's 1 year maintenance period.
    - Re-Inspect = The practice is not functioning as intended and will be placed into a 1 year maintenance period. If needed maintenance does not occur within 1 year from the original inspection date, the BMP will be automatically retired. If maintenance has occurred and the BMP was re-inspected and found to be functioning as intended, then enter a new inspection date and click "PASS".
6. Enter specific BMP location on the operation by clicking the "Edit Location" button. (see BMP Location Instructions)
7. If the BMP is located within the Chesapeake Bay Watershed leave the checkbox checked, if it is not in the Chesapeake Bay Watershed, un-select the checkbox.
8. Choose "YES" or "NO" for the following questions:
    - Is Cost Shared
    - Is NRCS Standard
9. Continue by following BMP specific entry instructions located on the individual BMP Definition/Instruction pages.
10. Press "SAVE"

Instructions for <u>UPDATING</u> data:

If acres, animal numbers, or other BMP specific information changes for a BMP (ex: Soil Conservation Plan that was originally for 200 acres, and now the farms Conservation Plan covers 500 acres) follow the instructions below.

1. Click the "Start Editing" button located on the bottom of the BMP page.
2. Retire the existing practice, by entering a Retirement Date.
3. Click "Save".
4. Then add a new practice using the "Add New" button. For the updated (new) practice, use an implementation date immediately following the retirement date (ex: retired on December 14th, new implementation date would be December 15th)
5. Follow the instructions for entering NEW data above.

NOTE – Clicking the "Delete" button will delete the entire practice.

General Instructions for BMP Data Entry

Instructions for entering annual practice data:

You MUST add a NEW record EVERY year

1. Choose the practice you would like to work with, by clicking on the "View/Edit" button for that BMP.
2. Click "Add New".
3. Enter an implementation date – this is the date that the BMP was implemented.
4. If there was in-field verification completed on this farm, check the field verified button and enter the date that the practice was verified. If the practice was not field verified, leave blank.
5. If the BMP is located within the Chesapeake Bay Watershed leave the checkbox checked, if it is not in the Chesapeake Bay Watershed, un-select the checkbox.
6. Choose "YES" or "NO" for the following questions:
    - Is Cost Shared
    - Is NRCS Standard
7. Continue by following BMP specific entry instructions located on the individual BMP Definition/Instruction pages.
8. Press "SAVE".

BMP Location Instructions

By default, the BMP location will be set the same as the farm location point. To change the actual BMP location, follow the instructions below.

1. Click the "Edit Location" button located on the data entry screen (this will be under to the Lat/Long and in RED text)
2. Zoom in or out as needed.
3. You can move the map around as needed to locate the practice on the map, by clicking and dragging.
4. Drop a pin for the BMP location, by clicking on the map. (You can click on the map as many times as needed to pinpoint the correct location.
5. Click "SAVE"

Accessing Online Reports

1. Click on the "Report" button located on the top right of the screen.
2. Search using one or a combination of search criteria, then click "Search BMP's"
3. To clear search criteria, click on the refresh/clear  button.
4. You can sort a column alphabetically or numerically by clicking on the column heading.
5. Each report can be exported to Microsoft Excel by click the "Export to CSV" .
6. In the "FARMS" report, clicking on an AEM-ID will take you directly to the "Farm Details" page.

NOTE: The "Farms Summary" and "# of BMP Records" tables, show everything that is in your county, active and inactive. (For annual practices, it counts every record ever reported.)

If you would like any additional reports, please contact the USC Ag. Coordinator.

Multi-Year BMP Definitions & Individual Data Entry Instructions

Table of Contents

Ag Land Retirement

Definitions: Agricultural land retirement takes marginal and highly erosive cropland out of production by planting permanent vegetative cover such as shrubs, grasses, and/or trees. There are 3 categories of Agricultural Land Retirement.

1. ***Acres converted to hay with nutrient applied*** – Accounts for those crops that are planted and managed as permanent, such as warm season grasses, to sequester carbon in the soil. Cropland converted to permanent hay with nutrients applied.
2. ***Acres converted to hay without nutrients applied*** – Converts land area to hay without nutrients applied.
3. ***Acres converted to pasture*** – Converts land area to permanent pasture.

Common Practice Names: Critical Area Planting (NRCS 342); Conservation Cover (NRCS 327); Permanent Vegetative Cover; Retirement of Highly Erodible Land; Carbon Sequester Alternative Crop

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter acres of retired agricultural land for each category.
2. Enter any additional comments (ex: funding sources, etc.)
3. Click "SAVE".

NOTE:

- If cropland is converted to pasture under Ag Land Retirement, the same acres could receive credit under Prescribed Grazing as well as Ag Land Retirement.

Ag Tree Planting

Definition: Includes any trees planted on agricultural land, except those used to establish riparian forest buffers, targeting lands that are highly erodible or identified as critical resource areas.

Common Practice Names: Reforestation: Forest Planting; Tree Planting; Windbreak/Shelter Establishment (NRCS 380); Tree/Shrub Establishment (NRCS 612); Tree Planting (FSA CP3); Hardwood Tree Planting (FSA CP3A)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the acres of trees planted.
2. Enter any additional comments (ex: funding source)
3. Click "SAVE".

NOTE:

- This practice applies to areas with trees planted as permanent. Does not apply to "Christmas Tree" farms.

Barnyard & Runoff Management

Definition: Included in this system is the installation of practices to control runoff from barnyard areas, with practices such as roof runoff control, diversion of clean water from entering the barnyard areas and control of contaminated runoff from barnyard areas. This practice also includes 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. (see additional notes below)

Common Practice Names: (*Practice system may include multiple BMPs)* Heavy Use Area Protection (NRCS 561); Roof Runoff Structure (NRCS 558); Structure for Water Control (NRCS 587); Diversion (NRCS 362); Roofs and Covers (NRCS 367); Subsurface Drain (NRCS 606); Underground Outlet (NRCS 620); Vegetated Treatment Area (NRCS 635); Trails and Walkways (NRCS 575)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the number of animals treated by the system.
2. Check any/all boxes that apply for practices present on the farm that control runoff from the barnyard and/or type(s) of barnyard surface.
3. Enter any additional comments (ex: funding source)
4. Click "SAVE".

NOTE:

- The operation is **not** required to have a constructed "Heavy Use Area" to receive credit for Barnyard & Runoff Management.
- If the operation has confined animals (after 2005) in free stall barns or moves them directly to a pasture or otherwise, then the operation can receive credit for total confinement.

Cropland Forest Buffer

Definition: Linear strips of wooded areas maintained on agricultural land between the edge of fields and streams, or rivers that help filter nutrients, sediment and other pollutants from runoff. (see note below regarding widths)

Common Practice Names: Riparian Forest Buffer (NRCS 391); Riparian Buffer (FSA CP22)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the length of the buffer in feet
2. Enter the average width of the buffer in feet
3. Enter any additional comments (ex: funding source)
4. Click "SAVE".

NOTE:

- Acres of buffer are auto-calculated based on length and width.
- Recommended width for buffer implementation (per the Chesapeake Bay Program) is 100 feet with a 35 ft minimum to receive full credit.
- Buffers less than 35ft in width will be credited as a narrow buffer.

Cropland Grass Buffer

Definition: Linear strips of grass or other non-woody vegetation maintained to help filter nutrients, sediment and other pollutants from runoff. (see note below regarding widths)

Common Practice Names: Riparian Herbaceous Cover (NRCS 390); Filter Strip (NRCS 393 or FSA CP21); Field Border (NRCS 386); Grass Waterway (NRCS 412); Grass Water Non-Easement (FSA CP8A)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the length of the buffer in feet
2. Enter the average width of the buffer in feet
3. Enter any additional comments (ex: funding source)
4. Click "SAVE".

NOTE:

- Acres of buffer are auto-calculated based on length and width.
- Recommended width for buffer implementation (per the Chesapeake Bay Program) is 100 feet with a 35 ft minimum to receive full credit.
- Buffers less than 35ft in width will be credited as a narrow buffer.

Exclusion Fence with Forest Buffer

Definition: Linear strips of wooded areas maintained on agricultural land between the edge of fields and streams, or rivers that help filter nutrients, sediment and other pollutants from runoff. This practice also includes exclusion fence be installed to prevent livestock from entering the stream and/or grazing or trampling the buffer area. (see note below regarding widths)

Common Practice Names: Riparian Forest Buffer (NRCS 391); Riparian Buffer (FSA CP22)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the number of animals excluded.
2. Enter the length of the buffer in feet
3. Enter the average width of the buffer in feet
4. Enter any additional comments (ex: funding source)
5. Click "SAVE".

NOTE:

- Acres of buffer are auto-calculated based on length and width.
- Recommended width for buffer implementation (per the Chesapeake Bay Program) is 100 feet with a 35 ft minimum to receive full credit.
- Buffers less than 35ft in width will be credited as a narrow buffer.

Exclusion Fence with Grass Buffer

Definition: Linear strips of grass or other non-woody vegetation maintained to help filter nutrients, sediment and other pollutants from runoff from pasture areas. This practice also includes exclusion fence be installed to prevent livestock from entering the stream and/or grazing or trampling the buffer area. (see note below regarding widths)

Common Practice Names: Riparian Herbaceous Cover (NRCS 390); Filter Strip (NRCS 393 or FSA CP21); Field Border (NRCS 386); Grass Waterway (NRCS 412); Grass Water Non-Easement (FSA CP8A)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the number of animals excluded.
2. Enter the length of the buffer in feet
3. Enter the <u>average</u> width of the buffer in feet
4. Enter any additional comments (ex: funding source)
5. Click "SAVE".

NOTE:

- Acres of buffer are auto-calculated based on length and width.
- Recommended width for buffer implementation (per the Chesapeake Bay Program) is 100 feet with a 35 ft minimum to receive full credit.
- Buffers less than 35ft in width will be credited as a narrow buffer.

Horse Pasture Management

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

Common Practice Names: Prescribed Grazing (NRCS 528 or 528A)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter number of horses associated with practice.
2. Enter acres associated with the horse pasture management practice, including additional acres improved to stabilize overused small pasture containment areas (animal concentration areas) adjacent to animal shelters or farmsteads.
3. Enter any additional comments (ex: funding source, etc.)
4. Click "SAVE".

NOTE:

- This practice applies to all horse pastures having 50% or greater vegetative cover.

Manure Storage Facility

Includes Manure Stacking

Definition: Any structure designed for collection, transfer and storage of manures and associated wastes generated from the confined portion of animal operations. Manure conserved through reduced storage and handling losses associated with Manure Storage Facility implementation are available for land application or export from the farm.

Common Practice Names: Waste Storage Facility (NRCS 313); Waste Treatment Lagoon (NRCS 359); Waste Storage Structure; Dry Waste Storage Structure; Waste Storage Pond

Lifespan: 15 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. If a farm has a manure storage that is covered with floating or rigid cover, check the corresponding box. (This does NOT include a natural crust)
2. Enter the number of animals treated with the manure storage facility.
3. Enter any additional comments (ex: funding source, sizing or storage duration, etc.)
4. Click "SAVE".

NOTE: If the operation has multiple storages for different animal groups, enter each practice individually identifying the location of the each storage with the BMP Location Tool.

Milk House Waste System

Definition: Practices designed for proper handling, storage and utilization of milk house waste and wash water. This practice applies to mainly dairy operations but can also apply to poultry facilities with egg wash water, vegetable facilities with wash water, or other operations that may have a wash down procedure that would collect nutrients.

Common Practice Names: Waste Transfer (NRCS 634); Pumping Plants (NRCS 533); Vegetated Treatment Area (NRCS 635)

Lifespan: 15 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the number of animals treated by the milk house waste system.
2. Enter any additional comments (ex: funding source)
3. Click "SAVE".

Pasture Alternative Watering

Definition: This BMP required the use of alternative drinking water sources, such as permanent or portable livestock troughs places away from the stream corridor while livestock still have access to the stream. Implementing off-stream shade for livestock is encouraged where applicable. The 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 eligible for Pasture Alternative Watering.

Common Practice Names: Watering Facility (NRCS 614)

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the acres of pasture served by the alternative watering facility.
2. Enter any additional comments (ex: funding source)
3. Click "SAVE".

NOTE:

- This practice cannot be combined with Exclusion Fence with Forest Buffer, Exclusion Fence with Grass Buffer, or Stream Exclusion practices.

Prescribed Grazing

Definition: 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 stream or upland pastures outside of the degraded stream corridor. Pastures under the prescribed grazing system need to have vegetative cover of 60% or greater.

