Agricultural Best Management Practice Systems Catalogue

NYS Soil and Water Conservation Committee

Approved June 2023

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Introduction – Purpose – Use of Catalogue

Agricultural Best Management Practice Systems Catalogue

The Agricultural Best Management Practices Catalogue was developed and approved by the NYS Soil and Water Conservation Committee in 2014 to replace The Agricultural Catalogue for Nonpoint Source Pollution Prevention and Water Quality Protection in NYS. This revised and maintained Catalogue shall provide guidance during the watershed planning process to select appropriate Agricultural Best Management Practice Systems for the control and treatment of pollutants from agricultural nonpoint sources; this Catalogue will also service other NYS SWCC Cost-Share Programs. Utilizing a complete Agricultural BMP System ensures a consistent and effective approach to addressing resource concerns, provides levels of protection and benefits to the environment that partial systems may not deliver, results in an effective use of public resources, and supports the reporting and planning efforts throughout many watersheds both entirely within NYS and those extending beyond (e.g., Clean Water Act 303(d) Programs, Clean Water Plans, and TMDLs for Chesapeake Bay, Lake Champlain, Long Island Sound, Finger Lakes).

For more information on Clean Water Planning: https://www.dec.ny.gov/chemical/23835.html

What are Agricultural Best Management Practice (BMP) Systems?

Complete Agricultural BMP Systems may include one, two, or even a series of National Resources Conservation Service (NRCS) Conservation Practice Standards (CPS), referred to as Component BMPs.

Agricultural BMP Systems prevent or reduce the source or transport of substances originating from agricultural activities which may adversely affect surface and ground waters or other resources. While an Agricultural BMP System has Standards and Specifications associated with its installation, operation, and maintenance of Component BMPs, it does not impose effluent limits for specific pollutants. Rather, it provides an effective means of reducing or preventing the impact of nonpoint source pollutants from a specific resource concern. Agricultural Environmental Management (AEM) is a framework created to assist Soil and Water Conservation Districts and their partners in developing and delivering a science-based agricultural conservation program centered on local priorities and goals. A 5-Tiered AEM planning approach identifies resource concerns and Agricultural BMP System alternatives to address those concerns.

See the following for more information about the AEM 5-Tiered Approach to conservation:
https://agriculture.ny.gov/soil-and-water/agricultural-environmental-management

Resource Concerns and Agricultural Best Management Practice (BMP) Systems

The AEM Planning Process requires each individual management area or resource concern area to be clearly identified, assessed / evaluated, and planned as its own entity; this approach allows each of these areas to be planned as a complete Agricultural BMP System on their own. For example: a farm with two different barnyards, each evaluated as a possible resource concern, may be planned, and further treated by two separate Livestock Heavy Use Are Runoff Management Systems, each Agricultural BMP System unique to its own management area, considerations, and Component BMPs.

Agricultural BMP Systems and Component BMPs are expressed in unique measurable quantities and units (e.g., number, linear feet, square feet, acres); correct measurable units may be found in this Catalogue as well as the NRCS Field Office Technical Guide. Further unit descriptors in addition to required NRCS reportable units are acceptable and often beneficial (e.g., (Waste Transfer (CPS 634) - 1 NO, 100 ft), (Waste Storage Facility (CPS 313) – 1 NO, 2 Million Gallons)).

In some cases, multiple Agricultural BMP Systems may work within or adjacent one another to properly control and treat a resource concern; scenarios utilizing two or more Agricultural BMP Systems should have each System listed. For example: An Access Control System with an adjacent and supporting Riparian Buffer System, both Systems used in conjunction to address one or more resource concerns.

The Agricultural BMP Catalogue is not a design manual and should not be used to replace NRCS Conservation Practice Standards and Specifications.

Interacting with the Agricultural BMP Systems Catalogue

Updates to the Agricultural BMP Systems Catalogue may be conducted on an annual basis, as NRCS Conservation Practice Standards change, or when new information is available for incorporation. Please direct questions about content and application of this directory to the following NYS SWCC Staff:

Ron Bush, CNMP Specialist:	Ronald.Bush@agriculture.ny.gov
Brendan Jordan, CNMP Specialist:	Brendan.Jordan@agriculture.ny.gov
Greg Albrecht, AEM Coordinator, CNMP Specialist:	Greg.Albrecht@agriculture.ny.gov

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Pumping Plant	533
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Agrichemical Handling and Storage System

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Erosion Control Systems – Structural

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Irrigation Water Management System

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Fence	382
Access Road	560
Roof Runoff Structure	558
Roofs and Covers	367
Conservation Cover	327
Critical Area Planting	342
Vegetated Treatment Area	635
Diversion	362
Grassed Waterway	412
Lined Waterway or Outlet	468
Pumping Plant	533
Sediment Basin	350
Subsurface Drain	606
Underground Outlet	620
Waste Separation Facility	632
Waste Storage Facility	313
Waste Transfer	634
Water and Sediment Control Basin (WASCOB)	638
Watering Facility	614

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Pumping Plant	533
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Nutrient Management	590

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Fence	382
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Waste Separation Facility	632
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Waste Transfer	634
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Fence	382
Field Border	386
Trails and Walkways	575
Watering Facility	614
Livestock Pipeline	516
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Structure for Water Control	587
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Pond	378
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Table II – Structural Agricultural Conservation Practices

Coverage by the SPDES General Permit for Stormwater Discharges from Construction Activity may be required if a project involving one or more of the structural agricultural conservation practices listed below will disturb one (1) or more acres (5000 square feet in the New York City Watershed East of the Hudson) of soil. See the SPDES General Permit for Stormwater Discharges from Construction Activity for more information (www.dec.ny.gov/chemical/43133.html) and contact the NYSDEC with any questions.

NRCS Conservation Practice Standard (NY) https://efotg.sc.egov.usda.gov/#/state/NY/documents/section=4&folder=-3	**Practice Code**
Access Road	560
Agrichemical Handling Facility	309
Anaerobic Digester	366
Animal Mortality Facility	316
Composting Facility	317
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Diversion	362
Dry Hydrant	432
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Forest Trails & Landings	655
Grade Stabilization Structure	410
Grassed Waterway	412
Heavy Use Area Protection	561
High Tunnel System	325
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NRCS Conservation Practice Standard (NY) https://efotg.sc.egov.usda.gov/#/state/NY/documents/section=4&folder=-3	**Practice Code**
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Stormwater Runoff Control	570
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Structure for Water Control	587
Subsurface Drain	606
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Table III – Agricultural BMP System Lifespans

- The following listed lifespans are for Agricultural BMP Systems implemented through NYS AGM and NYS SWCC Cost-Share Programs.
- Agricultural BMP System Lifespan indicates the minimum term that Operation and Maintenance **MUST** be performed on the Agricultural BMP System. Implementation of an Operation and Maintenance (O&M) plan is required to assure efficient operation of the System and may extend the System lifespan, and its effectiveness, beyond the minimum term.
- Agricultural BMP System Design Criteria is variable depending on the Component BMPs that are used, and the specific resource concerns being addressed.

Agricultural BMP System	Lifespan (years)
Access Control System	10
Agrichemical Handling and Storage System	10
Composting System – Animal	10
Erosion Control System – Structural	10
Feed Management System	1
Integrated Pest Management Conservation System	1
Irrigation Water Management System	1
Livestock Heavy Use Area Runoff Management System	10
Manure and Agricultural Waste Treatment System	10
Nutrient Management System – Cultural	1
Pathogen Management System	10
Petroleum and Oil Products Storage System	10
Prescribed Rotational Grazing System	10
Process Wash Water Management System	10
Riparian Buffer System	10
Short-Term Waste Collection and Transfer System	10
Silage Leachate Control and Treatment System	10
Soil Health System	1 - 5
Stream Corridor and Shoreline Management System	10
Waste Storage and Transfer System	10

Access Control System

DEFINITION
An Access Control System provides for the permanent exclusion of livestock from a waterbody or hydrologically sensitive area to protect water quality.

WATER QUALITY PURPOSE
To prevent the direct deposition of manure and urine into waterbodies and hydrologically sensitive areas, and to protect the stability of the banks of a waterbody from livestock traffic.

POLLUTANT CONTROLLED
Nutrients, pathogens, biochemical oxygen demand (BOD), sediment, or thermal modification.

WHERE USED
On farmsteads, pastures, and fields where livestock have access to surface waterbodies and hydrologically sensitive areas, and a resource concern has been identified.

SYSTEM DESCRIPTION
An Access Control System involves the use of appropriate fence and associated components to exclude livestock from having significant direct access to surface waters and hydrologically sensitive areas to protect water quality. Other Component BMPs that provide an alternative source of water or allow for the controlled access to or crossing of streams may be included in the System.

In some cases, multiple Agricultural BMP Systems may work within or adjacent one another to properly control and treat a resource concern; scenarios utilizing two or more BMP Systems should have each System listed. For example: An Access Control System with an adjacent and supporting Riparian Buffer System, both Systems used in conjunction to address one or more resource concerns.

SYSTEM EFFECTIVENESS
Eliminating access of livestock to waterbodies and hydrologically sensitive areas prevents direct nutrient, pathogen, and organic matter contributions by livestock as well as protecting bank stability and vegetation, which leads to less erosion and improved wildlife habitat.

IMPACTS ON SURFACE WATER
Beneficial – reduces the risk of contamination from nutrients, pathogens, biochemical oxygen demand (BOD), sediment, and thermal modification.

IMPACTS ON GROUND WATER
Neutral - It may be beneficial in areas where groundwater is recharged directly from surface waterbodies or there is a direct surface connection to groundwater.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

<u>Soil</u>: Beneficial by excluding livestock from the banks of waterbodies helping to maintain bank stability and vegetation reducing soil erosion and sedimentation.
<u>Air:</u> Neutral.
<u>Plants</u>: Beneficial by excluding livestock from the banks of waterbodies helping to maintain bank vegetation.

Animals: Beneficial as it can help protect riparian vegetation that in turn provides habitat, wildlife corridors and water quality benefits.
Humans: Beneficial by improving overall water quality and recreational opportunities.
Energy: Neutral but may be negative if alternative water requires pumping.

ADVANTAGES TO FARM

- Easy to implement.
- Relative low cost.
- Could improve neighbor relations due to livestock control and increased aesthetics in the stream corridor.

DISADVANTAGES TO FARM

- Requires fence maintenance and potential replacement after flood events.
- Often requires the installation of an alternative water supply system.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Some factors impacting cost include the type of livestock involved, the length and type of fence needed, the need for alternative water, and stream crossings.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the System:

- Pastures within the Access Control System shall be managed and maintained to remain vegetated, and the development of future resource concerns shall be avoided (e.g., heavily disturbed areas, runoff to nearby Highly Sensitive Areas).
- Basic maintenance to fence, crossings, and watering stations is needed.
- Periodic access of livestock to protected areas may be allowed, if in line with NRCS CPS Access Control, Riparian Herbaceous Buffer, or other relevant Standard operation and maintenance guidelines.
- Significant flooding may result in the need for repair or replacement.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.
Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Access Control	472	Acre	April 2019	10
Fence	382	Feet	October 2022	20
Trails and Walkways	575	Feet	September 2021	10
Access Road	560	Feet	March 2021	10
Watering Facility	614	Number	March 2021	10
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Livestock Pipeline	516	Feet	March 2021	20
Pond	378	Number	May 2018	20
Pumping Plant	533	Number	October 2022	15
Spring Development	574	Number	September 2021	20
Structure for Water Control	587	Number	March 2019	20
Stream Crossing	578	Number	January 2023	10
Water Well	642	Number	March 2021	20
Field Border	386	Acre	October 2017	10

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Pasture Management AEM Tier 2 Worksheet and Information Sheet
- Stream and Floodplain Management AEM Tier 2 Worksheet and Information Sheet

Agrichemical Handling and Storage System

DEFINITION
A permanent structure, with associated operation and maintenance procedures, that includes an impervious surface to provide an environmentally safe on-farm area for agrichemical storage, handling, mixing, loading, recovery, and rinsing.

WATER QUALITY PURPOSE
To reduce the potential for soil, groundwater, and surface water contamination during agrichemical storage, mixing, loading, unloading, rinsing, and recycling operations.

POLLUTANT CONTROLLED
Agrichemicals – (e.g., pesticides, fertilizers).

WHERE USED
On farms where current methods of storing, mixing, loading, and unloading of agrichemicals; and the rinsing of equipment or agrichemical containers are polluting or have the potential to pollute ground or surface waters; and a resource concern has been identified.

SYSTEM DESCRIPTION
An agrichemical mixing facility consists of a watertight containment structure comprised of a concrete pad and all necessary equipment for pumping, transferring, and storing water used in agrichemical mixing, loading, unloading, and rinsing operations. The size of the pad and storage capacity is related to the volume and size of the largest spray tank on the pad. Containment storage vessels incorporated into the facility design allow for the recovery of agrichemical, rinsate storage, plus handling/mixing/recovery/disposal. Surface runoff from a 25-year, 24-hour duration storm event is diverted away from the facility. A roof and sidewalls may be used to shelter the facility from rain, snow, and ice, preventing precipitation from accumulating on the pad and contaminating runoff.

SYSTEM EFFECTIVENESS
Little or no information exists on the documented effectiveness of agrichemical handling facilities on water quality improvement. Much is known about water quality impacts when these facilities are not available for agrichemical handling and rinsing operations. A recent study of commercial pesticide mixing and loading sites in Wisconsin, without pesticide handling facilities, found that two-thirds of the sites had significant groundwater contamination.

Pesticides were detected in groundwater at more than half of these sites, with concentrations exceeding groundwater standards at one-third of the sites surveyed. Officials and the pesticide industry in Wisconsin recognized that use of agrichemical mixing facilities minimize the potential for surface and groundwater contamination.

IMPACTS ON SURFACE WATER
Beneficial.

IMPACTS ON GROUND WATER
Beneficial.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial as it greatly reduces the risk of soil contamination due to leaks and spills.
Air: Beneficial as it greatly reduces the risk of air contamination resulting from leaks and spills.
Plants: Neutral.
Animals: Neutral.
Human: Beneficial as it improves environmental safety.
Energy: Neutral.

ADVANTAGES TO FARM

- Improves environmental safety by preventing contamination of ground and surface water from routine use and accidental spills.
- Allows compliance with federal and state regulations.
- Enhances owner / operator management.
- Promotes recycling of rinse water as tank make up water.
- Reduces liability risk.

DISADVANTAGES TO FARM

- Can be very expensive.
- Must perform maintenance frequently and diligently to ensure proper facility operation and water source protection.
- Expansive cropland acreage makes it difficult to pick one central location to protect and utilize exclusively.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the System:

- An Emergency Action Plan should be a part of the written O&M plan, in case of an accidental agrichemical spill, exposure, fire or other incident that could adversely affect environmental health. The plan should include a record-keeping component to accurately log spills, exposure, fire, or other incidents.
- Safe agrichemical handling procedures and frequent maintenance are critical to the performance of any agrichemical mixing facility.
- The proper disposal/utilization of rinsate, exterior wash water, accumulated sediment and spilled wastewater must be accomplished in accordance with the pesticide labeling requirements and federal, state and local laws and codes.
- Operator must perform periodic checks of any backflow prevention devices, inspect the pad and sump for cracks and leaks, clean the sump and pad between different chemical mixing operations and remove sediment accumulation from the sump.
- Personal protective equipment must be used during O&M procedures.
- Accurate records indicating maintenance, cleaning, and inspection of equipment are necessary.
- Pesticide containers are to be triple rinsed and properly recycled.

