

Agricultural Inspections
July 1, 2020 through June 30, 2021

This document summarizes the accomplishments of the expanded agricultural inspection program from the timeframe July 1, 2020 through June 30, 2021. The expanded agricultural inspection program includes inspections that were conducted as part of the Act 38 Nutrient Management Program in the Pennsylvania portion of the Chesapeake Bay Watershed on Concentrated Animal Operations (CAOs) and Concentrated Animal Feeding Operations (CAFOs). As the program was expanded in 2016, it also now includes inspections conducted as part of the Chesapeake Bay Agriculture Inspection Program (CBAIP) on agricultural operations that do not meet the definition of a CAO or CAFO.

This year the CBAIP implemented the Phase 2 Pilot program, which began checking for Manure Management Plan (MMP) and Agriculture Erosion and Sediment Control (Ag. E&S) Plan implementation in Adams, Bedford, Chester, Lancaster, and York Counties. A summary of the Phase 2 Pilot is provided in this report. Additionally, interim procedures to be followed during the COVID-19 public health emergency released on April 2, 2020 and updated on March 12, 2021 remained in use through June 19, 2021 and allowed for continued operations while maintaining social distance. All data related to the CBAIP and the Act 38 Nutrient Management Program were collected through a centralized geospatial database.

Table 1. Total number of PA farms in the Chesapeake Bay Watershed as identified in the 2017 USDA Agriculture Census and total PA acres in agriculture land use as identified by the Bay Program.

2017 USDA Ag Census Farms in PA Chesapeake Bay Watershed	30,193
2018 Ag Land Use Acres in PA Chesapeake Bay Watershed	3,067,629

Table 2. Farms and agriculture acres inspected within Pennsylvania’s portion of the Chesapeake Bay Watershed Since the Inception of the Expanded Agricultural Inspection Program

	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Totals
Total Farms Inspected	2,823	2,924	2,951	2,538*	2,650	13,812
Total Acres Inspected	393,426 (12.7%)	329,468 (10.6%)	315,823 (10.3%)	258,805* (8.4%)*	275,568 (8.9%)	1,573,090 (51.3%)
PA Bay Farms Inspected under the Act 38 Program	743	814	886	670*	702	3815
PA Bay Ag Acres Inspected under the Act 38 Program	147,762	145,680	138,139	115,083*	129,578	676,242
PA Farms Inspected under the CB Ag Inspection Program	2,080	2,110	2,065	1,868	1,948	10,071
PA Acres inspected under the CB Ag Inspection Program	245,664	183,788	177,684	143,722	145,990	896,848

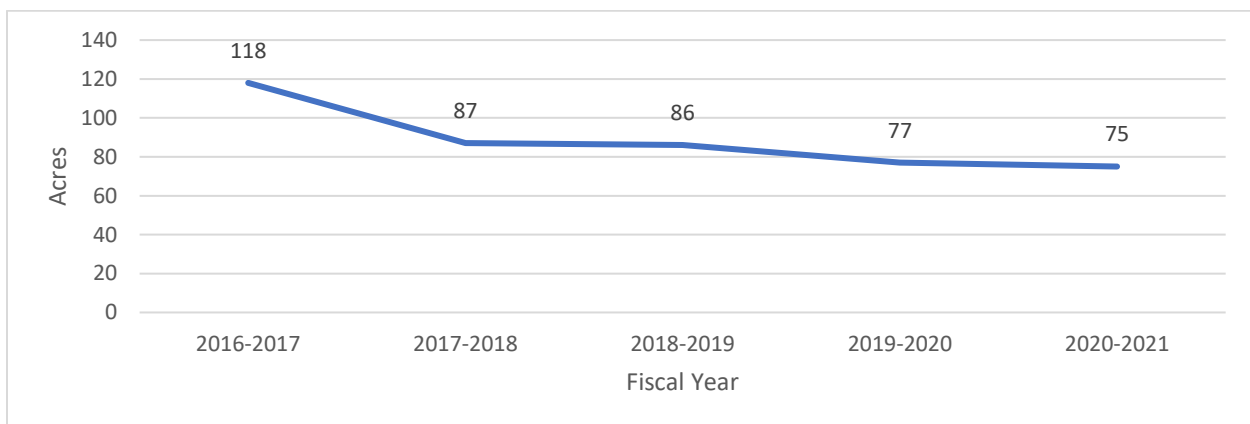
*Adjusted to reflect all unique agricultural operations inspected during the period of interest.