Common Practice Names: Prescribed Grazing (NRCS 528 or 528A); Managed Intensive Grazing; Rotational Grazing;

Lifespan: 10 years

Instructions for entering data:
Follow “General Entry Instructions for Multi-Year Practices” then proceed to the instructions below.

1. Enter animals numbers associated with the grazing system.
2. Enter any additional comments (ex: average paddock sizing, days in rotation, funding source, etc.).
3. Click “SAVE”.

Silage Leachate System

Definition: Practices designed for proper handling, storage and utilization of silage leachate from any type of silage storage system, including: upright silos, ag bags, and feed bunkers. This practice applies to Dairy, Beef, Poultry, Swine, Horses, Goats, Sheep, and Other Livestock operations that rate a 1 or 2 on the AEM Tier 2 assessment for Silage Storage.

Common Practice Names: Waste Transfer (NRCS 634); Pumping Plants (NRCS 533); Vegetated Treatment Area (NRCS 635)

Lifespan: 15 years

Instructions for entering data:
Follow “General Entry Instructions for Multi-Year Practices” then proceed to the instructions below.

1. Enter the number of animals treated by the silage leachate system.
2. Enter any additional comments (ex: funding source)
3. Click “SAVE”.

Soil Conservation Plans

Definition: Soil 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 of part of the 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. These types of plans would include: AEM Tier 3A Cropland Conservation plans, Highly Erodible Land (HEL) plans, and/or plans that meet the requirements of 1985 Food Security Act. This practice applies to all agricultural land and operation types.

Common Practice Names: Soil Conservation Plan; Water Quality Plan; Conservation Planning; Field and Pasture Erosion Control Plan; Agricultural Erosion & Sediment Control Plan

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter total acres associated with the Soil Conservation Plan.
2. Enter any additional comments (ex: funding source)
3. Click "SAVE".

NOTE:

- If the operation has a CNMP, you must enter Nutrient Management and Soil Conservation Plans as separate practices. Soil Conservation Plans has a 10 year lifespan, and Nutrient Management has a 1 year lifespan and must be re-entered annually.
- An operation should only have one active Soil Conservation Plan that accounts for all of the operations acres.

Stream Exclusion

Definition: This practice includes stream exclusion fence that is installed on existing forested land and/or stream exclusion fence installed at top of bank.

Common Practice Names: Fence (NRCS 382); Exclusion Fence; Stream Exclusion Fence

Lifespan: 10 years

Instructions for entering data:
Follow "General Entry Instructions for Multi-Year Practices" then proceed to the instructions below.

1. Enter the length of stream exclusion in feet.
2. Enter any additional comments (ex: funding source)
3. Click "SAVE".

NOTE:

- This practice cannot be combined with Exclusion Fence with Forested Buffer, or Exclusion Fence with Grass Buffer for the same section of fencing.
- If there are areas of fencing installed, excluding animals from a stream and existing forest land, this practice would apply.
- If there are areas of fencing installed with no buffer area, and stream is at or near the top of stream bank, this practice would apply.

Annual BMP Definitions & Individual Data Entry Instructions

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Cover Crops

Definition: Cover crops are short-term crops grown after the main cropping season to reduce nutrient and sediment losses from the farm field. The selected crop species and management of cover crops vary based on the farmer's needs and preferences. Cover Crops is broken up into three categories:

1. Traditional Cover Crops: A short-term crop grown after the main cropping season to reduce nutrient losses to ground and surface water by sequestering nutrients. This type of cover crop may not receive nutrients in the fall and may not be harvested in the spring.

2. Traditional Cover Crop with Fall Nutrient Applications: A short-term crop grown after the main cropping season to reduce nutrient losses to ground and the surface water by sequestering nutrients. This type of cover crop is planted upon cropland where manure is applied following the harvest of a summer crop and prior to cover crop planting. The crop may not be harvested in the spring.

3. Commodity Cover Crop: A winter cereal crop planted for harvest in the spring which does not receive nutrient applications in the fall. Any winter cereal crop which did receive nutrient applications in the fall is not eligible for nutrient reductions.

Common Practice Names: Cover Crops (NRCS 340)

Lifespan: Annual Practice

Instructions for entering data:
Follow "General Entry Instructions for Annual Practices" then proceed to instructions below.

1. Enter the acres of each crop type – Wheat, Rye, Barley or Triticale/Other Small Grain
2. Choose Planting Method – Drilled or Other
3. Choose when Manure was Applied – Fall/Winter, Spring or No Manure
4. Choose the Outcome – Harvested or Plowed Under (report as "plowed under" if the cover crop is killed and residue is left)
5. Enter any additional comments
6. Click "SAVE".

NOTE:

- Our model year starts July 1st of the previous year and runs through June 30th of the current year. Therefore, cover crops are implemented in the fall, verified in the spring and applied to the correct and current year.

Manure Incorporation

Definition: Manure incorporation is defined as the mixing of dry, semi-dry, or liquid organic nutrient sources into the soil profile within a specified time period from application by a range of field operations. Manure MUST be incorporated into the soil within 3 days to be eligible for Incorporation. below. There are three categories of Manure Incorporation:

1. ***High Disturbance Incorporation*** – provides the highest degree of mixing of organic nutrient sources into the root zone, but effectively eliminates the erosion control benefits of conservation tillage. Incorporation plus additional field operations retain <30% of residue cover at planting.

2. ***Low Disturbance Incorporation*** – leaves greater quantities of organic nutrient sources on the soil surface, but maintains most of the benefits of conservation tillage. Incorporation plus additional field operations retains at least 30% of residue cover at planting. (will also meet Conservation Tillage Practice definition)

3. ***Liquid Manure Injection*** – is a specialized category of placement in which organic nutrient sources are mechanically applied into the root zone with surface soil closure at the time of application. Injection is expected to provide the greatest level of nutrient loss reduction to both atmospheric and surface runoff pathways, as well as odor reduction, due to limited quantities of material left of the soil surface, limited soil disruption, and immediate soil closure. Total soil surface disturbance for injection plus planting and any other field operations should be less than 40%.

Common Practice Names: N/A

Lifespan: Annual Practice

Instructions for entering data:
Follow “General Entry Instructions for Annual Practices” then proceed to the instructions below.

1. Enter the number of acres that meets the High Disturbance Incorporation definition.
2. Enter the number of acres that meets the Low Disturbance Incorporation definition.
3. Enter the number of acres that meets the Liquid Manure Injection definition.
4. Enter any additional comments (ex: funding source)
5. Click “SAVE”.

Nutrient Management

Definition: The implementation of a site-specific combination of nutrient source, rate, timing and placement into a strategy that seeks to optimize agronomic and environmentally efficient utilization of nitrogen and phosphorus. Improvement in nutrient-use efficiency necessitates documentation of nutrient management implementation strategies that are suitable for independent verification. Nutrient Management is categorized into Core Nutrient Management, and Supplemental Nutrients Management both for Nitrogen and Phosphorus. Supplemental NM is further divided by Rate, Placement and Timing. *(See charts on next page)*

Common Practice Names: Nutrient Management (NRCS 590**);** AEM Certified Nutrient Management Plan

