Chesapeake Bay Program

Phase 7 Agricultural Modeling Team (AMT)

Log of Actions and Decisions

AMT Homepage

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*NOTE Sandbox decisions are tentative decisions made with the intent of providing a direction to allow test runs of CAST to facilitate the development of Phase 7.

February 14, 2025| Meeting Materials

Decision: The AMT approved the January 2025 meeting minutes.
Decision: We will alter the Land Uses in CAST to represent Managed and Unmanaged Hay as well as Managed and Unmanaged Pasture.
Decision: We will modify the manure spread algorithm to create a fourth group and fill these groups as follows;
   a. Group 1: Grain with manure, Silage with manure, managed Other hay, managed pasture,
   b. Group 2: Small grains, double cropped, other crops, specialty high, specialty low,
   c. Group 3: Other Hay, Pasture,
   d. Group 4: Soybeans, Legume Hay.
Decision: The AMT approved the provided definitions for managed and unmanged hay and pasture for Phase 7.
Decision: The AMT approved the language that acres of managed hay and pasture will be reported by states by November 1st.
Decision: The AMT accepts the NM effects with a non nm multiplier of 1.2 for N and 1.5 for P for Phase 7.
Action: Please email Tom and Caroline if you would like to help with literature and science review for loading rate ratios.
Action: AMT members are encouraged to look at the reporting methodology for urban data and consider this methodology for our use.

January 10, 2025| Meeting Materials

Decision: The AMT approved the December 2024 minutes.

Tentative Decisions *(Both items are pending review by Delaware)*:

• The group voiced support for altering the Land Uses in CAST to include Managed and Unmanaged Hay and Managed and Unmanaged Pasture.
• Members also supported the idea to modify the manure spread algorithm to create a fourth group.

Action: Tom will follow up with Delaware offline to gauge their level of support for going through with Virginia's proposal and the subsequent creation of two new land uses. *(Due to Avian Influenza outbreaks we have not been able to get the required responses as of 2/6/2025).*

Action: Tom will work to firm up a list of other decisions and information needed before proceeding with this proposal. Please send Tom any feedback on reporting acres, ratios, non-nutrient management factors, a definition for managed and unmanaged, and additional insights on fertilizer.

Action: Data requested to summarize the shifts in nutrient application can be found at the <u>following</u> <u>link</u>.

December 13, 2024| [Meeting Materials](#)

Decision: The AMT approved the [November 2024 minutes.](#)

Action: Candiss will work to get relevant aggregated NRI/CEAP data for the Chesapeake Bay watershed and distribute it to AMT group members.

Action: Tom will coordinate with Virginia representatives offline to gather the specifics of the proposed test of creating managed and unmanaged hay and pasture Land Uses in CAST.

November 8, 2024| [Meeting Materials](#)

Decision: The AMT approved the [October 2024 minutes.](#)

Action: Follow-up offline to determine a time for the AMT to revisit the discussion on crop yields at a subsequent meeting

Action: The AMT will revisit agricultural inorganic fertilizer data in CAST at the December meeting. Please come prepared with any feedback on preferred methodology.

October 11, 2024| [Meeting Materials](#)

Decision: The AMT approved the [September 2024 meeting minutes](#)

Action: Tom will reach out, offline, to members not present and get their votes on using Plant Available Nitrogen to determine the acres of grains with manure.

Action: Tom will reach out to non-present voting members and to those who requested additional information, to get their votes on modifying the manure spread algorithm to create a fourth group by Friday, 10/18.

Action: Tom will reach out to members not present to get their votes on using the proposed statistical framework to determine long term crop yield trends.

Action: Tom will follow up with members over email and work to reach a consensus on the incorporation of poultry industry data sources into CAST nutrient calculations by Wednesday, 10/16.

Post Meeting Follow up:

> Decision 1: Should the acres of Grains with Manure should be determined using Plant Available Nitrogen?
> > **<u>Passed by consensus- The new method will be employed for Phase 7.</u>**

> Decision 2: Should the manure spread algorithm be modified to create a fourth group as shown in this presentation?

No consensus was reached - No change will occur from Phase 6 regarding the application curves for manure.

Decision 3: Should this new statistical framework be used to determine long term crop yield trends?

No decision was made – Data reviews are under way meaning the topic will be revisited in November.

Decision 4: Should new data sources from the poultry industry be incorporated into nutrients calculations in CAST?

No consensus was reached – There will not be an implementation of the proposed item. Data from Phase 6 will still be used.

September 13, 2024| [Meeting Materials](#)

Decision: The AMT approved the [August 2024 meeting minutes](#).

Action: Tom will reach out to states not present on the call as well as those who requested county-specific data. He will provide requested information necessary to facilitate decision-making on this topic at the next meeting.

