Barnyard Runoff Control and Loafing Lot Management

"IS THE INFORMATION PRESENTED COMPELLING ENOUGH TO EXTEND THE CREDIT DURATION FROM 10 TO 15 YEARS?"

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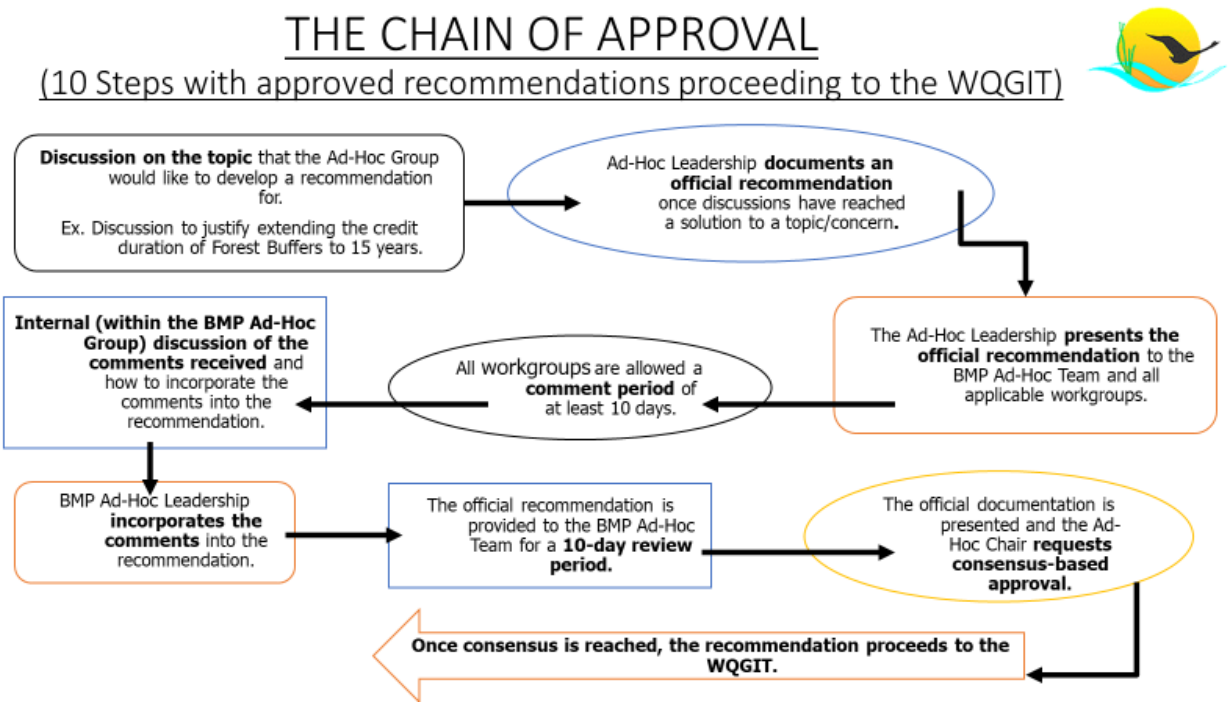
Table of Contents

WHERE ARE WE ON THE CHAIN OF APPROVAL FLOWCHART?



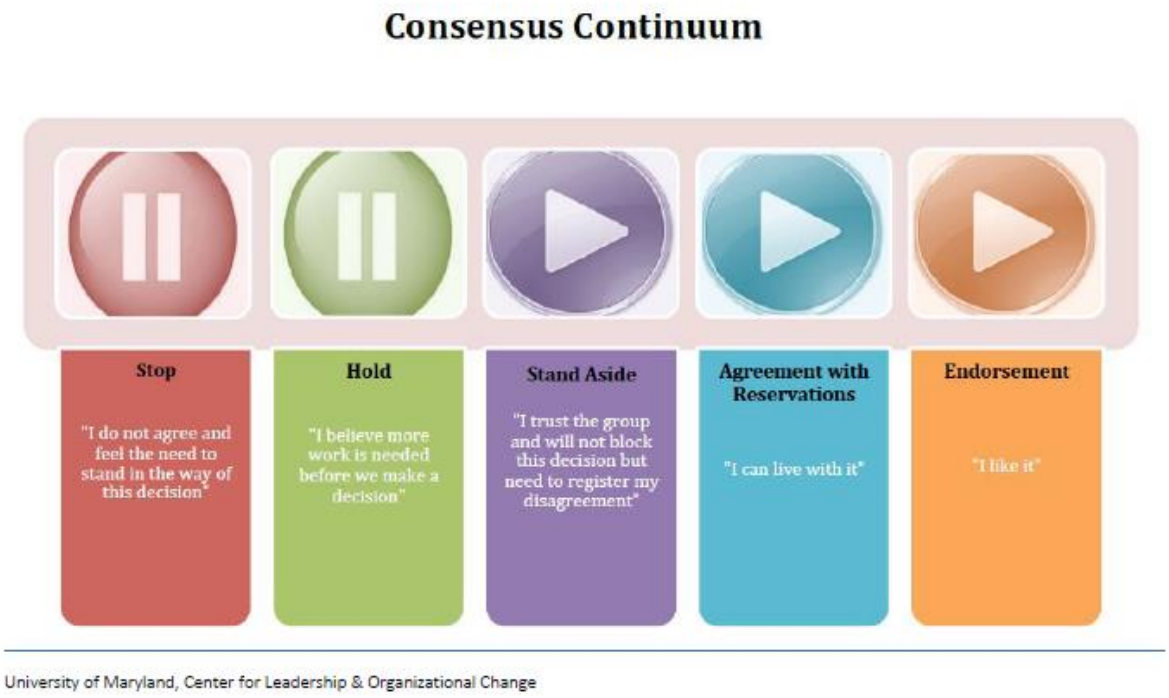
Due to the difference of opinion within the group and the inability to draft an official recommendation to present to source sector workgroups for comment, we are currently at the "Ad-Hoc Leadership documents an official recommendation once discussions have reached a solution to a topic/concern" stage in the above diagram. We are seeking a decision at this stage due to the inability to draft a formal recommendation.

CONSENSUS BASED APPROVAL

The consensus continuum (defined below) will be used as the vehicle for decision making in this group.

The question this group is seeking a vote on is:

Is the information presented compelling enough to modify the previous consensus decision, thereby extending the credit duration from 10 to 15 years?



Stances in the consensus continuum:

1) Stop
2) Hold
3) Stand Aside
4) Agreement with Reservations
5) Endorsements

Why consensus?

