Commercial Agricultural Production Data Decisions

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A Review of Partnership Decisions on Commercial Agricultural Production Data

Commercial Agricultural Production Data

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Poultry Litter Subcommittee (PLS)

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- Poultry Litter Subcommittee (PLS) –
  - In 2011, the Ag Workgroup determined that a subcommittee was needed to review modeling assumptions in the Phase 5.3.2 Watershed Model for nutrient generation by poultry.
  - This decision was made in response to Partnership concerns that poultry nutrient generation in the Model did not adequately reflect nutrient generation across the watershed.
  - The AgWG charged the Poultry Litter Subcommittee (PLS) to review the current methods and develop new methods for estimating nutrient generation by poultry across the watershed.

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- Poultry Litter Subcommittee (PLS) –
  - The PLS was charged with the following tasks:
    - Collect data that better reflect modern (and historical) N and P concentrations in poultry litter for each of the poultry types present within the watershed.
    - Develop poultry litter generation quantities for each poultry type, both modern and historic.
    - Develop alternate methods to estimate poultry population numbers across the watershed and compare to current methods used in the model.

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- Poultry Litter Subcommittee (PLS) –
  - The PLS summarized over a decade of litter sample data collected mainly from broilers and turkeys, with very small amounts of data from pullets and layers.
  - Broiler litter manure analysis data collected from State/ LGU labs, NMP, and permit databases from DE/MD/VA/WV. (~9,800 data points)
  - Broiler litter manure bulk generation data collected from NMP planners, growers, and manure haulers/brokers from DE/MD/VA. (Expansive)
  - Sufficient broiler data collected to develop statistical estimates of annual N and P generation per lb. of bird over time for replacing ASABE data.

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- Poultry Litter Subcommittee (PLS) –
  - Turkey litter manure analysis data collected from State/ LGU labs and NMP and permit databases from VA/WV. (~ 2,000 data points)
  - Turkey litter manure bulk generation data collected from NMP planners, growers, and manure haulers/brokers from VA only. (Limited)
  - Insufficient turkey data collected to develop statistical estimates of annual N and P generation per lb. of bird over time for replacing ASABE data.

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- Poultry Litter Subcommittee (PLS) –
  - Layer/breeder manure analysis data collected from State/ LGU labs and NMP and permit databases from VA/WV. (~ 1,900 data points)
  - Very limited layer/breeder manure analysis data collected from PA for most recent years only.
  - No layer/breeder manure bulk generation data collected from NMP planners, growers, and manure haulers/brokers. (None)
  - Insufficient layer/breeder data collected to develop statistical estimates of annual N and P generation per lb. of bird over time for replacing ASABE data.

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- Poultry Litter Subcommittee (PLS) –
  - Very limited pullet litter manure analysis data collected from State/ LGU labs and NMP and permit databases from all states. (limited data points)
  - No pullet litter manure bulk generation data collected from NMP planners, growers, and manure haulers/brokers. (None)
  - Insufficient pullet data collected to develop statistical estimates of annual N and P generation per lb. of bird over time for replacing ASABE data.

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- Poultry Litter Subcommittee (PLS) –
  - The PLS completed a draft recommendation report in 2014 entitled **"Redefinition Of Poultry Litter Nutrient Generation, Litter Volume Generation And Poultry Population Datasets"**
  - The draft report and associated data required additional statistical analysis and a defined method for incorporating the recommendations into the Phase 6 modeling tools.
  - A copy of the PLS report is available in Appendix A of the Agricultural Modeling Subcommittee report located at: Recommendations_to_estimate_poultry_nutrients_for_phase_6_model_03062015 (1).pdf

Agricultural Modeling Subcommittee (AMS)

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- Agricultural Modeling Subcommittee (AMS) –
  - In October 2014, the AgWG asked the Agricultural Modeling Subcommittee (AMS) to review the PLS records and report (found in Appendix A).
  - The AMS was asked to provide recommendations for incorporating the data into poultry nutrient production estimates for the Phase 6 Watershed Model.
  - The AMS report of March 2015 describes processes to estimate poultry litter production by year for each state and type of bird.
  - Many of the recommendations in this report were originally suggested by the PLS. Some other recommendations are based on analysis of the submitted data and other data sources available.

