

# Review of CAST Concerns

September 17th, 2020



# CAST-21 Workplan (Working Draft)

*\*Approved data and method changes need to be finalized through the WQGIT by Sept. 1, 2021\**

KEY ACTION	STATUS
<b>Task 1:</b> Updates to data & methods that typically occur every 2 years.	<i>On-going</i> <ul style="list-style-type: none"><li>• <b>In process: Development of a clear and concise “rules of the road” document detailing the “what, how, and when” of alternative/supplemental ag data submissions.</b></li><li>• <b>CBPO needs state input (e.g. partial counties)</b></li></ul>
<b>Task 2:</b> Investigate alternative forecasting methods for ag land uses & animals	<i>In process</i> <ul style="list-style-type: none"><li>• <b>CBPO presentation to AgWG in Oct/Nov</b></li></ul>
<b>Task 3:</b> Investigate 2012-2017 Ag Census change for fallow/idle acres	<i>In process</i> <ul style="list-style-type: none"><li>• Reviewed by NASS</li><li>• <b>AgWG presentation Sept 17</b></li></ul>
<b>Task 4:</b> Investigate use of latest landcover & LiDAR imagery to better define changes in total ag (& other land use) acres	<i>In process</i> <ul style="list-style-type: none"><li>• <b>Initial LUWG presentation to AgWG Oct 15 (first of several)</b></li></ul>
<b>Task 5:</b> Investigate alternatives for double-crop acre estimates	<i>In process</i> <ul style="list-style-type: none"><li>• <b>Fall presentation to AgWG</b></li></ul>
<b>Task 6:</b> Consider supplemental NM for soybeans	<i>In process</i> <ul style="list-style-type: none"><li>• Ad Hoc Discussion Meeting #2</li><li>• <b>Return to AgWG Nov</b></li></ul>
<b>Task 7:</b> QA/QC'd historic & current layer pop. data for Hillandale Farms (PA)	<i>In process</i> <ul style="list-style-type: none"><li>• CBPO- future presentation to AgWG</li></ul>
<b>Task 8:</b> Build-in Verification Ad Hoc Team products	<i>In process</i> <ul style="list-style-type: none"><li>• Meeting #2 Sept 8</li></ul>

# Improving Ag Data?

## Crop Acreage Data

Alternative methods to account for fitting Ag Census data to CBP needs?

- Adjusting methods for estimating crop acres (e.g. double crops, vegetables, etc.)

Alternative/supplemental data sets

- Other data sets at the state or federal level?

Crop  
Application  
Goal

## Animal Population Data

Additional **NASS Annual Survey Data** may be available to inform population trends between census years (incorporated every two years)

- Dairy, Beef Cattle, Layers, Swine...

Direct from **industry data** can inform animal population trends between census years.

- Requires careful cooperation
- Legal, privacy assurances

Manure Generated

## Other Data Issues (new data incorporation every 2 years)

Soil P data

- Gary Shenk [Sept 2018 presentation](#) to AgWG on data set incorporated into the CBWM
- **Additional soil P data is welcome and encouraged**

Manure Nutrient Concentration Data\*

- Changes in management may result in changes in nutrient concentrations
- **Additional manure concentration data is welcome and encouraged**

Fertilizer Data

- More accurate allocation of fertilizer within the CBW?

4. Define Inorganic Fertilizer  
Available to Crops

## KEY ACTION

## STATUS

**Task 1:** Updates to data & methods that typically occurring every 2 years.

*On-going*

## CRITICAL CONCEPT:

To maintain integrity of CBWM there are two options for new data sets:

- Provide data all the way back through 1985.  
OR
- Use the trend in new data sets for the years available.

CBWM= Chesapeake Bay Watershed Model

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Questions/  
Comments?

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**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.



**Are there any issues related to the agricultural inputs to the watershed model (CAST) that you would like discussed that are not included in the CAST-21 Workplan?**



# Additional Concerns- MD

## **Animal Populations: explore other estimating options**

- ☐ Improve livestock (dairy, equine, beef) population estimates
  - ☐ Reduction goals for some counties unattainable due to inaccurate population assumptions (i.e. poultry mortality, waste management).