The CBP Partnership has decided and established via the Governance Document, to make decisions, set policy, and take action as much as possible by consensus. The Management Board, Principals' Staff Committee, and the Executive Council are the only decision-making body to utilize the supermajority vote.

Operating by consensus intentionally sets a very high bar for decision-making and, by default, an equally high bar for reversing or modifying those decisions. The intention behind this supports that decisions made by consensus cannot be subsequently modified without consensus. Therefore, a consensus decision can only be reversed or modified by a subsequent consensus decision.

The purpose of consensus is to ensure that any new idea/recommendation/proposal is supported by the full strength of the partnership.

Who is responsible for providing rationale to change or modify a consensus decision?

The party seeking to modify a previous consensus decision is responsible for providing rationale for a requested change, reversal, or modification. Consensus decisions remain as the "default" until changed by a subsequent consensus decision. Past consensus decisions stand until changed by consensus. Past consensus decisions do not need to be reaffirmed by consensus.

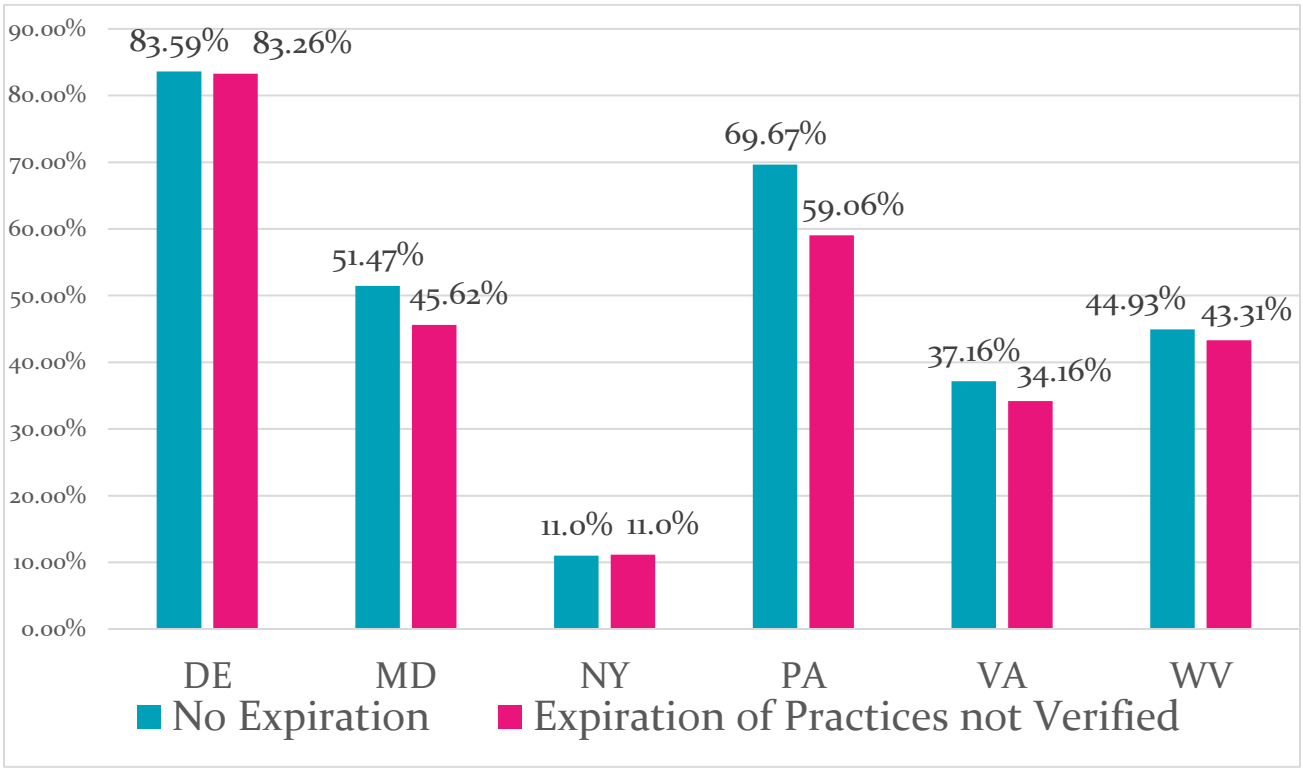
What happens if consensus is not achieved in our group?

If consensus is not achieved on a decision or recommendation in our group, there are three options: 1) The suggested route is to work to find a solution as a group and strive for consensus again based on the solution, 2) Table the issue until more information becomes available, or 3) Elevate the issue to the WQGIT. As with all other decisions, which of these three options is followed will be based on consensus.

IMPACT OF NOT VERIFYING PRACTICES ON BMP PERCENT IMPLEMENTATION

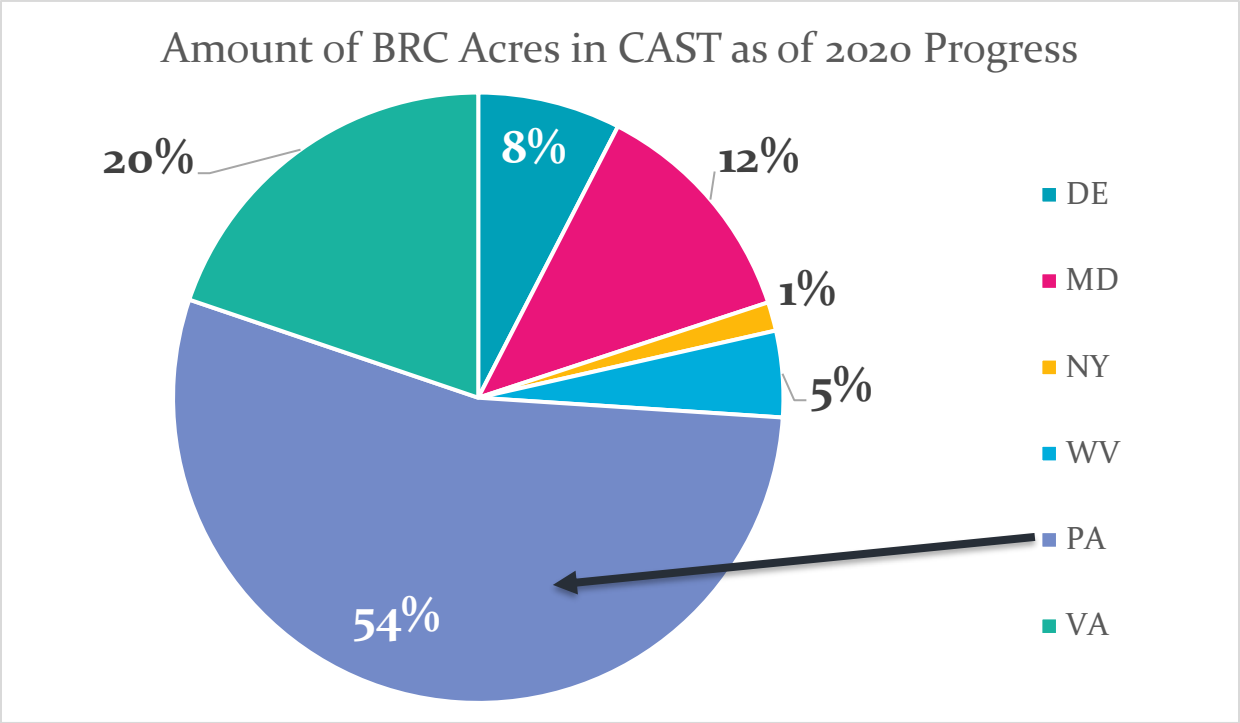
The graph below shows the **average implementation level of both Barnyard Runoff Control and Loafing Lot Management practices from 2011 to 2020.** The percent implementation corresponds to the amount of practices placed on the land available to those practices. An implementation level (percent) of 100% means that the maximum amount of BMPs available to that land use have been assigned to that land use or there is full coverage of the load source. Every landowner has maximized implementation on every acre of barnyard and loafing lot. Once 100% implementation has been reached, additional implementation to that land use is not possible.

