Agriculture Workgroup (AgWG)
Meeting Minutes
October 19th, 2023
10:00 AM – 12:00 PM
Meeting Materials

Summary of Actions and Decisions
Decision: The AgWG approved the minutes from the September AgWG call.
Decision: The AgWG approved the changes to nutrient application eligibility in Phase 6 CAST. This change allows all crop nutrient applications to be both manure and fertilizer eligible if the crop/land use allows it. See votes and rationale for more information.

Introduction
10:00 **Welcome, introductions, roll-call, review meeting minutes** – Jeremy Daubert, AgWG Chair.

- Roll-call of the governance body
- Roll-call of the meeting participants- *Please enter name and affiliation under "Participants" or in "Chat" box*
- **Procedural refresh:**
    - Presenters' materials are due One week in advance of the meeting.
        - If they are not received by then they are at risk of being removed from the agenda.
- **Decision:** Approval of minutes from the September AgWG call.

Data & Modeling
10:05 **Manure application eligibility in CAST (40 min) –** Chris Brosch, DDA.

The current timing and eligibility file in CAST restricts the source and timing of nutrients to simulate real world applications, which has led to an unrealistic distribution of nutrients in the agricultural sector. A decision was requested to alter the existing file to improve the realism of simulations. Following AgWG approval of the change, the Water Quality GIT will be asked for subsequent approval at their October 23 meeting.

Draft results were presented at an optional meeting on Oct. 5th and those slides can be viewed here. The comparison of CAST-2023 loads with and without the proposed change are available to view or download here.

Discussion
Jenna Schueler (in chat): Thanks for running the analysis, very helpful!
Ken Staver: In the agenda it says we have an unrealistic situation in the model that we're trying to solve. This is mostly a corn issue because we put most of our N on corn. What is the "realistic" solution we have?
Tom Butler: The unrealistic part is if you have 20% of the crop need to be met with manure. The realistic fix would be allowing more manure to be spread. The solution DE is proposing is a more equitable one.

Ken Staver: On realism - we don't put 80% of our nitrogen on, at least in MD. Planting % is a small percentage of the N that gets applied. The big chunks are pre-plant and side dress. Is there a chart that shows how this affects different states? Not every state has different plant, pre-plant, post-plant manure fractions, right?
Tom Butler: Yes, each state put their own fraction in. That file is extensive. Everyone looked at that and decided it would be better to go a different route.
Olivia Devereux: As a reminder, this is an annual average model. We're not looking to reproduce a crop growth model at all. We're just trying to get the total amount of nutrients and type of nutrients applied correct so that we can estimate runoff using an average hydrology. So we're not looking at the types of crop equipment that farmers have, or looking at any particular crop field, we're just looking at gross averages to estimate the load that makes it to a stream.
Ken Staver: We don't need the vision diagram then. We just need one thing - how much manure and how much fertilizer you can put on a given crop type.
Olivia Devereux: Right, we don't need all that, but we were trying to anticipate questions.
Dave Graybill: To Ken's point, wouldn't most of that manure be applied in that 30 days pre-plant?
Tom Butler: Yeah, this is just a hypothetical example. I made this example up, but in the file, that would most likely be the case.
Dave Graybill: Right, I was thinking a lot of pushback with planning that farmers who put manure down at planting time or manure down after the crop is up because of the possibility of burn on the crop and that type of thing. I assume we're looking at adding more manure pre-plant.
Jeremy Daubert: There are some farms that irrigate because you can irrigate manure nutrients on the growing crop.
Dave Graybill: Right, timing is everything.
Clint Gill: Ken, what we found unrealistic was that manure was going down on full season soybeans. We felt that was unrealistic because we weren't putting enough down on our corn for grain. We didn't find the timing aspect unrealistic.
Tom Butler: That's what we're trying to represent in this diagram. You would put in soybeans for Crop B.
Ken Staver: It's not clear to me why we have corn without manure not getting the extra manure before it would go on soybeans.
Clint Gill: It's because our file was not properly set up in the first place.
Ken Staver: The division between corn acres manure eligible and those that are not?
Clint Gill: The file was messed up. We had manure going on like 60 days before planting and a lot more of it was not eligible. This fix is easier than going through and fixing those things individually because it's a spreadsheet that's around 29,000 rows.
Tom Butler: Grain with manure and grain without manure are two separate land uses. There are no changes for any land uses or crops which were not eligible to receive manure. This only affects land uses that are able to receive it.
Ken Staver: In the whole effort to use manure more efficiently but deal with P issues, we've been trying to use it based on P content, so when we say we're going to apply 80% of N with manure, I'm concerned we're going backwards on the P side. It seems like the answer to all of this should involve making more grain/corn eligible for manure, rather than increasing the manure rate on a restricted amount of acres. Might be more of a poultry issue. Changing one thing and not changing another doesn't seem like the best fix, but it is what it is.
Elizabeth Hoffman: It might be helpful that we can acknowledge this conversation is not the end game. The AMT will continue to explore alternatives to this change for Phase 7.