The total number of agricultural operations and acreage inspected in 2020-2021 increased from the prior year by 112 operations and 16,763 acres, indicating the continuity of most program operations while following COVID-19 public health emergency procedures. However, when comparing 2020-2021 to previous years, (2016-2019), it is clear many difficulties experienced during the COVID-19 public health emergency in 2019-2020 persisted in 2020-2021. These difficulties included staff shortages and inspections of smaller operations.

What was initially perceived to be temporary staff shortages due to county furloughs in inspector positions during Spring and Summer 2020 grew into unprecedented simultaneous staff turnover in these positions. The staff turnover experienced in 2020-2021 cannot be directly tied to the COVID-19 public health emergency; there are any number of reasons that a staff person chooses to vacate a position. However, regardless of the cause for the vacancy, after a new hire fills a technical position, it will require at least a year of rigorous on-the-job, classroom, and web-based training while under substantial oversight from trained professionals to acquire the necessary skills to fulfill the responsibilities of the position. The ramifications of staffing shortages experienced in 2020-2021 will likely continue to affect program operations until the individuals in these positions can be adequately trained.

Additionally, as represented in Figure 1, the average operation size was lower than previous years, (2016-2019). Participating county conservation districts reported that most operations managing large acreages received Initial Inspections during previous years of the CBAIP. Therefore, most of the operations inspected in 2020-2021 (68%) were smaller than the average farm size of 75 acres, and the median farm size was 42 acres.

Figure 1: Average Size of Agricultural Operations Inspected Under CBAIP by Fiscal Year



During 2020-2021, the COVID-19 public health emergency continued to present unprecedented challenges in implementing the program, particularly because the average size of agricultural operations that were available for an Initial Inspection had been reduced from prior years. However, due to the successful achievements of county conservation district partners and DEP Regional Office inspectors, the broad scope of inspections covered a total of 1,573,090 acres over the five years of the program, which represents an average of 10.2% of the agricultural land use acres in the Pennsylvania portion of the Chesapeake Bay Watershed per year of the program.

Compliance

The compliance rate for Act 38 Nutrient Management Plan development and implementation in the Pennsylvania portion of the Chesapeake Bay Watershed was found to be 82% at the time of inspection. Reasons for non-compliance included failure to obtain a manure or soil sample, failure to apply manure consistently with the recommendations in the Nutrient Management Plan, and failure to keep adequate records. For non-compliant CAOs and CAFOs, the Act 38 Nutrient Management Program compliance assessment required follow-up activities resulting in the vast majority of them coming into compliance within 6 months after the annual inspection.

Out of the total 1,948 agricultural operations inspected as part of the 2020-2021 CBAIP, 1,588 were inspected by conservation districts and 360 were inspected by DEP regional offices. Of those inspected, 64% were found to be compliant with the MMP requirements and 69% were found to be compliant with the Ag. E&S Plan requirements. With follow-up from the participating conservation districts and DEP, the regulatory compliance rate associated with the relevant plans for these operations increased to 99%.

The compliance rates listed above do not verify that best management practices (BMPs) have been implemented. Verification of structural and agronomic BMPs outlined in the plans is a mandatory component of CBAIP Phase 2 inspections (described below) and may be completed during an Initial Inspection if the agricultural operation is willing to provide the information. The outcome of the BMP verification component of the expanded agricultural inspection program is described in detail in the BMP data collection and tracking section of this report.

Verifications performed via the Resource Enhancement and Protection (REAP) Program, which is administered by the State Conservation Commission are not included in the above results. Since 2007, REAP has approved over 4,300 applications from almost 3,100 operators (operators can apply more than once to the program). An operator must have their environmental compliance status verified each time they apply.

Chesapeake Bay Agricultural Inspection Program: Compliance and Enforcement

Compliance rates at the time of Initial Inspection for MMPs and Ag E&S Plans are comparable to the previous years. It is important to note, as is identified in Table 3, the percentage found to have had planning or technical assistance provided by an agency staff person or private consultant was 90% to develop the MMP and 98% to develop the Ag. E&S Plan.