When looking at this graph, it is important to keep in mind that each state has different data sources. Some states receive data from Soil and Water Conservation Districts, while others from NRCS via USGS (among other data sources). The anonymity in certain data sources, i.e. not knowing the point location, may lead to lower implementation rates due to credit duration.

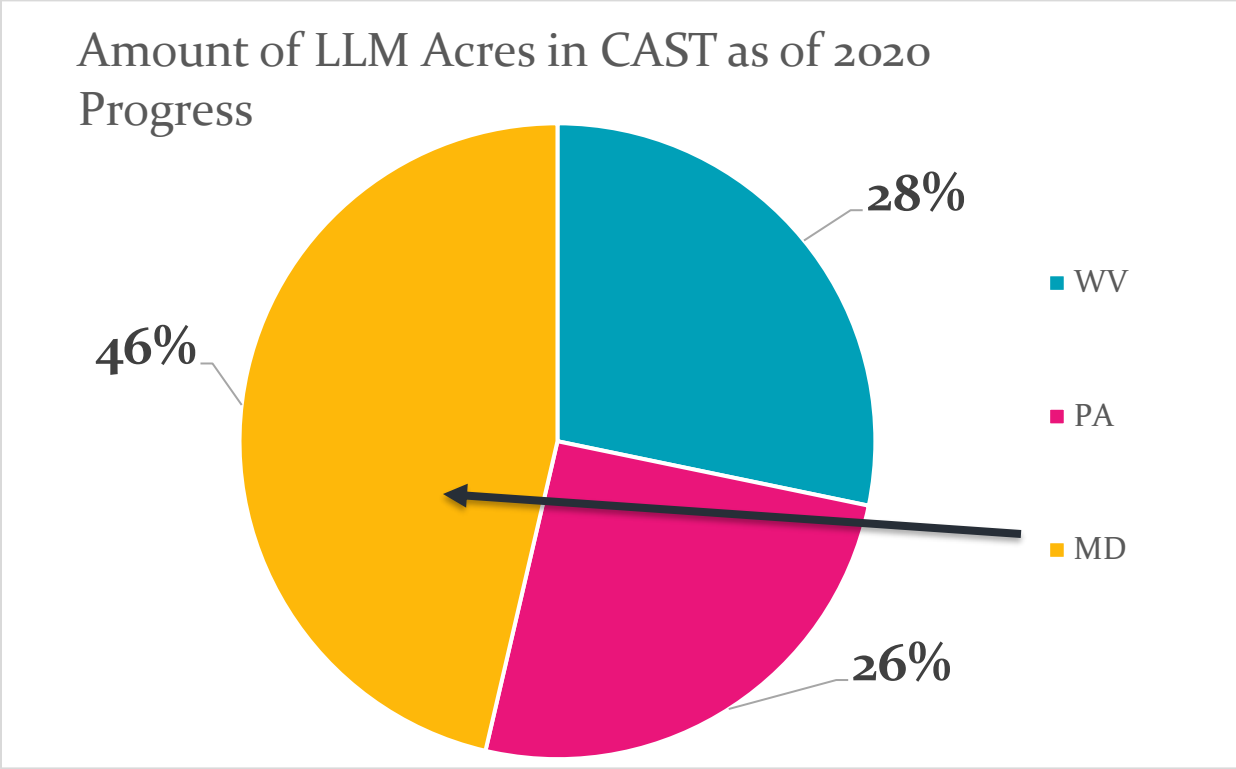


The **BLUE** column represents scenarios without credit durations, where practices do not expire from the watershed model due to not being reverified. Scenarios representing no credit durations assume practices function in perpetuity (indefinitely) without maintenance. The **PINK** column represents the official progress scenarios where credit duration and practice expiration have been applied.

WHICH STATES REPORT BRC AND LLM?



6,341 acres of Barnyard Runoff Control are in CAST as of 2020 Progress. PA reports the majority of Barnyard Runoff Control practices, at 54% (or 3,435 acres). Virginia follows behind at 20% (1,255 acres), with MD coming in at 12% (785 acres).



227 acres of Loafing Lot Management are in CAST as of 2020 Progress. MD reports the majority of Loafing Lot Management practices, at 46% (or 105 acres). West Virginia follows behind at 28% (64 acres), with PA coming in at 25% (58 acres).

NRCS PRACTICE LIFESPANS VERSUS VERIFICATION

Best management practice (BMP) verification is "the process through which agency partners ensure practices, treatments and technologies resulting in reductions of nitrogen, phosphorus and/or sediment pollutant loads are implemented and operating correctly." Verification can be viewed as a life cycle process that includes initial inspection, follow-up checks and evaluation of BMP performance.

This verification lifecycle follows the basic format of:

1) Is the BMP there?

2) Is the BMP still operating correctly? and

3) Systematic Data Collection for performance outcomes to adapt approaches to future installation and maintenance of practices.

An **NRCS Practice Lifespan** is the minimum time (in years) the implemented practice is expected to be fully functional for its intended purpose if O&M plan is followed as expected.