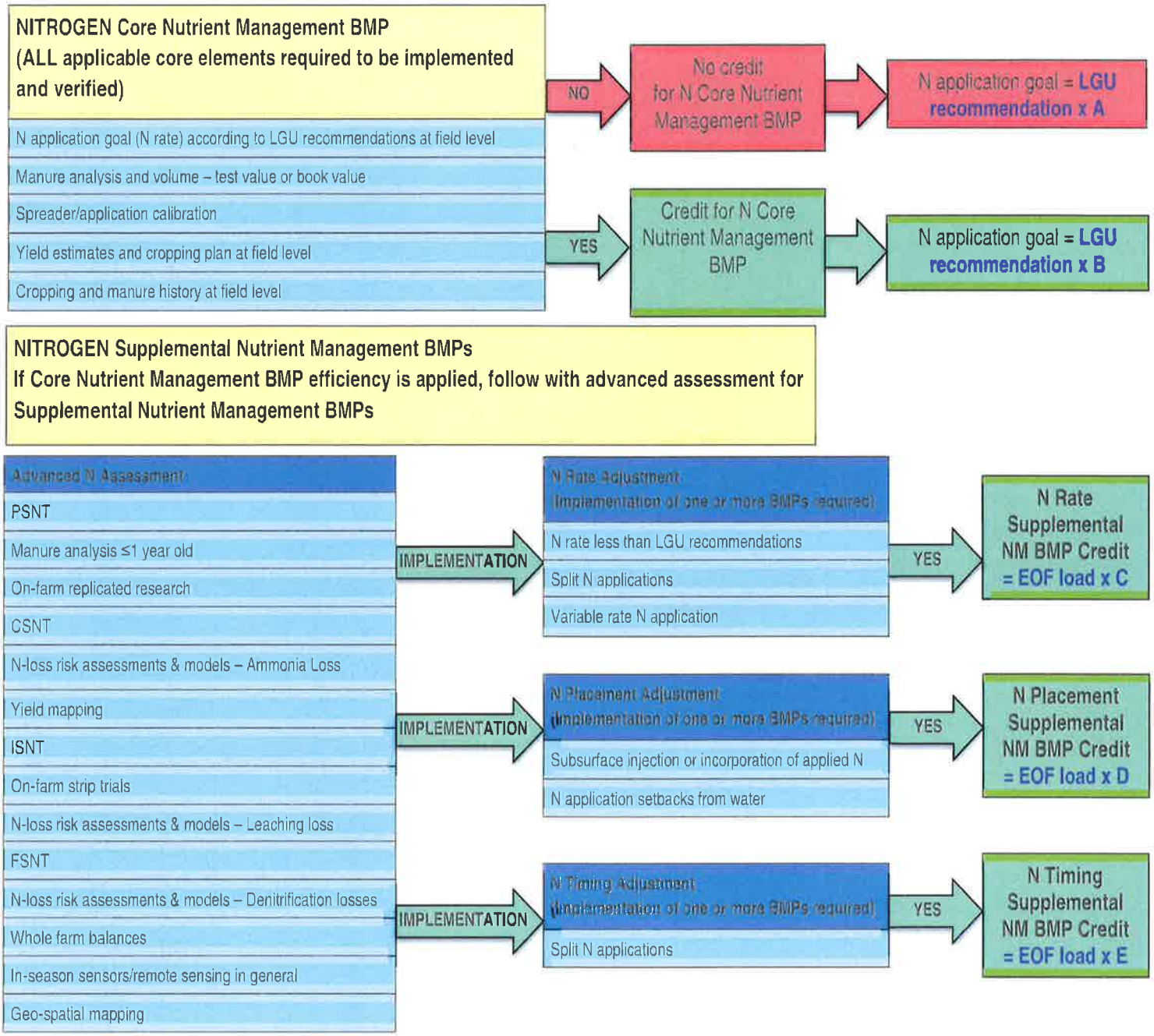
Lifespan: Annual Practice

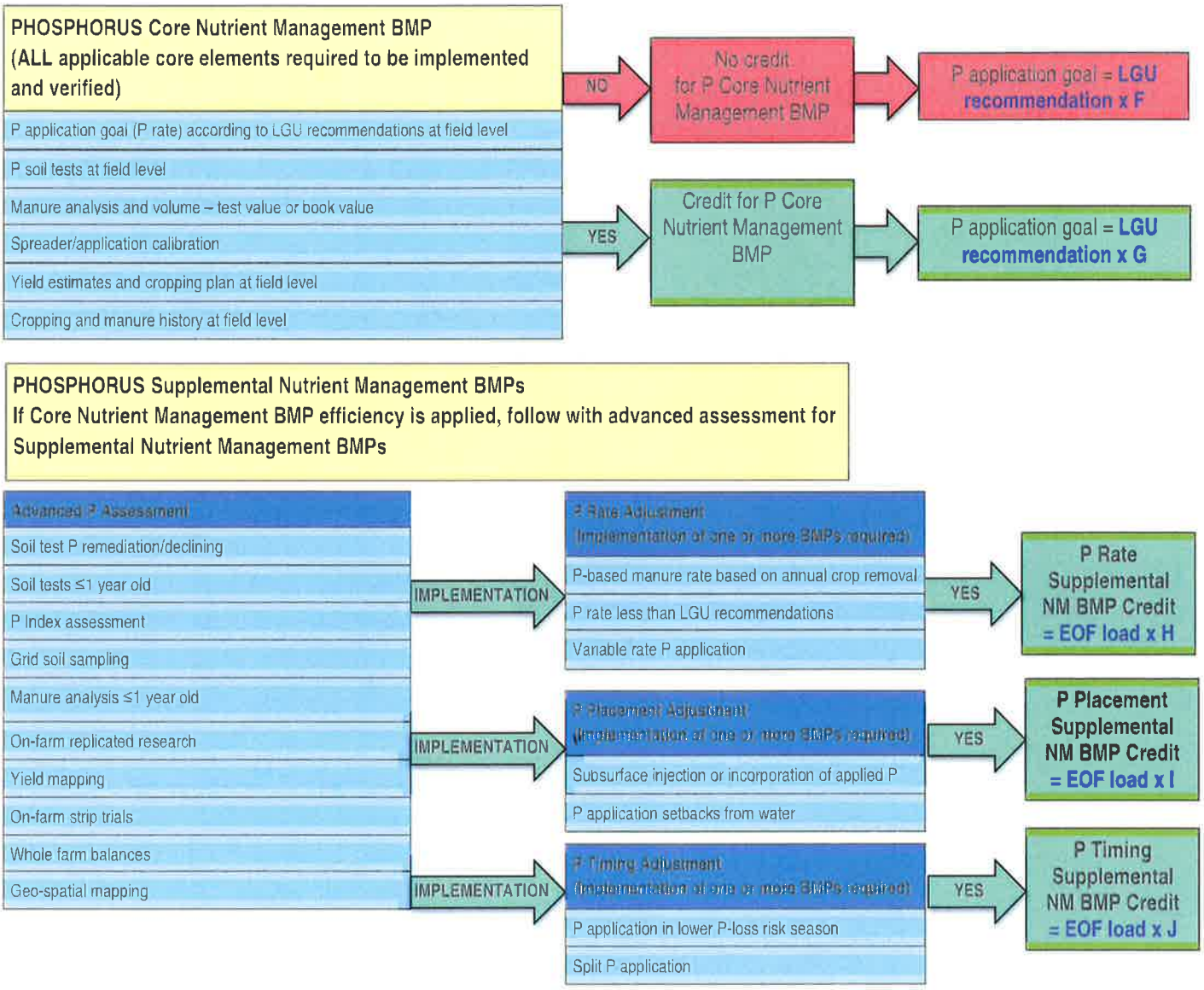
Instructions for entering data:
Follow "General Entry Instructions for Annual Practices" then proceed to instructions below.

1. Enter Row Crop acres
2. Enter Alfalfa/Grass acres
3. Enter Permanent Hay acres
4. Enter Pasture acres
5. Enter a check for each category that the practice meets (Core N, N Rate, N Placement, N Timing, Core P, P Rate, P Placement, and P Timing)
6. Enter any additional comments
7. Click "SAVE".

NOTE:

- If the operation has a CNMP, you must enter the Nutrient Management and Soil Conservation Plan as separate practices. Soil Conservation Plans has a 10 year lifespan, and Nutrient Management has a 1 year lifespan and must be entered annually.
- Nutrient Management is based on IMPLEMENTATION and RECORD KEEPING more than the "Plan" itself.
- All elements of the Core Nutrient Management BMP must be met to be eligible for one or more of the Supplemental BMPS for Nitrogen and/or Phosphorus.


NITROGEN Core Nutrient Management BMP
(ALL applicable core elements required to be implemented and verified)
N application goal (N rate) according to LGU recommendations at field level
Manure analysis and volume – test value or book value
Spreader/application calibration
Yield estimates and cropping plan at field level
Cropping and manure history at field level
NO
No credit for N Core Nutrient Management BMP
N application goal = LGU recommendation x A
YES
Credit for N Core Nutrient Management BMP
N application goal = LGU recommendation x B
NITROGEN Supplemental Nutrient Management BMPs
If Core Nutrient Management BMP efficiency is applied, follow with advanced assessment for Supplemental Nutrient Management BMPs
Advanced N Assessment
PSNT
Manure analysis ≤1 year old
On-farm replicated research
CSNT
N-loss risk assessments & models – Ammonia Loss
Yield mapping
ISNT
On-farm strip trials
N-loss risk assessments & models – Leaching loss
FSNT
N-loss risk assessments & models – Denitrification losses
Whole farm balances
In-season sensors/remote sensing in general
Geo-spatial mapping
IMPLEMENTATION
N Rate Adjustment
(Implementation of one or more BMPs required)
N rate less than LGU recommendations
Split N applications
Variable rate N application
YES
N Rate Supplemental NM BMP Credit = EOF load x C
IMPLEMENTATION
N Placement Adjustment
(Implementation of one or more BMPs required)
Subsurface injection or incorporation of applied N
N application setbacks from water
YES
N Placement Supplemental NM BMP Credit = EOF load x D
IMPLEMENTATION
N Timing Adjustment
(Implementation of one or more BMPs required)
Split N applications
YES
N Timing Supplemental NM BMP Credit = EOF load x E


PHOSPHORUS Core Nutrient Management BMP
(ALL applicable core elements required to be implemented and verified)
P application goal (P rate) according to LGU recommendations at field level
P soil tests at field level
Manure analysis and volume – test value or book value
Spreader/application calibration
Yield estimates and cropping plan at field level
Cropping and manure history at field level
NO
No credit for P Core Nutrient Management BMP
P application goal = LGU recommendation x F
YES
Credit for P Core Nutrient Management BMP
P application goal = LGU recommendation x G
PHOSPHORUS Supplemental Nutrient Management BMPs
If Core Nutrient Management BMP efficiency is applied, follow with advanced assessment for Supplemental Nutrient Management BMPs
Advanced P Assessment
Soil test P remediation/declining
Soil tests ≤1 year old
P Index assessment
Grid soil sampling
Manure analysis ≤1 year old
On-farm replicated research
Yield mapping
On-farm strip trials
Whole farm balances
Geo-spatial mapping
IMPLEMENTATION
P Rate Adjustment
(Implementation of one or more BMPs required)
P-based manure rate based on annual crop removal
P rate less than LGU recommendations
Variable rate P application
YES
P Rate Supplemental NM BMP Credit = EOF load x H
IMPLEMENTATION
P Placement Adjustment
(Implementation of one or more BMPs required)
Subsurface injection or incorporation of applied P
P application setbacks from water
YES
P Placement Supplemental NM BMP Credit = EOF load x I
IMPLEMENTATION
P Timing Adjustment
(Implementation of one or more BMPs required)
P application in lower P-loss risk season
Split P application
YES
P Timing Supplemental NM BMP Credit = EOF load x J

Precision Feed Management Dairy

Definition: Dairy precision feeding and/or forage management reduces the quantity of phosphorus and nitrogen fed to the lactating portion of the dairy herd by formulating diets within 110% of Nutritional Research Council recommended level in order to minimize the excretion of nutrients without negatively affecting milk production. This practice applies to dairy animals only.

Common Practice Names: Feed Management (NRCS 592)

Lifespan: Annual Practice

Instructions for entering data:
Follow "General Entry Instructions for Annual Practices" then proceed to the instructions below.

1. Check "Meets N" if the farm meets the Nitrogen Requirement, then enter the number of animals in the lactating herd that meet these requirements.
2. Check "Meets P" if the farm meets the Phosphorus Requirement, then enter the number of animals in the lactating herd that meet these requirements.
3. Enter any additional comments (ex: funding source)
4. Click "SAVE".

NOTE:

- If only a portion of the lactating herd meets the PFM requirements from the "PFM Tool" than you enter only the animal numbers meeting those requirements. The whole lactating herd does not need to be included to receive credit – credit is based only on animal numbers meeting the requirements.

Tillage Practices

Definition: Conservation tillage involves the planting, growing and harvesting of crops with minimal disturbance to the soil. Tillage is broken up into three categories:

1. Low Residue Tillage – A conservation tillage routine that involves the planting, growing, harvesting of crops with minimal disturbance to the soil in an effort to maintain 15-29% crop residue coverage immediately after planting each crop.
2. Conservation Tillage – A conservation tillage routine that involves the planting, growing, and harvesting of crops with minimal disturbance to the soil in an effort to maintain 30-59% crop residue coverage immediately after planting each crop.
3. High Residue, Minimum Soil Disturbance Tillage – A conservation tillage routine that involves the planting, growing and harvesting of crops with minimal disturbance to the soil in an effort to maintain at least 60% crop residue coverage immediately after planting each crop.

Other Practice Names: Residue and Tillage Management – No Till (NRCS 329); Residue and Tillage Management – Reduced Till (NRCS 345)

Lifespan: Annual Practice

Instructions for entering data:
Follow "General Entry Instructions for Annual Practices" then proceed to instructions below.

1. Enter acres associated with each type of tillage practice.
2. Enter any additional comments
3. Click "SAVE".

NOTE:

- Any tillage routine that achieves less than 15% crop residue coverage immediately after planting each crop is considered conventional tillage, and does NOT qualify for any conservation tillage practices.

BMP Verification Overview

Each year the USC will provide each county with a list of farms and associated BMPs in their county. This list will be generated by a “random sampling” program developed by Tetra Tech. These farms will need on farm verification completed for submission into the database. On farm verification will be completed using a “whole farm approach” to collect information on all BMPs that are located on each farm selected.

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BMP Data Entry & Verification Timeline

January –

Random sampling reports distributed to counties

January through June –

BMP Verification, Data Collections, and Data Entry

June 30th –

Data entry deadline for all data including BMP verifications and annual practices for the dates falling between July 1st of the previous year through June 30th of the current year

July –

QA/QC and finalizing ALL data for progress year submission

July 31st –

Data Submission Deadline for all necessary changes

Instructions for In-Field Verification of BMP's

Useful tools for verification –

- Tier 1 worksheet – if time allows, Tier 1 farm information could be updated during the on-site verification visit.
- Tier 2 worksheet(s) – to assist with the evaluation of each practice.
- Tier 5B Conservation Plan Evaluation Worksheet – to assist with the evaluation of a Conservation Plan
- Tier 5B BMP Evaluation Worksheet – to assist with the evaluation of BMP's
- USC Annual BMP Questionnaire
- USC Ag. BMP Data Collection Sheet – to assist in collecting information to be included in data entry.
- USC Data Entry Information & BMP Definitions document

Before going to the farm –

1. If available, obtain the NRCS Conservation Practices Standard(s) and locate the design(s) for the system or practice(s) to be evaluated.
2. Review the design and any related notes from the practice installation.

During the on-site verification –

1. Verify that the system/practice is stable with no signs of erosion, deposition, sloughing, leaks, cracks, dead or lacking vegetation, etc. – This will require an in depth evaluation of each practice.
2. If available, utilize the Operation & Maintenance section of the design or practice standard to verify that the practice is being properly operated & maintained.
3. Verify that each system/practice is properly functioning.
    a. Determine if there is evidence of overtopping, concentrated flows, or contaminated water where it does not belong.
    b. Verify that the capacity (depth, width & grade) has been maintained.

What to do after returning to the office –

1. If Tier 2 and/or Tier 5B worksheets were not completed during the on-site verification, complete those worksheet in the office using your knowledge of the farm and any notes taken during the field visit.
2. Enter all data collected into the AEM database. (See Data Entry Information & BMP Definitions document)
3. If during the on-site verification, a practice was found to be in need of maintenance – Enter the inspection date and click the re-inspect button. Be sure to follow-up with this operation regarding the required maintenance for the practice. (Practices will have a 1 year maintenance period when the re-inspect button is clicked. If the inspection status is not changed to PASS within 1 year, it will automatically be retired, and will no longer receive credit.)
4. File all hard copy documentation.

Useful Tools and Forms

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AGRICULTURAL ENVIRONMENTAL MANAGEMENT

Tier 1 *AEM Identification Number:*

_____ County SWCD Date: ____/____/____

Evaluator Name:	Evaluating Agency:
Watershed Identification:	
Farm Name:	
Owner's Name:	Operator's Name:
Address:	Address:
Phone: Fax:	Phone: Fax:
Email:	Email:

Preferred Contact Point? (please check only one)

☐ Owner ☐ Operator

1) **Future Status of the Farm**

A) Do you anticipate any major modifications on your farm within the next 5 years? ☐ **Yes** ☐ **No**

If yes, please check the condition(s) that best describes the modification(s):

☐ Business Structure ☐ Expansion ☐ Retirement

☐ Operation Type ☐ Diversification of Farm Business ☐ Sale of Farm

B) Do you plan to subdivide any portion of your farm in the next 5 years? ☐ **Yes** ☐ **No**

2) **Basic Farm Information**

A) What **Primary** Farm Enterprise best describes your operation?