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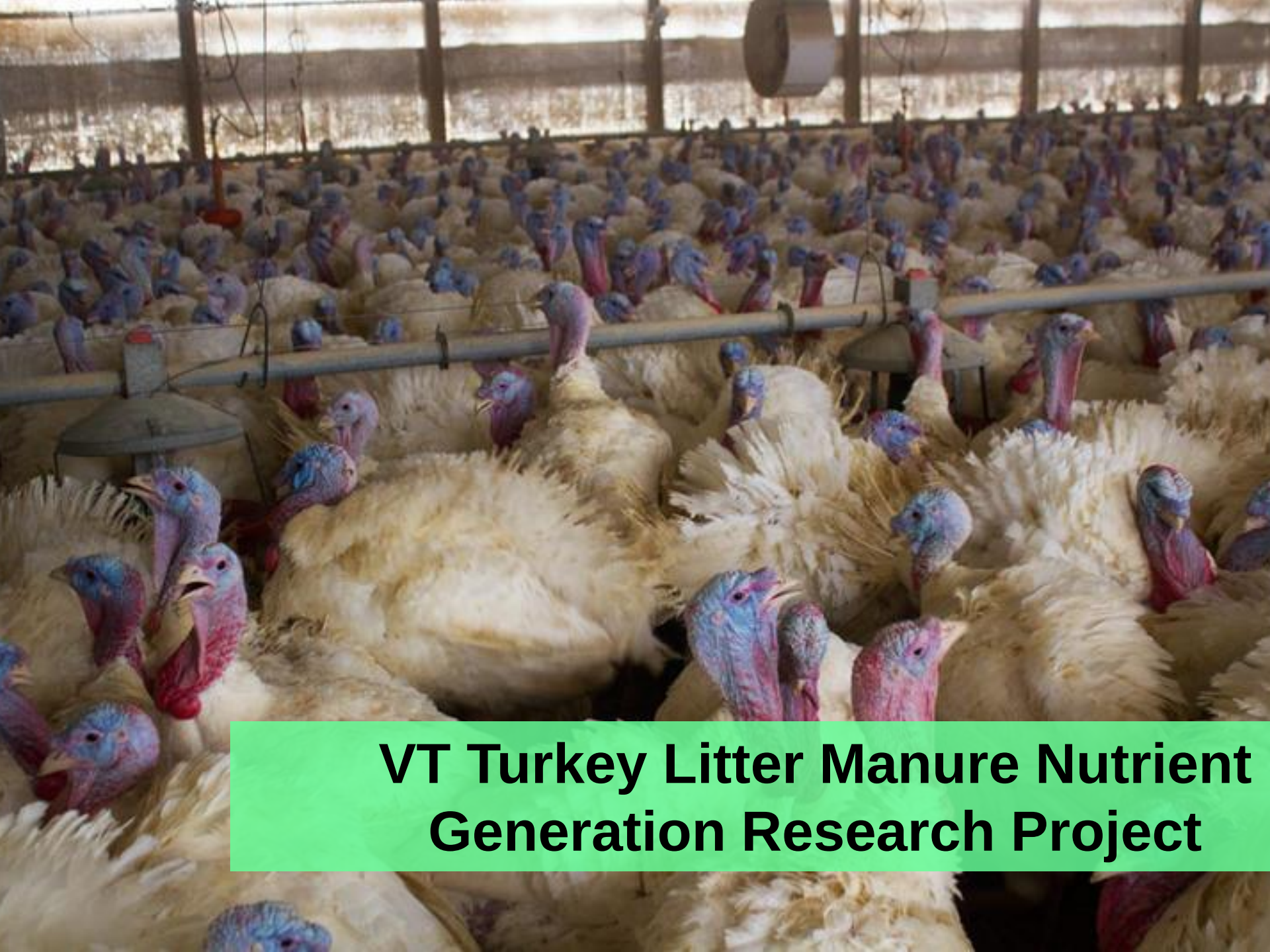
- Agricultural Modeling Subcommittee (AMS) –
  - The CBP approved AMS Report : **"Recommendations to Estimate Poultry Nutrient Production in the Phase 6 Watershed Model"**
  - The report established standards for statistical analysis methods, data quantity (30 data points min), and equations for developing manure nutrient generation for model inputs for Phase 6.
  - A copy of the AMS report is available at: Recommendations_to_estimate_poultry_nutrients_for_phase_6_model_03062015 (1).pdf



VT Turkey Litter Manure Nutrient Generation Research Project

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- VT Turkey Manure Nutrient Generation Research Project –
  - The CBP approved PLS and AMS reports of 2014 and 2015 demonstrated the lack of available data for turkey litter manure nutrient generation for Phase 6 model inputs.
  - A commercial turkey research project was developed between the CBPO and Virginia Tech (VT) in 2015.
  - The research project obtained turkey production data from state agency databases, private companies, and growers in VA and WV.

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- VT Turkey Manure Nutrient Generation Research Project –
  - The research project followed the data standards and statistical analysis methods established by the AMS report of 2015.
  - The CBP approved Appendix B of the **"Agriculture BMP Verification Guidance, *Statistical Sampling Approach for Initial and Follow-Up BMP Verification"*** *was also followed.*
  - A copy of the report is available at Appendix B -Ag BMP Verification Guidance Final.pdf (chesapeakebay.net)

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- VT Turkey Manure Nutrient Generation Research Project –
  - Turkey litter manure analysis data collected from State/ LGU labs, NMP, and permit databases from VA. (Expansive)
  - Turkey litter manure bulk generation data collected from NMP planners, growers, and manure haulers/brokers from VA. (Expansive)
  - Commercial turkey population data by bird production type collected from state NMP planners, private companies and growers and compared to USDA-NASS data.
  - Sufficient turkey data collected to develop statistical estimates of annual N and P generation per lb. of bird by type of production over time for replacing ASABE data.