See the documents in Section 4 of the NRCS field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NYSDEC recommends that all pesticide rinsates, including wash waters from cleaning of spray equipment, should be collected and stored aboveground. Stored rinsates should be recycled for future mixing with the same concentrates.

An agrichemical storage facility should have good air ventilation and an impervious floor and sides to contain spills and leaks. The building should be locked at all times and be located adjacent to the pad.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.
Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Agrichemical Handling Facility	309	Number	October 2022	15
Access Road	560	Feet	March 2021	10
Access Control	472	Acre	April 2019	10
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Diversion	362	Feet	May 2017	10
Pumping Plant	533	Number	October 2022	15
Underground Outlet	620	Feet	September 2021	20
Grassed Waterway	412	Acre	September 2021	10

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Pesticide Storage, Mixing and Loading AEM Tier 2 Worksheet and Information Sheet

Composting System – Animal

DEFINITION
An on-farm System to safely facilitate the treatment or disposal through controlled aerobic decomposition of livestock and poultry carcasses, by micro-organisms into a biologically stable, soil-enriching material useful for soil amendment. This System is especially useful when rendering services are not available or too costly.

WATER QUALITY PURPOSE
To have a System for the safe decomposition and ultimate utilization of nutrients from animal composting in a safe environmental manner.

POLLUTANT CONTROLLED
Pathogens, nutrients.

WHERE USED
On farms where safe disposal of livestock carcasses is needed.

SYSTEM DESCRIPTION
A facility to safely compost animal carcasses. To protect surface and groundwater and allow for proper composting of animal carcasses, the facility may be located on lower permeability soils, an improved pad, or be a building with a roof and concrete floor, depending on the operation and need. Clean surface water will be diverted from the site and all contaminated run-off will be contained and treated.

Composting on the farm is accomplished by mixing an energy source (carbonaceous material: wood chips, sawdust, straw, corn cobs, or well-bedded horse manure) with a nutrient source (nitrogenous material: animal carcasses,) in a prescribed manner under aerobic conditions. Microorganisms (primarily bacteria and fungi) break down the raw organic waste under controlled conditions. Air, water, nutrients, surface area, temperature and pH are all important factors in the composting process.

Two types of carcass composting operations are common for on-farm use and either can be managed outside or in a controlled environment or building:

- The most common - Static Piles – carcasses are placed on bulky, high carbon organic material (such as wood chips) and then covered with more organic material and not turned during the composting process. Correct moisture content and bulk density facilitate air movement throughout the pile.
- Aerated Windrows - organic materials are formed into long narrow piles, called windrows, and turned periodically with power equipment to aerate the piles and promote the composting process. This method is the most suitable for smaller carcasses, such as poultry and but has been done on larger scales in the Midwest.

SYSTEM EFFECTIVENESS
Unsafe disposal of animal carcasses can be a large source of pathogens and nutrients. Proper composting, including the collection and treatment of any leachate from the process, greatly reduces the issues with pathogens and when the final product is land applied in accordance with a Nutrient Management Plan, the loss of nutrients is negligible.

IMPACTS ON SURFACE WATER
Beneficial - Improper disposal of carcasses can cause surface water contamination and a proper composting facility can eliminate the potential.

IMPACTS ON GROUND WATER
Beneficial - Improper burial or improper composting on well drained soils, shallow to fractured rock or near high groundwater tables can have negative effects on ground water quality. Proper composting facility will be installed in proper soils or lined and will not affect ground water quality.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial. Nutrients and organic matter will be incorporated in the soil and approve the soil health and nutrient values.

Air: Beneficial. Improper disposal or improperly operated composting facilities can cause major air quality issues on a farm. Properly operated and maintained composting facilities will create little to no odor.

Plants: Beneficial. Plants will benefit from increased nutrients in the soil.

Animals: Beneficial. Properly operated composting facilities will not be an attractant to wild animals or vectors.

Human: Beneficial. Protection of ground and surface water, odor control and vector control will all benefit humans.

Energy**:** Negative. Increased energy will be needed to properly run a composting system which requires increased equipment time over some forms of disposal (dragging carcass into woodlot), but energy use can be less than needed for proper burial.

ADVANTAGES TO FARM

- Can be done simply, at low cost and may not require engineering assistance (for non-structural composting facilities).
- Can utilize on-farm waste products for cover material, such as refusals, spoiled feed, etc.
- Compost can be used as a soil amendment increasing soil tilth and water-holding capacity.

DISADVANTAGES TO FARM

- Requires input (and possible purchase) of materials for composting, such as wood chips.
- Increased cost of initial investment (can be expensive, especially if a building or roofed structure).
- Higher degree of management by farm.
- Requires monitoring for run-off, temperature, proper covering with suitable materials.
- Some practices may require a SPDES permit for site disturbance.

SYSTEM LIFESPAN
Ten (10) years.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Costs can range from little to no out of pocket cost when there is a readily available supply of high carbon material for a base or can be very expensive for a building where large volumes of material are composted – range $0 to $150,000.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the System:

- Maintain correct operating temperatures, proper aeration, carbon to nitrogen (C: N) ratio, and perform periodic testing of compost.
- Check for run-off, kill zones or other signs of nutrient loss after storm events.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

Testing of compost for nutrients or heavy metals can be arranged through the local Cornell Cooperative Extension or through the Cornell Nutrient Analysis Laboratory.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*
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Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Animal Mortality Facility	316	Number	April 2016	15
Composting Facility	317	Number	September 2021	15
Access Road	560	Feet	March 2021	10
Diversion	362	Feet	May 2017	10
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Roofs and Covers	367	Number	October 2016	10
Vegetative Treatment Area	635	Acre	February 2017	10
Waste Storage Facility	313	Number	March 2018	15

Waste Transfer	634	Number	October 2022	15

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- National Engineering Handbook Part 637, Chapter 2 – Composting (NEH 637.0213, Dead Animal Composting)
- National Engineering Handbook Part 651
- Agricultural Waste Management Field Handbook, Chapter 10 Mortality Management (NEH 651.1007), NRCS or comparable extension publication
- Bonhotal, J., L Telega, J. Petzen. Natural Rendering: Composting Livestock Mortality and Butcher Waste. 2002. Cornell Waste Management Institute: http://compost.css.cornell.edu/naturalrenderingFS.pdf
- Northeast Regional Agricultural Engineering Service publication No. 54, On Farm Composting Handbook, Cornell Cooperative Extension, Ithaca, NY
- Waste Disposal AEM Tier 2 Worksheet and Information Sheet

Erosion Control System - Structural

DEFINITION
The construction of an Erosion Control System to control the loss of soil from sheet, ephemeral, rill or gully erosion on agricultural lands, farmsteads, and production areas. This includes Systems utilizing terraces, diversions, water and sediment control basins (WASCoBs), waterways (both grassed and lined), roof runoff practices, access roads, and associated earthmoving practices.

WATER QUALITY PURPOSE
To reduce all forms of erosion and thereby reducing sediment delivery to waterbodies. This includes shortening slope lengths, cutting off sheet and concentrated flows from adjacent land uses, stabilizing gullies and providing safe outlets for flowing waters.

POLLUTANT CONTROLLED
Sediment, nutrients, or pathogens.

WHERE USED
On erodible land, in both crop fields and pastures, where soil erosion and runoff must be controlled and the use of crop rotation, minimum tillage, or seeding does not or cannot limit the erosion to acceptable levels.

Within and adjacent farmsteads where excessive volumes of clean water concentrate and result in soil erosion and un-controlled runoff. This system would not be appropriate as a treatment method of concentrated nutrient-laden runoff (e.g., livestock heavy use area runoff, feed storage area runoff, waste storage and transfer sites); other practice systems within this Catalogue may apply to forementioned resource concern areas.

SYSTEM DESCRIPTION
This System may be one practice or several; terraces, diversion and WASCoB's are generally constructed across the slope, usually on the contour to intercept and conduct surface runoff at a non-erosive velocity to stable outlets, reducing ephemeral and gully erosion. These practices control erosion by shortening slope length and regulating surface runoff. They can outlet into established grassed waterways, flat vegetated areas or other stabilized outlets. They also can be total storage structures that release the flow through underground outlets within 24 to 48 hours, depending on crops grown. These Systems also act as sediment traps and help to reduce sediment-bound pollutants in surface run-off.

This System will also be used for the construction of waterways; grassed, lined or stone-centered, which are used to convey concentrated flows down slope to protected outlets to prevent gully erosion or to act as outlets for other erosion control practices. On slopes of less than 1% where out-of-bank flow will not cause erosion or property damage, the confinement of flow is not a design requirement.

Structures can be cropped, seeded to grasses and legumes to stabilize the slopes or lined with another material, such as rock, when velocities require.

Soil and water resources are often further conserved when structural erosion control practices are paired with cultural soil health practices (e.g., crop rotation, strip cropping, cover crop, conservation tillage) and nutrient management practices to further reduce pollutant transport and loss.

Within and adjacent farmsteads, Component BMPs may be compiled to collect, store, convey, and safely outlet clean water sources, thus protecting nearby management areas and infrastructure from possible damage or potential runoff.

SYSTEM EFFECTIVENESS

Structural erosion control practices are effective at reducing soil loss significantly as well as limiting nutrient losses and runoff.

IMPACTS ON SURFACE WATER

Beneficial – Terraces, diversions, waterways and WASCoB's reduce erosion by controlling surface runoff and gully erosion which lessen loads delivered to the receiving waterbody. Terraces, diversions, and WASCoBs can also reduce nutrient loading through settling in areas of water retention.

IMPACTS ON GROUND WATER

Slight to Moderate – Can be beneficial in areas where the groundwater is recharged from surface waterbodies. In the absence of a Nutrient Management Plan, terraces and diversions may increase nutrient leaching to groundwater. Impacts on groundwater may be reduced by increasing terrace or diversion release rates, thereby decreasing runoff storage time and potential soil saturation. Diversions decrease the amount of surface runoff infiltrating into the soil, reducing the risk of transporting nutrients and pesticides to groundwater. Waterways generally have little to no impact on ground water.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial to soil resources as soil loss will be diminished.

Air: Slightly beneficial and can have beneficial effects as erosion rates are reduced and the possibility that fines in the air will also be reduced.

Plants: Neutral.

Animals: Slightly beneficial improvement to wildlife as cross field practices could provide pathways for wildlife movement. Slight to moderate for fisheries as erosion rates will be lessened and delivery of sediment to waterbodies controlled.

Human: Slight to no effect on humans unless sediment reduction in waterbodies for public use are impacted.

Energy: Energy use may be slightly higher due to increased tractor use to go around conservation practices instead of normal plowing.

ADVANTAGES TO FARM

- Are relatively easy to design and install.
- Can be cheap to install for simple practices.
- May allow timelier planting and potential yield increases by removing surface runoff.
- Controls surface runoff and gully and ephemeral erosion.
- Can provides flood protection for crop fields.
- Stores runoff up to 48 hours, allowing sediment and sediment-bound pollutants to settle out.
- Protects management areas and farmstead infrastructure.
- Collects surface flows during storm events and provides safe clean water outlets.

DISADVANTAGES TO FARM

- Can take land out of crop production.
- Systems may need to be in conjunction with other conservation practices such as conservation tillage, crop rotations, and contour or strip cropping to bring soil loss to acceptable levels.

- Some systems can be very expensive and usually are not considered cost-effective management practices in relation to cultural control measures.
- Require increased maintenance as trapped sediment accumulates in the structure and removal of sediment or reconstruction is required to maintain capacity.
- Grassed waterways may be unsuitable for areas where a base flow exists (sustained wetness prevents adequate vegetative cover) unless a stone-center lining and a subsurface drain and surface inlet are installed.
- Use may be precluded or have an increased cost if a stable outlet is lacking.

SYSTEM LIFESPAN
Ten (10) years.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Costs can range from $1.00 per foot for a cross slope ditch to $10 a foot for storage structures with outlets.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system that need to be performed annually and after large storm events:

- Maintain capacity, storage, ridge height and outlets.
- Clean out inlets for underground outlets.
- Remove sediment build-up and redistribute.
- Inspect channel cross-section for stable side slopes, points of scour, rodent holes, and breaches.
- Check channel bottom for erosion or excessive scour, deposition of sediment or other obstructions.
- Outlets should be checked to ensure that they remain adequate, show no sign of erosion or loss of structural integrity.
- Vegetated structures will need to be periodically mowed.
- Periodic inspection and repair of roof runoff structures, outlets, access roads, etc.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*
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Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a

Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Water and Sediment Control Basin	638	Number	March 2019	10
Sediment Basin	350	Number	May 2017	20
Diversion	362	Feet	May 2017	10
Grassed Waterway	412	Acre	September 2021	10
Filter Strips	393	Acre	October 2017	10
Grade Stabilization Structure	410	Number	March 2021	15
Critical Area Planting	342	Acre	October 2017	10
Lined Waterway or Outlet	468	Feet	September 2021	15
Conservation Cover	327	Acre	July 2019	5
Terrace	600	Feet	September 2021	10
Subsurface Drain	606	Feet	May 2020	20
Underground Outlet	620	Feet	September 2021	20
Obstruction Removal	500	Number	September 2021	10
Fence	382	Feet	October 2022	20
Access Road	560	Feet	March 2021	10
Roof Runoff Structure	558	Number	October 2022	15
Trails and Walkways	575	Feet	September 2021	10

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of

Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Soil Management AEM Tier 2 Worksheet and Information Sheet

Feed Management System

DEFINITION
The continual process of providing adequate, not excess, nutrients to dairy animals through the integration of feeding and crop management to reduce nutrient excretion in manure and nutrient accumulation in soil, lower potential pollution risks to water and air resources, and improve farm profitability.

WATER QUALITY PURPOSE
Reduces the accumulation and potential loss of nitrogen and phosphorus in manure from dairy farms.

POLLUTANT CONTROLLED
Nutrients, pathogens, biochemical oxygen demand (BOD), or ammonia.

WHERE USED
Dairy farms.

SYSTEM DESCRIPTION
Feed management is a continuous improvement process involving benchmarking, planning, implementation, and monitoring. It is facilitated by a feed management specialist and adopted and directed by farm management to meet goals in three areas:

1. improved nutrient use efficiency, homegrown feed utilization, and income-over-feed cost;
2. crop production and purchased feeds are optimized for the feeding system; and
3. reduced nutrient overfeeding, excretion, and accumulation.

Dairy farms using the feed management process pursue those goals often by improving the digestible nutrient content of homegrown feeds produced and fed; accurately estimating feed nutrient intakes by animals and tracking feed inventories; employing scientific standards to determine nutrient requirements and ration levels; and increasing the level of homegrown feeds (forages or grains) in the diet.

Feed management recommendations should be based on the best available research information. The USDA-NRCS Feed Management Standard (NY-592) provides specific technical details and references about planning, implementation, and operation and maintenance. The Cornell Precision Feed Management guidelines and Precision Feed Management Benchmarking tools provide further information for effective feed management with dairy cows. Management of feed rations and forages should be consistent with Cornell recommendations, where available; otherwise, National Research Council recommendations should be utilized.