☐ Dairy ☐ Beef ☐ Horses ☐ Fruit/Vegetables

☐ Poultry ☐ Swine ☐ Vineyard ☐ Greenhouse

☐ Cash Crop: (**Please Define**) _____ ☐ Sheep/Goats

☐ Other: (**Please Define**) _____

B) Please indicate the following number of acres:

	Owned	**Rented**
Cropland Acres	_____	_____
Grazed Land Acres	_____	_____
Permanent Hay Land Acres	_____	_____
Woodland Acres	_____	_____
Total Acres	_____	_____

C) Does your operation qualify for Ag Value Assessment? ☐ **Yes** ☐ **No**

3) **Animal Numbers for your <u>Primary</u> Farm Type**

Average Weight: _____ Number: _____ Average Weight: _____ Number: _____

Average Weight: _____ Number: _____ Average Weight: _____ Number: _____

4) **Management Questions** (Please check Yes or No)

	Yes	No
Do you spread manure?	☐	☐
Do you have a manure storage facility?	☐	☐
Do you generate process washwater from the cleaning of product or facilities? (i.e. milkcenter, egg wash, washing of produce)	☐	☐
Is there a barnyard or outdoor feedlot on your farm?	☐	☐
Do you store silage or other high moisture feeds on the farm?	☐	☐
Do you utilize pastureland on your farm?	☐	☐
Do you use commercial fertilizer?	☐	☐
Do you use pesticides (herbicides, insecticides, fungicides) on your farm?	☐	☐
Do you store and/or mix pesticides (herbicides, insecticides, fungicides) on your farm?	☐	☐
Does your operation utilize cropland for row crop production?	☐	☐
Is the water supply on your farm from a well or a spring?	☐	☐
Is there a waterbody within or adjacent to your farm?	☐	☐
Do you presently or do you plan to harvest timber on your farm?	☐	☐
Do you store fuel or other bulk petroleum products on your farm?	☐	☐
Have you received odor complaints or do you believe your farm has an odor concern?	☐	☐

NYS Agricultural Interest Assessment – check all that are of interest

- ☐ Agricultural Tax Relief
- ☐ Agri-Tourism
- ☐ Air Quality
- ☐ Biofuels
- ☐ Biosecurity
- ☐ Conservation Easements
- ☐ Energy Conservation/Generation
- ☐ Environmental Management Systems
- ☐ Farmland Protection
- ☐ Feed Management
- ☐ Fisheries Habitat Management
- ☐ Forest Management/Timber Harvest
- ☐ Grasslands Farming
- ☐ Integrated Pest Management
- ☐ Irrigation Management
- ☐ Manure Treatment Options
- ☐ Neighbor-Farm Relations
- ☐ Nuisance Wildlife Control
- ☐ Organic Farming
- ☐ Pollution Credit Trading
- ☐ Right To Farm
- ☐ Stream Management
- ☐ Water Conservation/Management
- ☐ Wellhead Protection
- ☐ Wetland Conservation
- ☐ Wildlife Habitat Improvement

Would you like to receive a copy of the AEM Guide to Conservation Funding? ☐ Yes ☐ No
This document is also online at www.nys-soilandwater.org/aem/aemoutreach.html

(***OPTIONAL***)

Producer Questions & Comments:

_____

Agricultural
Environmental
Management

Tier 5B Conservation Plan Evaluation Requirements Checklist for AEM Base Program

Check only ONE box per form.

3A Plan	3B CNMP	3C Whole Farm
Completed Year	Completed Year	Completed year

This checklist will help determine if all required tasks and documentation have been completed for the Tier 5B Evaluation of an AEM Tier 3 Plan. Also consult "*Participating in AEM Tier 5B*" when completing this checklist.

Please complete the following information on the farm planned.

County: **Date:** **AEM YEAR:**

AEM Farm Identification Number:

12-digit HUC of the predominant watershed in which the farm is located:

Primary type of farm evaluated: **Acres:**

Animal Units on the farm:

Date of the original plan:

Existing planned component(s): ☐Farmstead ☐Cropland ☐Nutrient Mgmt. ☐Pasture ☐Pest

Additional components planned: ☐Farmstead ☐Cropland ☐Nutrient Mgmt. ☐Pasture ☐Pest ☐NA

Additional acres planned:

Please check each item addressed and documented in the plan and/or the farm's case file.

- **If an item does not apply please explain why in the notes section of this form.**

1. ☐ Identify the land units planned and review the natural resource issues & opportunities, decisions, and recommendations in the plan.

2. ☐ Meet with the farmer to review and discuss their plan noting any progress made in implementing decisions from the plan by documenting on the *Record of Decisions and Progress* form. Also, note any changes made to the farming operation that necessitate a plan update/revision. Note that AEM Tier 1 and 2 can be used to help identify changes and assess the need for additional planning.

3. ☐ Check that the existing plan covers all natural resource issues & opportunities and identify any missing high priority issues that should be progressively planned in the updated plan.

4. ☐ Discuss with the farmer the decisions/recommendations not implemented from the existing plan then update the plan to reflect any new high priority issues & opportunities, or adjustments to the timetable to implement already planned practices in the *Record of Decisions and Progress* form.

5. ☐ Plan any additional high priority issues or components the farmer is now willing to address (progressively plan). Utilize the *Participating in AEM Tier 3* document and the *Tier 3 Plan Requirements Checklist* to help guide the planning.

6. ☐ Tier 3B or C plans must be evaluated by or under the supervision of a Certified Planner.

7. ☐ Complete the update, review with the farmer and gain their approval. Note the process in the *Assistance Notes* in the farmer's case file and in any data management system maintained by the District.

8. ☐ Provide a copy of the revised plan to the farmer.

9. Comments:

Agricultural Environmental Management

Tier 5B BMP Evaluation Requirements Checklist for AEM Base Program

This checklist will help determine if all required tasks and documentation have been completed for the Tier 5B Evaluation of an existing BMP system or conservation practice. Also consult "Participating in AEM Tier 5B" when completing this checklist.

Please complete the following information on the farm & BMP evaluated.

County: **Date:** **AEM YEAR**:

AEM Farm Identification Number:

12-digit HUC of the predominant watershed in which the farm is located:

Type of BMP System/conservation practice(s) evaluated:

Date of BMP installation:

ID the source of cost share for original installation (if applicable)**:** ☐**Ag NPS** ☐**Farm Bill** ☐ **Both**

Type or Farm: **Acres:**

Animal Units on the farm:

Please check each item addressed and documented in the plan and/or the farm's case file.

- **If an item does not apply please explain why in the notes section of this form.**

1. ☐ The NRCS Conservation Practice Standard(s), the design, and "as-built" of the conservation practice(s) to be evaluated have been found and reviewed. The design and "as-built" was signed by an individual(s) with the appropriate Job Approval Authority.

2. ☐ An on-site evaluation of the practice(s) was conducted noting the condition of the practice, the status of operation & maintenance, and if the practice is properly functioning including a check of the capacity if appropriate. You have utilized the assistance, if needed, of an individual with Job Approval Authority or a Professional Engineer.

3. ☐ Determination was made on whether or not the practice is addressing the concern for which it was installed. The "Criteria" and "Considerations" sections of the appropriate NRCS Conservation Practice Standard were utilized to help make this determination.

4. ☐ You have met with the farmer to discuss if the practice is meeting expectations, and to review operation and maintenance activities.

5. ☐ The farmer has been provided a written report on the condition of the practice that identifies any changes and/or improvements needed, and provides any additional information required to properly operate and maintain the practice. Recommendations on new or additional BMPs have been made if needed. The report was reviewed on-site.

6. ☐ The evaluation of the practice and review with the farmer has been documented in the conservation plan or case file. A copy of the report has also been filed. Accomplishments were documented in any data management system maintained by the District.

7. Comments:

UPPER SUSQUEHANNA COALITION - CHESAPEAKE BAY PROGRAM
AGRICULTURAL ENVIRONMENTAL MANAGEMENT AG BMP DATA ENTRY SHEET

Farm Name _____ AEM ID ____ - ____

Evaluator _____ Inspection Date ___ / ___ / ____

☐ CAFO

Multi-Year Practices	Inspection Result (✔ PASS or FAIL)	Cost Shared? (✔ if yes)	NRCS Standard? (✔ if yes)
Agricultural Land Retirement Implementation Date ___ / ___ / ____ Acres converted to hay without nutrients _____ Acres converted to hay or open space WITHOUT nutrients _____ Acres converted to pasture _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Agricultural Tree Planting Implementation Date ___ / ___ / ____ Acres Planted _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Barnyard & Runoff Management * If multiple systems - see attached * Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ ☐ Heavy Use Area ☐ Concrete ☐ Aggregate ☐ Managed Vegetation ☐ Mulch ☐ Roof Runoff Structure ☐ Diversion ☐ Stormwater Runoff Control ☐ Vegatated Treatment Area/Strip ☐ Total Confinement (after 2005) ☐ Animal Trails & Walkways	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Forest Buffer * If multiple buffers - see attached * Implementation Date ___ / ___ / ____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Grass Buffer * If multiple buffers - see attached * Implementation Date ___ / ___ / ____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Forest Buffer * If multiple buffers - see attached * Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Grass Buffer * If multiple buffers - see attached * Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Horse Pasture Management Implementation Date ___ / ___ / ____ Animal Numbers _____ Acres _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Manure Storage Facility * If multiple systems - see attached * Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ ☐ Covered	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Milkhouse Waste Implementation Date ___ / ___ / ____ Number of Dairy Cows _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Pasture Alternative Watering Implementation Date ___ / ___ / ____ Acres served by watering facility _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐

Prescribed Grazing Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Acres _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Silage Leachate Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Soil Conservation Plan Implementation Date ___ / ___ / _____ Acres _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Stream Exclusion Fencing Implementation Date ___ / ___ / _____ Length Fenced (Feet) _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐

Notes _____

Annual Practices

	Field Verifield (✔ if yes)	Cost Shared? (✔ if yes)	NRCS Standard? (✔ if yes)

Cover Crops ☐ Field Verified

Planting Date	Cover Crop Type	Planting Method	Manure Applied	Outcome	Acres		
___/___/_____						☐	☐
___/___/_____						☐	☐
___/___/_____						☐	☐
___/___/_____						☐	☐
___/___/_____						☐	☐
	Wheat, Rye, Barley, Tritcale or other small grain	Drilled or Other	No Manure, Fall/Winter, or Spring (after March 1)	Harvested or Plowed Under	Acres Planted		

Manure Incorporation ☐ Field Verified ☐ ☐

Implementation Date ___/___/_____

Length Fenced (Feet)

Acres of high disturbance incorporation (<30% residue at planting) _____

Acres of low disturbance incorporation (30% or more residue at planting) _____

Acre of liquid manure injections (<40% soil surface disturbance) _____

Nutrient Management Plans ☐ Field Verified ☐ ☐

Implementation Date ___/___/_____

Landuse Type Acres	NMLevel N	NM Level P
_____ Row Crops	☐ Core N	☐ Core P
_____ Alfalfa/Grass Hay	☐ N Rate	☐ P Rate
_____ Permanent Hay	☐ N Placement	☐ P Placement
_____ Pasture	☐ N Timing	☐ P Timing

Precision Feed Management (For the lactating part of the herd) ☐ Field Verified ☐ ☐

Implementation Date ___/___/_____

Number of Animals Meeting N _____ Number of Animals Meeting P _____

Tillage Practices ☐ Field Verified ☐ ☐

Implementation Date ___/___/_____

	Acres
Low Residue, Strip-Till/No-Till (15-29% cover & <40% soil disturbance)	_____
Conservation Tillage (30-59% cover)	_____
High Residue, min. disturbance (>60% cover)	_____

Notes _____

Multi-Year Practices (Additional)	Inspection Result (✔ PASS or FAIL)	Cost Shared? (✔ if yes)	NRCS Standard? (✔ if yes)
Agricultural Tree Planting #2 Implementation Date ___ / ___ / _____ Acres Planted _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Barnyard & Runoff Management #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Barnyard & Runoff Management #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Forest Buffer #2 Implementation Date ___ / ___ / _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Grass Buffer #2 Implementation Date ___ / ___ / _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Forest Buffer #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Grass Buffer #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Grass Buffer #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Grass Buffer #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Manure Storage Facility #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ ☐ Covered	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Manure Storage Facility #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ ☐ Covered	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Pasture Alternative Watering #2 Implementation Date ___ / ___ / _____ Acres served by watering facility _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Stream Exclusion Fencing #2 Implementation Date ___ / ___ / _____ Length Fenced (Feet) _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐

Notes

Annual BMP Questionnaire

Farm Name _____ **AEM ID** _____

Technician Name _____ **Date Completed** _____

Cover Crops

1. Does the operation plant cover crops? **Yes** ☐ **No** ☐
2. What type of cover crop was planted? _____
3. What was the planting method used? _____
4. Was manure applied to the cover crops? **Yes** ☐ **No** ☐
   (check for timing of manure application) Spring ☐ Fall/Winter ☐
5. Were the cover crops plowed under or killed? If so, which one? **Yes** ☐ **No** ☐ _____
6. How many acres of cover crops were planted? _____
7. What was the planting date? _____