Action: Please reach out to Joseph Delesantro ([jdelesantro@chesapeakebay.net](#)) and Tom Butler ([Butler.thomas01@epa.gov](#)), if you have additional feedback on or data requests for manure applications.

August 9, 2024| [Meeting Materials](#)

Decision: The AMT approved the [July 2024 meeting minutes.](#)

Action: Submit remaining comments and feedback to Tom (Butler.Thomas01@epa.gov) regarding additional changes you want to test in CAST related to the PAN and manure application calculations and processes.

Action: Jurisdictions will evaluate whether they can provide on the ground application rates for counties from sources including but not limited to nutrient management plans.

July 12, 2024| [Meeting Materials](#)

Decision: The AMT approved the [June 2024 meeting minutes.](#)

Action: Tom will work to clarify mineralization rates for the group.

Action: Tom will incorporate AMT feedback to further test modifications to the manure application curves used in CAST.

June 14, 2024| **Meeting Materials**

Decision: The AMT approved the May 2024 meeting minutes

Action: Provide comments and feedback to Tom (butler.thomas01@epa.gov) on the method of calculating the acres of grain, with and without manure, in CAST.

May 10, 2024| **Meeting Materials**

Decision: The AMT approved the April minutes

Sandbox Decision: The AMT will continue to use the Phase 6 agricultural land uses for the purposes of testing additional changes during the development of Phase 7.

April 12, 2024| **Meeting Materials**

Decision: The AMT approved the March minutes

Action: Ken Staver will write down and share with the group his proposed method for estimating split on grain with and without manure using what is known about plant available nitrogen per animal unit as opposed to animal units.

Action: Tom Butler will reach out to group members to inquire about and potential new data sources for informing the relationship between grain acres and manure applications.

March 08, 2024| **Meeting Materials**

Decision: The AMT approved the February 2024 minutes.

Action: If you have additional feedback on annual yield estimates, please email Joseph Delesantro (jdelesantro@chesapeakebay.net).

Action: Email Tom Butler (butler.thomas01@epa.gov) with feedback on land use loading ratios by COB Friday, March 15th, focusing specifically on the discussion questions for a path forward.

February 09, 2024| **Meeting Materials**

Decision: The AMT approved the January 2024 meeting minuteshttps://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/AMT-Minutes-Dec-2023.pdf.

Decision: The AMT agreed to evaluate changing the land uses for Phase 7 CAST. The specific land uses and associated loading rates have not yet been determined and will be further investigated at future AMT meetings.

Action: Email Tom Butler and Jess Rigelman (butler.thomas01@epa.gov; jrigelman@j7llc.com) by Friday, Feb 16th if you are interested in reviewing the CAST results data from the loading ratio tests.

January 12, 2024| **Meeting Materials**

Decision: The AMT approved the December 2023 meeting minutes.

Action: Provide feedback to Tom (butler.thomas01@epa.gov) on the time for Ag Modeling Team office hours (8 – 9 AM prior to our monthly meeting time).

Action: Tom Butler, EPA, will work with the CBPO & CAST team to address the following requests made from the group:
1. Continue providing updates on crop yields.
2. Distribute the data file specifying CAST inputs for livestock duration in different environments, as well as current manure generation and nutrient concentration values.
3. Discuss the possibility of in-person meetings with state representatives to streamline various data requests for CAST.
4. Provide updates on the impact of changing land use loading rates in CAST.

Action: Group members are asked to provide feedback on the following topics via email (butler.thomas01@epa.gov) or during the Feb 9 AMT meeting:
1. Which parameters we can use with existing data to improve the calculation of manure acres. Some questions include:
   a. Has the relationship between animal units and manure acres changed?
   b. Should we attempt to determine individual curves for different animal types?
   c. Should we attempt to set these numbers with a relationship between the CAST animal units and manure acres?
   d. Should we use plant available nitrogen (PAN) rather than total N to change this relationship?
2. Whether changes should be made to the existing livestock duration in different environments, manure generation, and nutrient concentration values.

December 8, 2023| **Meeting Materials**

Decision: The AMT approved the November 2023 minutes.

Action: Tom Butler will work with the CBPO & CAST team to address the following requests made from the group:
- Presentation on how manure acres are calculated in CAST.
- A "primer" on land use loading rates/ratios, including topics such as:
  - Why loading rates exist
  - How loading rates and ratios interact within CAST
  - How we determine values for loading rates
  - Additional examination and discussion of the existing loading rate/ratio report
- Provide relevant resources to the topic of BMP "excess" (formerly known as "cutoff") for interested parties.
- Continue providing updates on Crop Yields, including the results of the poll sent to AMT members.

November 9, 2023| **Meeting Materials**

Decision: The AMT approved the October 2023 minutes.

