Meeting Minutes
January 20, 2022
10:00 AM-12:00 PM
Agriculture Workgroup (AgWG) Conference Call
Materials: Link

Summary of Actions & Decisions

Decision: The AgWG approved of meeting minutes from the November AgWG call.

Action: Please contact Dennis Timlin, USDA (dennis.timlin@usda.gov), with additional questions or comments regarding the impacts of climate change on agricultural management in the Bay Watershed.

Action: Please contact Jeremy Hanson, CRC (hansonj@chesapeake.org), with additional questions or comments regarding the Chesapeake Bay BMP Climate Synthesis Report. The final report will be published soon.

Action: Members are encouraged to review the survey results document and presentation with feedback provided by the AgWG on Hillandale and Partial Credit. Contact Loretta Collins (lcollins@chesapeakebay.net) with any additional feedback or questions.

Action: More information on determining a path forward regarding questions related to animal data (including Hillandale) will be distributed to the AgWG prior to the next monthly meeting (Feb 17th).

Action: The BMPVAHAT is expected to seek consensus on the partial credit proposal on Feb 11. Please contact Jackie Pickford (pickford.jacqueline@epa.gov) for meeting details.

Action: Interested parties please review NRCS To NEIEN Status Update Proposal. Leon Tillman, NRCS, will discuss the proposal on the Feb 17 AgWG meeting.

Introduction

10:00 **Welcome, introductions, roll-call, review meeting minutes** Workgroup Chair

- Roll-call of the governance body
- Roll-call of the meeting participants- *Please enter name and affiliation under "Participants" or in "Chat" box*
- **Decision:** The AgWG approved of meeting minutes from the November AgWG call.

CBP Assignments

10:05 **How Climate Change May Impact Agriculture in the CBW (30 min),** Dennis Timlin

Dennis Timlin, USDA-ARS*, discussed how climate change may impact agricultural management in coming years in the Chesapeake Bay watershed.

Discussion

Lew Linker: Higher carbon dioxide (CO2) leads to stomatal resistance (i.e., it is less open to take in CO2), therefore evapotranspiration decreases, which means we have less nitrate and ammonia uptake and less plant protein as well as more drought resistance, but at the same time, temperature is increasing. So all of these would lead to consequences of more nutrient export because the stomata are less open. Is that correct?

Dennis Timlin: Yes, that sums it up well.

Lew Linker: Interesting. Ultimately, decades down the road, there may be less nitrogen in the decayed material so a new equilibrium may be reached in that case.

Dennis Timlin: Right, and it affects the C:N ratio in the soil, there might not be enough nitrogen in the soil for carbon sequestration. The increase in temperature also makes it more difficult for carbon sequestration.
Lisa Waigner (in chat): Thanks Dennis, very interesting. Are we doing enough to protect crop wild relatives to enable the kinds of breeding that you describe?
Dennis Timlin (in chat): Lisa - I really can't address the question of protecting wild crop relatives but given the loss of ecosystems, I would say no. But the USDA maintains an extensive seed repository where many such things are available. That is a very important consideration.
Julie Reichert-Nguyen (in chat): It seems the impact on crop nutrition could be quite concerning - it would seem challenging to balance the uptake of N and prevent excess nutrients entering the watershed. What strategies are there to increase plant uptake of N besides adding more N fertilizer?
Dennis Timlin (in chat): Julie, I am not familiar with breeding efforts to address the low N under elevated CO2, but this problem with nutrients is only now being recognized so I would think breeders are starting to take notice. part of the problem is that most of the N is used for the photosynthetic related proteins, if photosynthesis is more efficient at elevated CO2 less of these proteins are needed
Julie Reichert-Nguyen (in chat): Thanks Dennis. I work in aquatic ecosystems and found your presentation very informative on a topic I spend less time on. It seems that there will need to be adjustments in how crops are fertilized under the changing climate conditions and possibly a delicate balance in maximizing crops and managing nutrient runoff.
Gurpal Toor (in chat): Some food for thought: @Julie and Dennis—increased air temp will lead to a slight increase in soil temperature. This may result in more nitrification (and availability of nitrate) early in the season, which may mean a slight reduction in pre-plant N application to Corn may be ok, but the remaining N could be side-dressed (perhaps a little earlier than what we do now). Our research is way behind on this topic as we are just to figure out how to apply N correctly at current climate conditions. Add the altered rainfall (intensity, duration, rate) to this and this becomes more complicated.
Seth Mullins (in chat): Dennis - Wouldn't this mean our crop N recommendations could be reduced over time if less of the proteins are needed, or would the recommendations need to be increased to compensate for lower uptake?
Dennis Timlin: Great question, I don't know the answer. I think that's something we have to look at and research in the future.
Ken Staver: Corn production per unit of N has increased and the breeding was always for higher yields but not necessarily higher protein, so we're producing more corn on less N than we used to in terms of bushels of grain, so a little bit of that discussion is already going on with the trend of grain production.