Manure Incorporation

1. Does the operation apply manure? **Yes** ☐ **No** ☐
2. Does the operation incorporate their manure? **Yes** ☐ **No** ☐
3. How soon after application, does the operation incorporate? _____
4. What type of application method is used? _____
5. After incorporation, what % crop residue is left on the ground at the time of planting? _____
6. Does the operation inject liquid manure? _____
7. After injection, what % crop residue is left on the ground at the time of planting? _____

Nutrient Management

Total Acres: Row Crops_____ Alfalfa/Grass Hay_____ Permanent Hay_____ Pasture_____

Nitrogen Core

1. Is nitrogen applied according to Cornell recommendations? **Yes** ☐ **No** ☐
2. Is manure analysis used (book or test value)? **Yes** ☐ **No** ☐
3. Is the manure spreader calibrated to apply at the correct rates? **Yes** ☐ **No** ☐
4. Does the operation have yield estimates and a cropping plan? **Yes** ☐ **No** ☐
5. Does the operation have cropping and manure history records? **Yes** ☐ **No** ☐

Phosphorus Core

1. Is phosphorus applied according to Cornell recommendations? **Yes** ☐ **No** ☐
2. Does the operation have P soil tests? **Yes** ☐ **No** ☐
3. Is manure analysis used (book or test value)? **Yes** ☐ **No** ☐
4. Is the manure spreader calibrated to apply at the correct rates? **Yes** ☐ **No** ☐
5. Does the operation have yield estimates and a cropping plan? **Yes** ☐ **No** ☐
6. Does the operation have cropping and manure history records? **Yes** ☐ **No** ☐

Annual BMP Questionnaire

Nitrogen Supplemental BMPs

PSNT	Manure Analysis < 1 yr. old	On-farm replicated research	CSNT
Yield Mapping	ISNT	On-farm strip trials	N-loss risk assessments & models – Denitrification losses
In-season sensors/remote sensing in general	Geo-spatial mapping	N-loss risk assessment & models – Ammonia Loss	Whole farm balances

Have any of the below practices been used/implemented due to using one of the above tools.

N Rate Adjustment

1. Is the operation applying nutrients at a rate less than Cornell University recommendations? **Yes** ☐ **No** ☐
2. Is the operation applying nutrients using split N application? **Yes** ☐ **No** ☐
3. Is the operation applying nutrients at a variable N application rate? **Yes** ☐ **No** ☐

N Placement Adjustment

1. Is the operation using subsurface injection or incorporation of applied N? **Yes** ☐ **No** ☐
2. Is the operation implementing N application setbacks from water? **Yes** ☐ **No** ☐

N Timing Adjustment

1. Is the operation applying nutrients using split N applications? **Yes** ☐ **No** ☐

Phosphorus Supplemental BMPs

Soil test P remediation/declining	Soil Tests < 1 yr old	P Index assessment	Grid soil sampling
Manure analysis < 1 yr. old	On-farm replicated research	Yield Mapping	On-farm strip trials
Whole farm balances	Geo-spatial mapping		

Have any of the below practices been used/implemented due to using one of the above tools.

P Rate Adjustment

1. Is the operation applying nutrients at a rate less than Cornell recommendations? **Yes** ☐ **No** ☐
2. Is the operation applying P manure rates based on annual crop removal **Yes** ☐ **No** ☐
3. Is the operation applying nutrients at a variable P application rate? **Yes** ☐ **No** ☐

P Placement Adjustment

1. Is the operation using subsurface injection or incorporation of applied N? **Yes** ☐ **No** ☐
2. Is the operation implementing P application setbacks from water? **Yes** ☐ **No** ☐

P Timing Adjustment

1. Is the operation applying nutrients using split P applications? **Yes** ☐ **No** ☐
2. Is the operation applying P during lower P-loss risk season? **Yes** ☐ **No** ☐

Annual BMP Questionnaire

Dairy Precision Feed Management

1. Is the herd engaged in NYS Precision Feed Management? (If yes, answer 2-8) **Yes** ☐ **No** ☐
2. MUN - Milk Urea Nitrogen number (date and results of last 4 MUN)
   Date_____ Date_____ Date_____ Date_____
   MUN_____ MUN_____ MUN_____ MUN_____
3. Phosphorus % in feed Ration _____
   Name of Nutritionist_____Phone number_____
4. Number of milking cows going into the tank (just cow being milked no dry cows) _____
5. Amount of milk recently shipped? _____(once-a-day or every-other-day pick-up)
6. Breed of cow and %(i.e. Holstein 100% OR Holstein 80%, Jersey 20%, etc.)_____
7. Does the operation meet the recommended range and ration of nitrogen for any given portion of the herd?
   Yes ☐ **No** ☐
   If yes, how many animals?
   _____
8. Does the operation meet the recommended range and ration of phosphorus for any given portion of the herd?
   Yes ☐ **No** ☐
   If yes, how many animals?
   _____

Tillage Practices

Indicate which type of tillage was used:

Yes ☐ **No** ☐ 1. Conventional/High Till (less than 15% cover OR 15-29% cover with full width tillage)
Yes ☐ **No** ☐ 2. Low residue, strip till/no till (15-29% cover, strip-till or no-till, and less than 40% soil disturbance)
Yes ☐ **No** ☐ 3. Conservation Tillage (30-59% cover)
Yes ☐ **No** ☐ 4. High residue, minimum soil disturbance tillage (more than 60% cover, minimum disturbance)

How many acres? _____

Multi-Year BMP's

Check all that exist on the operation

Yes ☐ **No** ☐ Ag. Land Retirement
Yes ☐ **No** ☐ Ag. Tree Planting
Yes ☐ **No** ☐ Barnyard & Runoff Management
Yes ☐ **No** ☐ Cropland Forest Buffer
Yes ☐ **No** ☐ Cropland Grass Buffer
Yes ☐ **No** ☐ Exclusion Fence w/ Forest Buffer
Yes ☐ **No** ☐ Exclusion Fence w/ Grass Buffer
Yes ☐ **No** ☐ Horse Pasture Management
Yes ☐ **No** ☐ Manure Storage Facility
Yes ☐ **No** ☐ Milk House Waste System
Yes ☐ **No** ☐ Pasture Alternative Watering
Yes ☐ **No** ☐ Prescribed Grazing
Yes ☐ **No** ☐ Silage Leachate System
Yes ☐ **No** ☐ Soil Conservation Plan
Yes ☐ **No** ☐ Stream Exclusion Fence

Annual BMP Questionnaire

Do any of the multi-year practices currently have a need for maintenance? **Yes** ☐ **No** ☐

Are there any changes to any of the multi-year practices from previous years? **Yes** ☐ **No** ☐

Notes

For questions regarding BMP Data Entry and/or Verification, contact:

Emily Dekar – USC Ag. Coordinator

dekare@co.tioga.ny.us

(607)972-2346

BMP Name	USC Database Table	NEIEN BMP Name	USC Database Column Name	Scenario Builder BMP	Default Scenario Builder Land Use	Land Use Class Code	Land Use Code	Measurement Name	Unit Name	Unit Code	Prior or Existing Land Use	New Land Use	Width Condition Minimum	Width Condition Maximum
Nutrient Management P Timing - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management P Timing	CombinedAPPTiming	nmtimep	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Conservation Tillage	BMP_TillagePractices	Conservation Tillage	AcresConservationTillage	ConserveTill	ROW			Total Acres	ACRE	ACRE				
Exclusion Fence with Grass Buffer	BMP_ExclusionFenceGrassBuffer	Exclusion Fence with Grass Buffer	Acres	GrassBuffExcl	Pasture			Acres	ACRE	ACRE			35	2147483647
Exclusion Fence with Forest Buffer	BMP_ExclusionFenceForestBuffer	Exclusion Fence with Forest Buffer	Acres	ForestBuffExcl	Pasture			Acres	ACRE	ACRE			35	2147483647
Exclusion Fence with Narrow Grass Buffer	BMP_ExclusionFenceGrassBuffer	Exclusion Fence with Narrow Grass Buffer	Acres	GrassBuffExclNar	Pasture			Acres	ACRE	ACRE			0	35
Exclusion Fence with Narrow Forest Buffer	BMP_ExclusionFenceForestBuffer	Exclusion Fence with Narrow Forest Buffer	Acres	ForestBuffExclNar	Pasture			Acres	ACRE	ACRE			0	35
Cropland Grass Buffer	BMP_CropLandGrassBuffer	Grass Buffers	Acres	GrassBuffers	CropHay			Acres	ACRE	ACRE			35	2147483647
Cropland Narrow Grass Buffer	BMP_CropLandGrassBuffer	Narrow Grass Buffers	Acres	grassbuffnarrow	CropHay			Acres	ACRE	ACRE			0	35
Cropland Forest Buffer	BMP_CropLandForestBuffer	Riparian Forest Buffer	Acres	ForestBuffers	CropHay			Acres	ACRE	ACRE			35	2147483647
Cropland Narrow Forest Buffer	BMP_CropLandForestBuffer	Narrow Forest Buffers	Acres	forestbuffnarrow	CropHay			Acres	ACRE	ACRE			0	35
Wetland Enhancement (Crop)	BMP_Wetlands	Wetland Functional Gains - Enhanced	WE-C	WetlandEnhance	Wetland			Non-Tidal Emergent Area	ACRE	ACRE				
Wetland Enhancement (Hay)	BMP_Wetlands	Wetland Functional Gains - Enhanced	WE-H	WetlandEnhance	Wetland			Non-Tidal Emergent Area	ACRE	ACRE				
Wetland Enhancement (Pasture)	BMP_Wetlands	Wetland Functional Gains - Enhanced	WE-P	WetlandEnhance	Wetland			Non-Tidal Emergent Area	ACRE	ACRE				
Wetland Enhancement (Forest)	BMP_Wetlands	Wetland Functional Gains - Enhanced	WE-F	WetlandEnhance	Wetland			Non-Tidal Emergent Area	ACRE	ACRE				
Wetland Restoration (Crop)	BMP_Wetlands	Wetland Gains - Reestablished	WR-C	WetlandRestoreFloodplain	AG	NLCD01	82	Non-Tidal Emergent Area	ACRE	ACRE	82			
Wetland Restoration (Hay)	BMP_Wetlands	Wetland Gains - Reestablished	WR-H	WetlandRestoreFloodplain	AG	NEIENSB	HayAl	Non-Tidal Emergent Area	ACRE	ACRE	HayAl			
Wetland Restoration (Pasture)	BMP_Wetlands	Wetland Gains - Reestablished	WR-P	WetlandRestoreFloodplain	AG	NEIENSB	Past	Non-Tidal Emergent Area	ACRE	ACRE	Past			
Wetland Restoration (Forest)	BMP_Wetlands	Wetland Restoration	WE-F	WetlandRestoreFloodplain	AG	NLCD01	41	Acre	ACRE	ACRE	41			
Nutrient Management Core N - Row Crops	BMP_NutrientManagementPlans	Nutrient Management Core N	RowCropsCoreN	nmcoren	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management P Placement - Row Crops	BMP_NutrientManagementPlans	Nutrient Management P Placement	RowCropsPPlacement	nmplacep	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management N Rate - Row Crops	BMP_NutrientManagementPlans	Nutrient Management N Rate	RowCropsNRate	nmraten	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management P Rate - Row Crops	BMP_NutrientManagementPlans	Nutrient Management P Rate	RowCropsPRate	nmratep	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management N Timing - Row Crops	BMP_NutrientManagementPlans	Nutrient Management N Timing	RowCropsNTiming	nmtimen	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management P Timing - Row Crops	BMP_NutrientManagementPlans	Nutrient Management P Timing	RowCropsPTiming	nmtimep	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management Core N - Pasture	BMP_NutrientManagementPlans	Nutrient Management Core N	PastureCoreN	nmcoren	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Nutrient Management Core P - Pasture	BMP_NutrientManagementPlans	Nutrient Management Core P	PastureCoreP	nmcorep	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Nutrient Management N Placement - Pasture	BMP_NutrientManagementPlans	Nutrient Management N Placement	PastureNPlacement	nmplacen	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Nutrient Management P Placement - Pasture	BMP_NutrientManagementPlans	Nutrient Management P Placement	PasturePPlacement	nmplacep	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Nutrient Management N Rate - Pasture	BMP_NutrientManagementPlans	Nutrient Management N Rate	PastureNRate	nmraten	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Nutrient Management N Placement - Row Crops	BMP_NutrientManagementPlans	Nutrient Management N Placement	RowCropsNPlacement	nmplacen	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management Core P - Row Crops	BMP_NutrientManagementPlans	Nutrient Management Core P	RowCropsCoreP	nmcorep	ROW	NLCD01	82	Acres	ACRE	ACRE	ROW			
Nutrient Management P Rate - Pasture	BMP_NutrientManagementPlans	Nutrient Management P Rate	PasturePRate	nmratep	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Nutrient Management N Timing - Pasture	BMP_NutrientManagementPlans	Nutrient Management N Timing	PastureNTiming	nmtimen	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Nutrient Management P Timing - Pasture	BMP_NutrientManagementPlans	Nutrient Management P Timing	PasturePTiming	nmtimep	Pasture	NEIENSB	Past	Acres	ACRE	ACRE	Pasture			
Soil Conservation Plans	BMP_SoilConservationPlans	Conservation Plans	Acres	ConPlan	AG			Acres	ACRE	ACRE				
Prescribed Grazing	BMP_PrescribedGrazing	Prescribed Grazing	Acres	PrecRotGrazing	PASTURE			Acres	ACRE	ACRE				
Precision Feed Management	BMP_PrecisionFeedManagementDairy	Feed Management	AnimalUnitN	DairyPrecFeed	dairy			AU	COUNT	AU				
Horse Pasture Management	BMP_HorsePastureManagement	Horse Pasture Management	Acres	HorsePasMan	PASTURE			Acres	ACRE	ACRE				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitDairyCows	AWMS	dairy			DAIRY_AU	COUNT	AU				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitBeefCows	AWMS	beef			BEEF_AU	COUNT	AU				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitOtherCattle	AWMS	Livestock			OTHER_AU	COUNT	AU				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitHorses	AWMS	horses			HORSE_AU	COUNT	AU				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitSheepsAndGoats	AWMS	sheep and lambs			SHEEP_AU	COUNT	AU				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitPigs	AWMS	Swine			SWINE_AU	COUNT	AU				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitChickens	AWMS	Poultry			POULTRY_AU	COUNT	AU				
Manure Storage System	BMP_ManureStorageFacility	Waste Storage Facility	AnimalUnitTurkeys	AWMS	pullets			TURKEY_AU	COUNT	AU				
Silage Leachate System	BMP_SilageLeachateSystem	Waste Treatment - Dairy	AWMS_SystemCount	AWMS	dairy			Systems	COUNT	COUNT				
Milkhouse Waste System	BMP_MilkHouseWasteSystem	Waste Treatment - Dairy	AWMS_SystemCount	AWMS	dairy			Systems	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoDairyCows	BarnRunoffCont	Feed			Dairy Animals	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoBeefCows	BarnRunoffCont	Feed			beef	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoOtherCattle	BarnRunoffCont	Feed			other cattle	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoHorses	BarnRunoffCont	Feed			horses	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoSheepsAndGoats	BarnRunoffCont	Feed			sheep and lambs	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoPigs	BarnRunoffCont	Feed			Swine	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoChickens	BarnRunoffCont	Feed			Poultry	COUNT	COUNT				
Barnyard Runoff Control System	BMP_BarnyardAndRunoffManagement	Barnyard Runoff Controls	AnimalNoTurkeys	BarnRunoffCont	Feed			turkeys	COUNT	COUNT				
Urban Narrow Stream Buffers	BMP_UrbanBuffer	Narrow Urban Forest Buffer	Acres	UrbanTreePlant	Turfgrass			Acres	ACRE	ACRE			0	35
Urban Stream Buffers	BMP_UrbanBuffer	Urban Forest Buffer	Acres	ForestBufUrban	Turfgrass			Acres	ACRE	ACRE			35	2147483647
Stream Restoration	BMP_StreamRestoration	Stream Channel Stabilization	Length	NonUrbStrmRest	StreamBedAndBank			Length	FEET	FEET				
Nutrient Management Core N - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management Core N	CombinedAPCoreN	nmcoren	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Nutrient Management Core P - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management Core P	CombinedAPCoreP	nmcorep	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Nutrient Management N Placement - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management N Placement	CombinedAPNPlacement	nmplacen	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Nutrient Management P Placement - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management P Placement	CombinedAPPPlacement	nmplacep	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Nutrient Management N Rate - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management N Rate	CombinedAPNRate	nmraten	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Nutrient Management P Rate - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management P Rate	CombinedAPPRate	nmratep	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Nutrient Management N Timing - Grass Hay	BMP_NutrientManagementPlans	Nutrient Management N Timing	CombinedAPNTiming	nmtimen	HayAl	NEIENSB	HayAl	Acres	ACRE	ACRE	HayAl			
Conservation Tillage	BMP_TillagePractices	Reduced Tillage	AcresLowResidue	ConserveTill	ROW			Acres	ACRE	ACRE				
Conservation Tillage	BMP_TillagePractices	High Residue Tillage Management	AcresHighResidue	ConserveTill	ROW			Acres	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-DB	CoverCropComNormal	SmallGrainsAndDoubleCrops	SmallGrainsAndDoubleCrops	8	Commodity Cover Crop Standard Drilled Barley	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-DR	CoverCropComNormal	SmallGrainsAndDoubleCrops	SmallGrainsAndDoubleCrops	8	Commodity Cover Crop Standard Drilled Rye	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-DW	CoverCropComNormal	SmallGrainsAndDoubleCrops	SmallGrainsAndDoubleCrops	8	Commodity Cover Crop Standard Drilled Wheat	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-OB	CoverCropComNormal	SmallGrainsAndDoubleCrops	SmallGrainsAndDoubleCrops	8	Commodity Cover Crop Standard Other Barley	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-OR	CoverCropComNormal	SmallGrainsAndDoubleCrops	SmallGrainsAndDoubleCrops	8	Commodity Cover Crop Standard Other Rye	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-OW	CoverCropComNormal	SmallGrainsAndDoubleCrops	SmallGrainsAndDoubleCrops	8	Commodity Cover Crop Standard Other Wheat	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DB	CoverCropTradBND	ROW	82	7	Cover Crop Standard Drilled Barley	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DR	CoverCropTradRND	ROW	82	7	Cover Crop Standard Drilled Rye	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DW	CoverCropTradWND	ROW	82	7	Cover Crop Standard Drilled Wheat	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-OB	CoverCropTradBNO	ROW	82	7	Cover Crop Standard Other Barley	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-OR	CoverCropTradRNO	ROW	82	7	Cover Crop Standard Other Rye	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-OW	CoverCropTradWNO	ROW	82	7	Cover Crop Standard Other Wheat	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DBM	CoverCropTradNutBND	ROW	82	7	Traditional with Fall Nutrients Barley Normal Drilled	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-OBM	CoverCropTradNutBNO	ROW	82	7	Traditional with Fall Nutrients Barley Normal Other	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DRM	CoverCropTradNutRND	ROW	82	7	Traditional with Fall Nutrients Rye Normal Drilled	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-ORM	CoverCropTradNutRNO	ROW	82	7	Traditional with Fall Nutrients Rye Normal Other	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DTM	CoverCropTradNutTND	ROW	82	7	Traditional with Fall Nutrients Triticale Normal Drilled	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-OTM	CoverCropTradNutTNO	ROW	82	7	Traditional with Fall Nutrients Triticale Normal Other	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DWM	CoverCropTradNutWND	ROW	82	7	Traditional with Fall Nutrients Wheat Normal Drilled	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-OWM	CoverCropTradNutWNO	ROW	82	7	Traditional with Fall Nutrients Wheat Normal Other	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-OT	CoverCropComNormal	ROW	82	7	TRITICALE Normal BROADCAST Commodity	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CCC-DT	CoverCropComNormal	ROW	82	7	TRITICALE Normal CONVENTIONAL Commodity	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-DT	CoverCropTradTND	ROW	82	7	Triticale Standard Drilled	ACRE	ACRE				
Cover Crops	BMP_CoverCrops	Cover Crops	CC-OT	CoverCropTradTNO	ROW	82	7	Triticale Standard Other	ACRE	ACRE				
Land Retirement	BMP_AgLandRetirement	Land Retirement	AcresConvertedToHayOrOpenSpaceAcresWithoutNutrients	LandRetireOpen	ROW	7	82	Area Retired to hay without nutrients	ACRE	ACRE				
Land Retirement	BMP_AgLandRetirement	Alternative Crops	AcresConvertedToHayWithNutrients	CarSeqAltCrop	ROW	7	82	AC	ACRE	ACRE				
Land Retirement	BMP_AgLandRetirement	Land Retirement	AcresConvertedToPasture	LandRetirePas	ROW	7	82	Area Retired to pasture	ACRE	ACRE				
Livestock Stream Exclusion	BMP_StreamExclusion	Exclusion Fence with Narrow Grass Buffer	Length	GrassBuffExclNar	Pasture	8	Past	Length Fenced	FEET					
Pasture Alternative Watering	BMP_PastureAlternativeWatering	Watering Facility	Acres	OSWnoFence	Pasture	8	Past	Area served by Facility	ACRE					
Manure Incorporation	BMP_ManureIncorporation	Manure Incorporation High Disturbance	AcresHighDisturbanceIncorporation	incorphighlate	RowWithManure	8	ROWMAN	Acres	ACRE					
Manure Incorporation	BMP_ManureIncorporation	Manure Incorporation Low Disturbance	AcresLowDisturbanceIncorporation	incorphighlate	RowWithManure	8	ROWMAN	Acres	ACRE					
Manure Incorporation	BMP_ManureIncorporation	Manure Injection	AcresLiquidManureInjection	injection	RowWithManure	8	ROWMAN	Acres	ACRE					
Ag Tree Planting	BMP_AgTreePlanting	Tree Planting	Acres	TreePlant	AG	8	Agric	ac	ACRE	ACRE				

AGRICULTURAL ENVIRONMENTAL MANAGEMENT

Tier 1 *AEM Identification Number:*

_____ County SWCD Date: ____/____/____

Evaluator Name:	Evaluating Agency:
Watershed Identification:	
Farm Name:	
Owner's Name:	Operator's Name:
Address:	Address:
Phone: Fax:	Phone: Fax:
Email:	Email:

Preferred Contact Point? (please check only one)

☐ Owner ☐ Operator

1) **Future Status of the Farm**

A) Do you anticipate any major modifications on your farm within the next 5 years? ☐ **Yes** ☐ **No**

If yes, please check the condition(s) that best describes the modification(s):

☐ Business Structure ☐ Expansion ☐ Retirement

☐ Operation Type ☐ Diversification of Farm Business ☐ Sale of Farm

B) Do you plan to subdivide any portion of your farm in the next 5 years? ☐ **Yes** ☐ **No**

2) **Basic Farm Information**

A) What **Primary** Farm Enterprise best describes your operation?

☐ Dairy ☐ Beef ☐ Horses ☐ Fruit/Vegetables

☐ Poultry ☐ Swine ☐ Vineyard ☐ Greenhouse

☐ Cash Crop: (**Please Define**) _____ ☐ Sheep/Goats

☐ Other: (**Please Define**) _____

B) Please indicate the following number of acres:

	Owned	**Rented**
Cropland Acres		
Grazed Land Acres		
Permanent Hay Land Acres		
Woodland Acres		
Total Acres	_____	_____

C) Does your operation qualify for Ag Value Assessment? ☐ **Yes** ☐ **No**

3) **Animal Numbers for your <u>Primary</u> Farm Type**

Average Weight: _____ Number: _____ Average Weight: _____ Number: _____

Average Weight: _____ Number: _____ Average Weight: _____ Number: _____

4) **Management Questions** (Please check Yes or No)

	Yes	No
Do you spread manure?	☐	☐
Do you have a manure storage facility?	☐	☐
Do you generate process washwater from the cleaning of product or facilities? (i.e. milkcenter, egg wash, washing of produce)	☐	☐
Is there a barnyard or outdoor feedlot on your farm?	☐	☐
Do you store silage or other high moisture feeds on the farm?	☐	☐
Do you utilize pastureland on your farm?	☐	☐
Do you use commercial fertilizer?	☐	☐
Do you use pesticides (herbicides, insecticides, fungicides) on your farm?	☐	☐
Do you store and/or mix pesticides (herbicides, insecticides, fungicides) on your farm?	☐	☐
Does your operation utilize cropland for row crop production?	☐	☐
Is the water supply on your farm from a well or a spring?	☐	☐
Is there a waterbody within or adjacent to your farm?	☐	☐
Do you presently or do you plan to harvest timber on your farm?	☐	☐
Do you store fuel or other bulk petroleum products on your farm?	☐	☐
Have you received odor complaints or do you believe your farm has an odor concern?	☐	☐