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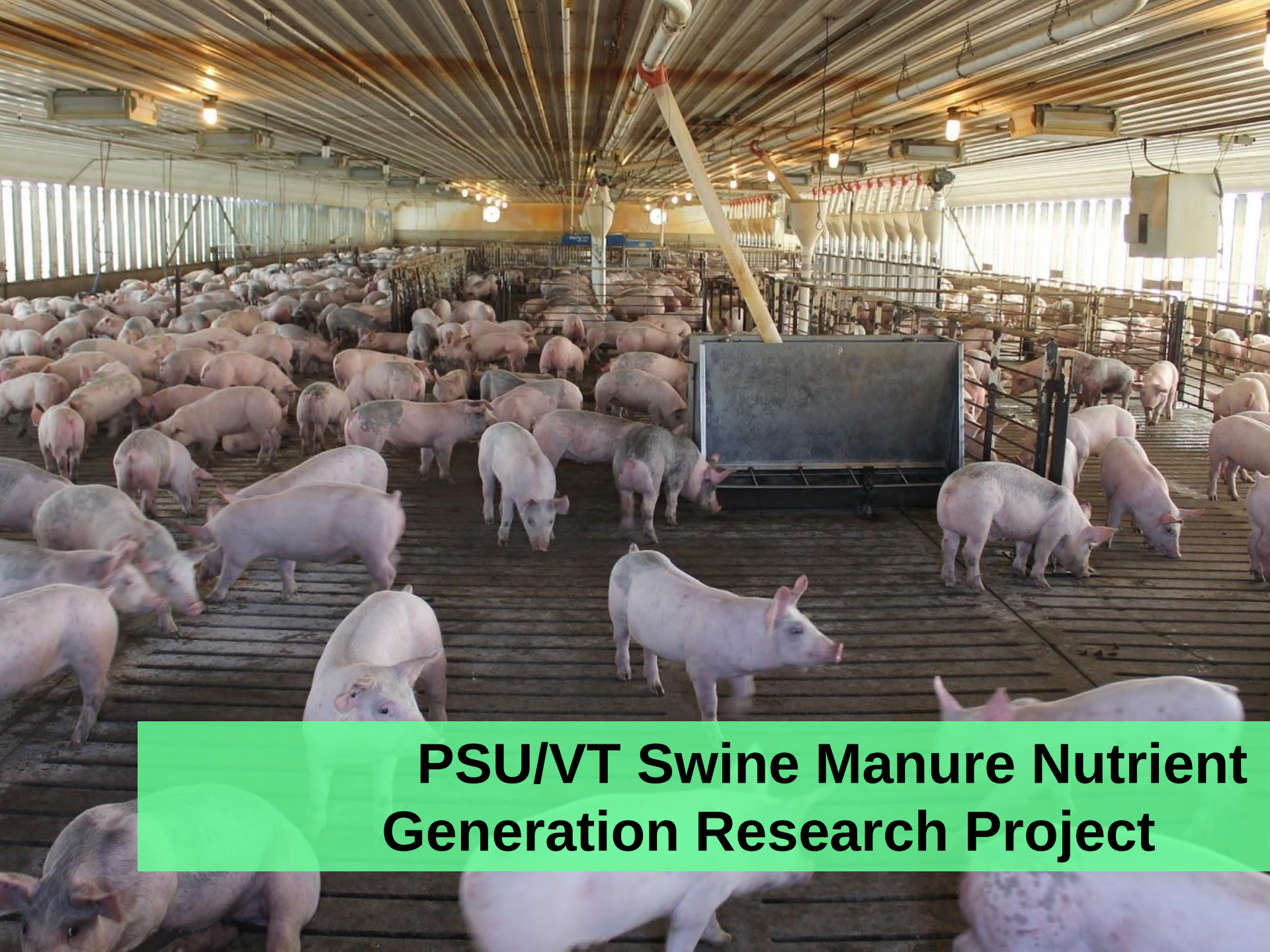
- VT Turkey Manure Nutrient Generation Research Project –
  - Turkey research project recommendation report published in December 2016: **"Final Report for Turkey Litter Generation and Nutrient Content for use in Phase 6.0 Chesapeake Bay Program Watershed Model"**
  - After AgWG, WTWG, CBPO review and approval, the report recommendations were incorporated into the development of the Phase 6 modeling tools to replace ASABE annual N and P generation per lb. of bird for all 6 Bay states.
  - A copy of the VT report is available at Phase_6_Turkey_Litter_Nutrients_Characterization_for_the_Phase_6_Watershed_Model_Draft_Final_Report_121416.1.pdf (chesapeakebay.net)



