

## Ag Inputs into the Phase 6 Chesapeake Bay Watershed Model (CAST)

### Summary of Concerns & Ad Hoc Response

**Updated Draft**

**September 2020 AgWG Action:** The Ad Hoc Cast Concerns group will discuss and prioritize [CAST](#) concerns raised in addition to the current “[CAST-21 Draft Workplan](#)” and bring recommendations back to the AgWG.

**Ad Hoc November Recommendation:** Create a tracking mechanism for jurisdictions’ wish list for 2-year CAST updates & the next model phase.

Evolving list available on [AgWG Homepage](#) under “Agriculture Workgroup Chesapeake Assessment Scenario Tool (CAST) Issues Tracker”

Greyed-out issues resolved

State	Cluster	Concern & Updates	CAST-21 Priority?*/Status	Action	FEEDBACK RECEIVED & NOTES (FEB)
MD/NY	Animal Data	<b>Improve animal population estimates</b> <ul style="list-style-type: none"> <li>Explore other estimating options: Dairy, Equine, Beef</li> <li>Accounting for partial CBW counties.</li> </ul>	High/on-going with CAST updates- <b>(CAST-21 Workplan: TASK 1)</b>	<u>Winter/Spring 2021</u> <ul style="list-style-type: none"> <li>CBPO NASS annual surveys for dairy.</li> <li>Mark Dubin will update AgWG on animal characterization studies.</li> </ul>	Work with CBPO staff on possible use of annual NASS data for dairy  <span style="background-color: yellow;">Mark Dubin for AgWG update summer 2021</span>
MD/PA	Crop Production Data	<b>Improve annual crop estimates</b> <ul style="list-style-type: none"> <li>Annual Implementation Reports (AIR-MD)</li> <li>USDA-FSA crop reporting</li> <li>National Commodity Crop Productivity Index (NRCS)</li> </ul>	High/on-going with CAST updates- <b>(CAST-21 Workplan: TASK 1)</b>	<ul style="list-style-type: none"> <li>MD will reach out to state FSA office</li> <li>Encourage assignment of USDA liaison to the CBP (how? TBD) to facilitate better communication and understanding of data options</li> </ul>	Seek periodic updates.
MD/PA/VA/NY	Nutrient Assumptions	<b>Fertilizer Sales and Use Data:</b> engaging state chemists	High/on-going with CAST updates- <b>(CAST-21 Workplan: TASK 1)</b>	<ul style="list-style-type: none"> <li>State &amp; industry partners work w/ state chemist to improve submission to AAPFCO.</li> </ul>	Collaboration between MDA and industry partners working with state chemists to create template for all Bay states to improve data submissions to AAPFCO. CBPO assistance unnecessary.
NY/PA	Nutrient Assumptions	<b>Nutrient Management on Pasture:</b> <ul style="list-style-type: none"> <li>Request inclusion of soybeans and small grain &amp; soybeans as “manure eligible” to better reflect real-world management and relieve pasture of excess manure applications.</li> </ul>	N/A: RESOLVED Nov 13, 2020	<u>Winter/Spring 2021:</u> Facilitate discussions btw AgWG, MWG and/or CAST team on <ul style="list-style-type: none"> <li>updating “Fertilizer Only” land uses or crop types and subsequent impacts and/or</li> </ul>	<b>hopefully before Phase 7- Bill A (for PA)</b>  <b>You expressed Modeling Team concern on both refinements adjusting “nutrient spread</b>