SYSTEM EFFECTIVENESS
Improving a farm's nutrient mass balance (the amount of nutrients imported compared to the amount of nutrients exported) will reduce the amount of nutrients that have the potential to be lost to the environment. Changes in the feeding program can have a significant influence on farm nutrient management and its mass nutrient balance. While it varies widely by farm size and management, a substantial portion of the nutrients imported to dairy farms in the form of purchased (imported) feeds, and to a lesser degree fertilizers, often remains on the farm where they may accumulate in farm soils and may be lost to air and water resources. Farms that intensively manage their feeding program reduce

nutrient excretion in the manure, increase feed nutrient utilization, and subsequently improve the farm's mass nutrient balance.

A 60% reduction in nitrogen and phosphorus mass nutrient balances has been documented by Cornell University and Cornell Cooperative Extension research on over 40 dairy farms that adopted feed management practices between 2004 and 2008. Those dairy farms also realized lower operating costs ($1.33/CWT) and 11% higher milk production that similar sized farms not participating in the feed management process in the region.

IMPACTS ON SURFACE WATER

Beneficial, including nutrients and pathogens.

IMPACTS ON GROUND WATER

Beneficial, including nutrients and pathogens.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

<u>Soil</u>: Beneficial, the soil health/conservation often must improve in order to optimize homegrown crop production for herd forage or grain needs.
<u>Air</u>: Beneficial, as it has the potential to reduce particulate matter from ammonia volatilization and nitrous oxide emissions.
<u>Plants</u>: Beneficial, as it can reduce nutrient losses and subsequent impacts on neighboring plant communities.
<u>Animals</u>: Beneficial, as it can reduce nutrient losses and subsequent impacts on terrestrial and aquatic habitat.
<u>Human</u>: Beneficial, as it can further safeguard drinking water sources, improve land and water resources for recreation, and provide economic growth.
<u>Energy</u>: Beneficial, as it can reduce use of transportation fuels for imported feed and fertilizer and improve livestock output per energy input.

ADVANTAGES TO FARM

- Potential to reduce nutrient losses and improve animal and crop production.
- Potential to improve herd/flock health.
- Often a positive impact on farm profitability.

DISADVANTAGES TO FARM

- Higher level of farm management is required may result in increased labor and equipment costs.
- Requires additional time and training to adjust to new management strategies.
- Cost to change management may be prohibitive for some farms.

SYSTEM LIFESPAN

One (1) year.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Costs for feed management depend on several factors, including the size and type of farm, existing level of farm management, feeding and feed storage facilities, history of herd, feed, and other farm records, available equipment, and familiarity with custom operators. Consultation fees for developing and maintaining a feed management plan should be considered in addition to the costs for feed and forage analyses.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. Feed management is a continuous improvement process, involving regular monitoring through benchmarking, planning to address opportunities, implementing those plans, and evaluating the plans via benchmarking.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

See Cornell Feed Management guidelines and Precision Feed Management Benchmarking tools as well as the USDA-NRCS Feed Management Standard (NY-592) for specific technical details about planning, implementation, and operation and maintenance.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*
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NRCS Name	Standard #	Reportable Item	Date	Life Span
Feed Management	592	Animals Units Affected	October 2022	1

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Cornell Precision Feed Management: https://cnydfc.cce.cornell.edu/topic.php?id=19
- Management of Dairy Feed Nutrients AEM Tier 2 Worksheet and Information Sheet

Integrated Pest Management System

DEFINITION
An ecologically based, site-specific integrated pest control strategy utilizing a combination of pest prevention, pest avoidance, pest monitoring, and pest suppression strategies coupled with precision application techniques and Best Management Practices when pesticide application is warranted.

WATER QUALITY PURPOSE
To reduce pesticide use, availability, and losses to the environment in crop and livestock production.

POLLUTANT CONTROLLED
Pesticides.

WHERE USED
On all agricultural lands where pests will be managed, and a resource concern has been identified.

SYSTEM DESCRIPTION
Integrated Pest Management (IPM) strategies that keep pest populations below economically damaging levels and minimize pest resistance are used to reduce pest management risks to water quality and the environment. Specific IPM techniques include:

<u>Prevention</u> – activities such as cleaning equipment when leaving an infested area, using pest free seeds and transplants, and irrigation scheduling to limit situations that are conducive to disease development,

<u>Avoidance</u> – activities such as using pest resistant varieties, crop rotation, refuge management, and maintaining healthy and diverse plant communities,

<u>Monitoring</u> – activities such as crop scouting, establishing trap crops, degree-day modeling and weather forecasting to help target suppression strategies and avoid routine preventative treatments,

<u>Suppression</u> – activities such as the judicious use of cultural, mechanical, biological, and chemical control methods that reduce or eliminate a pest population or its impacts while minimizing risks to non-target organisms. As part of a suppression system, precision application techniques in an IPM system can further minimize pesticide risks to natural resources and humans. Examples of such techniques include: appropriate equipment calibration to include the correct rate, boom height, appropriate nozzle type, nozzle spacing, operating speed and pressure; computer-controlled application technologies; and advanced technology equipment.

SYSTEM EFFECTIVENESS
Overall, IPM is effective, profitable, and relatively safe. Few if any studies have established a solid link between IPM usage and reduction of pesticide levels in receiving waters. However, IPM has been credited with the reduction in chemical usage. IPM is an effective management practice for consideration in vegetables, fruit, ornamentals, or field crops especially where large amounts of pesticides are applied, waterbodies are adjacent to crop fields, and soils are highly permeable. Numerous studies have shown pesticide use can be reduced up to 45% in fields employing IPM strategies verses conventional fields. Pesticide use for the control of house flies in dairy barns can be reduced 50 to 80% if manure is removed on a timely basis and fly biological control agent populations are enhanced.

When a pesticide is used its effectiveness depends upon the proper application and placement of the chemical. It is estimated that 60% of sprayers have a calibration error rate greater than plus or minus 10%. Frequent calibration checks or computerized precision application greatly reduce this problem.

Associated conservation practices that provide for adequate plant nutrients and soil moisture, including a favorable pH and soil quality, can reduce plant stress, improve plant vigor and increase the plant's overall ability to tolerate pests thereby reducing the need for pesticide use.

IMPACTS ON SURFACE WATER
Beneficial – In most management options the availability of pesticides as a nonpoint source pollutant is reduced.

IMPACTS ON GROUND WATER
Beneficial – In most management options the availability of pesticides as a nonpoint source pollutant is reduced.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial as the use of pesticides generally declines reducing risk of carry over and accumulation in the soil.
Air**:** Beneficial as IPM strategies generally result in less pesticide drift.
Plants: Beneficial as overall less use of pesticide and more precise application is a benefit to non-target plants.
Animals: Beneficial as IPM strategies and precision application techniques reduce the impact of pesticides on non-target organisms such as pollinators.
Human: Beneficial as it is an economically and environmentally defensible practice which realizes a higher net return per acre due to improved commodity quality.
Energy: Neutral.

ADVANTAGES TO FARM

- Use of pesticides usually declines with the use of IPM strategies.
- Usually requires fewer pesticides on a per acre basis.
- IPM generally results in higher average per acre crop yield.

DISADVANTAGES TO FARM

- May result in more pesticide applications per growing season as scouting may find pest populations over threshold.
- Higher level of grower management is required which may result in increased labor and equipment costs.
- Requires additional time and training to adjust to new management strategies.
- May have control costs higher than conventional control techniques.
- Cost of some advanced technology equipment may not be economical for small pesticide applicators.

SYSTEM LIFESPAN
One (1) year for IPM plan and may vary up to 10 years for various application equipment.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. The cost of this system will be highly variable depending on the control strategies employed.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- Scouting and monitoring is an on-going activity.
- O&M is specific for each prevention, avoidance, monitoring, and suppression technique used. Record keeping is an essential component of all these practices.
- Follow label directions when pesticides are used.
- Follow equipment manufacturer's directions.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

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NRCS Name	Standard #	Reportable Item	Date	Life Span
Pest Management Conservation System	595	Acre	September 2020	1
Conservation Cover	327	Acre	July 2019	5
Herbaceous Weed Treatment	315	Acre	April 2021	5
Conservation Crop Rotation	328	Acre	October 2015	1
Field Border	386	Acre	October 2017	10

Filter Strip	393	Acre	October 2017	10
Forage Harvest Management	511	Acre	September 2021	1
Irrigation Water Management	449	Acre	October 2022	1

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Pesticide Use AEM Tier 2 Worksheet and Information Sheet

Irrigation Water Management System

DEFINITION
A planned System that determines and controls the rate, amount, placement, and timing of irrigation water.

WATER QUALITY PURPOSE
To reduce surface water runoff, including any associated erosion or leaching of nutrients and pesticides by applying irrigation water based upon the capacity of the soil to hold water and the needs of the crop.

POLLUTANT CONTROLLED
Sediment, nutrients, or pesticides.

WHERE USED
On agricultural fields requiring irrigation where the potential for surface water runoff or groundwater contamination exists, and a resource concern has been identified.

SYSTEM DESCRIPTION
Irrigation water management is utilized on cropland to supplement rainfall, and to apply fertilizer and pesticides to target crops. Several irrigation methods exist. Selection of the irrigation system to be used is based on the needs of the crop to be grown, soil type, topography, climate, distance to streams or other water bodies, and the source of water to be used for irrigation. To decrease non-point source pollution of surface and groundwater resources, water application must be at rates that minimize the transport of sediments, nutrients and chemicals to surface waters and that minimize the transport of nutrients and chemicals to groundwater.

The development of an “Irrigation Water Management Plan” that addresses the irrigation scheduling, in both timing and amount, control of runoff, minimizing deep percolation, and the uniform application of water is an essential component of this practice.

SYSTEM EFFECTIVENESS
This System can help prevent over irrigation and the resulting loss of sediment, nutrients, and pesticides by surface runoff and leaching.

IMPACTS ON SURFACE WATER
Beneficial.

IMPACTS ON GROUND WATER
Beneficial- Leaching losses of nutrients and pesticides are minimized when scheduling is a part of an irrigation water management system. However, other associated practices that promote infiltration may have adverse impacts on groundwater.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

<u>Soil</u>: Beneficial by minimizing irrigation induced soil erosion and sedimentation.
<u>Water</u>: Beneficial by reducing water waste – applies what the crop needs.
<u>Air</u>: Beneficial by managing soil moisture to reduce particulate matter movement.
<u>Plants</u>: Neutral.
<u>Animals</u>: Neutral.

Human: Beneficial due to positive impacts on soil, water, air and energy.
Energy: Beneficial as it can reduce energy use.

ADVANTAGES TO FARM

- Manages air, soil, or plant micro-climate.
- Provides the medium and guidance for proper and safe chemigation and fertigation.
- Avoids crop stress due to under-irrigation and may increase crop yields.
- May reduce operating and labor costs.
- May reduce energy costs.

DISADVANTAGES TO FARM

- May require additional training, or an increase in irrigation management skills.
- Requires additional time and equipment to collect data.
- Changes in irrigation methods may require changes in equipment which can be costly.

SYSTEM LIFESPAN

One (1) year.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Some factors impacting cost include additional labor and equipment expenses to collect data and automated irrigation scheduling software may need to be purchased.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- Accurate and timely records of rate, amount, timing and maintenance of equipment is a necessary component of this practice.
- A record keeping system and O&M plan must be prepared for the system.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.
Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a

Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Irrigation Water Management	449	Acre	October 2022	1
Irrigation Pipeline	430	Feet	September 2021	20
Irrigation Reservoir	436	Number	October 2022	15
Irrigation System, Microirrigation	441	Acre	October 2022	15
Sprinkler System	442	Acre	October 2022	15
Irrigation System, Surface and Subsurface	443	Acre	October 2017	15
Pumping Plant	533	Number	October 2022	15
Water Well	642	Number	March 2021	20
Nutrient Management	590	Acre	September 2020	1
Pest Management Conservation System	595	Acre	September 2020	1

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Irrigation Water Management AEM Tier 2 Worksheet and Information Sheet

Livestock Heavy Use Area Runoff Management System

DEFINITION
A System for the interception, collection, and safe treatment of runoff water from a barnyard or concentrated livestock area.

WATER QUALITY PURPOSE
To exclude clean water from the concentrated livestock areas and to reduce the transport of pollutants from barnyards and concentrated livestock areas into surface or groundwaters.

POLLUTANT CONTROLLED
Nutrients, sediments, pathogens, or biochemical oxygen demand (BOD).

WHERE USED
Barns, barnyards, loafing areas, paddocks, feedlots, calf hutch areas or any area where livestock concentrate, and a resource concern has been identified.

SYSTEM DESCRIPTION
The System is composed of one or more component practices. Structural practices may be employed to exclude clean water from areas of livestock concentrations (for example, diversions that intercept and transport upslope surface water away from barnyards and roof runoff systems that collect rainwater from barn roofs). Heavy Use Areas are used to facilitate clean up and direct polluted runoff where a variety of structural, vegetative and operational practices are used to treat polluted runoff and seepage from barnyards, loafing areas and other areas with concentrated waste. Examples include settling tanks, collection or vegetative treatment areas.

Alternatives also include elimination, utilizing gates and laneways to move livestock to barns or managed pastures, or as a last resort, installation of roofs to isolate the barnyard from precipitation.

SYSTEM EFFECTIVENESS
Because Livestock Heavy Use Area Management Systems are site-specific and are composed of one or more Component BMPs, System effectiveness varies. Key factors for effectiveness include success of cutting off clean water before it reaches pollutants, reducing the size of the affected area, and collecting and treating polluted run-off.

IMPACTS ON SURFACE WATER
Beneficial.

IMPACTS ON GROUND WATER
Beneficial - Can be negative if the abandoned heavy use areas are not remediated and nutrient laden soil and manure is not removed allowing nutrient losses to the groundwater.

IMPACTS ON OTHER RESOURCES (OFF-SITE)
Soil: Neutral.
Air: Beneficial. Clean barnyards, where manure and organics are collected more frequently, tend to have less odor issues.
Plants: Neutral.
Animals: Beneficial. Controlling or treating run-off leads to cleaner streams.

Human: Beneficial. Barnyard areas that are kept clean are more aesthetically pleasing and produce less odors, flies or vectors.
Energy: Negative. Increased fuel use.

ADVANTAGES TO FARM

- Dries up barnyard and loafing area.
- Improves ease of daily operating procedures.
- Less clean-up time during milking.
- Decreases the chance of milk production reduction during wet periods.
- Increased milk value due to lower somatic cell counts.
- Can include herd health benefits (less risk of mastitis and hoof rot in cattle).
- Depends on the system. Improved barnyards require more energy to clean up on a regular basis (more each day instead of a massive amount every few years) but are more efficient and can save energy required for cow-clean up, milking center clean-up (from less sediment and manure to treat).
- More manure collected to utilize for crop fertility.