The NRCS Practice Lifespan is related the to the contract NRCS establishes with a landowner. The duration of the NRCS contract, or the NRCS Practice Lifespan, is the amount of time is the time NRCS expects a landowner to manage the certified practice to address the identified resource concern, such as # of animals.

The 2013 BMP Verification Review Panel charged the source sector workgroups to holistically consider the following when establishing the verification program's credit durations:

Workgroups needed to consider:

1) Contract/permit duration
2) Engineered design life
3) Actual lifespan

Utilizing a conservative approach and to maintain equity across source sector workgroups, the source sector workgroups opted to use primarily contract and permit durations to establish credit durations.

Why?

The purpose of verification is to ensure practices are functioning as expected to reduce nutrients and improve water quality by inspecting practices through an established maximum interval (the credit duration) and tracking practice performance over time. The verification program is an accountability framework to ensure the watershed model receives, to the best of the partnership's ability, accurate input data that is representative of on the ground practices put in place to achieve water quality standards. Credit durations were established to ensure that, when there is no longer a contract or permit in place, there would still be a level of programmatic oversight. This oversight includes a defined frequency of inspections, an expectation of maintenance, adaptation of existing maintenance plans, increased transparency of on the ground practices and a maximization of practice performance.

HOW BRC AND LLM ARE REPORTED WITH NRCS LIFESPANS

For Barnyard Runoff Control

- Roof Runoff Structure = 15-year NRCS lifespan
  - Reported by PA, VA, WV and DE.

- Barnyard Runoff Controls = Cannot locate an NRCS practice by this name.
  - Reported by PA, VA, NY and MD.

- Barnyard Clean Water Diversion Resource Improvement Practice = 5-year credit duration
  - Reported by PA and MD.
  - Not up for extension.

- Roof Runoff Management = Cannot locate an NRCS practice by this name
  - Reported by PA, WV and DE.

- Wastewater Treatment Strip = 10-year NRCS lifespan
  - Reported by PA.

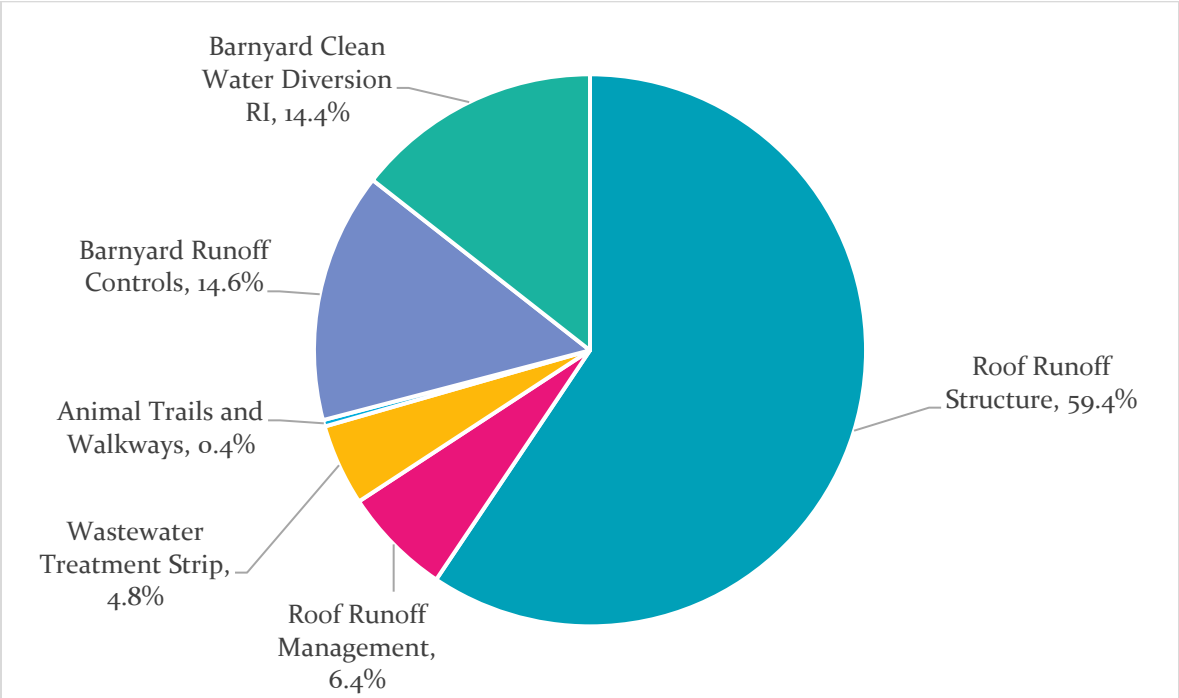
- Animal Trails and Walkways = 10-year lifespan
  - Reported by PA, VA and WV.

For Loafing Lot Management

- Heavy Use Area Protection (Excluding Poultry Pads) = 10- year NRCS lifespan
  - Reported by MD, WV, and PA.

- Access Roads = 10-year NRCS Lifespan
  - Reported by PA.

WHICH PRACTICES MAKE UP THE MAJORITY OF BARNYARD RUNOFF CONTROL



Roof Runoff Structures (NRCS Lifespan of 15-years) make up the majority of practices reported across the watershed to NEIEN (according to the 2020 Validation Report). Barnyard Runoff Controls makes up the next largest amount of reported practices but does not have an NRCS Practice Lifespan.