Greg Albrecht (in chat): @Elizabeth Hoffman, MDA. Right, good topic for Phase 7 work.
Elizabeth Hoffman (in chat): I appreciate Ken's thoughtful discussion but we're working within the structure of the voting process and decision items, and all the timing of that.
Ken Staver: Can someone please make a slide that shows where the N fertilizer goes from state to state as a result of this?
Olivia Devereux: It depends what year we're talking about. Amount of nutrients applied depends on what the crops are in each state, each county, what crop yields are, etc.
Ken Staver: We're talking about N fertilizer and the x-axis is years.
Olivia Devereux: You can get a report out of CAST for any progress scenario year that shows that.
Ken Staver: Okay, I'll look into it.

Decision: The AgWG approved the changes to nutrient application eligibility in Phase 6 CAST. This change allows all crop nutrient applications to be both manure and fertilizer eligible if the crop/land use allows it. See votes and rationale for more information.

Informational

11:25 **Importance of Heat Stress Mitigation in Dry Cows - 30 minutes (includes 5-minute Q/A) –** Fabiana Cardoso, College of Agricultural and Natural Resources University of Maryland

This presentation focused on the importance of heat stress management for animals in both confinement and pasture settings, emphasizing its crucial role in maintaining animal welfare and productivity. The AgWG learned about strategies that address the unique needs of animals in various environments, exploring practical solutions. The presentation aimed to empower the audience with actionable knowledge, ensuring animal health and enhancing production outcomes.

Discussion
Jeremy Daubert: Regarding the slick gene and other genetic engineering, how much of that will be used to abate heat stress?
Fabiana Cardoso: We have one cow that has less hair but I didn't see much. It's not used as we thought, but we don't know why. I also didn't see much research on that. I think there is potential because now the temperature is increasing everywhere. It will be important for people to start using it but it hasn't started yet.
Ruth Cassilly: You mentioned breeding for the future with heat stress in mind and the fact that it will be increasing - are there breeds now that are more resistant to heat stress?
Fabiana Cardoso: In the US, I'm not sure. Probably not for now. In Brazil we have some though.
John Fike: I think there's some work with Senepol cows trying to get the slicked hair gene going on. Not sure how widespread it is but there is some effort for that.
Amanda Grev: Things like coat color and frame size also come into play, especially for animals on pasture.
Jim Riddell: Does anyone know if there are cost share practices allowed for DIY or commercial shade structures as part of a BMP?
Fabiana Cardoso: I'm not sure.
Amanda Grev: I don't think so, but I'm not sure. Most cost share structures focus on nutrient management and water quality side of things. Although I'm sure you could argue if you provide shade somewhere they won't be in the water.

John Fike: There may be ag commission dollars for that but not sure that it's within the Bay watershed. But I will make the argument in my presentation that money spent on a shade structure that will depreciate over time might be better spent putting in trees into a system that would appreciate in value, depending on how you go about it.
Jim Riddell: Right, I was thinking more of do-it-yourself (DIY) shades. There are situations where trees could be a disadvantage to the erosion issue. Shade is very important so I think it should be part of cost share programs.
Amanda Grev: As far as cost, the fancy ones are expensive, but I believe the DIY one cost us less than $1000.