PSU/VT Swine Manure Nutrient Generation Research Project

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- PSU/VT Swine Manure Nutrient Generation Research Project –
  - The CBP approved PLS and AMS reports of 2014 and 2015 demonstrated the lack of available data for swine manure nutrient generation for Phase 6 model inputs.
  - A commercial swine research project was developed between the CBPO, Penn State University (PSU), and Virginia Tech (VT) in 2015.
  - The research project obtained swine production data from state agency databases, private companies, and growers in PA and VA.

Commercial Agricultural Production Data

- PSU/VT Swine Manure Nutrient Generation Research Project –
  - The research project followed the data standards and statistical analysis methods established by the AMS report of 2015.
  - The CBP approved Appendix B of the **"Agriculture BMP Verification Guidance**, ***Statistical Sampling Approach for Initial and Follow-Up BMP Verification"*** *was also followed.*
  - A copy of the report is available at Appendix B -Ag BMP Verification Guidance Final.pdf (chesapeakebay.net)

Commercial Agricultural Production Data

- PSU/VT Swine Manure Nutrient Generation Research Project –
  - Swine manure analysis data collected from State/ LGU labs, NMP, and permit databases from PA/VA. (Extensive)
  - Swine manure bulk generation data collected from NMP planners, growers, and manure haulers/brokers from PA/VA. (Extensive)
  - Commercial swine population data by animal production type collected from state NMP planners, private companies and growers and compared to USDA-NASS data. (Extensive)
  - Sufficient swine data collected to develop statistical estimates of annual N and P generation per lb. of animal by type of production over time for replacing ASABE data.

Commercial Agricultural Production Data

- PSU/VT Swine Manure Nutrient Generation Research Project –
  - Swine research project recommendation report published in December 2016 entitled **"Recommendations to Estimate Swine Nutrient Generation in the Phase 6 Chesapeake Bay Program Watershed Model"**
  - After AgWG, WTWG, CBPO review and approval, the report recommendations were incorporated into the development of the Phase 6 modeling tools to replace ASABE annual N and P generation per lb. of animal by type of production for all 6 Bay states.
  - A copy of the PSU/VT report is available at Microsoft Word - 2016-12-16-DRAFT-CBF Swine Recommendation Report.docx (chesapeakebay.net)

UM/CBPO Commercial Layer Production Research Project

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- UM/CBPO Commercial Layer Production Research Project –
  - The PA Department of Environmental Protection (PADEP) requested assistance from the CBPO due to the limited available layer production data (populations) for Adams and York Counties in the Phase 6 model inputs.
  - A commercial layer research project was developed between the CBPO, PADEP, and the University of Maryland (UM) in 2020.
  - The research project obtained commercial layer production data from state and county agency databases, and private companies and growers in PA.

Commercial Agricultural Production Data

- UM/CBPO Commercial Layer Production Research Project –
  - The research project followed the data standards and statistical analysis methods established by the AMS report of 2015.
  - The CBP approved Appendix B of the **"Agriculture BMP Verification Guidance**, ***Statistical Sampling Approach for Initial and Follow-Up BMP Verification"*** *was also followed.*
  - A copy of the report is available at Appendix B -Ag BMP Verification Guidance Final.pdf (chesapeakebay.net)

Commercial Agricultural Production Data

- UM/CBPO Commercial Layer Production Research Project –
  - Commercial layer population data by bird production type collected from state and county NMPs, Manure Management Plans (MMPs), CAFO permits, private companies and growers. (Extensive)
  - Sufficient commercial layer data collected to develop annual county-scale estimates of layer populations for Adams and York Counites. (1995 – 2021)
  - State and county agency public data used as QA/QC for company/grower private data.
  - Commercial layer populations compared to existing USDA-NASS and Phase 6 model data.

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- UM/CBPO Commercial Layer Production Research Project –
  - Layer production research recommendations published in 2021 for review by the AgWG and WTWG.
  - A copy of the recommendations is available at the AgWG and WTWG CBP sector workgroup webpages.

Summary

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- Summary
  - The use of statistically valid commercial agricultural production data QA/QC with public agency data sources is supported by existing CBP partnership developed and approved data standards and verification protocols.
  - Verified, reviewed, and approved commercial agricultural production data was used in the development of the existing Phase 6 (CAST) modeling tools approved for use by the CBP partnership.
  - Verified, reviewed, and approved commercial agricultural production data is currently being used to represent livestock manure nutrient generation for all 6 Bay states in the existing Phase 6 (CAST) modeling tools.


For More Information go to
https://www.chesapeakebay.net/