DISADVANTAGES TO FARM

- Requires a higher level of producer management skill to achieve positive pollution control.
- May be expensive initial investment and operating costs.
- Increased fuel consumption.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Range: $3,000 to $150,000 or more, depending upon system design, complexity, and number of animals treated and total area to be treated.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- Daily to weekly scraping of concrete pads.
- Maintain fences and gates.
- Re-grade barnyards as needed to control water.
- Maintain vegetation.
- Check roof gutters after heavy storm events and remove debris and ice.
- Maintain gravel/stone heavy use areas, if applicable.
- Ensure dosing on VTA to not overload system. Harvest and remove filter area vegetation.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities

Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

For an ANSACP grant application, it is required to utilize the Roof Screening Tool if a covered facility is included in the grant.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

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NRCS Name	Standard #	Reportable Item	Date	Life Span
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Access Control	472	Acres	April 2019	10
Trails and Walkways	575	Feet	September 2021	10
Fence	382	Feet	October 2022	20
Access Road	560	Feet	March 2021	10
Roof Runoff Structure	558	Number	October 2022	15
Roofs and Covers	367	Number	October 2016	10
Conservation Cover	327	Acre	July 2019	5
Critical Area Planting	342	Acre	October 2017	10
Vegetated Treatment Area	635	Acre	February 2017	10
Diversion	362	Feet	May 2017	10
Grassed Waterway	412	Acre	September 2021	10
Lined Waterway or Outlet	468	Feet	September 2021	15
Pumping Plant	533	Number	October 2022	15
Sediment Basin	350	Number	May 2017	20
Subsurface Drain	606	Feet	May 2020	20

Underground Outlet	620	Feet	September 2021	20
Waste Separation Facility	632	Number	October 2022	15
Waste Storage Facility	313	Number	March 2018	15
Waste Transfer	634	Number	October 2022	15
Water and Sediment Control Basin	638	Number	March 2019	10
Watering Facility	614	Number	March 2021	10

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Livestock Heavy Use Area AEM Tier 2 Worksheet and Information Sheet

Manure and Agricultural Waste Treatment System

DEFINITION
A System for the mechanical, chemical or biological treatment of agricultural wastes.

WATER QUALITY PURPOSE
Treating manure and other agricultural wastes in order to improve nutrient and pathogen management and reduce losses to surface water and groundwater.

POLLUTANT CONTROLLED
Nutrients, pathogens, biochemical oxygen demand (BOD), or ammonia.

WHERE USED
Any farm with agricultural wastes, such as manure, process wastewaters, crop residues, or other organic residues, where nutrient, pathogen, or odor management could be improved through treatment of the wastes.

SYSTEM DESCRIPTION
Manure and Agricultural Waste Treatment Systems encompass a broad set of technologies used to process wastes for the purposes of:

- improving ground and surface water quality by reducing the nutrient content, biochemical oxygen demand (BOD), or pathogen levels of agricultural waste;
- improving air quality by reducing odors and gaseous emissions;
- producing value added byproducts; or
- facilitating desirable waste handling, storage, or land application alternatives.

This Agricultural BMP System applies where the form and characteristics of agricultural waste make it difficult to manage, where changing the form or composition provides additional utilization alternatives, and where conventional waste management alternatives are deemed not as effective.

Systems may be comprised of one or more of the following established treatment practices:

- anaerobic digestion;
- liquid solid separation;
- biological or chemical amendments;
- manure or agricultural waste composting facility (other than animal carcass);
- waste facility cover (and flare, where applicable).

Manure and Agricultural Waste Treatment Systems are often also combined with other Agricultural BMP Systems and Component BMPs, such as waste storage and transfer, composting, vegetated treatment areas, Nutrient Management Plans, etc.

SYSTEM EFFECTIVENESS
Manure and Agricultural Waste Treatment Systems must be planned, designed, implemented, and maintained to address the unique set of resource concerns for each farm, so Systems will be comprised of different components and achieve varying levels of effectiveness. In general, any System that utilizes high temperatures (such as anaerobic digestion) for prolonged periods will achieve significant pathogen control and odor control, allowing for improved nutrient management, water quality protection and neighbor relations. If such a System is anaerobic, it will also result in enhanced methane

production/capture which, if flared or used for heat or electricity production, could have positive greenhouse gas and renewable energy benefits. Systems that cover manure and other wastes reduce total volume by eliminating additions from precipitation and reduce ammonia, methane, and odor compound emissions. Systems that separate the waste into liquid and solid pools allow for more precise and efficient nutrient management (pumping, drag line application, incorporation, etc.) as well as the potential for value added products (solids re-used as bedding, compost for sale off farm, lower-risk solid manure for nutrient applications in sensitive areas, etc.). Most of these Systems do not make nutrients disappear, but they concentrate, separate, etc. nutrients into forms that facilitate more efficient for re-use by crops or sale/export from the farm.

IMPACTS ON SURFACE WATER
Beneficial - including reduced losses of nutrients, biochemical oxygen demand (BOD), ammonia, and pathogens.

IMPACTS ON GROUND WATER
Beneficial - including nutrients and pathogens.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial if system allows more precise application of nutrients with less soil compaction. Could be neutral or negative if the system results in significant manure/waste organic matter to be sold/exported from farm and not returned to cropland.

Air: Beneficial, as it has the potential to reduce emissions of ammonia, greenhouse gas, and odor compounds. May be negative if the treatment system is not operated correctly.

Plants: Beneficial, as it can reduce nutrient losses and subsequent impacts on neighboring plant communities.

Animals: Beneficial, as it can reduce pathogen losses as well as nutrient losses and subsequent impacts on terrestrial and aquatic habitat.

Human: Beneficial, as it can further safeguard drinking water sources, improve land and water resources for recreation, reduce odor, and provide economic growth.

Energy: Beneficial, as such systems often improve the use of on-farm nutrients, thereby reducing energy for fertilizer production and transport. Some treatment systems also allow for on-farm energy production.

ADVANTAGES TO FARM

- Reduced nutrient losses.
- Improved productivity of crops and livestock as well as greater management flexibility.
- Can have a positive impact on farm profitability and diversify income streams.
- Improved neighbor relations.

DISADVANTAGES TO FARM

- High capital costs, early stage of technology, sometimes inadequate infrastructure to deliver energy to market, competition with much larger energy entities, etc. may present significant barriers to entry.
- Soil organic matter may decline if systems involve significant exports/sales of manure solids.
- Higher level of farm management required may result in increased labor and equipment costs.
- Requires significant additional time and training to adjust to new management strategies.

SYSTEM LIFESPAN
Variable depending on Component BMPs of the System but generally 10 years.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. The cost is variable depending on the type of manure and agricultural waste treatment system. More complex systems, such as anaerobic digestion, coupled with liquid solid separation, electricity generation, solids composting, effluent storage, and drag hose land application, can be very expensive to design, build, and operate, but allow farms to realize other economic, community, and environmental goals.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. Very regular monitoring and maintenance are required with these systems, according to the O&M associated with the various system components.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

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NRCS Name	Standard #	Reportable Item	Date	Life Span
Waste Separation Facility	632	Number	October 2022	15
Waste Storage Facility	313	Number	March 2018	15
Waste Transfer	634	Number	October 2022	15
Waste Treatment	629	Number	October 2013	10
Anaerobic Digester	366	Number	March 2019	25

Composting Facility	317	Number	September 2021	15
Pumping Plant	533	Number	October 2022	15
Roofs and Covers	367	Number	October 2016	10
Heavy Use Area Protection	561	Sq. Feet	September 2021	10

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Cornell University Dairy Environmental Systems: https://cals.cornell.edu/pro-dairy/our-expertise/environmental-systems
- Greenhouse Gas Mitigation Opportunities AEM Tier 2 Worksheet
- IS#2 Dairy Manure Storage & & Greenhouse Gas Mitigation Opportunities
- IS#3 Planning for Quantitative Methane Capture & Destruction from Liquid Dairy Manure Storage

Nutrient Management System - Cultural

DEFINITION
Managing the amount (rate), source, placement (method of application), and timing of plant nutrient and soil amendment applications for efficient use by crops and reduced losses to the environment. If applicable, this can include addressing the issues from farmstead areas as it relates to non-point sources of pollutants.

WATER QUALITY PURPOSE
To reduce or prevent nutrient losses from runoff, erosion, and leaching to surface and groundwater resources.

POLLUTANT CONTROLLED
Sediment, nutrients, pathogens, biochemical oxygen demand (BOD), or ammonia.

WHERE USED
Cropland, hayland, pasture, vegetable and fruit production, orchards, vineyards, turf, biomass production, and ornamental production, including greenhouses.

SYSTEM DESCRIPTION
Nutrients are managed for the economic production of crops, forages, pasture, ornamentals, and biomass, and the protection of natural resources. Cultural nutrient management consists of applying nutrients and soil amendments to crops in the right amount, right source, right method, and right timing ("the 4Rs") according to several, integrated factors:

- farm management and goals including realistic crop yields;
- an accurate estimate of crop nutrient needs;
- nutrients credits in soil and manure;
- nutrient credits from crop residues;
- risk assessments for runoff, leaching, and erosion;
- setbacks from hydrologically active areas;
- weather and soil conditions; and
- adaptive management over time.

A well-integrated Nutrient Management Plan provides recommendations for manure, fertilizer, process wastewaters, composts, or lime applications according to the factors, above. It promotes nutrient use efficiency and controls nutrient loss by focusing on the use of on-farm nutrient sources, emphasizing the 4Rs, and, in many cases, reducing nutrient imports onto farms. Nutrient Management Plan recommendations should be based on the best available research information for the soils and climate in New York State. Nutrient applications and their management should be consistent with Cornell Nutrient Guidelines.

SYSTEM EFFECTIVENESS
Proper nutrient management prevents excessive applications, can decrease nutrient imports on farms, and reduces the potential for nutrient loss. Long-term experimentation demonstrates that recommendations based on field research, conducted in New York, provide the best estimate of economic response and improved nutrient cycling for our conditions. Several studies from Cornell University demonstrate reductions in whole farm nutrient balances and nutrient purchases as well as nutrient losses via runoff and leaching through improved nutrient management.

Specifically, there are many management opportunities that advance conservation and crop productivity through nutrient applications made with the 4Rs, including:

- counting nitrogen credits from soil organic matter, past manure applications, and crop residues can significantly reduce the need for supplemental nitrogen fertilizer without sacrificing crop yield;
- regular soil and manure testing helps make the most of on-farm nutrient sources and better target purchased fertilizers, saving money and excess nutrient applications without sacrificing crop yield;
- on-farm tracking of soil tests, manure tests, and field records over time improves confidence in the nutrient management program and allows continual improvement through adaptive management;
- incorporating/injecting manure soon after application to a growing crop or just before planting in the spring can increase the nitrogen supply from the manure, reduce the need for supplemental nitrogen fertilizer, reduce the risk of over applying phosphorus relative to crop uptake, and reduce risk of surface runoff losses;
- considering hydrologically active areas, weather, field risk assessments, and timing of crop nutrient use to prioritize nutrient applications improves crop uptake and lowers risk of runoff or leaching;
- using cover crops scavenges nutrients remaining after the main crop, reducing losses from runoff, erosion, and leaching, as well as conserving nutrients and organic matter for the following crop;
- applying fertilizer with a method and timing to allow optimal plant uptake reduces losses and improves efficiency;
- etc.

IMPACTS ON SURFACE WATER

Beneficial - including nutrients, sediment, and pathogens.

IMPACTS ON GROUND WATER

Beneficial - including nitrogen and pathogens.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial, as it generally improves soil health and reduces erosion.

Air: Beneficial, as it has the potential to reduce particulate matter from ammonia volatilization and odors.

Plants: Beneficial, as it can reduce nutrient losses and subsequent impacts on neighboring plant communities.

Animals: Beneficial, as it can reduce pathogen losses as well as nutrient losses and subsequent impacts on terrestrial and aquatic habitat.

Human: Beneficial, as it can further safeguard drinking water sources, improve land and water resources for recreation, reduce odor, and provide economic growth.

Energy: Beneficial, as it can reduce use of farm fuels, energy for fertilizer manufacturing and transportation fuels for imported fertilizer and feed.

ADVANTAGES TO FARM

- Reduced nutrient losses and improved nutrient use efficiency.
- Improved crop yield and quality, often across the range of optimal and extreme weather conditions (improved soil health).

- Beneficial or neutral impact on farm profitability.
- Improved neighbor relations.

DISADVANTAGES TO FARM
- Higher level of farm management required may result in increased labor, equipment costs, and capital investment (e.g., manure storage).
- Requires additional time and training to adjust to new management strategies.
- Cost to change management may be prohibitive for some farms.

SYSTEM LIFESPAN
One (1) year.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Costs depend on several factors, including the size and type of farm, existing level of farm management, history of nutrient analyses and farm records, available equipment, familiarity with custom operators, and, on livestock farms, existing manure storage and transfer capacity. Consultation fees for developing and maintaining a nutrient management plan should be considered in addition to the costs for soil testing and manure nutrient analyses.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:
- annual updating of the nutrient management plan.
- soil testing every three years and manure analyses once per calendar year.
- records showing manure tests, date and conditions when applied, amount applied, application method, manure source, and location.
- crop management records are maintained.
- calibration of manure and fertilizer application equipment

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
See Cornell Nutrient Guidelines and the USDA-NRCS Nutrient Management Practice Standard (NY-590) for specific technical details about planning, implementation, and operation and maintenance.

Nutrient Management Plans are limited to the management of nutrients and soil health/conservation practices on fields, pastures, and in greenhouses. Comprehensive Nutrient Management Plans (CNMPs) address resource concerns across fields, pastures, and farmstead concentrated sources on livestock farms and should be given priority consideration where:
- excess nutrients are produced or imported;
- other farm related environmental concerns exist (e.g., silage leachate runoff, barnyard runoff, milkhouse wastewater, petroleum product storage, pesticide storage, mixing and loading, pesticide use and waste disposal);
- the farm has been determined to be a Concentrated Animal Feeding Operation (CAFO) by NYS Department of Environmental Conservation;
- etc.

Note: a Nutrient Management Plan (NRCS Standard 590), alone, does not meet the NYS requirements for CAFOs. A Comprehensive Nutrient Management Plan (NRCS Standard 312) must be developed for these farms.

Nutrient Management Plans, Comprehensive Nutrient Management Plans, and certain Component BMPs may be eligible for cost-sharing. Check with the local NRCS or SWCD office to determine practice eligibility and the availability of funds.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

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NRCS Name	Standard #	Reportable Item	Date	Life Span
Nutrient Management	590	Acre	September 2020	1

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Cornell Nutrient Guidelines for Field Crops: http://nmsp.cals.cornell.edu/guidelines/nutrientguide.html
- Cornell Nutrient Guidelines for Vegetable Crops: https://www.vegetables.cornell.edu/crops
- Cornell Nutrient Guidelines for Grapes: https://cals.cornell.edu/cornell-agritech/products-we-research/grapes
- Cornell Nutrient Guidelines for Berries: https://cals.cornell.edu/cornell-agritech/products-we-research/berries
- Cornell Nutrient Guidelines for Tree Fruits: https://cals.cornell.edu/cornell-agritech/products-we-research/tree-fruits
- Cornell Guidelines for Greenhouses: www.greenhouse.cornell.edu
- Cornell Guidelines for Turf: https://turf.cals.cornell.edu/
- Nutrient Management: Manure and Fertilizer AEM Tier 2 Worksheet and Information Sheet

Pathogen Management System

DEFINITION
Use of preventative measures, livestock management and conservation practices to provide multiple barriers to the introduction, replication, and survival of pathogens in domestic livestock and reducing the risk of pathogen contamination of surface and groundwater resources by treatment or controlling the movement of pathogens to water.

WATER QUALITY PURPOSE
To reduce the threat to surface and ground water from contamination by pathogenic organisms (e.g., Giardia and Cryptosporidium) found in farm animals.