		<ul style="list-style-type: none"> <li>States request an adjustment to nutrient spread curves for manure based on updated understanding of agronomic applications of manure.</li> </ul>		<p>changes for allocation of manure nutrients with the CBWM/CAST</p> <ul style="list-style-type: none"> <li>mechanics and history of nutrient spread slopes and consequences of adjusting them</li> </ul>	<p>slopes”, thus impacting model calibration (thus the need to wait until Phase 7). But refinements should be reflected in scenario model (CAST) nutrient land use applications – not have any impact on WRTDS Flow Normalized Loads (regression model based on observations). – (Bill Angstadt for PA)</p> <p>The numbers for pasture nutrient management likely wouldn’t get any better (from our perspective) than what was agreed upon in 2016.- Seth Mullins/Tim Sexton</p> <p>After review of CAST Source Date: RESOLVED Nov 13, 2020</p>
PA	BMP Tracking & Reporting	<p><b>Dairy Precision Feeding:</b></p> <ul style="list-style-type: none"> <li>PA has an initial approach to develop data for reporting but long way to go.</li> <li>Request developing alternative methods to develop the needed data.</li> <li>“Pennsylvania stakeholders are engaged in how we can develop this data, however, as with phytase use, we believe there may be more effective methods that the partnership should explore instead of running down individual feed mixtures and “head under management” level reporting.”</li> </ul>	<p>Medium/Possible for 2021 progress reporting- <i>if approved by relevant groups in the partnership.</i></p>	<p>PA facilitate presentation and discussion to the AgWG/Ad Hoc on suggested change in implementation tracking based on updated science on MUN and tracking. Dairy expertise necessary (e.g. Penn State dairy specialist).</p>	<p>Phytase use is currently not tracked as a BMP but is accounted for through the incorporation of updated nutrient concentration data for manure/litter.</p> <p>AgWG AdHoc May 26 discussion with Dr. Virginia Ishler (PSU) AgWG June 17 discussion with Dr. Virginia Ishler (PSU)</p>
PA	BMP Tracking & Reporting	<p><b>Rotational/Prescribed Grazing</b> Resolved. No action needed.</p>	N/A	No Action- Resolved	N/A
PA	BMP Tracking & Reporting	<p><b>Heavy Use Area Protection (HUAP)</b></p> <ul style="list-style-type: none"> <li>In Pennsylvania, poultry pads are reported under NRCS CPS 313 (Waste Storage Facility) and we see no conflict in mapping NRCS CPS 561 (HUAP) to CBP BMP Loafing Lot Management.</li> </ul>	<p>Medium/Possible for 2021 progress reporting- <i>if approved by relevant groups in the partnership.</i></p>	<p><u>Suggested Fall/Winter 2021</u> Schedule a review of tracking/reporting of Loafing Lot Management BMP across jurisdictions to determine feasibility of reporting NRCS CPS 561 as creditable. Include CBPO staff and AgWG/ad hoc/WTWG. (excludes poultry pads)</p>	Issue Withdrawn (Resolved)
DE/MD/WV	BMP Effectiveness	<p><b>HUAP: Poultry Pad Effectiveness Credit</b></p> <ul style="list-style-type: none"> <li>Can poultry pads receive credit for water quality benefits?</li> </ul>	N/A: RESSOLVED Nov 13	<p>DE will review CBP documentation related to poultry pads. N/A: Resolved.</p>	<p>AWMS EP is clear on this. Poultry pads are part of AWMS BMP. RESOLVED Nov 13.</p>

<p>NY/PA/MD</p>	<p>BMP Effectiveness</p>	<p><b>“Winter Crop” Category</b></p> <ul style="list-style-type: none"> <li>Request category for: “Systems where dairy farmers are taking off corn silage end of August 1 to September coming back with fall manure applications and then following up that with winter forage crops. These are neither commodity or traditional cover crops, they’re truly forage crops, where they’re doing multi species- particularly for the reason of spring grazing or harvest as feed. They are removing these crops to cycle the nitrogen within their farming operations. Perhaps it’s even better defined as what we now have as a legume or legume grass mix hay land use.”</li> </ul>	<p>Low/ next watershed model (maybe sooner)</p>	<p><u>Spring 2021</u></p> <ul style="list-style-type: none"> <li>Follow-up discussion on Expert Panel need, available resources and timeline.</li> </ul>	<p>Charlie White (Penn State) presented research Jan 2021 AgWG call: Nitrogen scavenging by winter cover crops receiving fall manure.</p> <p>Further discussion and clarity on how to address request in Ad Hoc &amp; AgWG summer 2021.</p>
<p>PA</p>	<p>BMP Effectiveness</p>	<p><b>Manure Transport/ Manure Treatment Technologies</b></p> <ul style="list-style-type: none"> <li>Request for a study group within the AgWG to better understand county nutrient budgets and applications.</li> <li>We are requesting a study group within the AgWG to look at how we would do this, as the modeling workgroup is looking at finer scale river segments</li> </ul>	<p>Low/ next watershed model</p>	<p><u>Summer 2021/Fall 2021</u></p> <p>Facilitate communication between AgWG and MWG/WQGIT staff to further discuss manure transport possibilities. Possibly structure specific group to engage this issue.</p>	<p>What is the timeline for a Phase 7 model? What are the fundamental changes to be expected?</p> <p><b>Proposed Fall 2021 WQGIT/MWG discussion of science needs for Phase 7</b></p>

\*Can issue be fully addressed by Sept 1, 2021?