Action: Please contact Dennis Timlin, USDA (dennis.timlin@usda.gov), with additional questions or comments regarding the impacts of climate change on agricultural management in the Bay Watershed.

10:35 **Chesapeake Bay BMP Climate Synthesis Report (30 min),** Jeremy Hanson

Jeremy Hanson, CRC*, provided a brief summary of a synthesis report on the impacts of climate change on watershed processes and BMP performance of agriculture and nature-based BMPs based on a systematic literature review.

Discussion

Lew Linker: A lot of these BMPs in slide 13 have co-benefits that we should track with respect to mitigation of climate change.
Dave Graybill: From a farmer planning crop point of view, you're mentioning temperature increase but also water moisture increase. What does the effect of that extra moisture do on soil temperatures?
Jeremy Hanson: We didn't find much information on the effect of soil water moisture. However, there was a STAC workshop last week on rising water temperatures, but it's more habitat/species focused.
Ken Staver: If cover crops have diminishing performance, maybe we need to increase implementation to get enough of it on the ground to make a difference.
Jeremy Hanson: Agreed.
Lew Linker (in chat): You've made some good points Ken regarding the current trends in C-N ratios in crop biomass as well as the simple truth that "we need more units of implementation" regardless of the climate change influence in the Chesapeake watershed. Thank you.

Action: Please contact Jeremy Hanson, CRC (hansonj@chesapeake.org), with additional questions or comments regarding the Chesapeake Bay BMP Climate Synthesis Report. The final report will be published shortly.

11:05 **BREAK (5 min)**

Data & Modeling/ Accounting & Reporting

11:10 **AgWG Survey Review (30 min),** Loretta Collins
In December, AgWG governance members completed a survey to gather feedback on two questions: Inclusion of Hillandale industry data in the next version of CAST* and the BMP partial credit proposal being discussed in the BMPVAHAT*. Loretta Collins, AgWG Coordinator, reviewed the feedback received to begin a discussion on next steps.

Action: Members are encouraged to review the survey results document and presentation with feedback provided by the AgWG on Hillandale and Partial Credit. Contact Loretta Collins (lcollins@chesapeakebay.net) with any additional feedback or questions.
Action: More information on determining a path forward regarding questions related to animal data (including Hillandale) will be distributed to the AgWG prior to the next monthly meeting (Feb 17th).
Action: The BMPVAHAT is expected to seek consensus on the partial credit proposal on Feb 11. Please contact Jackie Pickford (insert email) for meeting details.

11:40 **Voting Process for AgWG At-Large & Leadership (10 min)**
A modification had been made to the AgWG governance document in order to align with WQGIT* governance, as expected by the CBP partnership. This change modestly broadens the voting block for new at-large members. The call for nominations for at-large and vice-chair closes on January 21.

11:50 **New Business & Announcements (5 min)**

- **Animal Mortality Expert Panel Technical Appendix** will be reviewed during the February 3 WTWG* meeting, with a request for approval expected during the March 3 WTWG meeting.
    - Contact Jeremy Hanson (hansonj@chesapeake.org) with questions.
- **CAST 2021: Data Inputs, Results, and Next Steps**