NYS Agricultural Interest Assessment – check all that are of interest

- ☐ Agricultural Tax Relief
- ☐ Agri-Tourism
- ☐ Air Quality
- ☐ Biofuels
- ☐ Biosecurity
- ☐ Conservation Easements
- ☐ Energy Conservation/Generation
- ☐ Environmental Management Systems
- ☐ Farmland Protection
- ☐ Feed Management
- ☐ Fisheries Habitat Management
- ☐ Forest Management/Timber Harvest
- ☐ Grasslands Farming
- ☐ Integrated Pest Management
- ☐ Irrigation Management
- ☐ Manure Treatment Options
- ☐ Neighbor-Farm Relations
- ☐ Nuisance Wildlife Control
- ☐ Organic Farming
- ☐ Pollution Credit Trading
- ☐ Right To Farm
- ☐ Stream Management
- ☐ Water Conservation/Management
- ☐ Wellhead Protection
- ☐ Wetland Conservation
- ☐ Wildlife Habitat Improvement

Would you like to receive a copy of the AEM Guide to Conservation Funding? ☐ Yes ☐ No
This document is also online at www.nys-soilandwater.org/aem/aemoutreach.html

(***OPTIONAL***)

Producer Questions & Comments:

_____

UPPER SUSQUEHANNA COALITION - CHESAPEAKE BAY PROGRAM
AGRICULTURAL ENVIRONMENTAL MANAGEMENT AG BMP DATA ENTRY SHEET

Farm Name _____ AEM ID ____ - ____

Evaluator _____ Inspection Date ___ / ___ / ____

☐ CAFO

Multi-Year Practices	Inspection Result (✔ PASS or FAIL)	Cost Shared? (✔ if yes)	NRCS Standard? (✔ if yes)
Manure Storage Facility * If multiple systems - see attached * Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ ☐ Covered	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Silage Leachate Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Milkhouse Waste Implementation Date ___ / ___ / ____ Number of Dairy Cows _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Barnyard & Runoff Management * If multiple systems - see attached * Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ ☐ Heavy Use Area ☐ Concrete ☐ Aggregate ☐ Managed Vegetation ☐ Mulch ☐ Roof Runoff Structure ☐ Diversion ☐ Stormwater Runoff Control ☐ Vegatated Treatment Area/Strip ☐ Total Confinement (after 2005) ☐ Animal Trails & Walkways	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Soil Conservation Plan Implementation Date ___ / ___ / ____ Acres _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Prescribed Grazing Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ Acres _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Grass Buffer * If multiple buffers - see attached * Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Forest Buffer Implementation Date ___ / ___ / ____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Grass Buffer * If multiple buffers - see attached * Implementation Date ___ / ___ / ____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Forest Buffer * If multiple buffers - see attached * Implementation Date ___ / ___ / ____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Horse Pasture Management Implementation Date ___ / ___ / ____ Animal Numbers _____ Acres _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Agricultural Land Retirement Implementation Date ___ / ___ / ____ Acres Retired _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐

Annual Practices

	Field Verifield (✔ if yes)	Cost Shared? (✔ if yes)	NRCS Standard? (✔ if yes)

Precision Feed Management (For the lactating part of the herd)

Implementation Date ___ / ___ / _____ ☐ Field Verified

Number of Animals Meeting N _____ Number of Animals Meeting P _____

Nutrient Management Plans

Implementation Date ___ / ___ / _____ ☐ Field Verified

Landuse Type Acres	NM Level N	NM Level P
_____ Row Crops	☐ Core N	☐ Core P
_____ Alfalfa/Grass Hay	☐ N Rate	☐ P Rate
_____ Permanent Hay	☐ N Placement	☐ P Placement
_____ Pasture	☐ N Timing	☐ P Timing

Conservation Tillage

Implementation Date ___ / ___ / _____ ☐ Field Verified

	Acres
Low Residue, Strip-Till/No-Till (15-29% cover & <40% soil disturbance)	_____
Conservation Tillage (30-59% cover)	_____
High Residue, min. disturbance (>60% cover)	_____

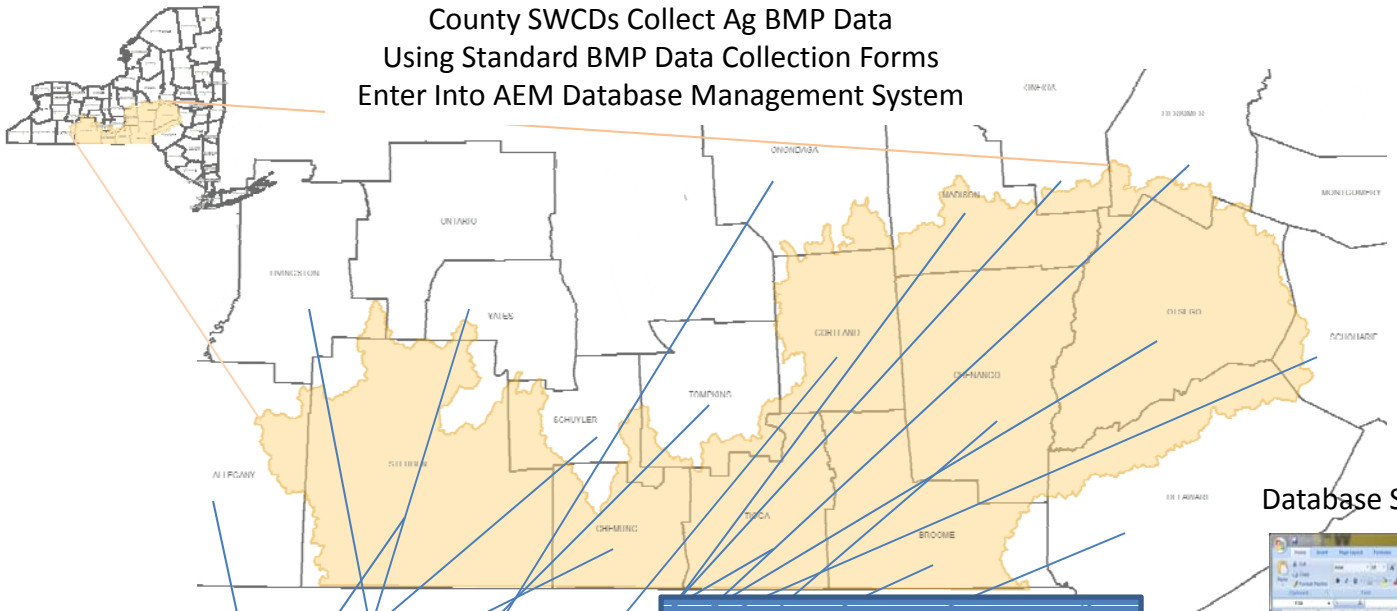
Cover Crops ☐ Field Verified

Planting Date	Cover Crop Type	Planting Method	Manure Applied	Outcome	Acres
___ / ___ / _____					
___ / ___ / _____					
___ / ___ / _____					
___ / ___ / _____					
___ / ___ / _____					
	Wheat, Rye, Barley, Tritcale or other small grain	Drilled or Other	No Manure, Fall/Winter, or Spring (after March 1)	Harvested or Plowed Under	Acres Planted

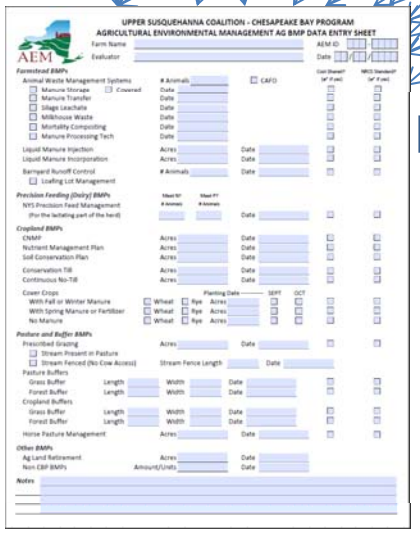
Notes _____

Multi-Year Practices (Additional)	Inspection Result (✔ PASS or FAIL)	Cost Shared? (✔ if yes)	NRCS Standard? (✔ if yes)
Manure Storage Facility #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ ☐ Covered	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Manure Storage Facility #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ ☐ Covered	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Manure Storage Facility #4 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ ☐ Covered	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Barnyard & Runoff Management #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Barnyard & Runoff Management #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Grass Buffer #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Grass Buffer #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Forest Buffer #2 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Exclusion Fence with Forest Buffer #3 Implementation Date ___ / ___ / _____ Animal Type _____ Animal Numbers _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Grass Buffer #2 Implementation Date ___ / ___ / _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐
Cropland Forest Buffer #2 Implementation Date ___ / ___ / _____ Length _____ feet Width _____ feet	☐ PASS ☐ FAIL ☐ Re-Inspect	☐	☐

Notes _____

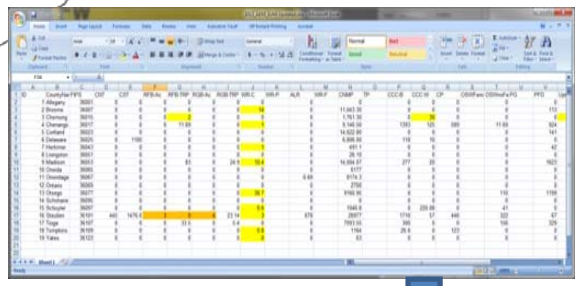


County SWCDs Collect Ag BMP Data
Using Standard BMP Data Collection Forms
Enter Into AEM Database Management System

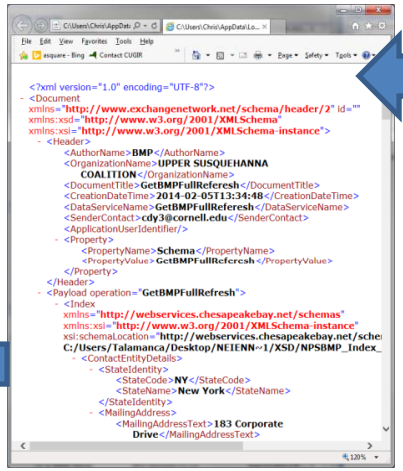


AEM Database System

Database System Aggregates BMPs by County



XML Generator Software



Individual County XMLs
Are Created Using
Bay Schema

USC sends to NYSDEC
NYSDEC uploads the XML
files to the NEIEN Node

NYS DEC

Agricultural Environmental Management

Tier 5B BMP Evaluation Requirements Checklist for AEM Base Program

This checklist will help determine if all required tasks and documentation have been completed for the Tier 5B Evaluation of an existing BMP system or conservation practice. Also consult "Participating in AEM Tier 5B" when completing this checklist.

Please complete the following information on the farm & BMP evaluated.

County: **Date:** **AEM YEAR**:

AEM Farm Identification Number:

12-digit HUC of the predominant watershed in which the farm is located:

Type of BMP System/conservation practice(s) evaluated:

Date of BMP installation:

ID the source of cost share for original installation (if applicable)**:** ☐**Ag NPS** ☐**Farm Bill** ☐ **Both**

Type or Farm: **Acres:**

Animal Units on the farm:

Please check each item addressed and documented in the plan and/or the farm's case file.

- **If an item does not apply please explain why in the notes section of this form.**

1. ☐ The NRCS Conservation Practice Standard(s), the design, and "as-built" of the conservation practice(s) to be evaluated have been found and reviewed. The design and "as-built" was signed by an individual(s) with the appropriate Job Approval Authority.

2. ☐ An on-site evaluation of the practice(s) was conducted noting the condition of the practice, the status of operation & maintenance, and if the practice is properly functioning including a check of the capacity if appropriate. You have utilized the assistance, if needed, of an individual with Job Approval Authority or a Professional Engineer.

3. ☐ Determination was made on whether or not the practice is addressing the concern for which it was installed. The "Criteria" and "Considerations" sections of the appropriate NRCS Conservation Practice Standard were utilized to help make this determination.

4. ☐ You have met with the farmer to discuss if the practice is meeting expectations, and to review operation and maintenance activities.

5. ☐ The farmer has been provided a written report on the condition of the practice that identifies any changes and/or improvements needed, and provides any additional information required to properly operate and maintain the practice. Recommendations on new or additional BMPs have been made if needed. The report was reviewed on-site.

6. ☐ The evaluation of the practice and review with the farmer has been documented in the conservation plan or case file. A copy of the report has also been filed. Accomplishments were documented in any data management system maintained by the District.

7. Comments:

Agricultural
Environmental
Management

Tier 5B Conservation Plan Evaluation Requirements Checklist for AEM Base Program

Check only ONE box per form.