## **Crop Production Acres: improve annual estimates**

- ☐ MD's Nutrient Management Annual Implementation Report (AIR)
- ☐ other means (USDA-FSA crop reporting)

## **Fertilizer sales and use data**

- ☐ Better understanding via state chemist



# Additional Concerns- NY

## **Animal Populations: explore other estimating options**

- ☐ Over-estimation for counties partially within the watershed

## **Cover Crops:**

- ☐ Additional category Commodity Cover Crops with Manure (not inorganic fertilizer).
  - ☐ Encourage/credit cover cropping in forage-based dairy cropping systems

## **Nutrient Management on Pasture:**

- ☐ Credit options and/or inorganic fertilizer rates

# Additional Concerns - PA

## **Dairy Precision Feeding:**

- ☐ Revisit the criteria for measurement of implementation

## **Rotational/Prescribed Grazing:**

- ☐ Revisit the criteria for determining implementation

## **Cover Crops:**

- ☐ Revisit the criteria for crediting commodity cover crop (harvested, nutrients applied)

## **Manure Transport / Manure Treatment Technologies:**

- ☐ Revisit the requirement to apply NM to offset an assumed “backfill” of inorganic application
  - ☐ Assumption does not adequately reflect current practice

## **Heavy Use Area Protection (NRCS 561):**

- ☐ HUAP is not currently credited
- ☐ HUAP should be synonymous to Loafing Lot Management BMP

## **Nutrient Management on Pasture:**

- ☐ Crediting NM on pasture/non-cropland acres

# Challenges

## Resources

- Capacity is limited at the CBPO & state agencies

## BMP Effectiveness Protocol

- Care to follow science

## Animal Data

Animal Populations: explore other estimating options (MD/NY)

## Crop Production/Acres

Crop Production Acres: improve annual estimates (MD)

## Nutrient Applications/Assumptions

Fertilizer Sales and Use Data (MD)

## BMP Tracking & Reporting

Dairy Precision Feeding (PA)

Rotational/Prescribed Grazing (PA)

Heavy Use Area Protection- NRCS 561 (PA)\*

## BMP Effectiveness

Nutrient Management on Pasture (NY/PA)

Commodity Cover Crops (NY/PA)

Heavy Use Area Protection- NRCS 561 (PA)\*

Manure Transport / Manure Treatment Technologies (PA)

## Animal Data

Animal Populations: explore other estimating options  
(MD/NY)

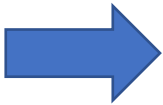


NASS Annual Surveys



## Crop Production/Acres

Crop Production Acres: improve annual estimates (MD)



State Data (QA/QC'd)

Industry Data (QA/QC'd)

CBPO evaluating forecasting  
methods

## Nutrient Applications/Assumptions

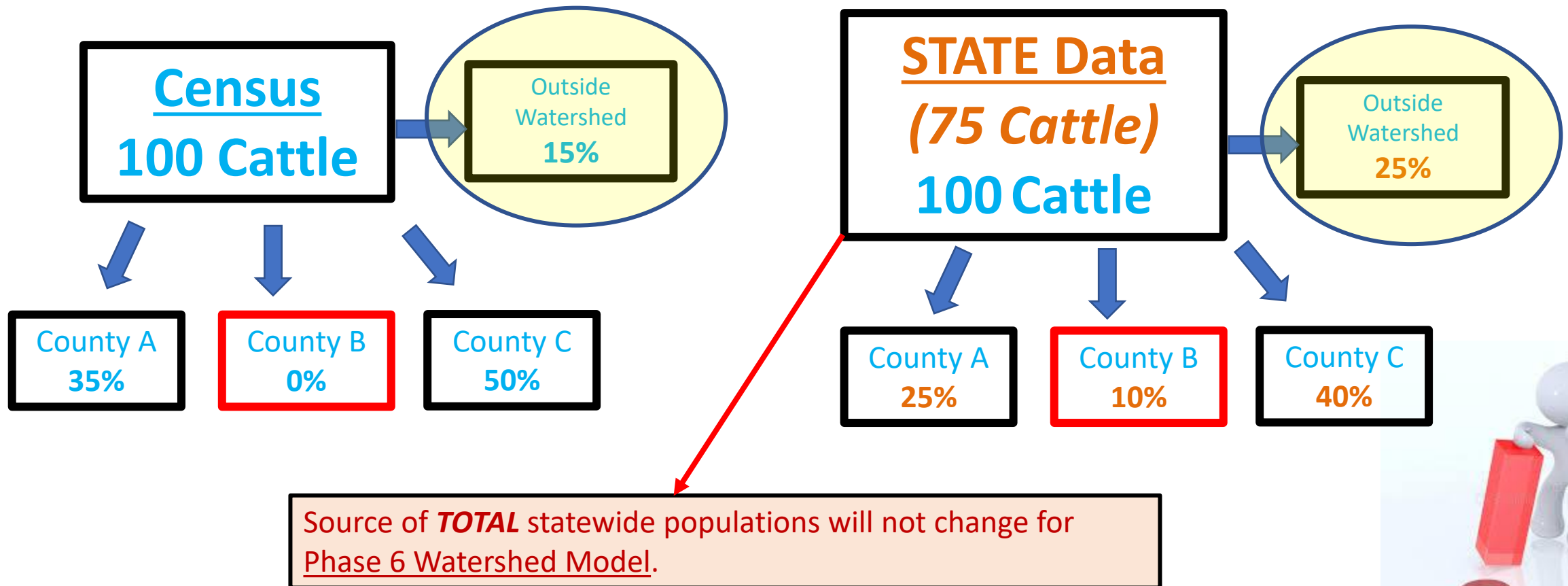
Fertilizer Sales and Use Data (MD)