Action: Please email Joseph Delesantro (jdelesantro@chesapeakebay.net) and Tom Butler (butler.thomas01@epa.gov) if you have any relevant crop yield data that can be used for crops with partial or no data. (*See slide 8 of linked presentation for details.*)

Action: VOTING MEMBERS ONLY: Please complete **this poll** by **COB Wed, Nov 22,** to provide feedback on which crops might share yield trends.

October 17, 2023| **Meeting Materials**

Decision: The AMT approved the September minutes.

Action: As per group feedback, data analysts from the Bay Program Office will continue assessing relationships between annually reported crop yields and five-year crop yields from the census of agriculture. Updates will be given at a future meeting.

September 8, 2023| **Meeting Materials**

Decision: The Ag Modeling Team approved the August meeting minutes.

Action: Group members will compile a comprehensive list of crops with available yield data. These data will be used to further examine methods to calculate expected yields.

August 14, 2023| **Meeting Materials**

Decision: The AMT approved the July meeting minutes.

Action: Look into replacing the current method of expected crop yield (best 3 of 5 for census + annual survey data) with the annual survey data to see if there is a major change.

July 14, 2023| **Meeting Materials**

Decision: The AMT approved the June minutes.

Action: Identify information gaps for crop yields and acreage for counties across the watershed. Explore spatial interpolation options for filling those data gaps.

June 9, 2023| **Meeting Materials**

Decision: The AMT approved the May meeting minutes.

Action: Tom Butler will consult CBPO technical staff on ways to spatially distribute crop yield trends. More discussion will occur at the July AMT meeting. https://www.chesapeakebay.net/what/event/agricultural-modeling-team-amt-meeting-june-2023

May 12, 2023| **Meeting Materials**

Decision: The AMT approved the April meeting minutes.

Action: Tom Butler will work to:

- Calculate the linear trend from historic yields data from both Ag Census and NASS survey for crops used in CAST.
- Examine which crops have irrigation data that can be used to calculate trends.
- Brainstorm ways:
  - To potentially incorporate soil productivity maps.
  - Potentially update N removal rates.

April 14, 2023 | Meeting Materials

Decision: The AMT approved the March meeting minutes.
Decision: The AMT informally agreed to remove timing and eligibility requirements for subsequent CAST testing runs.

Action: Tom Butler will work to provide:
1. Documentation for the yield goal calculation used by the CBPO.
2. A graphical depiction of the different data sets before and after data processing for the yield goal calculation.
3. For specialty crop low and high percentage of
   a. Load contributed relative to the overall watershed loads.
   b. Land covered over the watershed.
4. A visualization across the entire watershed of where fertilizer shifts.
5. Any analyses or perspectives on which topics may have more weight in terms of importance to CAST.
6. A background presentation discussing the groups next focus topic, Re-evaluating Land Uses.

March 13, 2023 | Meeting Materials

Decision: The AMT approved the February meeting minutes.

Action: Tom Butler will work with Jess Rigelman to develop scenarios for the AMT April meeting, including aspects such as moving around land uses, aggregating nutrient management multipliers, and revisiting the eligibility and/or timing components of nutrient management.

> **Post meeting update**, after discussing several possible scenarios with group members two scenarios were agreed upon:

1. Make all manure eligible crops on manure eligible land uses 100% eligible for manure applications and remove the timing component to create a single annual average application.
2. Make all grains and silage land uses eligible to receive manure applications

February 10, 2023 | Meeting Materials

Decision: The AMT approved the January 2023 meeting minutes.

Action: VOTING MEMBERS - please fill out this survey to prioritize discussion topics and decisional items that the Ag Modeling Team will address. The AMT leadership will compile the results of this survey to

develop a workplan for the group. (Note: this workplan will be a living document and is subject to change as the group progresses).

January 13, 2023 | Meeting Materials

Decision: The AMT approved the December 2023 meeting minutes.

Action: If members are interested in viewing the county raw data used in the CAST presentation, please contact Tom Butler (butler.thomas@epa.gov).

December 9, 2022 | **Meeting Materials**

Decision: The AMT approved the November 2022 meeting minutes.

Action: If members are interested in viewing the county raw data used in the CAST presentation, please contact Tom Butler (butler.thomas@epa.gov).

November 1-2, 2022 | Meeting Materials **Day 1** & **Day 2**

Action: VOTING MEMBERS ONLY: Please complete the following poll by COB Wednesday, November 23rd to determine the prioritization of topics for the AMT: https://www.surveymonkey.com/r/6NMTRYV. *Please note: This will be used as an initial "temperature check" to determine the AMT's general timeline and schedule, however, this is not a comprehensive list of topics that the group will be discussing.*

Action: Please complete the following poll by COB Tuesday, November 15th to determine a monthly meeting time for the AMT (two-hour meetings/month): **https://forms.gle/rtu3xHHHnKiexYne9.**