3A Plan	3B CNMP	3C Whole Farm
Completed Year	Completed Year	Completed year

This checklist will help determine if all required tasks and documentation have been completed for the Tier 5B Evaluation of an AEM Tier 3 Plan. Also consult "*Participating in AEM Tier 5B*" when completing this checklist.

Please complete the following information on the farm planned.

County: **Date:** **AEM YEAR:**

AEM Farm Identification Number:

12-digit HUC of the predominant watershed in which the farm is located:

Primary type of farm evaluated: **Acres:**

Animal Units on the farm:

Date of the original plan:

Existing planned component(s): ☐Farmstead ☐Cropland ☐Nutrient Mgmt. ☐Pasture ☐Pest

Additional components planned: ☐Farmstead ☐Cropland ☐Nutrient Mgmt. ☐Pasture ☐Pest ☐NA

Additional acres planned:

Please check each item addressed and documented in the plan and/or the farm's case file.

- **If an item does not apply please explain why in the notes section of this form.**

1. ☐ Identify the land units planned and review the natural resource issues & opportunities, decisions, and recommendations in the plan.

2. ☐ Meet with the farmer to review and discuss their plan noting any progress made in implementing decisions from the plan by documenting on the *Record of Decisions and Progress* form. Also, note any changes made to the farming operation that necessitate a plan update/revision. Note that AEM Tier 1 and 2 can be used to help identify changes and assess the need for additional planning.

3. ☐ Check that the existing plan covers all natural resource issues & opportunities and identify any missing high priority issues that should be progressively planned in the updated plan.

4. ☐ Discuss with the farmer the decisions/recommendations not implemented from the existing plan then update the plan to reflect any new high priority issues & opportunities, or adjustments to the timetable to implement already planned practices in the *Record of Decisions and Progress* form.

5. ☐ Plan any additional high priority issues or components the farmer is now willing to address (progressively plan). Utilize the *Participating in AEM Tier 3* document and the *Tier 3 Plan Requirements Checklist* to help guide the planning.

6. ☐ Tier 3B or C plans must be evaluated by or under the supervision of a Certified Planner.

7. ☐ Complete the update, review with the farmer and gain their approval. Note the process in the *Assistance Notes* in the farmer's case file and in any data management system maintained by the District.

8. ☐ Provide a copy of the revised plan to the farmer.

9. Comments:

Appendix 10. Wetlands Reserve Program (WRP) Monitoring Worksheet

Landowner _____ Review Date _____

Contract Number _____ Reviewer(s) _____

The purpose of easement monitoring is to ensure compliance with easement requirements, evaluate restoration progress, determine what restoration repairs or enhancements are needed to ensure maximum wetland/wildlife benefits, and to maintain contact with landowner or partner. Staff familiar with wetland restoration, management and wildlife needs should collect the information. Partner technical expertise should be provided an opportunity to participate in monitoring activities and may be authorized to conduct the monitoring reviews.

Take photograph from designated photo point when doing on-site monitoring.

Was landowner present during review? YES NO

Has landowner changed? YES NO
(If yes, review easement, contract, agreement requirements with new owner.)

Is easement boundary clearly marked and identifiable? YES NO
(If no, what actions are needed? Note - the boundary must be traversed at least once every three years.)

Are easement, contract, agreement conditions being met (e.g., no encroachment, dumping, cropping, etc.)? YES NO
(If no, describe and document with photograph.)

Is the WRPO and any Compatible Use Authorizations being followed? YES NO
(If no, describe and document with photograph.)

Are restoration practices being properly operated and maintained? YES NO
(If not, what maintenance is needed? Complete Practice & Cost Worksheet.)

Is planned hydrology present? YES NO
(If no, what actions are needed?)

Are migratory bird program objectives being achieved (e.g., adequate hydrology, nesting cover, etc.)? YES NO
(If no, what modifications are necessary? Complete Practice & Cost Worksheet.)

If Threatened or Endangered species were part of selection criteria, were habitat needs restored? YES NO
(If no, what modifications are necessary? Complete Practice & Cost Worksheet.)

WRP Monitoring Worksheet

Are planned vegetation restoration goals being achieved (e.g., is desired vegetation being established, are invasive or noxious species a problem)? YES NO
(If no, what modifications are necessary? Complete Practice & Cost Worksheet.)

Are restoration practices being properly operated and maintained? YES NO
(If no, what maintenance is needed? Complete Practice & Cost Worksheet.)

Are there opportunities to enhance wildlife habitat components? YES NO
(If yes, identify and complete Practice & Cost Worksheet.)

Does the landowner have any concerns or suggestions for improvement of the easement?

Identify concerns or suggestions from partners involved with the restoration and management of the easement, contract or agreement area.

Additional Observations or Comments:

Practice and Cost Worksheet

Practice	Practice Code	Specific Need	Number	Acres	Cost

APPENDIX 11. USC STREAM PROJECT REPORT

UPPER SUSQUEHANNA COALITION
Stream Project Report

Project Funding Source /Type: Choose an item.

County: Click here to enter text.

Project Contact Person: Click here to enter text.

Phone Contact: Click here to enter text.

Email: Click here to enter text.

Address: Click here to enter text.

Project Information:

Project Name (Landowner): Click here to enter text.

Watershed Name & 12 digit HUC: Click here to enter text.

Project Summary Description: Click here to enter text.

Project Location (Lat & Long): Click here to enter text.

Any Watershed Plans Project is Part of: Click here to enter text.

Type of Project Practices (check all that apply):

I – Stream Channel Projects:

☐ **Stream Bank Stabilization (feet & type):** Click here to enter text.

Bank Height (feet): Click here to enter text.

Annual Erosion Rate (lateral – if known – feet): Click here to enter text.

☐ **Channel Rehabilitation (feet & type & number of structures):** Click here to enter text.

☐ **Habitat Improvement (describe practices, number & type of structures & feet improved):** Click here to enter text.

☐ **Riparian Buffer Planting (type and acres, 1 or 2 sides):** Click here to enter text.

☐ **Exclusionary fencing (feet):** Click here to enter text.

☐ **Stream Crossing (number & type):** Click here to enter text.

☐ **Other Practices/BMPs:** Click here to enter text.

II – Grazing Projects:

☐ **Acres of Planned Grazing:** Click here to enter text.

☐ **Feet of Fencing Installed:** Click here to enter text.

☐ **Number & Type of Watering Systems:** Click here to enter text.

☐ **Number & Description of Stream Crossings:** Click here to enter text.

III - Project Design and Quality Assurance:

Project Designer (name & affiliation): Click here to enter text.

Certifying Project Design Engineer (name & affiliation): Click here to enter text.

Project Inspector (name & affiliation): Click here to enter text.

Project Completion Certifier (name & affiliation): Click here to enter text.

Date Completed: Click here to enter a date.

IV - Funding Source and amount:

Primary: Click here to enter text.

Secondary: Click here to enter text.

Other: Click here to enter text.

Landowner Contributions: Click here to enter text.

Total Amount: $Click here to enter text.

V - Operations & Maintenance (O&M):

Identified Party Responsible for O & M: Click here to enter text.

O & M Phone Contact: Click here to enter text.

O & M Email: Click here to enter text.

O & M Address: Click here to enter text.

O & M Timespan (start to finish): Click here to enter text.

Please attach electronic copies of a minimum of 2 before and 2 after photographs and send to:

USC BMP Definitions – Non-Agricultural Best Management Practices

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")

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")

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)

Urban Forest Buffers

Forest buffers are linear wooded areas that help filter nutrients, sediments and other pollutants from runoff as well as remove nutrients from groundwater. The recommended buffer width is 100 feet, with a 35 feet minimum width required.

Recorded in length and width; reported in acres.

Stream Restoration (DRAFT) – The USC plans to report streams in 2018

Stream restoration is a change to the stream corridor that improves the stream ecosystem by restoring the natural hydrology and landscape of a stream, and helps improve habitat and water quality conditions in degraded streams

Recorded and reported in feet

Upper Susquehanna Coalition
Buffer Program 2017

Riparian Forest Buffer Assessment Sheet

INFORMATION FROM FILE

Site Name:
Landowner name and address:

Phone:
Email:
Location: Latitude: Longitude:
Farm Number/Tract: /
Buffer Acres:
Planting Date:
Planting Contractor/ Volunteers:
Implementing Program:
Length of Contract: NA 10 yr. 15 yr.
Year Contract Expires:
Herbicide Application's (PPA) after Planting Year? Yes No
How Many PPA's?

Attach copy of Plan Map, Soil Map, and Species List of Planting

SITE ASSESSMENT
Date: Reviewer (s):

Survival percentage of planted trees:
Survival percentage of shrubs:
Noxious or Invasive Plants present:
Planted Species that are thriving:
Planted Species that are missing:

Upland areas survival percentage:
Low/wetland areas survival percentage:

Natural Regeneration of woody growth
Percent of overall growth:
Species Present:

Herbaceous community - (golden rod, reed canary or other grasses, etc.):

Does it appear as though LO maintenance is being performed? Yes No
Shelter maintenance needed? Yes No
Shelter removal needed? Yes No

Upper Susquehanna Coalition
Buffer Program 2017

Note any pests/diseases:
General site conditions, weed competition, invasive notes, streambank concerns:

Attach photos of site

Need for additional supplies?

	Trees		How Many?
	Shrubs		How Many?
	Shelters		How Many?
	Stakes		How Many?
	Zipties		How Many?

Buffer maintenance summary, cost estimate, and map (if necessary):

INFORMATION FROM LANDOWNER INTERVIEW

Benefits of your Buffer:
Challenges you've had with your Buffer:
Limitations/Barriers:

Likely to reenroll, if CREP? Yes No
If "no", why not?

Addtitional Follow up Needed:

SUPPLEMENTAL PRACTICE MAINTENANCE NEEDS
List of BMPs installed to support buffer implementation (if any)

BMP name/#	Date Installed	Program(s) utilized for installation	Description of maintenance needs

USC Riparian Forest Buffer Monitoring Protocol
For use on riparian forest planting projects any year after planting.
Developed April, 2017

1) Upon completion of a planting project, delineate the accurate boundaries of the actual planted project area using GPS points. Create an ArcMap shapefile polygon of the planted area. Final modification of your planting plan should accurately reflect what species of plants were installed in each location. You may also want to establish an inflection point within the buffer to ease monitoring. GPS that point if possible.

In Office:

2) Calculate the total area of the planted polygon in acres.
3) Determine the appropriate sampling intensity for your site.

Buffer Area	Target area to be monitored
Less than 1 acre	100%
1-5 acres	10%
> 5 acres	5-10%

4) Determine the length and location of transect(s) to be cruised. From the planted buffer area and transect length, determine the width of transect(s) to be assessed to achieve targeted monitoring area.

5) Determine locations of inflection points to be used.

6) Record all of this information on a map to be brought to the field.

In Field:

Bring along an accurate planting plan, transect map, tape measure, compass, data recording sheet, and camera.

7) Use GPS, maps, and/or compass to located transect inflection points in the field.

8) When possible, create a long-term monument at your plot center points. This will be critical for re-locating transect inflection points in the future, if that is what is desired.

9) Record data on data collection sheet ("Riparian Forest Buffer Assessment Sheet"):

10) Take pictures as needed.

A guide to

Non-Urban Stream Restoration

Eligibility & Data Tracking

Stream restoration is a carefully designed intervention to improve the hydrologic, hydraulic, geomorphic, water quality and biological condition of degraded streams, and must not be implemented for the sole purpose of nutrient and sediment reduction.

Natural Channel Design applies the principles of stream geomorphology to maintain a state of dynamic equilibrium among water, sediment and vegetation that creates a stable channel.

Regenerative Stream Channel (RSC or Regenerative Stormwater Conveyance) uses in-stream weirs in perennial streams to increase the interaction with the floodplain during smaller storm events. These projects may also include sand seepage, wetlands and other habitats to increase the stream's connection with its floodplain. Only wet channel RSC practices are eligible as stream restoration projects. Dry channel RSC projects are considered a runoff reduction retrofit practice which is not applicable to agricultural load sources.

Legacy Sediment Removal seeks to remove legacy sediments from the stream and its floodplain and thereby restore the natural potential of aquatic resources including a combination of streams, floodplains and wetlands.

Specifications or Key Qualifying Conditions:

1. Reach restored must be greater than 100ft in length.
2. Reach restored must be actively enlarging or degrading.
3. Reach restored MAY NOT be tidally influenced.
4. The project MAY NOT be primarily designed to protect public infrastructure. Bank armoring and rip rap are not eligible for stream restoration credit.
5. Restoration plan must utilize a comprehensive approach to stream restoration design, addressing long-term sustainability of the channel, banks, and floodplain.
6. Must comply with all state and federal permitting requirements, including 404 and 401 permits.