NEW INFORMATION

MARYLAND

Maryland's Verification Program

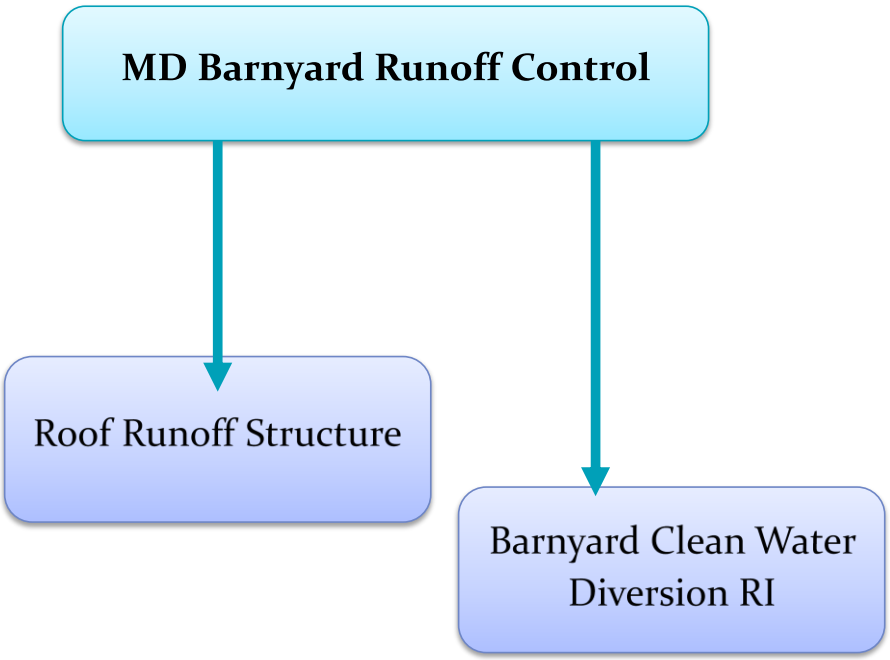
- The MD BMP Verification Task Force consists of 8 individuals who work regionally throughout in all 23 counties in Maryland
    - Qualifications – NRCS Planner Certified, MDA Nutrient Management & CBNTT Certified
- Verifiers work on 3-week rotations in each Soil Conservation District.
    - **Week 1 (possibly more than 1 week)**: Typically, the first week of the verification period is spent reviewing conservation plans to identify BMP locations and to perform a QAQC of the data in Conservation Tracker. Verifiers map extents using ArcGIS.
    - **Week 2 (possibly 4 weeks due to COVID):** Verifiers spend the next 2 weeks of the verification period visiting each parcel in a manner to maximize efficiency and review the most reduction potential.
    - Each BMP is measured by its model definition and NRCS standard
        1. Are NRCS Standards and specifications being met?
        2. Is the BMP being utilized as intended?
        3. Are resource concerns addressed?
        4. Have any alterations lessened effectiveness?
        5. Is maintenance needed to bring the BMP to the minimum NRCS standard?
- MD also collects the following via Conservation Tracker:
    1. BMP-ID,
    2. Practice Code and Type
    3. Install amount and Install Date,
    4. Cost-share Data
    5. Cooperator contact information
    6. Farm/Tract Numbers & MD Property Account ID Information.
- Upon visual inspection of a BMP, the Verifier can make any one of the following Status Determinations:
    1. Meets Standard
    2. Does Not Meet Standard
    3. No Longer Present
    4. Administrative (can be joined with any of the above other statuses)

5. Meets Standard, No Animals (for those practices that Meet Standard, but are no longer providing the intended water quality benefit or for BMP types that are not WIP eligible, such as Poultry HUAs)
6. TYPO/Duplicate (for those practices found to be database entry errors or those that never existed)

How MD reports BRC and LLM

MD reports CBP BRC as Barnyard Runoff Controls and Barnyard Clean Water Diversion RI to NEIEN. Barnyard Runoff Controls is composed of the Roof Runoff Structure.

[The credit duration of Barnyard Clean Water Diversion RI is not up for extension at this time.]



MD reports CBP LLM as Loafing Lot Management Systems to NEIEN. This BMP is composed of the 561 Heavy Use Area Protection System (excluding poultry pads).

Maryland's Inspection Data

Barnyard Runoff Control

As of 2020 Progress, MD was credited 785 acres of CBP BRC in CAST, or 12% of the total BRC acres credited to the Bay Watershed.

As of 2020 Progress, MD has inspection dates associated with 705 Barnyard Runoff Controls practices in NEIEN. 414 of these reported practices have not yet been reverified. MD's Verification Program has inspected and reverified 63% of MD's reported Barnyard runoff Controls Practices. The Roof Runoff Structure falls into the Barnyard Runoff Controls Practice. The average age of all inspected BRC practices at the time of inspection reported to NEIEN was 8.3 years. On average, MD is inspecting these practices during whole farm inspections every 8.3 years.

Of these 705 inspected BRC practices, 213 practices, or 30% of inspected practices, were over 10 years old (past the credit duration). The average age of inspected expired practices (practices past the credit duration) was 16.6 years.

From MD's inspection data, MD has recorded that 380 (out of 481) verified roof runoff structures (systems) met standards and were in compliance at the time of inspection. 101 structures did not pass inspection.

- **79% of Roof Runoff Structures** inspected met standards at the time of inspection. **21%** did not meet standards, were no longer in operation/retired, or no longer present.

As of 2020 Progress, MD has inspection dates associated with 24 Barnyard Clean Water Diversion RI systems in NEIEN. 34 of reported RI systems have not yet been reverified. MD's Verification Program has inspected and reverified 41% of MD's reported Barnyard Clean Water Diversion RI systems. The average age of all inspected RI systems at the time of inspection reported to NEIEN was 10 years. On average, MD is inspecting these practices during whole farm inspections every 10 years.

Of these 24 inspected RI systems, 10 systems, or 42% of inspected practices, were over 10 years old (past the credit duration). The average age of inspected expired practices (practices past the credit duration) was 16.7 years.

From MD's inspection data, MD has recorded that 17 (out of 20) verified Barnyard Clean Water Diversion RI (systems) met standards and were in compliance at the time of inspection. 3 structures did not pass inspection.

- **85% of Diversions** inspected met standards at the time of inspection. **15%** did not meet standards, were no longer in operation/retired, or no longer present.

Loafing Lot Management

As of 2020 Progress, MD was credited 105 acres of CBP LLM in CAST, or 46% of the total LLM acres credited to the Bay Watershed.

As of 2020 Progress, MD has inspection dates associated with 74 acres of Loafing Lot Management practices in NEIEN. 69 acres of these reported practices have not yet been reverified. MD's Verification Program has inspected and reverified 52% of MD's reported Loafing Lot Management Practices. The average age of all inspected LLM practices reported to NEIEN is 6.6 years. On average, MD is inspecting these practices during whole farm inspections every 6.6 years.

Of these 74 inspected LLM acres, 24 acres, or 32% of inspected practices, were over 10 years old (past the credit duration). The average age of inspected expired practices (practices past the credit duration) was 13.8 years.

From MD's inspection data, MD has recorded that 441 (out of 490) verified Heavy Use Area Protection (systems, excluding those with poultry pads) met standards and were in compliance at the time of inspection. 101 structures did not pass inspection.

- **90% of Heavy Use Area Protection Structures** inspected met standards at the time of inspection. **10%** did not meet standards, were no longer in operation/retired, or no longer present.