Table 3. The percent of administratively complete plans found at the time of Initial Inspection for agricultural operations required to have and implement the plan(s).

Manure Management Plan	Percent of Total Required
Administratively Complete at the time of Initial Inspection	64%*
Planning/Technical Assistance Provided	90%
Agricultural Erosion and Sediment Control (Ag E&S) Plan	
Administratively Complete at the time of Initial Inspection	69%*
Planning/Technical Assistance Provided	98%

*99% of all agricultural operations inspected in 2020 – 2021 met planning obligations by the end date of this report.

Table 4. The total referrals to the DEP Bureau of Clean Water for continued non-compliance for plan violations, along with further enforcement actions taken on those operations.

	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	Total
Referrals to DEP Bay Program Office	21	87	66	66	40	280
Notices of Violation	21	87	66	64*	39*	277
Field Orders	0	22	47	16	30	115
Consent Order and Agreement	0	1	2	3	4	10
Closed Cases	7	42	64	64	44	221

*Corrective actions identified on the inspection report were satisfied before the NOV's were drafted or the referral was withdrawn.

CBAIP Phase 2 Pilot Summary

The Phase 2 Pilot was launched in 2020-2021 in Adams, Bedford, Chester, Lancaster, and York Counties. Fifty-two Phase 2 inspections assessing MMP and Ag. E&S Plan implementation were performed by Adams, Chester, and Lancaster County Conservation Districts and DEP Southcentral Regional Office. Of the 52 agricultural operations inspected, 38 were land applying manure thus requiring a MMP, and 41 were performing plowing or tilling activities or managed animal heavy use areas (AHUAs) of at least 5,000 square feet thus requiring an Ag. E&S Plan.

The purpose of the Phase 2 Pilot of the CBAIP was to test the feasibility of implementing Phase 2 of the CBAIP across all counties in the Pennsylvania portion of the Chesapeake Bay Watershed. It was determined during the Phase 2 Pilot that the remaining counties would transition to Phase 2 of the CBAIP as all applicable agriculture operations in the respective county receive an Initial Inspection. During Phase 2 of the CBAIP, Phase 2 inspections will be completed in the participating county. In 2021-2022, it is expected that seven county conservation districts will conduct Phase 2 Inspections.

The purpose of Phase 2 Inspections and Phase 2 of the CBAIP is to ensure that the MMPs and Ag. E&S Plans that were verified as complete in Phase 1 during Initial Inspections are actively being implemented and are on schedule as required by the regulations. Through this process, all BMPs identified in the plans are verified by trained professionals, tracked in a centralized geodatabase to allow for appropriate quality assurance and quality control, and reported for Chesapeake Bay annual progress. BMPs that are identified to have been implemented in prior years will be applied to Pennsylvania's numeric progress revised history.

Compliance and Enforcement

Of the 38 agricultural operations land applying manure, 20, (53%), were compliant with requirements to maintain and implement a MMP and all associated BMPs on schedule at the time of the Phase 2 inspection. To achieve compliance during the Phase 2 inspection, these 20 operations demonstrated that the MMP was administratively complete and relevant to the current activities of the agricultural operation and that all BMPs in the MMP were implemented according to the schedule outlined in the plan, functioning as intended, and addressed all manure-related resource concerns on the agricultural operation. The BMPs identified in the MMP and verified as part of the Phase 2 inspection may include but are not limited to: heavy use area protection, waste storage facilities, roof runoff control, prescribed grazing, riparian forest buffers, streambank fencing, and nutrient management.

Of the 41 operations performing plowing or tilling activities or managing AHUAs of at least 5,000 square feet, 19, (46%), were compliant with requirements to maintain and implement an Ag. E&S Plan and all associated BMPs on schedule at the time of the Phase 2 inspection. To achieve compliance during the Phase 2 inspection, these 19 agricultural operations demonstrated that the Ag. E&S Plan was administratively complete and relevant to the current activities of the agricultural operation and that all BMPs in the Ag. E&S Plan were implemented according to the schedule outlined in the plan, functioning as intended, and addressed all accelerated erosion and sedimentation related to agricultural activities on the agricultural operation. The BMPs identified in the Ag. E&S Plan and verified as part of the Phase 2 inspection may include but are not limited to: grassed waterways, prescribed grazing, cover crops, conservation tillage, contour farming, contour buffer strips, riparian forest buffers, diversions, terraces, heavy use area protection, streambank fencing, and roof runoff control.

