Updates on Improved Poultry Data for Modeling the Chesapeake Bay Watershed

AgWG Poultry Litter Subcommittee

Chesapeake Bay Program
Poultry Litter Sub-Committee Membership

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Committee Motivation & Charge

- EPA modeling group is using the 2003 ASAE Standard to estimate Nitrogen and Phosphorous generation from animal agriculture.
- The Standard is based on caged bird studies from the late 1980's and early 1990's.
- Poultry Sub-Committee Charge:
  - Collect data that better reflects modern N and P generation from animal agriculture
  - Develop better estimates for poultry populations
  - Make recommendations to AgWG for better modeling N and P generation within the watershed
  - *Make recommendations for implementing PLS data into the watershed model(s)*

Our Interest

How much N and P is being generated within the Bay watershed from the poultry industry?

Pounds of N = (lbs N/lb litter) x (lbs litter/bird) x (#birds)

(*concentration)* *(generation)* *(population)*

Litter = bird excretion plus bedding material (saw dust)

Status – N and P Concentration

- Current and historical litter N and P concentrations for each state were estimated by analyzing litter samples using certified state and private laboratories.
- Data for each state is summarized and will be supplied as part of standardized templates that provide annual estimates over time for both N and P as well as several other litter attributes.
- The PLS is continuing to identify current and historical sources of nutrient concentration data for certain states and certain poultry species where data currently does not exist.

Status – Litter Generation

- Recommendations for broilers as well as other poultry types are based on state-based research and current state recommendations.
- Again, this annual data will be provided as part of the state-specific data templates.
- Given the limited state-specific generation data and/or lack of data available back to 1996 for some species, the PLS will continue to pursue additional sources of information and collected data to fill these data gaps.

Status – Bird Populations

- Currently, NASS annual bird production data is available for broilers in DE, MD, PA, VA and WV.
- Similar annual NASS data is currently available for turkeys in PA, VA and WV.
- This annual data provides the opportunity to better inform the Phase 5.3.2 model with information that better reflects national and international annual market trends and feed costs

PLS Pending Recommendations for Implementation of New Data in the Phase 5.3.2 Model

- After several discussions with representatives of the CBP modeling team, the PLS has identified limitations with the Phase 5.3.2 version of the CBPWM that prevent utilization of the PLS databases complied over the last two years.
- The PLS has concluded that annual concentration, generation and bird production data cannot be incorporated into the model directly until the next version (i.e. Phase 6) of the Watershed Model is developed.

PLS Pending Recommendations for Implementation of New Data in the Phase 5.3.2 Model …

- This is primarily due to the fact that the current calibrated model has always relied on:
  - daily inventory populations from the Agricultural Census rather than annual production numbers from the census or NASS, and
  - ‘static’, bay-wide manure generation and nutrient concentration estimates based on the 2003 ASAE standard.
- Replacing these static bay-wide values with the state-specific PLS data that varies over time would alter the mass balance of the current CBPWM.

PLS Pending Recommendations for Implementation of New Data in the Phase 5.3.2 Model …

- This type of recalibration cannot be performed at this time and will not occur until 2017.
- Based on input from the modeling team of the CBP, the PLS recommends that the annual litter generation and nutrient concentration data not be incorporated into the Phase 5.3.2 model.
- The modeling team has also suggested that annual bird production values from the census on record for all poultry species or from NASS for broiler and turkeys not be incorporated directly into the model at this time.

PLS Pending Recommendations for Implementation of New Data in the Phase 5.3.2 Model …

- Instead, NASS production data is to be used to inform the rate of change in daily inventory populations between census years from the previous Ag Census inventory on record.
- This approach should be implemented where NASS production data is available.

PLS Pending Recommendations for Implementation of New Data in the Phase 5.3.2 Model …

- Due to the limitations with the current model 5.3.2 that prevents direct incorporation any of the data, the PLS remains concerned with the accuracy of current model's characterization of N and P generated from poultry production within the watershed.
- The PLS should focus on collecting needed current and historic production data back to 1996 for the next version of the model.

Path Forward

- The PLS recognizes the data gaps that exist in the state-specific data sets, especially the historic data representing poultry production in the early 2000's and 1990's for all poultry species.
- The PLS recommends that state-based data sets not be utilized for current or future versions of the model until adequate data for a state or region within the watershed be compiled and submitted to the CBP.

Path Forward …

- The PLS will continue to identify additional data sources and collect data for the purposes of adequately completing the state-based data templates for use in the Phase 6 model.
- To accomplish this, the PLS will pursue potential arrangements with other organizations and agencies to obtain the data need for modeling N and P generation from poultry production within the bay watershed.

Path Forward …

- The PLS will continue to work with the modeling team to populate and configure state-based data sets and develop appropriate representations of the data.
- For example, develop functional relationships that describe how N and P production parameters vary over time for use in future versions of the CBPWM.

Questions?
Comments?