    - Monday, February 14th from 1 -3 PM
    - Contact Hilary Swartwood (Swartwood.Hilary@epa.gov) with questions/request for calendar invite.
- **NRCS BMPs and NEIEN**
    - Thursday, February 17th AgWG meeting
    - Leon Tillman, NRCS, with present and lead discussion on improvements to associations of NRCS BMPs to available ag BMPs in the NEIEN* appendix.
- **Chesapeake Bay Foundation 2021 State of the Blueprint**
    - The Chesapeake Clean Water Blueprint is a historic federal/state plan established in 2010 to restore water quality in the region's rivers, streams, and Chesapeake Bay. It includes pollution limits allocated to each jurisdiction, specific plans to meet those limits with reasonable assurance of success, two-year milestones for accountability, and a commitment from EPA that there would be consequences for failure. The goal is to have programs and practices in place by 2025 that will result in a restored Bay.
    - Find the report here.
- **National Fish and Wildlife Foundation's Chesapeake Bay Stewardship Fund**
    - Small Watershed Grants RFP will become available in February 2022 with more information on available funds. Will likely have a late April/early May deadline. More info forthcoming.
    - Find more details about the Fund here.
    - Contact(s): Kristen Hughes Evans (kristen@sustainablechesapeake.org) and Kristen Saacke Blunk (Kristen@headwaters-LLC.org)
- **2022 Ag Census Schedule**
    - **Sign Up to Be Counted March 2021 – June 2022**
    - Data Collection Begins December 19, 2022
    - Surveys Due February 2023
    - Data Release February 22, 2024
- **Other Announcements? -** send to Jackie Pickford (Pickford.Jacqueline@epa.gov) for inclusion in "Recap" email

11:55 **Review of Action and Decision Items (5 min)**
12:00 **Adjourn**

Next Meeting:

Thursday, February 17: 10AM-12PM Conference Call

Meeting Chat

From Lisa A. Wainger to Everyone 10:37 AM
Thanks Dennis, very interesting. Are we doing enough to protect crop wild relatives to enable the kinds of breeding that you describe?
From Julie Reichert-Nguyen to Everyone 10:41 AM
It seems the impact on crop nutrition could be quite concerning - it would seem challenging to balance the uptake of N and prevent excess nutrients entering the watershed. What strategies are there to increase plant uptake of N besides adding more N fertilizer?
From Dennis Timlin USDA-ARS to Everyone 10:46 AM
Lisa - I really can't address the question of protecting wild crop relatives but given the loss of ecosystems, I would say no. But the USDA maintains an extensive seed repository where many such things are available. That is a very important consideration.

Julie, I am not familiar with breeding efforts to address the low N under elevated CO2, but this problem with nutrients is only now being recognized so I would think breeders are starting to take notice. part of the problem is that most of the N is used for the photosynthetic related proteins, if photosynthesis is more efficient at elevated CO2 less of these proteins are needed.

From Julie Reichert-Nguyen to Everyone 10:55 AM

Thanks Dennis. I work in aquatic ecosystems and found your presentation very informative on a topic I spend less time on. It seems that there will need to be adjustments in how crops are fertilized under the changing climate conditions and possibly a delicate balance in maximizing crops and managing nutrient runoff.

From Gurpal Toor to Everyone 10:55 AM

Some food for thought: @Julie and Dennis—increased air temp will lead to a slight increase in soil temperature. This may result in more nitrification (and availability of nitrate) early in the season, which may mean a slight reduction in pre-plant N application to Corn may be ok, but the remaining N could be side-dressed (perhaps a little earlier than what we do now). Our research is way behind on this topic as we are just to figure out how to apply N correctly at current climate conditions. Add the altered rainfall (intensity, duration, rate) to this and this becomes more complicated.

From Seth Mullins to Everyone 10:56 AM

Dennis - Wouldn't this mean our crop N recommendations could be reduced over time if less of the proteins are needed, or would the recommendations need to be increased to compensate for lower uptake?

From Lew Linker to Everyone 11:14 AM

You've made some good points Ken regarding the current trends in C-N ratios in crop biomass as well as the simple truth that "we need more units of implementation" regardless of the climate change influence in the Chesapeake watershed. Thank you.

From Me to Everyone 11:41 AM

Hilary Swartwood (Swartwood.hilary@epa.gov) can send the invite for the WQGIT Jan 24th meeting if you haven't received one but want to attend

From Helen Golimowski to Everyone 11:48 AM

Just in general, the Trends Over Time page has great info about the data available on the CAST site. :)
https://cast.chesapeakebay.net/Home/TMDLTracking#trendsOverTimeSection

From Kristen Saacke Blunk to Everyone 11:50 AM

Hear hear to the proposed changes! I thought that didn't look right before. (RE: governance membership). I remember how that inconsistency happened several years ago - and am really glad it's being fixed.