NEW YORK

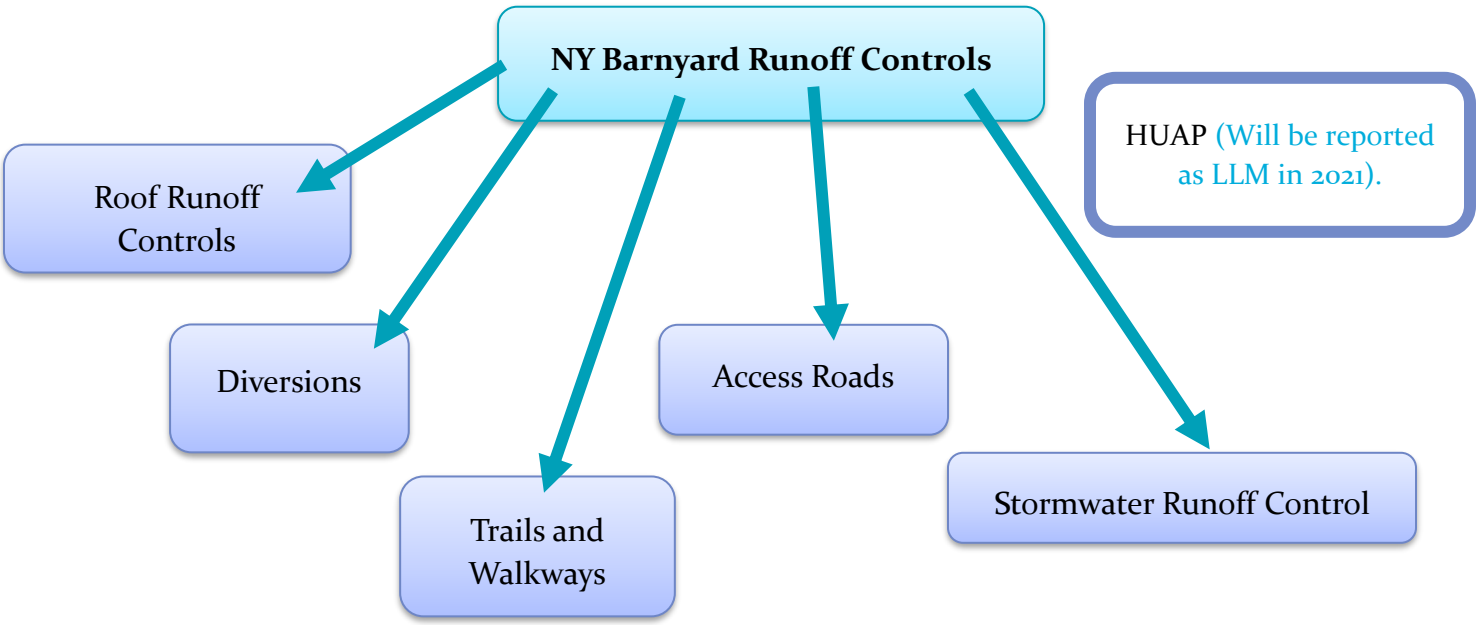
New York's Verification Program

- NY's County Soil & Water Conservation Districts report BMP data into the database that the Upper Susquehanna Coalition manages.
- The SWCD's are involved in the projects when the project is implemented (in most cases even if it is implemented through NRCS), and they are also the ones verifying that the practices are being maintained.
- When counties are entering the data for Barnyard Runoff Controls, they enter the animal numbers & animal type (which auto calculates the acres based on the bay program source data calculations) associated with the practices.
- The Counties have check boxes for each type of practice during verification:
    1. Heavy Use Area
    2. Roof Runoff Structure
    3. Stormwater Runoff Control
    4. Diversion and Animal Trails & Walkways.
- Even if every check box was checked (multiple practices observed on a farm), each farm only receives credit for one "instance" of Barnyard Runoff Controls (this instance is for the entire Barnyard Runoff Control system).
- NY only utilizes the data collected by the SWCDs. NY does not used the NRCS data provided through USGS in their data submission. This data is used for QA/QC purposes only.

How NY reports BRC and LLM

MD reports CBP BRC as Barnyard Runoff Controls to NEIEN. Barnyard Runoff Controls is composed of the Roof Runoff Controls, Diversions, Trails and Walkways, Access Roads, Stormwater Runoff Control, and, as of 2020 Progress, Heavy Use Area Protection.

The 561 Heavy Use Area Protection Structures will be reported as Loafing Lot Management Systems for the 2021 data submission.



New York's Inspection Data

As of 2020 Progress, NY was credited 97 acres of CBP BRC in CAST, or 1.5% of the total BRC acres credited to the Bay Watershed.

As of 2020 Progress, NY has inspection dates associated with 99.7 acres of Barnyard Runoff Controls practices in NEIEN. 0.61 acres of these reported practices have not yet been reverified. NY's Verification Program has inspected and reverified 99% of NY's reported Barnyard Runoff Controls Practices. *The Roof Runoff Controls, Diversions, Trails and Walkways, Access Roads, Stormwater Runoff Control, and Heavy Use Area Protection falls into the Barnyard Runoff Controls Practice as of 2020 Progress.* The average age of all inspected BRC practices at the time of inspection reported to NEIEN was 8.6 years. On average, NY is inspecting these practices during whole farm inspections every 8.6 years.

Of these 99.7 inspected BRC acres, 35 acres, or 35% of inspected acres, were over 10 years old (past the credit duration). The average age of inspected expired practices (practices past the credit duration) was 16 years.

NY has verified 147 out of 254 total instances, or 58% of total instances of Barnyard Runoff Controls. *During whole farm visits, if multiple related Barnyard Runoff Control practices (Roof Runoff Structures, Trails & Walkways, etc.) are observed on the farm, this would still count as "one instance" of Barnyard Runoff Controls.*

From NY's inspection data, NY has recorded that 83 (out of 85) verified roof runoff controls (practices) met standards and were in compliance at the time of inspection. 2 instances of roof runoff controls did not pass inspection.

- **97.6% of Roof Runoff Controls** inspected met standards at the time of inspection. **2.4% did not.** *NY has stated that the average age of the practices in this dataset was 13 years old.*

From NY's inspection data, NY has recorded that 27 (out of 27) verified diversions (practices) met standards and were in compliance at the time of inspection.

- **100% of Diversions** inspected met standards at the time of inspection. *NY has stated that the average age of the practices in this dataset was 13 years old.*

From NY's inspection data, NY has recorded that 47 (out of 47) verified animal trails and walkways and access roads (practices) met standards and were in compliance at the time of inspection.