POLLUTANT CONTROLLED
Pathogens or nutrients.

WHERE USED
Primarily on agricultural land (livestock and poultry operations) where a resource concern has been identified citing runoff from young stock housing or exercise lots or land receiving manure applications containing feces from infected animals which could enter a nearby watercourse.

SYSTEM DESCRIPTION
A Pathogen Management System Plan which incorporates a 4-barrier approach, as described below, shall be developed. The Pathogen Management Plan will address each of the four barriers. A veterinarian, or other qualified professional, utilizing the protocol from the New York State Cattle Health Assurance Program (NYSCHAP), or other similar protocols for appropriate species, shall develop the first two barriers.

The **FIRST** barrier is reducing the potential for pathogens to enter the farm. This shall be accomplished by carrying out actions such as the following:

- The testing of non-chlorinated water supplies that serve the herd or flock for fecal coliform bacteria
- Establishing appropriate biosecurity measures, including those controlling people, pets, pests and other animals, equipment or materials that may transport pathogens from other sources.
- Maintaining good hygiene and minimizing herd or flock contact with manure from other animal groups.
- Maintaining an accurate animal identification system and record of all health events

The **SECOND** barrier minimizes cross-contamination among animals and amplification of infection within a herd or flock. This shall be accomplished by actions such as:

- Keeping animal raising areas clean and dry,
- Proper worker hygiene when moving between facilities or animal groups,
- Ensuring that all feeds are stored and handled properly, and feeding utensils are clean, specifically avoiding manure contamination of feed.
- Implementing rodent and pest control programs,
- Separating pre-weaned animals to prevent direct contact with another young animal and with adult manure,
- Isolating infected animals until they are no longer infectious,

- Identifying the order in which animals should be fed (e.g., youngest to oldest, etc. depending upon the pathogen of concern).

The **THIRD** barrier provides for collection, handling, and treatment of manure and wastes appropriately to minimize the spread of the pathogens. This shall be accomplished by practices such as:

- Vegetated Treatment Areas (635) conservation practice standard to reducing runoff
- Composting (317) conservation practice standard for the composting of manures
- Animal Mortality (316) conservation practice standard for proper disposal of animal mortalities
- Waste Storage Structure (313) conservation practice standard to extension of waste storage time or isolation of waste storages to take advantage of pathogen die-off using:
    - Anaerobic Digester (366) conservation practice standard
    - Groundwater Testing (355) conservation practice standard

The **FORTH** barrier restricts movement of contaminated feces into watercourses or groundwater. This shall be accomplished by practices such as:

- Diversion (362) conservation practice standard to divert clean water away from livestock facilities
- Nutrient Management (590) conservation practice standard to spreading manure.
- Access Control (472) conservation practice standard for the exclusion of animals from waterbodies, such as streams, creeks, rivers and lakes
- Fence (382) conservation practice standard for isolating septic systems, leach fields and filter areas, and other septage disposal areas from grazing animals
- Protecting aquifer recharge areas and wellheads from manure runoff from fields
- Filter Strips (393), Riparian Forested Buffer (391) Riparian Herbaceous Cover (390) conservation practice standards

SYSTEM EFFECTIVENESS

Pollution prevention effectiveness increases if a multi-barrier approach is implemented that controls pathogens at the source (e.g., improved calf management) while also controlling pathogen transport on the farm (e.g., composting of infected manure) and controlling pollutants at the water course (e.g., vegetative filter strip).

IMPACTS ON SURFACE WATER

Potential for significant reduction in the risk of waterborne disease outbreaks from agricultural activities.

IMPACTS ON GROUND WATER

Actual risk of pathogens from agricultural activities polluting groundwater sources still needs to be determined. Avoiding spreading of infected manure on karst topography and within recharge areas of wells would reduce risk of well contamination.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Neutral.

Air: Neutral.

Plants: Beneficial, as it often also results in reduced nutrient losses which can lead to less fertilization of off-site plant communities.

Animals: Beneficial, as it can reduce pathogen losses, transmission of pathogens to wildlife, and nutrient losses all of which can impact wildlife and their habitat.

Human: Beneficial, as it can further safeguard drinking water sources and improve land and water resources for recreation.
Energy: Neutral.

ADVANTAGES TO FARM

- Practices to improve health and survivability of young stock can increase overall farm production, profitability, and, in some cases, labor efficiency.
- Further reduces risk of pathogen contamination of farm wells used for drinking water.

DISADVANTAGES TO FARM

- Some solutions may involve high costs of providing separate housing facilities for raising calves on farms.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost, from no cost to $1000 to 1500 per calf if separate housing and waste storage is needed.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- periodic plan review to determine if adjustments or modifications to the plan are needed.
- inspection and maintenance of animal exclusion.
- on-going monitoring of animal health is needed to determine practice effectiveness.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

For this System to be cost-shared, several criteria must be met. At a minimum, a Pathogen Management Plan (PMP) or a PMP included in a CNMP must be completed. All Four Tiers must be implemented for any one practice to be cost-shared. For example, to qualify for alternative calf housing (Tier 2), the farm must have implemented Tier I and agrees to implement Tier 3 and 4 during the Lifespan of the practice.

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.

Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Animal Mortality Facility	316	Number	April 2016	15
Composting Facility	317	Number	September 2021	15
Groundwater Testing	355	Number	March 2021	1
Access Control	472	Acres	April 2019	10
Anaerobic Digester	366	Number	March 2019	25
Fence	382	Feet	October 2022	20
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Waste Separation Facility	632	Number	October 2022	15
Waste Storage Facility	313	Number	March 2018	15
Waste Transfer	634	Number	October 2022	15
Waste Treatment	629	Number	October 2013	10
Vegetated Treatment Area	635	Acre	February 2017	10
Nutrient Management	590	Acre	September 2020	1
Roofs and Covers	367	Number	October 2016	10
Diversion	362	Feet	May 2017	10

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- NYS Cattle Health Assurance Program: http://nyschap.vet.cornell.edu
- Water Borne Pathogens AEM Tier 2 Worksheet and Information Sheet

Petroleum and Oil Products Storage System

DEFINITION
An oil and petroleum product storage tank is a stationary facility which may include one or more above ground tanks, underground tanks, or a combination of both, for the storage, transfer, and usage of liquid oil or oil products such as diesel fuel, gasoline, kerosene, fuel oil, lubrication oil, hydraulic oil, crop oil, vegetable oil, waste oils, or animal fat. A Petroleum and Oil Products Storage System involves planning, implementation of standard operating procedures, proper tank siting, design and installation, spill and overfill prevention, leak monitoring and inspection, secondary containment, operation and maintenance, and emergency action planning.

WATER QUALITY PURPOSE
To prevent contamination of surface and groundwater from oil product storage facility leaks and spills.

POLLUTANT CONTROLLED
Petroleum/oil products and biochemical oxygen demand (BOD) (for organic oil products).

WHERE USED
On agricultural operations where liquid oil products are stored or utilized, and a resource concern has been identified.

SYSTEM DESCRIPTION
This System consists of a combination of one or more of the following depending on the water quality risk posed by the storage facility as well as the regulatory requirements defined by NYS DEC and USEPA:

1. Proper storage tank siting – includes consideration of soil characteristics (corrosivity, permeability, bearing capacity, etc.), depth to groundwater, distance from a surface waterbody or drinking water well, location of floodplains, vehicular traffic patterns around the tank site, and distance from existing and planned farm buildings.

2. Proper tank design and installation – includes the use of corrosion resistant tanks and pipes (i.e., tank contains label that it conforms with 6 NYCRR Part 614), double wall tanks with wall thickness of at least 7/16th inch to protect against ballistics, steel posts to protect against vehicular traffic, anchoring or diking to avoid floatation in areas subject to flooding, a roof over tank to exclude rain water, etc., and utilizing an experienced tank installer who is familiar with state petroleum tank installation requirements.

3. Spill and overfill prevention equipment – includes color coding of fill ports, operating and shutoff valves, gauges and high-level alarms, automated shutoff devices, tank labels (showing design and working capacity), spill catchment basin for fill ports of underground storage tanks.

4. Leak monitoring and tank inspection – includes checking of aboveground tank for corrosion and leaks, installing underground piping access ports for leak testing, installing a concrete pad under aboveground tanks to detect levels and installation of a monitoring well (e.g., 4" slotted plastic pipe) between underground storage tank and secondary containment barrier.

5. Secondary containment barrier – includes aboveground engineered dikes, curbs, liners, or diversion system designed to contain spills from above-ground tank rupture, overfills, vandals and

equipment failure. Also included are drainage provisions for storm water that accumulates within the dike, curb or liner and installing double-wall tanks.

6. Spill emergency response plan – includes a written emergency plan at the storage facility location that shows action to be taken in case of a spill, leak, fire or explosion. Cleanup equipment should also be available at the site.

SYSTEM EFFECTIVENESS
When properly designed, installed, maintained, and managed this System may significantly reduce the risk of a contamination event occurring from the spill or leak of an oil product.

IMPACTS ON SURFACE WATER
Beneficial as a complete System should greatly reduce the risk of contaminants from reaching a surface water body.

IMPACTS ON GROUND WATER
Beneficial as a complete System should greatly reduce the risk of contaminants from reaching groundwater.

IMPACTS ON OTHER RESOURCES (OFF-SITE)
Soil**:** Beneficial by reducing the risk of leaks and spills that could contaminate soil.
Air**:** Neutral.
Plants**:** Beneficial as movement of product offsite following a major spill or leak could destroy vegetation.
Animals**:** Beneficial as movement of product offsite could have a detrimental effect on animal health and habitat.
Human**:** Beneficial by reducing the risk of health impacts through contamination of water and air resources.
Energy**:** Neutral.

ADVANTAGES TO FARM
- May provide direct protection to farmstead water supply if water source is a well.
- Can save product.
- May reduce farmer liability.

DISADVANTAGES TO FARM
- Requires continuous monitoring for potential leakage.

SYSTEM LIFESPAN
Ten (10) years.

COST
Each Agricultural BMP System is unique and must be customized for every situation in which it is employed resulting in a wide and variable range in cost. Factors impacting cost may include site characteristics, and the number of upgrades or add-ons to the system are required to reduce risk or comply with regulations.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- Daily inspection for leaks either visually or check of leak monitoring system.
- All applicable State and Federal regulations and manufacturers recommendations regarding operation and maintenance and record keeping will be followed.
- An emergency action plan should be developed and may be required for certain threshold volumes.

See documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

Leaks from underground petroleum storage are difficult to detect especially since most of the tanks installed on farms lack a leak monitoring system. Also, most landowners are unaware of the significant groundwater contamination risk to their own water supply posed by these storage tanks.

Farms with certain types and capacities of petroleum or oil product storages are required to comply with the NYS Department of Environmental Conservation (DEC) Petroleum Bulk Storage (PBS) regulation or the US EPA's Spill Prevention, Control, and Countermeasure (SPCC) regulation. To absolutely determine whether a farm is regulated under PBS or SPCC and the regulatory requirements for each, please visit these web sites: www.dec.ny.gov/chemical/287.html
www.epa.gov/ceppo/web/content/spcc/

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*
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Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
On-Farm Secondary Containment Facility	319	Number	October 2022	15
Access Road	560	Feet	March 2021	10

Access Control	472	Acre	April 2019	10
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Conservation Cover	327	Acre	July 2019	5

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- NYS Department of Environmental Conservation (DEC) Petroleum Bulk Storage (PBS) regulation: www.dec.ny.gov/chemical/287.html
- US EPA’s Spill Prevention, Control, and Countermeasure (SPCC) regulation: www.epa.gov/ceppo/web/content/spcc/
- Petroleum and Oil Products Storage AEM Tier 2 Worksheet and information Sheet

Prescribed Rotational Grazing System

DEFINITION
A Prescribed Rotational Grazing System using 5 or more paddocks for a grazing season, alternating paddocks to allow for forage vigor and re-growth. Livestock graze for no more than 7 days before they are rotated to another paddock.

WATER QUALITY PURPOSE
To prevent soil erosion; reduce water runoff that may transport nutrients, sediments, and pathogens; and allow for the management of animal manure and nutrients.

POLLUTANT CONTROLLED
Sediment, nutrients, pathogens, biochemical oxygen demand (BOD), or ammonia.

WHERE USED
On continuously grazed pastures, and fields including cropland that can be converted to pasture where a resource concern has been identified.

SYSTEM DESCRIPTION
A Prescribed Rotational Grazing System involves subdividing pastures and hayfields into grazing units called paddocks. The size and number of paddocks depend on the level of pasture productivity, stocking rate of livestock, and the residency period in the paddock. Individual paddocks are grazed for a period long enough to harvest available forage, and then rotated to allow optimal re-growth of the forage before livestock are returned to the paddock. Livestock may be moved as often as twice per day but at least once per week. The frequent rotation of livestock allows forage to recover from grazing, permitting plant re-growth and resulting in increased plant productivity.

SYSTEM EFFECTIVENESS
Many of the resource concerns associated with livestock on pasture are the result of overgrazing and allowing livestock direct access to surface waterbodies. When comparing Prescribed Rotational Grazing Systems to continuous grazing, forage quality is improved, and ground cover is increased reducing erosion and runoff potential. Prescribed Rotational Grazing Systems reduce the time livestock spend grazing on any single paddock and improve the uniformity of manure and urine deposition over the pasture allowing for improved plant utilization and reduced runoff of nutrients. Controlled grazing pressure increases the quality and quantity of forage, thereby reducing the fiber content in manure and increasing the speed of manure decomposition. Livestock manure from a prescribed rotational grazing system is less likely to cause surface water pollution compared to a continuous grazing system. Because Prescribed Rotational Grazing Systems improve overall pasture yields, farmers can fence out riparian areas, wetlands, and other areas adjacent to waterbodies and still meet or exceed their pasture requirements.

IMPACTS ON SURFACE WATER
Beneficial as the practices reduces erosion and water runoff that may transport nutrients, sediment, and pathogens to waterbodies.

IMPACTS ON GROUND WATER
Beneficial as the System can improve the distribution of nutrients across a farm, address areas of livestock concentration, and result in a conversion of row crop acres to perennial pasture seedings.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial by reducing erosion, sedimentation, and improving or maintaining soil quality.
Air: Beneficial as it has the potential to reduce motorized equipment use and sequester carbon.
Plants: Neutral.
Animals: Beneficial as it may provide or improve wildlife habitat.
Human: Beneficial as farmers have reported positive comments from their nonfarm neighbors who like seeing livestock out on lush green pasture.
Energy: Beneficial by allowing livestock to harvest their own feed and spread their own manure saving fossil fuels in the process.

ADVANTAGES TO FARM

- It allows for the recovery of the economic investment in 1 to 5 years.
- Promotes harvest efficiency thus maximizing animal production per acre.
- Has the potential to lower annual feed costs and reduce dependence on purchased feeds.
- Proper implementation can improve forage quality, species composition, and yield.
- Can reduce energy, labor and equipment requirements.
- Practice has the potential to improve livestock health.