Consistent with Phase 1 of the CBAIP, an agricultural operation will be out of compliance if the MMP or Ag. E&S Plan is not administratively complete or current with the conditions of the agricultural operation at the time of the Phase 2 inspection. Reasons for violations found during Phase 2 inspections included BMPs that were not implemented according to the schedule outlined in the plans, BMPs that were not currently functioning, and plans that did not address all resource concerns of the operation or were otherwise not reflective of the current management of the agricultural operation.

For agricultural operations found out of compliance for any reason, DEP regional office and participating county conservation district staff provided appropriate follow-up to achieve compliance from the agricultural operation. Because all relevant agricultural operations are still within the designated deadlines to comply or have satisfied the corrective actions identified at the time of the inspection, no enforcement actions have been taken for violations found during a Phase 2 inspection as of the end date of this report.

Lessons Learned

The Phase 2 Pilot provided an opportunity to evaluate realistic expectations, identify needed resources, and appropriately adapt procedures prior to beginning the transition to Phase 2 of the CBAIP across the entire Pennsylvania portion of the Chesapeake Bay watershed.

As the primary goal of Initial Inspections is to verify that written Ag E&S Plans and MMPs exist on the agricultural operation and are administratively complete, many of these inspections do not require extensive time on-site at each agricultural operation. Conversely, Phase 2 Inspections require much more time on-site at each agricultural operation due to the complexities of verifying that BMPs are being implemented according to the proposed schedules, functioning as intended, and address all relevant resource concerns on the agricultural operation. This typically entails an extensive visual inspection of each BMP and a thorough walk-through of the agricultural operation. This was described and confirmed by the participating county conservation district and DEP regional office field staff involved in the Phase 2 Pilot during the program evaluation discussion. Depending on the results of the Phase 2 inspection, multiple follow-up inspections for up to 270 days after the Phase 2 inspection could be required to ensure that the corrective actions identified on the inspection report are satisfied.

Given the increased demands of time and resources provided by technical staff associated with Phase 2 Inspections identified during the Phase 2 Pilot, the CBAIP Phase 2 Standard Operating Procedure and Chesapeake Bay Technician required output measures have been modified for 2021-2022 to reflect realistic expectations as participating county conservation districts and DEP regional offices transition to Phase 2. Therefore, it is expected that as the number of Phase 2 inspections increase, the total annual acres inspected by the CBAIP will continue to decrease. However, because BMP verification is a mandatory component of the Phase 2 Inspection, as participating county conservation districts and DEP

regional offices transition to Phase 2, it is also expected that BMP data collection, tracking, and reporting will greatly improve across all agricultural BMPs that are planned or have been implemented on agricultural operations that were inspected as part of the CBAIP, regardless of implementation date, funding source, or location of the BMP.

BMP Data Collection and Tracking

The expanded agricultural inspection program will report the BMPs verified at the time of all CBAIP Initial and Phase 2 Inspections plus all Act 38 compliance checks completed in the reporting period to the Chesapeake Bay Program for annual progress. These BMPs include but are not limited to implementation of MMPs and Act 38 Nutrient Management Plans for nutrient management, waste storage facilities, barnyard runoff control, heavy use area protection, forested and grassed buffers, fencing, and rotational and prescribed grazing. Verification of BMPs is a required component of CBAIP Phase 2 Inspections and Act 38 compliance checks. BMP verification may also be completed during CBAIP Initial Inspections if the agricultural operation is willing to provide the information.

The Chesapeake Bay Program Partnership has instituted credit durations for all BMPs. The nutrient management BMPs for nitrogen and phosphorus are considered annual practices, and therefore states must report progress toward meeting those goals annually. The expanded agricultural inspection program is responsible for the annual verification of nutrient management BMPs associated with both the Act 38 Nutrient Management Program and the CBAIP.