- **100% of Animal Trails & Walkways/Access Roads** inspected met standards at the time of inspection. *NY has stated that the average age of the practices in this dataset was 13 years old.*

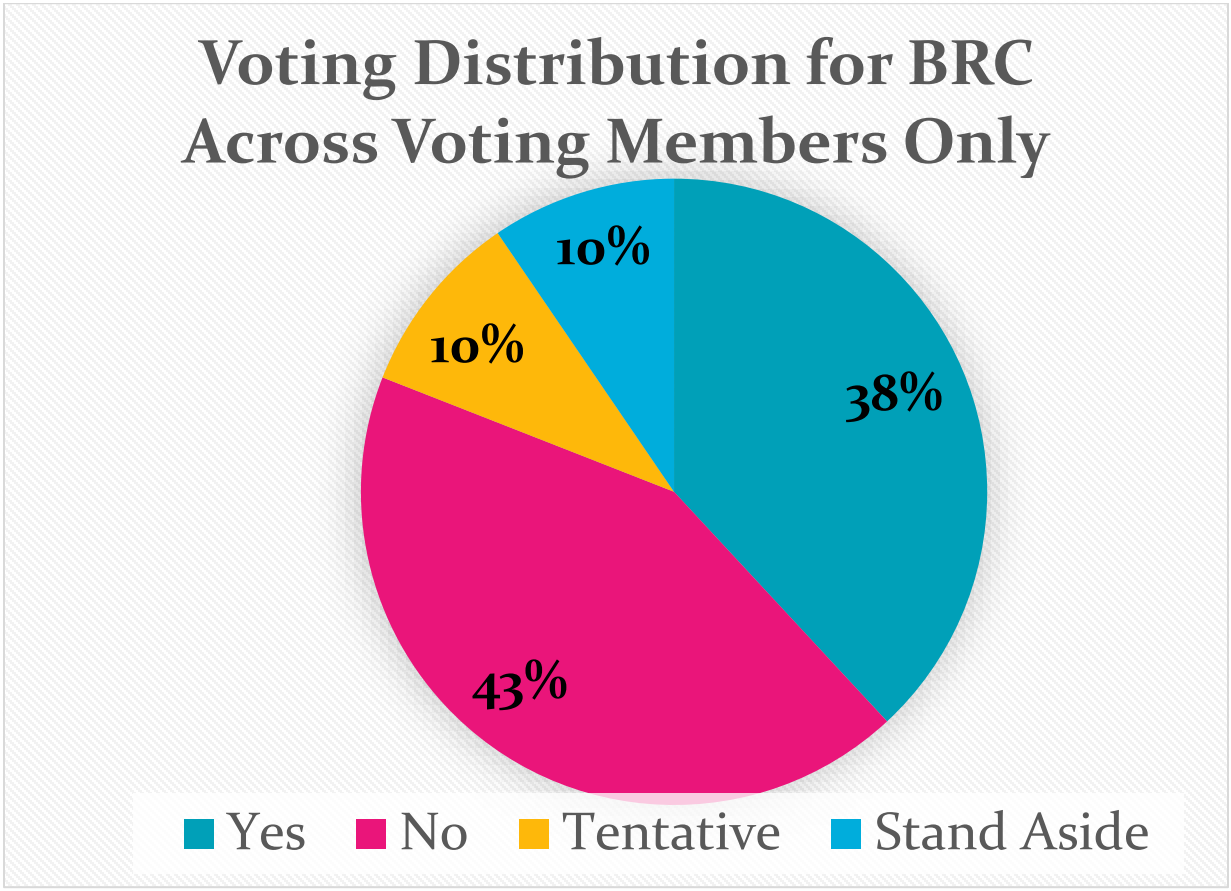
From NY's inspection data, NY has recorded that 18 (out of 18) verified stormwater runoff control (practices) met standards and were in compliance at the time of inspection.

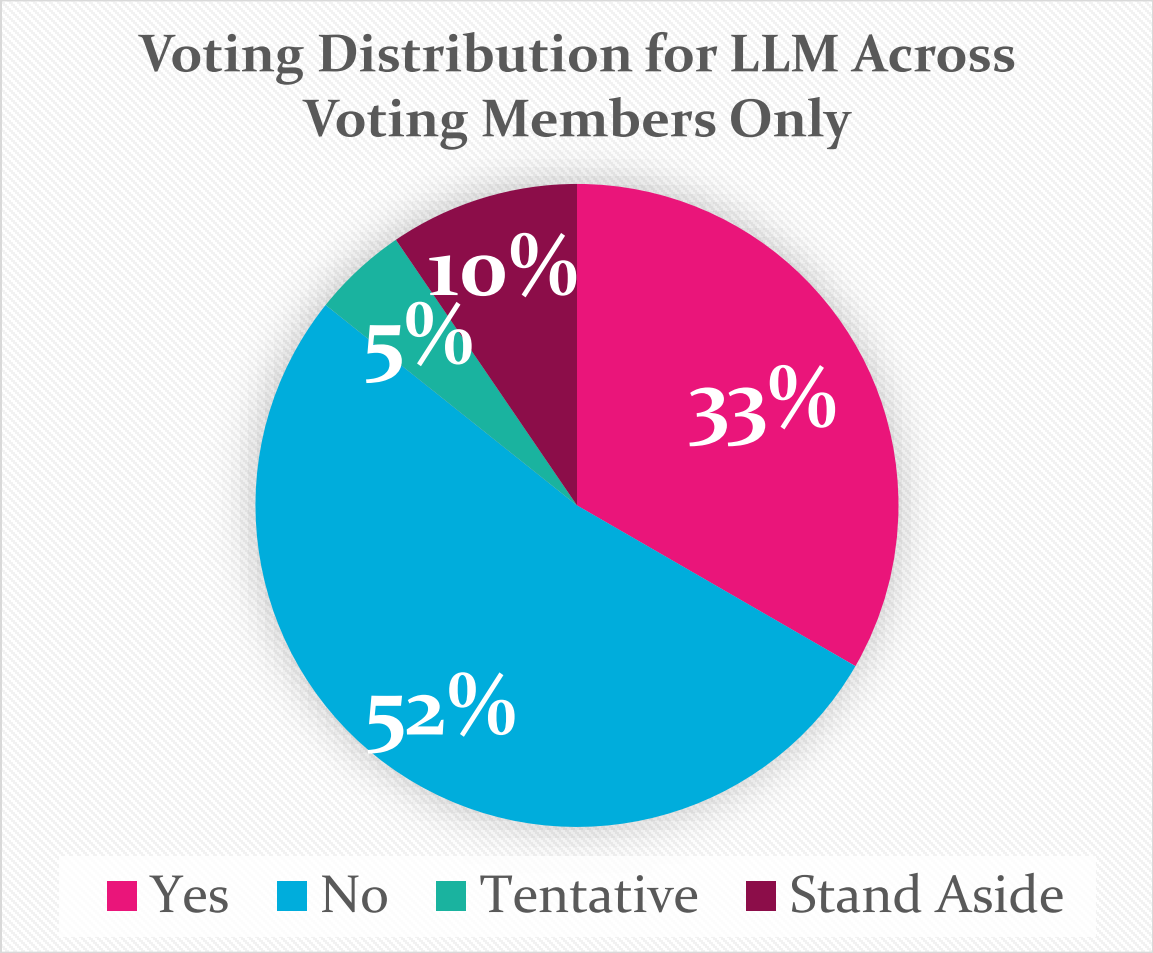
- **100% of Stormwater Runoff Control** inspected met standards at the time of inspection. *NY has stated that the average age of the practices in this dataset was 9 years old.*