10:45 **General Heat Stress in Livestock (with special emphasis on Fescue Toxicosis in cattle)- 40 minutes (includes 5-10 Q/A) –** John Fike, Ph. D., School of Plant and Environmental Sciences Virginia Tech.

This presentation focused on the importance of Tall Fescue management in pasture settings in order to avoid the occurrence of Fescue Toxicosis in cattle, which can result in associated heat stress and water quality issues.

Wrap up

11:55 **New Business & Announcements (2 min)**

- **AMT update:**
  - Crop Yields
- **PSC update:**
  - Interest in working on a resolution to eligibility.
  - September PSC CAST related decision items (last slide in presentation)
  - Deadline to make the final change (eligibility) to CAST-23 is December 15. This includes approvals by the AgWG, WQGIT, and MB.
- **Membership:**
  - Two-year at large membership update and new co-chair. Call for nominations will be distributed soon.
- **Other Announcements? -** send to Jackie Pickford (Pickford.Jacqueline@epa.gov) for inclusion in "Recap" email.

11:57 **Review of Action and Decision Items (3 min)**

12:00 **Adjourn**

Next Meeting

Thursday, November 16th: 10AM-12PM, Call-in Zoom

Participants

Jackie Pickford, CRC
Eric Hughes, EPA-CBPO
Tom Butler, EPA-CBPO
Jeremy Daubert, VT
Kathy Braiser, PSU
Mark Dubin, UME/CBPO
Olivia Devereux, Devereux Consulting
Kate Bresaw, PA DEP
Helen Golimowski, Devereux Consulting
Carlington Wallace, ICPRB

Ruth Cassilly, UMD
Clint Gill, DE
Elizabeth Hoffman, MD
Greg Albrecht, NY
Kate Bresaw, PADEP
Seth Mullins, VA
Cindy Shreve, WV
Jeff Sweeney, EPA
Jeff Hill, YCCD
Leon Tillman, NRCS
Dave Graybill, Farm Bureau
Jenna Schueler, CBF
Ken Staver, UMD
Emily Dekar, USC
Jim Riddell, VA Cattlemen Association
Tyler Groh, PSU
Nick Hepfl, HRG
Natahnee Miller, PADEP
Paul Bredwell, US Poultry & Egg
John Fike, VT
Fabiana Cordoso, UMD
Amanda Grev, UMD

**Common Acronyms
AgWG- Agriculture Workgroup
AMT- Agricultural Modeling Team (Phase 7)
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
CBPO- Chesapeake Bay Program Office (houses EPA, federal partners, and various contractors and grantees working towards CBP goals)
CBW-Chesapeake Bay Watershed
CRC- Chesapeake Research Consortium
DPF – Dairy Precision Feeding
EPA- [United States] Environmental Protection Agency
EPEG – Expert Panel Exploratory Group
FWS – [United States] Fish and Wildlife Service
MUN – Milk Urea Nitrogen
NEIEN- National Environmental Information Exchange Network
NFWF- National Fish and Wildlife Foundation
PA DEP- Pennsylvania Department of Environmental Protection
PSC – Principals' Advisory Committee (CBP)
PSU- Penn State University
STAC- Scientific & Technical Advisory Committee
SWG – Small Watershed Grants Program
TMDL- Total Maximum Daily Load
WILD - Chesapeake Watershed Investments for Landscape Defense Grants Program
WQGIT- Water Quality Goal Implementation Team
WTWG- Watershed Technical Workgroup
UMD- University of Maryland
USDA-ARS- United States Department of Agriculture-*Agricultural Research Service*
USDA-NASS- United States Department of Agriculture-*National Agricultural Statistics Service* USDA-NRCS- United States Department of Agriculture-*Natural Resources Conservation Service*