Pilot project in VA for fertilizer data  
Communication with state chemists

Source for *distribution* of statewide populations can change.

Example: State provides fraction of cattle in every county for the year 2019, and these fractions are used to distribute TOTAL statewide cattle populations from the Ag Census.



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Commodity Cover Crops (NY/PA)

Heavy Use Area Protection- NRCS 561 (PA)\*

Manure Transport / Manure Treatment Technologies (PA)\*

All BMP effectiveness estimates are subject to potential future reviews according to the availability of new scientific information and CBP partnership needs, as defined in the [BMP Review Protocol](#).

### **IIB. Review Process for Existing Estimates or Treatment Processes**

If approved by the WQGIT Chair, the review of existing estimates and, when applicable, the definition of a BMP can be conducted within a source Workgroup in consultation with the WTWG. This approach should reduce the amount of time necessary to conduct the review because the definition(s) have already been developed, a background of available data already exists, and issues of how the practices or land use is incorporated into the CBWM have been addressed. Reviews of existing estimates should follow the guidelines listed in IIA above except that a separate Panel is not convened and the information generated is added to the existing support documentation for the estimate.



BMP Concern	CBP BMP Effectiveness Source
Dairy Precision Feeding (PA)	Definitions and reductions approved by the WQGIT in <b>2009</b>
Rotational/Prescribed Grazing (PA)	Definitions and benefits were reviewed and approved by the Agriculture Workgroup and WQGIT in <b>2010</b>
Heavy Use Area Protection- NRCS 561 (PA)	Loafing Lot Management definitions and reductions approved by the Chesapeake Bay Program's Nutrient Subcommittee in <b>2003</b> .
Nutrient Management on Pasture (NY/PA)	Nutrient Management Practices for use in the Phase 6.0 Chesapeake Bay Program Watershed Model ( <b>2016</b> )
Commodity Cover Crops (NY/PA)	Cover Crops Practices for use in Phase 6 of the Chesapeake Bay Watershed Model ( <b>2016</b> )
Manure Transport / Manure Treatment Technologies (PA)	<ul style="list-style-type: none"> <li>• <i>Manure Treatment Technologies</i>: Recommendations from the Manure Treatment Technologies Expert Panel to the CBP's WQGIT to define Manure Treatment Technologies as a Best Management Practice (<b>2016</b>)</li> <li>• <i>Manure Transport</i>: definition and benefits have remained in use <b>since review and approval by the CBP partnership's source sector workgroups for tributary strategy development.</b></li> </ul>

BMP Concern	CBP BMP Effectiveness Source
Dairy Precision Feeding (PA)	Definitions and reductions approved by the WQGIT in 2009 Find original documentation.

#### Dairy Precision Feeding:

- ☐ revisit the criteria for measurement of implementation

#### ***Next Step:***

*Ad Hoc Group: Review of original documentation*

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BMP Concern	CBP BMP Effectiveness Source
Rotational/Prescribed Grazing (PA)	Definitions and benefits were reviewed and approved by the Agriculture Workgroup and WQGIT in <b>2010</b> <b>Find original documentation.</b>

**Rotational/Prescribed Grazing:**

- ☐ Revisit the criteria for determining implementation
- ☐ State regs and/or tech standards

***Next Step:***

*Ad Hoc Group: Review of original documentation*

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**Heavy Use Area Protection (NRCS 561):**

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**Ad Hoc Summary:**

*Lack of consensus on authority to change*

- *Expert Panel vs. AgWG*
- *Technical vs. Modeling vs. Both*

**Next Step:**

*Ad Hoc review of documentation with CBPO/NRCS*

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**Nutrient Management on Pasture:**