DISADVANTAGES TO FARM

- Requires a high degree of management skills.
- May be necessary to install stabilized stream crossing and alternative water supplies to provide livestock access to all grazed forage resources while protecting riparian areas and waterbodies.
- Requires a fencing system to subdivide existing pastures.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Some factors which will influence cost include:

- the number and type of livestock;
- system design, including the number and size of paddocks;
- the need for and design of watering facilities;
- pasture improvement needs such as seeding, lime, fertilizer, and pest management; laneway and stream crossing needs; and
- the amount and condition of existing fence.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- Soil analysis on at least a 3-year rotation to determine pH and fertility needs.
- Periodic forage analyses from actual pasture samples should be done about 3 times throughout the growing season.
- Excess forage growth (spring flush) must be captured either by mechanically harvesting or allowing another livestock group to graze it.
- Paddocks must be rotated according to forage growth stage.
- Basic maintenance as needed to fences, laneways, crossings, and watering stations.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

Stream crossing or disturbance of stream banks may require a permit.

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NRCS Name	Standard #	Reportable Item	Date	Life Span
Prescribed Grazing	528	Acre	May 2018	1
Pasture and Hay Planting	512	Acre	March 2022	5
Forage Harvest Management	511	Acre	September 2021	1
Fence	382	Feet	October 2022	20
Field Border	386	Acre	October 2017	10
Trails and Walkways	575	Feet	September 2021	10
Watering Facility	614	Number	March 2021	10
Livestock Pipeline	516	Feet	March 2021	20
Pumping Plant	533	Number	October 2022	15
Structure for Water Control	587	Number	March 2019	20
Water Well	642	Number	March 2021	20
Spring Development	574	Number	September 2021	20

Pond	378	Number	May 2018	20
Access Road	560	Feet	March 2021	10
Access Control	472	Acre	April 2019	10
Grazing Land Mechanical Treatment	548	Acre	May 2011	1
Brush Management	314	Acre	March 2018	10
Herbaceous Weed Treatment	315	Acre	April 2021	5
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Stream Crossing	578	Number	January 2023	10
Subsurface Drain	606	Feet	May 2020	20
Underground Outlet	620	Feet	September 2021	20

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Pasture Management AEM Tier 2 Worksheet and Information Sheet

Process Wash Water Management System

DEFINITION
A System designed for the collection, storage, treatment and disposal of effluents from processes on farms that include milking centers, horse washing, egg washing, vegetable washing and fruit washing. They may contain milk solids, nutrients, liniments, organic matter and soil along with detergents, acid rinses and sanitizer, all mixed with a quantity of water. This System is not applicable for wash water containing manure and other animal waste or for wash water from commercial processing like cheese production or vegetable or fruit processing (like vineyard waste).

WATER QUALITY PURPOSE
To reduce the organic and nutrient component of the liquid waste from regular processes on a farm, into receiving waters.

POLLUTANT CONTROLLED
Primarily biodegradable organics and soluble phosphorous. Secondary pollutants include ammonia, nitrates, or pathogens.

WHERE USED
On operations where water is used to assist in the on-farm processing or clean-up of organic materials in areas such as milking centers, horse barns, egg farms or produce washing facilities that are not part of a value-added operations (such as cheese or wine making, commercial processing, etc.) or that require a NYS SPEDES Permit or are deemed to be a point source of pollution.

SYSTEM DESCRIPTION
The System is composed of an area where water is used to either clean up the barn or facility or is used to clean the animals or products. The wastewater is collected and then treated by a combination of tanks for settling of materials, transfer to proper waste storage structures, daily or periodic spreading or treatment by the use of vegetative measures or a combination there of.

SYSTEM EFFECTIVENESS
These Systems can be very effective in the removal of organic material including milk solids, soil, nutrients and some chemicals when properly installed and maintained on a regular basis or incorporated into a waste management system and land applied in accordance with a Nutrient Management Plan.

IMPACTS ON SURFACE WATER
Beneficial - Reduces phosphorous, fecal coliform and organics loading.

IMPACTS ON GROUND WATER
Beneficial if sited properly and care is given to avoid areas of shallow bedrock or groundwater.

IMPACTS ON OTHER RESOURCES

<u>Soil</u>: Beneficial by adding nutrients when applied in accordance with a Nutrient Management Plan.
<u>Air</u>: Negative if system is not operated or managed properly.
<u>Plants</u>: Beneficial.
<u>Animals</u>: Neutral.
<u>Human</u>: Beneficial as system protect water quality.

Energy: Negative to Beneficial depending on the system designed and its additional energy use or energy saving.

ADVANTAGES TO FARM

- Can be treated separately and does not need to add additional water to manure system.
- Can be made to perform with gravity and be relatively management free.
- Can be relatively inexpensive.

DISADVANTAGES TO FARM

- Some systems need high level of management to perform correctly.
- May require additional pumps and tanks that require clean-out and maintenance on a regular basis.
- Can be expensive if major modification to the existing infrastructure is required.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Cost can run from $3,000 to $45,000 depending on the complexity of the system and the material to be treated.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- Tanks installed in the system for settling of solids, collection of milk fats, etc. need to be emptied on a regular basis.
- Pumps need to be monitored, maintained and or replaced.
- Vegetated treatments need to be mowed and material removed.
- Flocculation systems need to be emptied and maintained.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

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Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Vegetated Treatment Area	635	Acres	February 2017	10
Waste Separation Facility	632	Number	October 2022	15
Waste Transfer	634	Number	October 2022	15
Pumping Plant	533	Number	October 2022	15
Waste Storage Facility	313	Number	March 2018	15
Structure for Water Control	587	Number	March 2019	20
Subsurface Drain	606	Feet	May 2020	20
Heavy Use Area Protection	561	Sq. Feet	September 2021	10

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Process Wash Water AEM Tier 2 Worksheet and Information Sheet

Riparian Buffer System

DEFINITION
An area of grasses, sedges, rushes, ferns, legumes, forbs, shrubs, or trees tolerant of intermittent flooding or saturated soils located adjacent to and up-gradient from waterbodies.

WATER QUALITY PURPOSE
To intercept surface runoff, subsurface flow and shallow groundwater flow from agricultural sources in order to reduce excess amounts of pollutants. Systems can be used to create shade to lower or maintain surface water temperature, and to reduce pesticide drift from entering a waterbody.

POLLUTANT CONTROLLED
Sediment, nutrients, pesticides, biochemical oxygen demand (BOD), or thermal modification.

WHERE USED
This System can be applied to agricultural lands adjacent to permanent or intermittent waterbodies where a resource concern has been identified. This System is not applied to stabilize stream banks or shorelines, as a standalone System; this System and Component BMPs may be used in conjunction with the Stream Corridor and Shoreline Management System to aid in the stabilization of stream banks or shorelines.

SYSTEM DESCRIPTION
A Riparian Buffer System consists of an area containing a variety of vegetation situated between agricultural lands and waterbodies that are designed to filter surface runoff and shallow groundwater by encouraging sheet flow and infiltration and impede concentrated flow. The type and extent of vegetation is suited to the soil and hydrology of the site and for the water quality purpose. Up to three distinct zones may be employed to achieve desired results. In all cases livestock must be excluded or controlled. Appropriate site preparation is essential to establishing desired vegetation, and practices that promote the vigor and reproduction of desired plant species, including pest management, may be employed. In addition, excessive sheet-rill and concentrated flow erosion may need to be controlled in the areas immediately adjacent and up-gradient of the buffer area.

SYSTEM EFFECTIVENESS
A Riparian Buffer System will be most effective when used as a component of an overall conservation system including nutrient management, pest management, and runoff, sediment and erosion control practices. The filtering effects of riparian buffers are most effective when used in conjunction with erosion reducing management practices. Riparian buffers can be very effective for sediment and sediment-bound pollutant removal with trapping efficiencies exceeding 50%. Riparian buffers are less effective at removing soluble phosphorous or nitrates.

IMPACTS ON SURFACE WATER
Beneficial – this System does not generally address pollutants at the source (thermal modification is an exception), but “polishes” surface runoff by removing additional amounts of pollutants such as sediment, soil attached nutrients, and organic matter.

IMPACTS ON GROUND WATER
Neutral – It may be beneficial in areas where groundwater is recharged directly from surface waterbodies or there is a direct surface connection to groundwater.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Neutral.
Air: Beneficial by increasing carbon storage in plant biomass and soils.
Plants: Neutral.
Animals: Beneficial by improving riparian habitat and potentially providing a source of detritus and large woody debris. Provides food and cover for fish, wildlife, and livestock. Establish and maintain habitat corridors. Enhance pollen, nectar, and nesting habitat for pollinators. Improves overall surface water quality.
Human: Increase water storage on flood plains potentially reducing flood impacts.
Energy: Neutral.

ADVANTAGES TO FARM

- Provides a low cost, cost-effective approach to treat agricultural runoff.
- Restore, improve, or maintain riparian plant communities.
- May provide a buffer for cropland and farm infrastructure from flood damage.

DISADVANTAGES TO FARM

- May take cropland and pasture out of production.
- Requires a large land area.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Factors impacting costs may include buffer length, width, types of vegetation, and the need for associated practices to exclude livestock or maintain sheet flow.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized to the situation. The following are generally key components to the operation and maintenance of the system:

- Inspections conducted annually and immediately following severe storms for evidence of sediment deposit, erosion, or concentrated flow channels.
- Avoid use of fertilizers, pesticides, other chemicals, vehicular traffic or disturbance of vegetation and litter inconsistent with erosion control and buffering objectives.
- Portions of the buffer may need to be periodically mowed and the clippings removed to promote dense vegetative growth and removal of nutrients.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

Some activities may require stream disturbance or wetlands permits.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.

Use the drop box in the left side to reach Section 4 – Practice Standards and Supporting Documents, click on the folder for Conservation Practice Standards & Support Documents and locate the appropriate practice. Under each practice, you will find, at the minimum, the practice standard. You may also find: a Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span
Riparian Forest Buffer	391	Acre	September 2021	15
Riparian Herbaceous Cover	390	Acre	May 2011	5
Tree/Shrub Establishment	612	Acre	April 2017	15
Tree/Shrub Site Preparation	490	Acre	September 2021	1
Conservation Cover	327	Acre	July 2019	5
Critical Area Planting	342	Acre	October 2017	10
Stream Crossing	578	Number	January 2023	10
Access Control	472	Acre	April 2019	10
Access Road	560	Feet	March 2021	10
Trails & Walkways	575	Feet	September 2021	10
Brush Management	314	Acre	March 2018	10
Fence	382	Feet	October 2022	20
Filter Strip	393	Acre	October 2017	10
Pasture and Hay Planting	512	Acre	March 22	5
Grassed Waterway	412	Acre	September 2021	10
Herbaceous Weed Treatment	315	Acre	April 2021	5
Pest Management Conservation System	595	Acre	September 2020	1
Structure for Water Control	587	Number	March 2019	20
Lined Waterway or Outlet	468	Feet	September 2021	15

Water & Sediment Control Basin	638	Number	March 2019	10

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Stream and Floodplain Management AEM Tier 2 Worksheet and Information Sheet

Short-Term Waste Collection and Transfer System

DEFINITION
A System designed for the collection, transfer, and short-term storage for up to 60 days of generated or imported agricultural materials, including manure, by-products, process wastewater, or organic material being utilized as a land applied nutrient source or amendment rather than animal feed or bedding.

Waste is a Natural Resources Conservation Service - Conservation Practice Standard term used in reference to manure, agricultural by-products, wastewater, and contaminated runoff from agricultural production or processing.

WATER QUALITY PURPOSE
To reduce surface and subsurface loss of nutrients from concentrated livestock areas, manure, or other agricultural materials.

POLLUTANT CONTROLLED
Nutrients, pathogens, or organics.

WHERE USED
This Agricultural BMP System is designed, aligned, and intended to serve both Animal Feeding Operations (AFOs), such as a smaller dairy, beef, horse, sheep, and goat farms, as well as crop farms. Concentrated Animal Feeding Operation (CAFO)-permitted farms are directed to plan and implement NRCS CPS Waste Transfer (634) or NRCS CPS Waste Storage Facility (313) using the Waste Storage and Transfer System.

The System, described above, is appropriate for all situations on farms where agricultural materials, such as manure, by-products, process wastewater, or organic material are currently managed such that a resource concern has been identified; and where the proper collection, transfer, and short-term storage of materials is recommended to address resource concerns and improve nutrient utilization.

The purpose of this System is to aid daily spread farms (or farms receiving imported agricultural materials) in addressing primarily farmstead nutrient management resource concerns, as well as improving application flexibility to fields and pastures, given factors such as weather, seasonal workload, crop management timing, or field conditions. Properly collecting, transferring, and storing agricultural materials around farmstead facilities will protect adjacent resources, as well as organize and efficiently support manure transfer and targeted field applications. Due to the short-term storage duration, the System requires regular monitoring of manure or material amounts in the storage and applications to fields based on the Farm's Nutrient Management Plan.

This System is not used to contain and facilitate an aerobic microbial ecosystem for the decomposition of manure, other organic material, or both. Thus, NRCS CPS Composting Facility (317) is not an allowable BMP in a Short-Term Waste Collection and Transfer System, because the limited duration does not effectively support biological processes necessary for proper composting.

This System may be utilized to address resource concerns associated with <u>existing</u> barns, bedded pack facilities, and heavy use areas. The Waste Storage and Transfer System would be appropriate if a new or future bedded pack / composted bedded pack system is planned and necessary to treat the resource concerns.

SYSTEM DESCRIPTION

The System may be composed of multiple component practices that collect agricultural materials and effectively transfer materials to application equipment or to a structural NRCS CPS Waste Storage Facility (313). System design is dependent upon the farm, site location and management considerations.

Systems may address one or multiple manure sources or imported agricultural materials and their existing transfer areas; collection of multiple sources to one appropriately planned NRCS CPS Waste Storage Facility (313) or multiple Waste Storage Facilities per each source is allowed.

Depending on the existing agricultural material's consistency (i.e., solid, semi-solid, liquid), consider the implications of storing waste, environmental inputs (precipitation), or combining variable waste streams of different consistency. System design will depend upon the existing manure handling equipment or will include provisions for procuring alternative equipment (e.g., solid vs. liquid manure spreader).

NRCS CPS Roofs and Covers (367) is required to exclude clean water and maintain appropriate manure moisture content for solid / semi-solid NRCS CPS Waste Storage Facilities (313). Excessive moisture will increase the potential for air emissions of volatile organic compounds, ammonia, and nitrous oxide, and may lead to anaerobic conditions, which will increase the potential for emissions of methane and hydrogen sulfide.

NRCS CPS Roofs and Covers (367) is not required for liquid NRCS CPS Waste Storage Facilities (313).

Consider a minimum storage duration capacity of 30 days of agricultural materials. Systems designed to manage materials below the minimum storage duration capacity may become overwhelmed easily, possibly resulting in resource concerns at the transfer or storage areas.

Future planning considerations: compatibility with future, longer-duration Waste Storage and Transfer Systems should be considered when siting and sizing Short-Term Waste Collection and Transfer Systems.

To both address the farmstead resource concerns and properly recycle nutrients on fields and pastures, Short-Term Waste Collection and Transfer Systems proposed for NYS SWCC Funding Programs shall have one of the following plan types completed before submitting the project for program application and a complete system meeting all NRCS Standards must result:

- *AEM Tier 3A Farmstead + Nutrient Management-Core Plan combination or*
    - *Requires a Certified Crop Adviser*
    - *See details below regarding use of <u>The NYS Soil and Water Conservation Committee Short-Term Waste Collection and Transfer System Modified NRCS CPS Waste Storage Facility (313) Policy</u>*
- *AEM Tier 3A Farmstead + Full 590 Nutrient Management Plan combination or*
    - *Requires an AEM Certified Planner*
- *CNMP*
    - *Requires an AEM Certified Planner*

This Policy does not require a Comprehensive Nutrient Management Plan (CNMP) for the planning and implementation of NRCS CPS Waste Storage Facilities (313) included in this BMP System with a storage duration less than 60 days of farm generated or imported agricultural materials.

