

Ag Inputs into the Phase 6 Chesapeake Bay Watershed Model

Summary of Concerns & Ad Hoc Response

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.

State	Cluster	Concern & Updates	CAST-21 Priority?*/Status	Action (First Steps)	FEEDBACK RECEIVED & NOTES (NOV)
MD/NY	Animal Data	Improve animal population estimates <ul style="list-style-type: none"> Explore other estimating options: Dairy, Equine, Beef Accounting for partial CBW counties. 	High/on-going with CAST updates- (CAST-21 Workplan: TASK 1) & next watershed model	<u>Winter 2020-2021</u> <ul style="list-style-type: none"> Loretta Collins will address NASS annual surveys for dairy. State report partial county animal population ratios to CBPO. Mark Dubin will update AgWG on animal characterization studies. 	Loretta work with CBPO on NASS Survey- in process Schedule Mark for AgWG update
MD/PA	Crop Production Data	Improve annual crop estimates <ul style="list-style-type: none"> Annual Implementation Reports (AIR-MD) USDA-FSA crop reporting National Commodity Crop Productivity Index (NRCS) 	High/on-going with CAST updates- (CAST-21 Workplan: TASK 1) & next watershed model	<ul style="list-style-type: none"> MD will reach out to state FSA office Encourage assignment of USDA liaison to the CBP (how? TBD) to facilitate better communication and understanding of data options 	
MD/PA/VA	Nutrient Assumptions	Fertilizer Sales and Use Data: engaging state chemists	High/on-going with CAST updates- (CAST-21 Workplan: TASK 1) & next watershed model	<ul style="list-style-type: none"> State & industry partners work w/ state chemist to improve submission to AAPFCO. 	
NY/PA	Nutrient Assumptions	Nutrient Management on Pasture: <ul style="list-style-type: none"> Request inclusion of soybeans and small grain & soybeans as “manure eligible” to better reflect real-world management and relieve pasture of excess manure applications. States request an adjustment to nutrient spread curves for manure based on updated understanding of agronomic applications of manure. 	Low/ next watershed model	<u>Winter/Spring 2021:</u> Facilitate discussions btw AgWG, MWG and/or CAST team on <ul style="list-style-type: none"> updating “Fertilizer Only” land uses or crop types and subsequent impacts and/or changes for allocation of manure nutrients with the CBWM/CAST 	(hopefully before Phase 7)- Bill A You expressed Modeling Team concern on both refinements adjusting “nutrient spread 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

				<ul style="list-style-type: none"> mechanics and history of nutrient spread slopes and consequences of adjusting them 	<p>applications – not have any impact on WRTDS Flow Normalized Loads (regression model based on observations).-Bill A</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>States provided county-by-county manure eligible land uses to the CBPO. Can be changed at milestones but there will be effects that cannot predicted.</p>
PA	BMP Tracking & Reporting	<p>Dairy Precision Feeding:</p> <ul style="list-style-type: none"> PA has an initial approach to develop data for reporting but long way to go. Request developing alternative methods to develop the needed data. "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." 	? Not discussed by Ad Hoc Group	<p><u>Suggested:</u></p> <p>Interested party provide presentation and discussion to the AgWG 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>If DPF has become ubiquitous (similar to phytase in poultry). In that case- would this cease to be a BMP and just be incorporated into the background of the model if we have updated manure analyses (nutrient concentration data)?- Loretta C.</p>
PA	BMP Tracking & Reporting	<p>Rotational/Prescribed Grazing</p> <p>Resolved. No action needed.</p>	N/A	No Action- Resolved	N/A
PA	BMP Tracking & Reporting	<p>Heavy Use Area Protection (HUAP)</p> <ul style="list-style-type: none"> 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. 	? Not discussed by Ad Hoc Group	<p>?</p> <p><u>Suggested Fall/Winter 2021</u></p> <p>Schedule a review of how the Barnyard BMPs are related, applied, and if there is a way forward to report NRCS CPS 561 as creditable with CBPO staff and AgWG/ad hoc/WTWG (excluding poultry pads)</p>	<p>Present to WTWG to discuss change in the NEIEN. Excluding poultry pads. BMP Summary splits AWMS (livestock & poultry) AWMS includes poultry pads (per EP) Can NRCS mapping be different for different states depending on their tracking?</p>
DE/MD/WV	BMP Effectiveness	<p>HUAP: Poultry Pad Effectiveness Credit</p>	? Wait for DE response; poultry	DE will review CBP documentation related to poultry pads.	AWMS EP is clear on this. Poultry pads are part of AWMS BMP.

		<ul style="list-style-type: none"> Can poultry pads receive credit for water quality benefits? 	pads included in 2016 AWMS EP report.		
NY/PA/MD	BMP Effectiveness	<p>“Winter Crop” Category</p> <ul style="list-style-type: none"> 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.” 	Low/ next watershed model	<p><u>Spring/Summer 2021</u></p> <ul style="list-style-type: none"> Invite Dr. Charlie White, Penn State, to discuss recent research on nitrogen fate in terms of manured winter forage and green chop. Follow-up discussion on Expert Panel need & available resources & timeline. 	<p>(hopefully before Phase 7)- Bill A</p> <p>(Dr. White could be scheduled sooner or reviewed on-line; the EP charter (refine the need) does not have to be delayed for 6-8 months) Bill A</p> <p>What is the baseline? Manured fallow ground? Forage w/o manure?</p>
PA	BMP Effectiveness	<p>Manure Transport/ Manure Treatment Technologies</p> <ul style="list-style-type: none"> Request for a study group within the AgWG to better understand county nutrient budgets and applications. 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 	Low/ next watershed model	<p><u>Summer 2021/Fall 2021</u></p> <p>Facilitate communication between AgWG Ad Hoc and MWG/CBPO staff to further discuss manure transport possibilities. Possibly structure specific group to engage this issue.</p>	<p>What is the timeline for the Phase 7 model? What are the fundamental changes to be expected? When does a group need to be convened to address ag inputs and how should it be organized? Discussion with Gary Shenk needed.</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

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

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](#))