(High = likely; Medium = possible in part or whole, dependent on future deliberation among necessary parties; Low = early actions can be taken, resolution is unlikely for CAST-21 and perhaps for the Phase 6 CBWM, dependent on future deliberation among necessary parties)

*Agreement about what will be included and excluded from CAST-21 depends on votes of members of the workgroups and WQGIT. Approved data and method changes for CAST-21 need to be finalized through the WQGIT by Sept. 1, 2021.*

- AAPFCO- Association of American Plant Food Control Officials
- AgWG- Agriculture Workgroup
- AWMS- Animal Waste Management System
- CAST- Chesapeake Assessment Scenario Tool
- CBWM- Chesapeake Bay Watershed Model
- CBPO- Chesapeake Bay Program Office
- EP- Expert Panel
- MUN- Milk Urea Nitrogen
- MWG- Modeling Workgroup
- NRCS CPS-Natural Resource Conservation Service Conservation Practice Standard
- WQGIT- Water Quality Goal Implementation Team

**July 2020 AgWG Action:** Loretta Collins will reach out to the state jurisdictional members to curate a list of issues to be addressed related to Phase 6 watershed model ag inputs before release of CAST-21. An ad hoc group will be formed to discuss these issues, seek resolution, and bring recommendations back to the AgWG.

**From MD:**

- We believe that there should be a better way to estimate the number of livestock by working directly with the dairy and equine industry. We are not sure if there's a better way to estimate beef production due to the lack of a cohesive organization(s) representing this sector. The reduction goal attributed to some of our counties is viewed as unattainable due to the real-world demographics of some livestock (i.e. poultry mortality, waste management).
- We believe that the use of our Nutrient Management Annual Implementation Report (AIR) or other means (USDA-FSA crop reporting) would be a valuable source to quantify annual crop production.
- We believe that it would be beneficial to engage with our state chemist office to better understand fertilizer sales and use data.

**From NY:**

- Animal unit/acre ratios seem overestimated for counties that are partially within the watershed – other methods for estimating animal numbers, especially for partial counties, should be explored.
- Consideration of an additional category of cover crops for nutrient and sediment loss crediting: Commodity Cover Crops with Manure (not inorganic fertilizer). NY sees this as primarily an opportunity to further encourage and credit cover cropping in forage-based dairy cropping systems. Likely requires expert panel support to determine BMP efficiencies.
- Reconsider nutrient management BMP credit options and/or inorganic fertilizer rates for pasture. Likely requires expert panel support to re-evaluate BMP multipliers/efficiencies.

**From PA:**

- **Dairy Precision Feeding\*** – revisit the criteria for this practice to incorporate the use of Milk Urea Nitrogen (MUN) as a proxy for measurement of implementation of precision feeding in the dairy industry
- **Rotational/Prescribed Grazing\*** – revisit the criteria for this practice to incorporate state regulatory and / or state technical standards as a means of determining implementation

- **Cover Crop\*** – revisit the criteria for commodity cover crop (harvested, nutrients applied), as they are inadequately credited for the value they bring to reducing nutrient and sediment runoff
- **Manure Transport / Manure Treatment Technologies\*** – revisit the requirement to apply Nutrient Management to offset an assumed “backfill” of inorganic application does not adequately reflect current practice
- **Heavy Use Area Protection (NRCS 561), Loafing Lot Management, and Barnyard Runoff Control** – Address the issue of Heavy Use Area Protection (HUAP) not being credited. It should be a synonymous BMP to Loafing Lot Management, yet is not identified. According to NEIEN reports, HUAP is not a permissible BMP.
- **Nutrient Management on Pasture** – revisit the prohibition of crediting Nutrient Management on pasture / non-cropland acres.

*\* Phase 3 WIP outlines a number of Agriculture BMPs that require “further coordination” in order to fully credit those practices.*

“Further coordination needs to occur to: continue documentation of currently undocumented practices; continue coordination with the Partnership to achieve credit for additional practices and programs that achieve water quality improvement in Pennsylvania and that are not currently credited in the Chesapeake Bay Watershed Model; and document completion of the CAPs.” (p.33 – [Final PA Phase 3 WIP](#))