NRCS CPS Waste Storage Facilities (313) planned and designed without a Full NRCS CPS Nutrient Management Plan (590) or a Comprehensive Nutrient Management Plan would not meet all requirements of the (313) Standard and would not be eligible for Federal Cost-Share Programs.

SYSTEM EFFECTIVENESS

NRCS CPS Waste Transfer (634) is effective in reducing losses from agricultural materials (especially where runoff potential or leaching potential risk is high) by properly collecting, controlling, and conveying materials around farmstead facilities to either manure application equipment or a NRCS CPS Waste Storage Facility (313)

NRCS CPS Waste Transfer (634) paired with a short-term NRCS CPS Waste Storage Facilities (313) is also effective in reducing loss of nutrients and pathogens by safely storing agricultural materials during critical runoff periods and applying materials and nutrients under the guidelines of the Farm's Nutrient Management Plan.

IMPACTS ON SURFACE WATER

Beneficial when agricultural materials and nutrients are applied in accordance with a Nutrient Management Plan and NRCS CPS Waste Transfers (634) and NRCS CPS Waste Storage Facilities (313) are designed and operated according to the Plan.

IMPACTS ON GROUND WATER

Beneficial as agricultural materials will be better controlled at the farmstead.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial as agricultural materials can replenish organic material and matter in the soil and improve soil health.

Air: Negative or beneficial. When agricultural materials, such as manure and wastes, is stored and applied at certain times of the year, odor issues increase for that time period unless the material is applied and incorporated or injected. Conversely, by storing waste, odors are not created when spreading daily. Greenhouse gas emissions may be the same or a modest increase relative to the management without a Short-Term Waste Collection and Transfer System, but can be mitigated with practices that maintain manure in a dryer, largely aerobic state (methane); limit the time manure is in storage (methane), especially during months with higher ambient temperatures; and apply manure for improved nitrogen use by crops (nitrous oxide).

Plants: Beneficial as nutrients may be applied based on agronomic guidelines within the Nutrient Management Plan.

Animals: Beneficial as improved nutrient management on cropland can improve habitat (especially aquatic).

Human: Beneficial as system protects water quality while also improving farm aesthetics, management, and crop production.

Energy: Beneficial depending on the system designed and its additional energy use or energy saving.

ADVANTAGES TO FARM

- Allows the farm to effectively collect and transfer agricultural materials around the farmstead.
- Allows livestock manure and other waste to be treated as a valuable nutrient resource rather than a waste.
- May reduce cost for purchased commercial fertilizer.
- May avoid or eliminate the need for daily spreading and allow for strategic and efficient spreading activities and targeted manure applications based on the Nutrient Management Plan.

- Can improve aesthetics and relations with neighbors if managed properly.
- Helps to reduce nutrient loss when runoff and erosion potential is high.

DISADVANTAGES TO FARM

- Can be expensive to implement and operate the System based on site constraints and existing infrastructure.
- Requires increased level of management and labor especially during times of application.
- May require additional equipment or expensive operation and maintenance procedures.
- May result in significant nutrient loss if emptied when surface runoff and erosion potential is high.
- May cause damage to streams and fish if storage structure leaks or fails.

SYSTEM LIFESPAN

Ten (10) years.

COST

Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost.

OPERATION AND MAINTENANCE

Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the System:

- A written plan should be prepared for each system designed, including regular removal of manure or material from the System and application to fields or pastures according to a Nutrient Management Plan.
- Accurate records of timing of manure or material application and location need to be kept.
- Storages must be fenced or walled, and warning signs maintained.
- Pumps need to be regularly checked and maintained.
- Safety measures need to be kept up to date.
- Other items need to be addressed based on specific system requirements.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.
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Statement of Work; Practice Overview; Implementation Requirement; Conservation Practice Effects Network Diagram; and other document that will assist in the planning, installation, or operation of the practice.

NRCS Name	Standard #	Reportable Item	Date	Life Span**
Waste Storage Facility	313	Number	March 2018	15 years
NYS SWCC Short-Term Waste Collection and Transfer System Modified NRCS CPS Waste Storage Facility (313) Policy ***	313	Number	March 2018 (NRCS) – October 2022 NYS SWCC Program Policy	15 Years
Waste Transfer	634	Number	October 2022	15 Years
Waste Separation Facility	632	Number	October 2022	15 Years
Waste Treatment	629	Number	October 2013	10 Years
Waste Facility Closure	360	Number	May 2020	15 Year
Nutrient Management	590	Acre	September 2020	1 year
Pumping Plant	533	Number	October 2022	15 Years
Roofs and Covers	367	Number	October 2016	10 Years
Subsurface Drain	606	Feet	May 2020	20 Years
Access Control	472	Acre	April 2019	10 Years
Access Road	560	Feet	March 2021	10 Years
Diversion	362	Feet	May 2017	10 Years
Fence	382	Feet	October 2022	20 Years
Heavy Use Area Protection	561	Sq. Feet	October 2021	10 Years
Hedgerow Planting	422	Feet	May 2011	15 Years
Pond Sealing or Lining – Geomembrane or Geosynthetic Clay Liner	521	Sq. Feet	March 2019	20 Years

Pond Sealing or Lining – Compacted Soil Treatment	520	Sq. Feet	May 2017	15 Years
Pond Sealing or Lining – Concrete	522	Sq. Feet	May 2017	20 Years

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

***The NYS Soil and Water Conservation Committee Short-Term Waste Collection and Transfer System Modified NRCS CPS Waste Storage Facility (313) Policy should be utilized by Professional Engineers when designing and certifying NRCS CPS Waste Storage Facilities (313) that are planned, supported, and operated as part of the Short-Term Waste Collection and Transfer System from a combination of NYS AEM Tier 3A Farmstead and Nutrient Management-Core Plans. These NRCS CPS Waste Storage Facilities (313) are eligible for funding from NYS SWCC Cost-Share Programs, but not Federal Cost-Share Programs.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Manure and Fertilizer Storage AEM Tier 2 Worksheet and Information Sheets
- Nutrient Management: Manure and Fertilizer AEM Tier 2 Worksheet and Information Sheets
- Greenhouse Gas Mitigation Opportunities AEM Tier 2 Worksheets and Information Sheets
- 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories
- The NYS Soil and Water Conservation Committee Short-Term Waste Collection and Transfer System Modified NRCS CPS Waste Storage Facility (313) Policy

Silage Leachate Control and Treatment System

DEFINITION
A System designed to reduce the generation of silage leachate and for the collection, storage, treatment and disposal of effluents and runoff from the storage of silage crops from upright and bunk silos, as well as silage storage bags.

WATER QUALITY PURPOSE
To manage silage leachate to reduce surface and ground water biochemical oxygen demand (BOD) loading as well as nutrient loading.

POLLUTANT CONTROLLED
Nutrients, sediment, organic loading or biochemical oxygen demand (BOD).

WHERE USED
In situations where the storage of silage and haylage can yield effluent and runoff which can enter either a surface water body or ground water and a resource concern has been identified. This practice can be used in barnyards, farmsteads, fields, or other areas where upright silos, bunk silos and silage bagging systems are located.

SYSTEM DESCRIPTION
Silage effluent and runoff control would be composed of a combination of structural and non-structural management practices to control the source of the material or manage the collection and treatment or disposal of it. Source reduction can lessen the amount of low-flow high concentrate leachate produced and can be accomplished with several management techniques including growing the proper variety of corn for the area, harvesting when corn or haylage are at the proper maturity and at the correct moisture content along with proper operation and maintenance of the structure. When source reduction does not eliminate leachate, a system to collect, store or treat the silo effluent and runoff can be installed. If a suitable waste storage is available, the silage leachate can be transferred there. Otherwise, a system to separate low and high flows, collection of low flows and a treatment system such as a Vegetated Treatment Area is required. Relocation of silage storage to an area that is not a resource concern is another option. The System should also include an area for the storage of waste or spoiled feed for later application to crop fields in accordance with a Nutrient Management Plan. Use of covered storage and exclusion of surface water runoff from the storage area will also reduce the overall amount of liquid requiring treatment.

SYSTEM EFFECTIVENESS
Silage leachate exerts a high organic loading on the receiving water and produces a high biochemical oxygen demand (BOD) which will deplete available dissolved oxygen resulting in fish kills, tastes and odors, and a general unaesthetic appearance. The proper management of leachate from silos and other types of storage facilities can significantly reduce these problems. In addition, Silage Leachate Control and Treatment Systems may provide Component BMPs which may greatly reduce or eliminate the degradation of clean water entering the site, stabilize the management area to reduce disturbed ground or access roads (reducing erosion, runoff, and sedimentation), allow better collection and management of waste or spoiled feed, and greatly influence the overall source of potential contaminates by incorporating proper feed harvesting and feed storage practices, as well as end use feed management practices.

IMPACTS ON SURFACE WATER
Beneficial - Reduces organic loading and resultant depletion of dissolved oxygen.

IMPACTS ON GROUND WATER
Beneficial - The oxygen depletion in ground water resulting from organic loading can cause bad odors and tastes which may be sustained for extended periods of time due to very low re-aeration rates.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial when leachate is applied in accordance with a Nutrient Management Plan.
Air: Negative is system is not operated or managed properly.
Plants: Beneficial by eliminating kill zones and correct application rates.
Animals: Beneficial – protects fish from high BOD.
Human: Beneficial as system protects water quality but can be negative if not operated or maintained effectively.
Energy: Negative to Beneficial depending on the system design and its additional energy use or energy saving.

ADVANTAGES TO FARM
- May be corrected by growing a different variety of corn and changing timing of harvest.
- Can be built as a gravity system.
- Can be plumbed into existing waste management system.
- The system design includes an area for waste feed storage for utilization as a nutrient source.

DISADVANTAGES TO FARM
- Can be expensive if separate collection and storage are required.
- Due to amino acid content of silage leachate, collection facilities should be made of corrosion resistant material and land application should be carefully managed to prevent kill-off.
- Require heightened level of management as run-off is precipitation driven and solid separation can require frequent maintenance.

SYSTEM LIFESPAN
Ten (10) years.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Cost can run from $3,000 to $70,000 or more depending on the complexity of the system.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:
- Low flow/high flow separation must be adjusted frequently to ensure capture of adequate low flow.
- Checking solid separation after each rainfall to remove debris.
- Keeping records of where silage leachate is applied to reduce potential over application.
- Periodic inspection and repair of storage facility to assure no leakage through floors and walls.
- Periodic inspection and repair of pipes and other connections to eliminate leakage opportunities.
- Tanks installed must be checked for need for emptying.

- Periodic inspection and repair of roads, heavy use areas, and waste feed management areas.
- Maintain clean water practices associated with the management areas.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.
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NRCS Name	Standard #	Reportable Item	Date	Life Span
Vegetated Treatment Area	635	Acre	February 2017	10
Waste Separation Facility	632	Number	October 2022	15
Waste Transfer	634	Number	October 2022	15
Pumping Plant	533	Number	October 2022	15
Dike	356	Feet	December 2012	20
Diversion	362	Feet	May 2017	10
Subsurface Drain	606	Feet	May 2020	20
Sediment Basin	350	Number	May 2017	20
Structure for Water Control	587	Number	March 2019	20
Heavy Use Area Protection	561	Sq. Feet	September 2021	10
Waste Storage Facility	313	Number	March 2018	15

Sprinkler System	442	Acre	October 2022	15
Irrigation Water Management	449	Acre	October 2022	1
Fence	382	Feet	October 2022	20
Conservation Crop Rotation	328	Acre	October 2015	1

*This is a listing of the primary Component BMPs to use but is not all inclusive and other NRCS Conservation Practice Standards may be utilized. Please check with a SWCC representative for approval.

**NYS Program Lifespans (listed above in Table III) refers to the minimum time period that a program participant must perform Operation and Maintenance of an Agricultural BMP System and the Component BMPs. Alternatively, NRCS CPS Lifespans (as found in the Standards) refer to specific design criteria and defines how long a conservation practice should function under an appropriate level of Operation and Maintenance. To meet NRCS Standards, a conservation practice must be designed to meet the CPS Lifespan, and all materials and installation methods must meet or exceed the NRCS defined Lifespan criteria.

REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Silage Storage AEM Tier 2 Worksheet and Information Sheet

Soil Health System

DEFINITION
Soil Health Systems employ cultural (i.e., non-structural, cultural or management-based) measures such as crop rotation, tillage, mulching, cover cropping, or other practices according to a soil conservation plan to control soil erosion, reduce run-off, and enhance soil health.

WATER QUALITY PURPOSE
To reduce the detachment, transport, and loss of sediment and solid-phase nutrients as well as runoff volumes.

POLLUTANT CONTROLLED
Sediment, nutrients, pathogens, pesticides, or biochemical oxygen demand (BOD).

WHERE USED
Cropland, pasture, vegetable and fruit production, orchards, vineyards, or biomass production areas where a resource concern has been identified.

SYSTEM DESCRIPTION
Soil Health Systems consist of non-structural, management-based practices working in concert to control soil erosion, reduce runoff volumes, enhance soil health, and improve productivity of the land. Such systems advance soil health, water quality, and productivity through a few general approaches, including:

- reducing the intensity of tillage and oxidization of soil organic matter;
- maintaining greater soil cover throughout the year, by living crops or crop residues;
- preventing or slowing sheet and rill flows;
- increasing the diversity of crops grown throughout the rotation; and
- increasing organic matter additions to the soil, by crop residues or amendments.

Individual practices often utilized in soil health systems include:

- residue and tillage management, such as no-till, zone-till, mulch-till, etc.;
- cover crops;
- strip cropping;
- contour planting;
- long term perennial forage or biomass planting on cropland acres;
- mulching;
- etc.

The Soil Health System is based on a well-integrated, Cropland Soil Conservation Plan (or a Soil Conservation Plan within a broader Nutrient Management Plan or Comprehensive Nutrient Management Plan). The Plan is utilized to assess risk of water and wind erosion and other soil health resource concerns and make specific recommendations for how various practices will work together to address those concerns. These recommendations may extend beyond the cultural practices addressed with this System to dovetail with other Agricultural BMP Systems on the farm, including Erosion Control System - Structural, Nutrient Management System - Cultural, Prescribed Rotational Grazing System, etc.

SYSTEM EFFECTIVENESS
A systems approach to soil health provides multiple barriers against soil erosion and water quality degradation while improving soil function. Crop rotation, conservation tillage, cover cropping, strip cropping, organic matter amendments (manure, compost, green manures, mulch, etc.) and other cultural conservation practices help protect soil from erosion by wind and water and help maintain or increase soil organic matter. Soil organic matter improves soil tilth, reduces susceptibility to compaction, increases nutrient and water holding capacity, slows the movement of pesticides through the soil, reduces runoff losses, and protects against erosion. Several tons of soil loss per acre can be avoided annually with these practices, as well as significant improvements in nutrient use efficiency and crop production. Soil and water resources are often further conserved when cultural soil health practices are paired with structural soil conservation systems and nutrient management, per the multiple barrier approach.