While agricultural operations and acres inspected via the Act 38 Nutrient Management Program typically remain constant over time, regulatory compliance and BMP implementation is assessed annually. When reporting nutrient management BMPs from the Act 38 Nutrient Management Program for Chesapeake Bay annual progress, the implemented acres are directly reported from the annual compliance check and any follow-up activities resulting in the verification of implementation of nitrogen and phosphorous nutrient management BMPs. In addition to nutrient management BMPs, verification of the structural BMPs, including but not limited to: waste storage facilities, heavy use area protection, barnyard runoff control, and riparian forest buffers occurs during the Act 38 annual compliance check and are reported for Chesapeake Bay annual progress.

The agricultural operations and acres inspected under the CBAIP are unique operations. This means that the operations have not been revisited unless a follow-up inspection was needed, or a Phase 2 Inspection was conducted as part of the Phase 2 Pilot. Since November of 2017, CBAIP Initial Inspections have included a voluntary MMP records check which demonstrates the operation is implementing the required MMP. The MMP records check is a required component of all Phase 2 Inspections, and therefore was completed on all 52 inspections that were conducted as part of the Phase 2 Pilot. According to the records checks that were completed as part of the CBAIP in 2020-2021, 54% of the inspected acres receiving nutrients across the Pennsylvania portion of the Chesapeake Bay Watershed had nutrients applied in accordance with the nitrogen and phosphorus BMPs in the MMP..

Through the efforts of participating county conservation districts and DEP staff and the on-going multi-agency integration of tracking and reporting using a centralized geodatabase, MMPs and Nutrient Balance Sheets covering over 915,000 acres have been verified as complete and documented in Pennsylvania's portion of Chesapeake Bay Watershed. In 2020-2021, a statistical subsample of over 73,000 acres of cropland covered by MMPs were directly inspected as part of the CBAIP resulting in over 398,000 reportable acres of nitrogen and phosphorous nutrient management BMPs. Additionally, almost 155,000 reportable acres of nitrogen and phosphorous nutrient management BMPs were reported from Act 38

Nutrient Management Program compliance checks on CAOs and CAFOs. This is a total of over 550,000 reportable acres of nutrient management BMPs toward Pennsylvania's Chesapeake Bay annual progress.

Manure Storage Facilities have a 15-year credit duration in the Chesapeake Bay Program modeling tools. As such, if the facilities are not re-verified to show that it is existing and functioning every 15 years, no nutrient or sediment reductions associated with the BMP will be reflected in the model after that date. These Manure Storage Facilities are spatially located and can therefore be verified as unique and not otherwise reported by any program that requires tracking and reporting in the centralized geodatabase. Through CBAIP in 2020-2021, 63 existing liquid manure storage facilities that are equal to or greater than 15 years of age are able to be reported and applied to the revised history accordingly. The total capacity of these reported liquid manure storage facilities is over 22,000,000 gallons.

Through the activities conducted as part of the expanded agricultural inspection program and other technical assistance provided by county conservation district staff, over 2,500 structural BMP records will be reported as reverified and 1,800 structural BMP records will be reported as verified for the first time in 2020-2021 Chesapeake Bay Progress.

Conclusion

Another successful year of the expanded agricultural inspection program has shown that most agricultural operations are getting the plans they need, and the CBAIP Phase 2 Pilot has demonstrated that they are implementing the required plans once they have them. A large part of the inspection program is education. County conservation district and DEP staff are using inspections as a catalyst to help operators understand what is needed and to get them on track to implement their plans. Implementing BMPs on the land helps to ensure long-term operational sustainability and environmental protection.

Planning and technical assistance are of paramount importance. The development and implementation of plans hinges on the professionals who provide technical assistance. Funding resources continue to be needed as well. State programs like the Small Business Advantage Grants, Resource Enhancement and Protection (REAP) Program, Conservation Excellence Grants (CEG) and Growing Greener, as well as federal programs like NRCS Environmental Quality Incentives Program (EQIP), Conservation Reserve Program (CRP), Conservation Stewardship Program (CSP), and Regional Conservation Partnership Program (RCPP), EPA Chesapeake Bay Implementation Grant (CBIG), and EPA Chesapeake Bay Regulatory Accountability Program (CBRAP) are critical for the continued improvements made to our local waters.

Acknowledgements

This work would not be accomplished without the active participation of county conservation district and DEP staff. Their efforts are appreciated and the individuals performing inspections and enforcement activities are recognized for the professional and effective way they continue to carry out these functions.