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### Cover Crops:

- ☐ Additional category Commodity Cover Crops with Manure (not inorganic fertilizer).
  - ☐ Encourage/credit cover cropping in forage-based dairy cropping systems
- ☐ Revisit the criteria for crediting commodity cover crop (harvested, nutrients applied)

### **Ad Hoc Summary:**

*Lack of consensus on authority to change.*

- *Expert Panel vs. AgWG*
- *Technical vs. Modeling vs. Both*

### **Next Step:**

*AgWG presentation: Nut & Bolts of the CBP Cover Crop BMPs*

All BMP effectiveness estimates are subject to potential future reviews according to the availability of new scientific information and CBP partnership needs, as defined in the [BMP Review Protocol](#).

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**Manure Transport / Manure Treatment Technologies:**

- ☐ Revisit the requirement to apply NM to offset an assumed “backfill” of inorganic application
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***Ad Hoc Summary:***

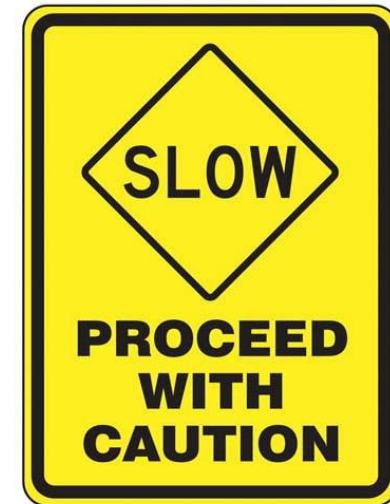
*Concern about crediting of within-county manure transport*

***Next Step:***

*Ad Hoc review of documentation with CBPO*

All BMP effectiveness estimates are subject to potential future reviews according to the availability of new scientific information and CBP partnership needs, as defined in the [BMP Review Protocol](#).

BMP Concern	CBP BMP Effectiveness Source	Current Status	Next Steps
Dairy Precision Feeding (PA)	Definitions and reductions approved by the WQGIT in <b>2009</b>	Report & Tracking	Ad Hoc- Review BMP documentation (FALL 2020)
Rotational/Prescribed Grazing (PA)	Definitions and benefits were reviewed and approved by the Agriculture Workgroup and WQGIT in <b>2010</b>	Report & Tracking	Ad Hoc- Review BMP documentation (FALL 2020)
Heavy Use Area Protection- NRCS 561 (PA)	Loafing Lot Management definitions and reductions approved by the Chesapeake Bay Program's Nutrient Subcommittee in <b>2003</b> .	<i>Lack of consensus on authority to change</i> <ul style="list-style-type: none"> <li><i>Expert Panel vs. AgWG</i></li> <li><i>Technical vs. Modeling vs. Both</i></li> </ul>	Ad Hoc- Review BMP documentation Invite NRCS for discussion (FALL 2020)
Nutrient Management on Pasture (NY/PA)	Nutrient Management Practices for use in the Phase 6.0 Chesapeake Bay Program Watershed Model ( <b>2016</b> )	<i>Lack of consensus on authority to change</i> <ul style="list-style-type: none"> <li><i>Expert Panel vs. AgWG</i></li> <li><i>Technical vs. Modeling vs. Both</i></li> </ul>	Ad Hoc- Review BMP documentation (WINTER)
Commodity Cover Crops (NY/PA)	Cover Crops Practices for use in Phase 6 of the Chesapeake Bay Watershed Model ( <b>2016</b> )	<i>AgWG presentation: Nut &amp; Bolts of the CBP Cover Crop BMPs</i>	AgWG- Invite EP Chair to present to AgWG (Jan-Feb 2021)
Manure Transport / Manure Treatment Technologies (PA)	<ul style="list-style-type: none"> <li><i>Manure Treatment Technologies: (2016)</i></li> <li><i>Manure Transport: definition and benefits have remained in use since review and approval by the CBP partnership's source sector workgroups for tributary strategy development.</i></li> </ul>	<i>Concern about crediting of within-county manure transport</i>	Ad Hoc- Review BMP documentation (WINTER)



[Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model](#)





## Post on AgWG page

- Ad Hoc minutes
- CAST Concerns

CAST-21 Workplan is prioritized by CBP partnership

- Work on-going

## ***State leadership needed***

- Animal, crop, & fertilizer data

## ***Ad Hoc Group***

- NM on Soybeans
- Prioritization of CAST concerns
  - Recommendation to AgWG based on:
    - WIP Goals
    - **Feasibility** (resources, time, authority)