From frank schneider, SCC to Everyone 11:52 AM

In my opinion, With states being the one held responsible and needing Consensus, the signatory members votes should carry more weight.

From Kristen Saacke Blunk to Everyone 11:53 AM

I couldn't disagree more, Frank. 🙂. That's why it's called a "partnership".

From frank schneider, SCC to Everyone 11:53 AM

To bad it doesn't feel that way, just look at the Hillandale discussion over the last year.

From Kristen Saacke Blunk to Everyone 11:54 AM

Appreciate your point.

From Kristen Hughes Evans (she/her) to Everyone 11:54 AM

Gary, thank you very much for your leadership!

From Kristen Saacke Blunk to Everyone 11:57 AM

Go ahead KHE!

From Dennis Timlin USDA-ARS to Everyone 11:59 AM

It was a pleasure meeting this group, you guys are doing essential work and, while challenging you seem like you have a good handle on things.

From Dave Graybill to Everyone 12:00 PM

Point of information, Has this group seen the work done by the FRRCC committee I have been on for the past 2 years. The committee reported to the EPA secretary last week. The comments are posted on the FRRCC website at EPA. The comments are on water quality and quantity, pesticides, and food loss. I served on the pesticide and food loss work groups.

From Kristen Saacke Blunk to Everyone 12:00 PM
Program information for NFWF funding: https://www.nfwf.org/programs/chesapeake-bay-stewardship-fund. RFP will be sent out and directed to Loretta and Jackie to ensure distribution across AgWG.

Participants

Jackie Pickford, CRC
Loretta Collins, UMD/CBPO
Jeremy Daubert, VT
Gary Felton, UMD
Dennis Timlin, USDA-ARS
Jeremy Hanson, CRC
Elizabeth Hoffman, MDA
Clint Gill, DDA
Chris Brosch, DDA
Elizabeth Hoffman, MDA
Greg Albrecht, NY
Frank Schneider, PA SCC
Seth Mullins, VA DCR
Cindy Shreve, WVCA
Marel King, CBC
Kelly Shenk, EPA
Evin Fitzpatrick, CVFF
Leon Tillman, NRCS
Dave Graybill, Farm Bureau
Jenna Schueler, CBF
Paul Bredwell, US Poultry & Egg
RO Britt, Smithfield Foods
Emily Dekar, USC
Tyler Groh, Penn St
Gurpal Toor, UMD
Cassie Davis, NYSDEC
Helen Golimowski, Devereux Consulting
Lisa Wainger, UMCES-CBL
Ron Ohrel, American Dairy Association NE
Karl Blankenship, Bay Journal
Matt Monroe, WVDA
Alex Gunnerson, CRC
Dave Montali, Tetra Tech
Jeff Hill, YCCD
Gary Shenk, USGS/CBPO
Ken Staver, UMD
Gopal Bhatt, Penn St/CBPO
Avery Lavoie, EPA
Lew Linker, EPA/CBPO
Matt Kowalski, CBF
Kristen Saacke Blunk, Headwaters LLC
Julie Reichert-Hguyen, NOAA, CRWG Coordinator
Mark Dubin, UMD/CBPO
Bill Tharpe, MDA
Carlington Wallace
Kristen Hughes Evans, Sustainable Chesapeake/NFWF
Chris Brosch, DE
Jeff Sweeney, EPA
Ruth Cassilly, UMD/CBPO
Susan Minnemeyer
Tim Rosen, ShoreRivers

*Abbreviations
AgWG- Agriculture Workgroup
BMP- Best Management Practice
BMPVAHAT- BMP Verification Ad Hoc Action Team
CAST- Chesapeake Assessment Scenario Tool (user interface for the CBP Watershed Model)
CBP- Chesapeake Bay Program
CBW-Chesapeake Bay Watershed
CRC- Chesapeake Research Consortium
EPA- Environmental Protection Agency
NEIEN- National Environmental Information Exchange Network
WQGIT- Water Quality Goal Implementation Team
WTWG- Watershed Technical Workgroup
USDA-ARS- United States Department of Agriculture-Agricultural Research Service
USDA-NRCS- United States Department of Agriculture-Natural Resources Conservation Service