IMPACTS ON SURFACE WATER
Beneficial - including reduced losses of sediment, nutrients, pathogens, pesticides, and biochemical oxygen demand (BOD).

IMPACTS ON GROUND WATER
Beneficial in most cases, but may be negative in some soil types with annual crops in long-term no-till because significant macropores may establish and aid the loss of nutrients and pathogens to groundwater or tile drainage systems.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial, as it generally improves soil health and reduces erosion.
Air: Beneficial, as it can reduce dust and fossil fuel combustion used in crop production.
Plants: Beneficial, as it can reduce sediment and nutrient losses and subsequent impacts on neighboring plant communities.
Animals: Beneficial, as it can reduce off-site impacts from sediment, nutrients, pathogens, pesticides, and biochemical oxygen demand (BOD) on terrestrial and aquatic habitats.
Human: Beneficial, as it can further safeguard drinking water sources, improve land and water resources for recreation, reduce maintenance costs on public infrastructure (e.g., road ditches, culverts, reservoirs), and provide economic growth.
Energy: Beneficial, as it can reduce use of farm fuels, energy for fertilizer manufacturing, and transportation fuels for imported fertilizer and feed.

ADVANTAGES TO FARM
- Potential to reduce soil loss, reduce negative effects of extreme weather years on crop production, and improve crop yield and quality.
- Improved labor efficiency and timing for crop management.
- Often a neutral or positive impact on farm profitability.
- Improved neighbor relations.

DISADVANTAGES TO FARM
- Higher level of farm management required may result in increased labor and equipment costs.
- Requires additional time and training to adjust to new management strategies.

SYSTEM LIFESPAN
1 to 5 years depending on components in the soil health system.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Costs depend on several factors, including the size and type of farm, existing level of farm management, availability of equipment, familiarity/availability of custom operators, etc.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. Often annual evaluation and fine tuning of cultural conservation system is required because many component practices are annual practices and can be refined based on prior years' experiences and the current year's conditions.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS
Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

NOTE: a soil conservation plan, alone, does not meet the NYS requirements for CAFOs. A Comprehensive Nutrient Management Plan must be developed for these farms. Compliance with USDA Food Security Act program requirements should be considered.

See the USDA-NRCS Field Office Technical Guide for specific technical details about planning, implementation, and operation and maintenance. Guidance for the AEM Base Program provides details on developing Tier 3A cropland conservation plans. Also, the Cornell Soil Health Program offers technical resources for advancing soil health and productivity.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*
For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.
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NRCS Name	Standard #	Reportable Item	Date	Life Span
Conservation Crop Rotation	328	Acre	October 2015	1
Conservation Cover	327	Acre	July 2019	5
Contour Farming	330	Acre	March 2019	5
Cover Crop	340	Acre	October 2015	1

Pasture and Hay Planting	512	Acre	March 2022	5
Mulching	484	Acre	March 2019	1
Residue and Tillage Management, No-Till	329	Acre	October 2017	1
Residue and Tillage Management, Reduced Till	345	Acre	October 2017	1
Strip Cropping	585	Acre	March 2019	5

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Cornell Soil Health Program: http://soilhealth.cals.cornell.edu/
- Soil Management AEM Tier 2 Worksheet and Information Sheet

Stream Corridor and Shoreline Management System

DEFINITION
A planned System of vegetation, structures, bio-technology, or management techniques to stabilize or protect stream channels, streambanks and shorelines while also enhancing natural hydrologic processes and improving fish and wildlife habitat.

WATER QUALITY PURPOSE
To reduce sediment and nutrients entering waterbodies from eroding channels, streambanks, and shorelines. Systems can be used to maintain, improve, or restore the physical, chemical and biological functions of a stream, constructed channel, or shoreline while also protecting the designated use classification of the waterbody.

POLLUTANT CONTROLLED
Sediment, nutrients, or thermal modification.

WHERE USED
Streambanks, constructed channels, lake shores, estuaries and coastal shorelines on agricultural land.

SYSTEM DESCRIPTION
The System may be composed of a variety of operational, structural, and vegetative Agricultural BMP System and Component BMPs that may be aimed at one specific goal, such as controlling streambank erosion, or at a combination of goals. Component BMPs may be implemented within several areas of the stream corridor and shoreline area (i.e., within the channel, along the banks, or in the immediate riparian zones). Listed below are some of the components that may be utilized in a Stream Corridor and Shoreline Management System:

- Implement management techniques such as removing impeding vegetation along the banks (clearing) or selectively removing woody snags, sediment depositions/drifts, or other obstructions (snagging) that have negative impacts on stream flow and increase either bank or channel erosion.
- Establish vegetation to prevent or reduce erosion along the streambank toe, within adjacent riparian zones, and associated floodplains. Examples include shrubs, trees, grasses, rushes and sedges among other site-specific species; see Critical Area Planting practice as well.
- Install structural improvements such as slope stabilization, filter fabric, riprap, deflectors, sediment fencing, bulkheads, or groin systems.
- Employ biotechnical alternatives such as willow wattles, coir logs or direct seeding.
- Utilize fluvial geomorphology techniques.

SYSTEM EFFECTIVENESS
The effectiveness of a Streambank and Shoreline Management System should be evaluated based on the Component BMPs installed. In general, the System can attenuate the peak flow and bed load of the stream, reduce soil erosion, and decrease sediment and nutrient delivery to waterbodies. The System should not degrade the stream channel beyond tolerable limits, increase or promote new erosion concerns, increase sedimentation, induce gully formations, or disrupt stream habitat, the natural flow regime, and the interaction between the stream and the floodplain.

IMPACTS ON SURFACE WATER
Beneficial - Can control erosion rates and sediment delivery to receiving water bodies. Improving vegetation along a waterbody may decrease thermal modification, thus enhancing the freshwater biome and water quality.

IMPACTS ON GROUND WATER
Neutral - Vegetative cover and some structural practices may increase infiltration.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

<u>Soil</u>: Beneficial by minimizing soil erosion.
<u>Air</u>: Neutral.
<u>Plants</u>: Beneficial by establishing streambank vegetation.
<u>Animal:</u> Beneficial for wildlife corridor establishment and fish habitat.
<u>Human</u>: Beneficial. Increased recreational opportunities, stable fish habitat. Reduction of flood impacts on agricultural lands and civil infrastructure.
<u>Energy</u>: Neutral.

ADVANTAGES TO FARM

- Stops loss of agricultural land.
- Improves fish and wildlife habitat.
- Restores water flow, capacity and direction.
- Improve landscape aesthetics.
- Protects best use of water bodies.
- Improved neighbor relations.

DISADVANTAGES TO FARM

- Cost of structural practices may be substantial.
- Can move problem areas downstream.
- Investment of practices may be lost by severe storm damage.
- Operation and Maintenance program has significant costs of time and money.

SYSTEM LIFESPAN
Ten (10) years.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Costs can vary greatly. For example, bio-technical components can cost as little as $5 per linear foot while structural components could cost in excess of $200 per foot.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:

- Debris should be removed from the stabilized streambank or shoreline.
- Structural practices should be inspected and repaired after storm events.
- Vegetation destroyed by bank failure must be replaced to maintain cover integrity.
- Subsequent planting or establishment of failed vegetation to practice integrity.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

Streambank and shoreline disturbance generally require a DEC and or Army Corp of Engineer permit. Other permits from various agencies may also be required.

NRCS CONSERVATION PRACTICE STANDARDS TO UTILIZE*

For the most current information on each NRCS Conservation Practice Standard, please go to the NY Field Office Technical Guide (FOTG) at https://efotg.sc.egov.usda.gov/#/state/NY/documents.
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NRCS Name	Standard #	Reportable Item	Date	Life Span
Stream Habitat Improvement and Management	395	Acre	September 2020	5
Streambank and Shoreline Protection	580	Feet	September 2021	20
Clearing and Snagging	326	Feet	May 2017	5
Critical Area Planting	342	Acre	October 2017	10
Obstruction Removal	500	Number	September 2021	10
Open Channel	582	Feet	October 2016	15
Stream Crossing	578	Number	January 2023	10
Riparian Forest Buffer	391	Acre	September 2021	15
Riparian Herbaceous Cover	390	Acre	May 2011	5
Tree/Shrub Establishment	612	Acre	April 2017	15

Tree/Shrub Site Preparation	490	Acre	September 2021	1
Access Control	472	Acre	April 2019	10

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Stream and Floodplain Management AEM Tier 2 Worksheet and Information Sheet

Waste Storage and Transfer System

DEFINITION
A System designed for the collection, transfer, or storage of agricultural livestock and recognizable process waste.

WATER QUALITY PURPOSE
To reduce surface and subsurface loss of nutrients.

POLLUTANT CONTROLLED
Nutrients, pathogens, or organics.

WHERE USED
In situations where the collection, transfer, or storage of manure or other organic waste is recommended to address water quality concerns and improve a farm's ability to apply nutrients with the right timing, placement, method, and rate for recycling by crops. This includes scenarios where storage addresses seasonal limitations for manure application due to lack of suitable crop and hayland to safely apply during adverse weather or field conditions. It may also include Systems to better collect manure and other organic wastes for application to fields, without significant (if any) storage component. This System can be used whenever waste is transferred or stored and includes manure, milking center waste, process wastewater, silage leachate, barnyard run-off, etc. These Systems may also include the use of bedded pack or composting bedded pack barns.

SYSTEM DESCRIPTION
The System is composed of multiple Component BMPs that collect agricultural waste and transport it to a structural storage facility. System design is dependent upon agricultural operation, site location and management considerations. A Waste Storage and Transfer System controls the loss of nutrients and pathogens by safely storing waste during critical runoff and leaching periods. It can include the use of storage covers to trap greenhouse gases or to limit rainfall contribution to spreading volumes.

(NOTE: Prior to adoption of a Waste Storage and Transfer System, a Comprehensive Nutrient Management Plan needs to be developed.)

SYSTEM EFFECTIVENESS
Storing waste is effective in reducing losses of nitrogen and phosphorus when surface runoff and erosion potential is high. Storages can reduce pathogen loads through die-off during storage and when applied to soil and incorporated. Significant nutrient loss and water quality degradation may result if the storage is emptied when surface runoff, leaching or erosion potential is high, or waste is applied at non-agronomically recommended rates. A Comprehensive Nutrient Management Plan is an important component of this practice.

IMPACTS ON SURFACE WATER
Beneficial when waste is applied in accordance with a Comprehensive Nutrient Management Plan and transfers are designed and operated according to the Plan.

IMPACTS ON GROUND WATER
Beneficial as applications of waste can be timed to coincide with plant uptake and not during times of nutrient loss to groundwater. However, care must be taken in site selection and construction of storage facilities.

IMPACTS ON OTHER RESOURCES (OFF-SITE)

Soil: Beneficial as organic waste can replenish organic matter in the soil and improve soil health.
Air: Negative or beneficial. When waste is stored and applied at certain times of the year, odor issues increase for that time period unless incorporation of waste is utilized. But conversely, by storing waste, odors are not created when daily spread. Covers trap greenhouse gases and collect them for flaring or use.
Plants: Beneficial as nutrients can be applied during times of plant uptake.
Animals: Beneficial as improved nutrient management on cropland can improve habitat (especially aquatic).
Human: Beneficial as system protect water quality.
Energy: Beneficial depending on the system designed and its additional energy use or energy saving.

ADVANTAGES TO FARM
- Allows for spreading at certain times of the year and eliminated the need for daily spreading.
- Allows for semi-solid or liquid manure which lends itself to gravity systems.
- Can allow for irrigation of waste.
- Allows livestock manure and other waste to be treated as a resource rather than a waste.
- Reduces cost for purchased commercial fertilizer.
- Can improve aesthetics and relations with neighbors if managed properly.
- Helps to reduce nutrient loss when runoff and erosion potential is high.

DISADVANTAGES TO FARM
- Can be expensive if soils are not suitable and liners or other materials need to be utilized.
- Require increased level of management and manpower especially during times of application.
- Requires increased management and energy when sand is used for bedding.
- Requires frequent maintenance.
- May result in significant nutrient loss if emptied when surface runoff and erosion potential is high.
- May cause serious damage to streams and fish if storage structure leaks or fail.

SYSTEM LIFESPAN
Ten (10) years.

COST
Each Agricultural BMP System is unique and must be customized to the situation in which it is employed resulting in a wide and variable range in cost. Cost can run from $30,000 to $400,000 or more depending on the complexity of the system.

OPERATION AND MAINTENANCE
Each Agricultural BMP System is unique and must be customized for every situation. The following are generally key components to the operation and maintenance of the system:
- A written plan should be prepared for each system designed.
- Accurate records of timing of manure application and location need to be kept.
- Storages must be fenced, and warning signs maintained.

- Earthen storages require mowing several times a year to keep the growth of woody vegetation down and to be able to scout for rodent damage of the dike.
- Settled solids need to be removed on a regular basis increasing frequency with use of inorganics like sand bedding.
- Pumps need to be regularly checked and maintained.
- Safety measures need to be kept up to date.
- Other items need to be addressed based on specific system requirements.

See the documents in Section 4 of the NRCS Field Office Technical Guide (FOTG) under the specific conservation practice standard being utilized for additional information on operation and maintenance needs.

MISCELLANEOUS COMMENTS

Agricultural BMP Systems and associated component practices that will eliminate or provide effective treatment of one or more resource concerns may be eligible for cost-share funding. Compliance with Federal, State, and local laws should be adhered to including the potential need for construction stormwater permits, plans, and practices; other permits; as well as contacting Underground Utilities Protection before excavation, SHPO, and others as applicable. Livestock farms that have been designated as a CAFO are required to comply with CAFO regulations.

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NRCS Name	Standard #	Reportable Item	Date	Life Span
Waste Storage Facility	313	Number	March 2018	15 years
Waste Transfer	634	Number	October 2022	15 Years
Waste Separation Facility	632	Number	October 2022	15 Years
Waste Treatment	629	Number	October 2013	10 years
Waste Facility Closure	360	Number	May 2020	15 Year
Nutrient Management	590	Acre	September 2020	1 year
Pumping Plant	533	Number	October 2022	15 Years
Roofs and Covers	367	Number	October 2016	10 Years
Subsurface Drain	606	Feet	May 2020	20 Years

Access Control	472	Acre	April 2019	10 Years
Access Road	560	Feet	March 2021	10 Years
Composting Facility	317	Number	September 2021	15 Years
Diversion	362	Feet	May 2017	10 Years
Fence	382	Feet	October 2022	20 Years
Heavy Use Area Protection	561	Sq. Feet	September 2021	10 Years
Hedgerow Planting	422	Feet	May 2011	15 Years
Pond Sealing or Lining – Geomembrane or Geosynthetic Clay Liner	521	Sq. Feet	March 2019	20 Years
Pond Sealing or Lining – Compacted Soil Treatment	520	Sq. Feet	May 2017	15 Years
Pond Sealing or Lining – Concrete	522	Sq. Feet	May 2017	20 Years

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REFERENCES

- USDA NRCS FOTG for NY: https://efotg.sc.egov.usda.gov/#/state/NY/documents
- Manure and Fertilizer Storage AEM Tier 2 Worksheet and Information Sheet
- Nutrient Management: Manure and Fertilizer AEM Tier 2 Worksheet and Information Sheet