From NY's inspection data, NY has recorded that 128 (out of 131) verified heavy use area protection (practices) met standards and were in compliance at the time of inspection. 2 instances of roof runoff controls did not pass inspection.

- **97.8% of Heavy Use Area Protection structures** inspected met standards at the time of inspection. **2.2% did not.** *NY has stated that the average age of the practices in this dataset was 13 years old*

SURVEY RESULTS FROM MARCH 2021's ANONYMOUS SURVEY





Practice	Yes	No	Tentative	Stand Aside
Barnyard Runoff Control	8	9	2	2
Loafing Lot Management	7	11	1	2

RATIONALE FOR EXTENDING THE CREDIT DURATION

- The practice lifespan is the minimum amount of time that is expected. Not an average, not the maximum. What we are finding in our data is on average, these practices are at a 19-year age. 15 years is conservative if we are finding on average, these practices are at 19 years with some reaching 20 or 30 years.
- Evidence from recent inspections are sufficient justification to increase the credit duration from the current 10-year mark that was based largely on NRCS contracting practice rather than expected effective life. Based on the data, a case could be made for a credit duration longer than 15 years.
- With average care the practices should last much longer than the min. lifespan indicated in NRCS specification.

Specific to Barnyard Runoff Control

- The main items that are usually installed with their practice have a longer lifespan by NRCS.(ie. the practices that are more "hardscape"-gutters, fencing, etc).
    - If there are practices that are included in this reporting item, that have a shorter lifespan or more vegetative--they might need to be removed or have a shorter verification cycle.
- The infrastructure warrants the extension.
- PA knows of BMPs that are 20-30 years old in their Ag E&S plans. PA data showed approximately 43% (775 out of 1802) of Barnyard Runoff Controls were inspected after expiration and were functioning as expected. On average, they were 19 years old (9 years past their credit duration).

Specific to Loafing Lot Management

- PA data showed that Access Roads and HUAP, approximately 39% or 261 practices out of 663 were inspected after their credit duration expired and they were all functioning as intended. On average these BMPs were 8 years past their credit duration, or 18 years old. There are records of these practices being more than 20 or 30 years beyond their credit durations as well.

RATIONALE FOR KEEPING CREDIT DURATION THE SAME

- Credit durations are often approached utilizing a conservative lens, the fact that multiple NRCS practices that fall under Barnyard Runoff Control have 10-year lifespans.
- No BMPs should go without inspection for beyond 10 years. Factors such as climate change effects on individual BMPs are unknown at this time.
- 15 years is a very long time without verification and setting a precedent of 15 years is concerning. Relying on imagery for verification of practices is not reliable or proven at this point.
- The credit duration should remain at 10 years. Verification programs will provide the necessary data to continue the reductions for these bmps.
- The potential for abuse of a system is a great reason for caution.
- Many of techniques used to control runoff from barnyards need to be maintained more frequently than 10 years. Therefore, a frequent inspection program is needed. Credit duration is the length of time from installation or implementation of a practice - to inspection needed to determine if or what maintenance is required to ensure the practice continues to function optimally.
- While some practices can be maintained and repaired for innumerable years, Practices can also fail due to lack of maintenance, change in ownership, large rainfall event, end even in some cases, animal damage. There are too many ways for the practice to fall out of specs to go 50% longer before verification.
- We have not seen scientific studies to justify changing the credit duration. There is a lack of data here to change expert recommendations.
- The results shown may not be statistically valid. There was not a properly designed study.
- Verification was established to provide oversight and accountability, not necessarily to check that the infrastructure can remain in place (if properly maintained) for decades.
- A practice may be functioning well in the first 15 years of its life, but is there a significant difference between checking a practice twice in 20 years versus

twice in 30 years? There are more factors than design at play: such as economics, development, politics, change in ownership and weather events.

- Available inspection data from the state should be closely reviewed be for final decision
- Concerns regarding management. Issues can arise at any time.

Specific to Barnyard Runoff Control

- The credit duration of the Barnyard Runoff BMP was originally established by the AgWG based on existing state and USDA financial assistance programs which provided oversight and monitoring based on a typical 10-year contractual duration.
- The USDA-NRCS primary practice relies upon numerous supporting practices which vary depending upon the specific site characteristics, as no two are completely alike. The CBP crediting duration decision for this BMP was based on the lowest NRCS engineered lifespan duration of the suite of practices which are employed, as the failure of one practice will nullify the engineered design and thus the estimated nutrient reduction benefit. The NRCS components of a Barnyard Runoff BMP are all based on a 10-year or less practice lifespan with the exception of Roof Runoff Structure at a 15-years NRCS practice lifespan, a practice that is not used universally for all barnyard sites.
- The additional information presented thus far does not alter the original decision nor the premise it was based upon.

Specific to Loafing Lot Management

- The components of this practice are more sensitive to livestock density than the barnyard controls. It is likely that livestock numbers increase before 15 years and warrant the 10-year extension
- Multiple NRCS practices that fall under Loafing Lot Management practices have 10-year practice lifespans assigned to them would lead me to believe that the CBP approach should still remain as 10 years as well.
- There isn't strong justification for it.

- The credit duration of the Loafing Lot Management BMP was originally established by the AgWG based on existing state and USDA financial assistance programs which provided oversight and monitoring based on a typical 10-year contractual duration.
- The USDA-NRCS primary practice relies upon numerous supporting practices which vary depending upon the particular site characteristics, as no two are completely alike. The CBP crediting duration decision for this BMP was based on the lowest NRCS engineered lifespan duration of the suite of practices which are employed, as the failure of one practice will nullify the engineered design and thus the estimated nutrient and sediment reduction benefits. The NRCS components of **a Loafing Lot Management BMP are all based on a 10-year or less practice lifespan.**